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===== Aortobifemoral Bypass ======

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REPORT OF OPERATIVE PROCEDURE

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NAME: \_\_\_\_

FACILITY: Methodist Hospital of Southern California (Operating Room)

DATE OF PROCEDURE: \_\_\_\_

SURGEON: Peter Lin, MD

ASSISTANT: \_\_\_\_\_\_ , MD

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PREOPERATIVE DIAGNOSIS: Aortic occlusion

POSTOPERATIVE DIAGNOSIS: Same

PROCEDURES:

1. Aortobifemoral artery bypass using 14mm x 7mm Hemashield bifurcated graft (CPT# 35646)

2. Aortic endarterectomy (CPT# 35361)

3. Right common femoral endarterectomy (CPT# 35371)

4. Left common femoral endarterectomy (CPT# 35371)

5. Placement of On-Q pain pump in the abdominal wound (CPT# 11981)

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ANESTHESIA: General anesthesia

SPECIMEN: none

ESTIMATED BLOOD LOSS: 200 ml

BLOOD ADMINISTERED: None

IV FLUID: 1,300 ml

DRAIN / TUBE PLACED: None

COMPLICATIONS: None

CONDITION: Stable

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INDICATIONS: This is a \_\_\_ year-old patient who has been experiencing ---- right , left , bilateral ----- lower extremity ischemic rest pain due to severe aortoiliac occlusive disease. Due to the severe aortoiliac occlusive disease, the patient was taken to the operating room to undergo an aortobifemoral artery bypass grafting procedure. I've discussed with the patient regarding the benefits and risks of the procedure. The patient is aware of the benefits of the planned procedure which is to improve his aortoiliac artery occlusive disease by means of an aortobifemoral artery bypass. The patient is also aware of the potential risks of the procedure, which include wound infection, bleeding, bypass graft occlusion, compartment syndrome, nerve injury, pneumonia, renal failure, myocardiac infarction, spinal cord paralysis, graft infection, stroke, and death. The overall incidence of these risks and complications was 2%. The patient has accepted these benefits and risks and agreed to undergo the planned aortobifemoral artery bypass procedure.

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PROCEDURE IN DETAIL: The patient was taken to the operating room and placed on the table in the supine position. Following general anesthesia induction via orotracheal intubation, the patient was placed in a lateral decubitus position. The patient's abdomen and bilateral legs were prepped sterilely and draped in the standard fashion. Appropriate time out was performed whereby the patient and site of surgery were identified. We made a right groin incision and continued the dissection using electrocautery. We identified the femoral sheath which was carefully opened. We isolated the common femoral artery, profunda femoral artery, and superficial femoral artery. Vessel loops were used to encircle these vessels. Next we made a left groin incision and continued the dissection using electrocautery. We identified the femoral sheath which was carefully opened. We isolated the common femoral artery, profunda femoral artery, and superficial femoral artery. Vessel loops were used to encircle these vessels. We next made an oblique incision in the left flank region of the abdomen. Dissection was carried down using electrocautery. We carefully opened the rectus sheath and entered the retroperitoneal space. Medial visceral rotation was performed in which the abdomen content was rotated medially. We next placed abdominal retractors in the abdomen to provide the exposure to the aorta. Abdominal aorta was isolated. Systemic heparin was given intravenously for anticoagulation. We placed proximal and distal clamps in the infrarenal aorta. The infrarenal abdominal aorta was carefully divided in half. Abdominal aortic endarterectomy was performed in which the occlusive aortic plaque was removed. Next we placed a bifurcated aortic Hemashield graft in which the aortic portion of the graft was connected to the infrarenal aorta in an end-to-end fashion using 3-0 prolene sutures. Upon the completion of the anastomotic reconstruction, clamps were released and adequate hemostasis was achieved. Next the right femoral graft was tunneled in the retroperitoneal fashion and brought out in the right groin incision. We next performed right femoral anastomotic reconstruction. This is done by placing vascular clamps in the common femoral artery, profunda femoral artery, and superficial femoral artery. An arteriotomy was opened using a #11 scalpel in the common femoral artery. We encountered a large occlusive femoral artery plaque which was removed for femoral artery endarterectomy. Next the femoral graft was trimmed to appropriate size and it was connected to the common femoral and profunda femoral arteries using 5-0 prolene sutures in an end-to-side fashion. Upon the completion of the anastomotic reconstruction, clamps were released and adequate hemostasis was achieved. Next the left femoral graft was tunneled in the retroperitoneal fashion and brought out in the left groin incision. We next performed left femoral anastomotic reconstruction. This is done by placing vascular clamps in the common femoral artery, profunda femoral artery, and superficial femoral artery. An arteriotomy was opened using a #11 scalpel in the common femoral artery. We encountered a large occlusive femoral artery plaque which was removed for femoral artery endarterectomy. Next the femoral graft was trimmed to appropriate size and it was connected to the common femoral and profunda femoral arteries using 5-0 prolene sutures in an end-to-side fashion. Upon the completion of the anastomotic reconstruction, clamps were released and adequate hemostasis was achieved. An On-Q pain pump was inserted in the subcutaneous fascia prior to the closure of the skin layer. The abdominal wound and groin wounds were irrigated with antibiotic solution. The abdominal fascia was closed using a looped PDS suture. Subcutaneous tissues were closed using 3-0 PDS sutures, and skin was next closed using staples. The right femoral sheath was closed using 3-0 PDS sutures and skin was closed using 4-0 Vicryl subcuticular sutures. The left femoral sheath was closed using 3-0 PDS sutures and skin was closed using 4-0 Vicryl subcuticular sutures. The patient remained clinically stable throughout the entire operation. The patient suffered no complications, and the patient was taken to the recovery room in stable condition. I was present throughout the entire operation.

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TREATMENT DISPOSITION - To ICU for postoperative recovery.

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===== Above Knee Amputation (AKA) ======

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PROCEDURE: Right above knee amputation (CPT# 27590)

PROCEDURE: Left above knee amputation (CPT# 27590)

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INDICATIONS: This is a \_\_\_ year-old patient who recently developed lower extremity foot gangrene due to arterial occlusion. Because of the severe foot gangrene as well as significant ischemic rest pain, the patient was taken to the operating room to undergo an above-the-knee amputation procedure. Benefits of the proposed procedure, including elimination of gangrenous foot and elimination of cause of ischemic rest pain were discussed with the patient's family. Potential risks and complications of the proposed procedures including hematoma formation, bleeding, wound infection, myocardial infarction, stroke, pneumonia, and phantom nerve pain were also discussed with the patient's family. I've informed the patient's family that the overall risk of these complications was 2%. The patient's family verbalized understanding and agreed to proceed.

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PROCEDURE IN DETAIL: The patient was brought to the operating room and placed on the operating room table in the supine position. General anesthesia was administered through endotracheal intubation by the anesthesiologist. The patient's < \_\_\_\_ right left \_\_\_ > leg was prepped sterilely and draped in the standard fashion. Appropriate time out was performed whereby the patient and site of surgery were identified. Next a fish-mouth incision was made just above the knee level using a skin scalpel. Dissection was carried down through the subcutaneous tissue, fascia, and muscle compartments using an electrocautery along the line of incision. All the muscles were individually transected and visible bleeders ere cauterized. The femoral artery, femoral vein, and sciatic nerve were also identified and they were all doubly ligated and transected. The bone was cut with a battery-powered oscillating saw. The level of leg amputation was at the distal femur region. Next the remaining muscles in the posterior compartment were also transected. Electrocautery was used to achieve hemostasis in the fascial and muscle compartment. Adequate muscular bleeding was noted at the level of the amputation site. The fascia was closed with 2-0 Vicryl suture, and the skin was closed with 3-0 Nylon sutures. Pressure dressing was applied. The patient was sent to recovery room in good condition. I was present throughout the entire operation.

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===== Arm hematoma evacuation, repair of bleeding vessel ======

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PROCEDURES:

1. Upper extremity exploration for postoperative hemorrhage (CPT# 35860)

2. Evacuation of left arm hematoma (CPT# 23930)

3. Repair of left brachial artery pseudoaneurysm (CPT# 35206)

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INDICATIONS: This is a \_\_\_\_ year old patient who has been diagnosed with left hematoma with bleeding. The patient was taken to the OR to undergo an operative exploration, hematoma evacuation, and repair of bleeding vessel. I've discussed with the patient's family regarding the benefits and risks of the procedure. The patient is aware of the benefits of the planned procedure which is to repair the bleeding vessel. The patient is also aware of the potential risks of the procedure, which include wound infection, bleeding, artery occlusion, compartment syndrome, nerve injury, pneumonia, renal failure, myocardiac infarction, stroke, postoperative leg amputation, and death. The overall incidence of these risks and complications was 1%. The patient's family has accepted these benefits and risks and agreed to undergo the planned procedure.

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PROCEDURE IN DETAIL: The patient was taken to the operating room and placed on the table in the supine position. Following general anesthesia induction via orotracheal intubation, the patient's < \_\_\_\_\_\_ right left \_\_\_\_\_ > arm was prepped sterilely and draped in the standard fashion. Appropriate time out was performed whereby the patient and site of surgery were identified. We made a longitudinal incision in the upper arm and continued the dissection using electrocautery. We encountered large amount of hematoma in the brachial compartment, which was evacuated. We next identified and isolated the bleeding vessel which was a segment of the brachial artery. A brachial artery pseudoaneurysm was identified and isolated. Following clamp placement of the bleeding vessel, the brachial artery pseudoaneurysm was opened and repaired using multiple 5-0 prolene sutures with interrupted fashion. Hemostasis was achieved once the arterial repair was completed. The wound was irrigated, and fascia was closed using a 3-0 PDS suture. The skin was closed using a 4-0 monocryl suture in a subcuticular fashion. Dressing was applied in the standard fashion. The patient remained stable and was taken to the recovery room in a stable condition. The patient suffered no complications, and I was present throughout the entire procedure.

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===== Arm Artery Ligation, Wound Vac Placement ======

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PROCEDURES:

1. Left arm exploration (CPT# 35860)

2. Ligation of left ulnar artery (CPT# 35206)

3. Placement of wound vac (5cm x 5cm x 5cm) in left forearm wound (CPT# 97606)

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INDICATIONS: This is a \_\_\_ year-old patient who recently sustaned a 10cm laceration wound in his left forearm. The patient was treated in Methodist Hospital of Southern Californiaone week ago with laceration repair and was discharged to home. The patient developed a delayed onset of left arm bleeding and a CT scan showed a large left ulnar artery pseudoaneurysm. He was taken to OR to undergo left arm exploration with possible ulnar artery pseudoaneurysm repair vs. ligation. I've discussed with the patient regarding the benefits and risks of the planned procedure. The purpose of the procedure is to repair or ligate his ulnar artery pseudoaneurysm. The patient also understands the risks and complications of this procedure which include hematoma, ulnar nerve injury, hand ischemia, infection, and artery thrombosis. The patient agrees with the planned procedure of left arm exploration and possible arterial repair.

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PROCEDURE IN DETAIL: The patient was taken to the operating room and placed on the table in the supine position. Appropriate time out was performed in which all nursing and surgical personnel concurred with the surgical plan. The patient's left arm was prepped sterilely and draped in a standard fashion. A skin scalpel was used to make a skin incision in the left arm along the laceration wound. We encountered a 20cc of old hematoma. Further exploration revealed a partially transected ulnar artery. The ulnar artery and the pseudoaneurysm were grossly infected. There was a 5cm by 5cm by 5cm large cavity in the left forearm. Due to the infected operative field, it was not possible to repair the ulnar artery pseudoaneurysm surgically. Decision was made to ligation the ulnar artery. The ulnar artery was divided and ligated using 3-0 silk suture. Due to the large soft tissue defect, we placed a wound vac in this 5cm x 5cm x 5cm cavitary space. The wound vac was connected to the suctioning device. Appropriate dressing was appliedin the usual fashion. The patient was extubated and taken to the recovery room in a stable condition. The patient remained hemodynamically stable throughout the entire operation. The patient suffered no complications, and the patient was taken to the recovery room in stable condition.

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===== ARM WOUND DEBRIDEMENT, WOUDND VAC ======

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PROCEDURES:

1. Right arm wound debridement (CPT# 11043)

2. Placement of right arm wound vac (CPT# 97606)

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INDICATIONS: This is a \_\_\_ year old patient has been experiencing arm pain due to wound dehiscence and wound infection with fluid drainage. The patient was taken to the OR to undergo an operative exploration with wound debridement and wound vac placement. I've discussed with the patient regarding the benefits and risks of the procedure. The patient is aware of the benefits of the planned procedure which is to debride the wound followed by wound vac placement which will promote wound healing. The patient is also aware of the potential risks of the procedure, which include wound infection and bleeding. The overall incidence of these risks and complications was 1%. The patient has accepted these benefits and risks and agreed to undergo the planned procedure.

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PROCEDURE IN DETAIL: The patient was taken to the operating room and placed on the table in the supine position. Following general anesthesia induction via orotracheal intubation, the patient's < \_\_\_\_\_ right left \_\_\_\_ > arm was prepped sterilely and draped in the standard fashion. Appropriate time out was performed whereby the patient and site of surgery were identified. We made a longitudinal incision over the upper arm wound site which was followed by wound exploration. We encountered infected tissues involving the skin, subcutaneous tissues, and muscle. Areas of tissue necrosis involving the skin, subcutaneous tissues, and muscles were sharply excised using electrocautery. The wound area was irrigated, and a wound vac sponge was next placed in the arm wound. The area of wound vac sponge coverage was 5cm by 10cm by 5cm. Next a standard wound vac dressing was placed in the incision wound area. Continual suctioning tube was connected to the wound vac. Dressing was applied in the standard fashion. The patient remained stable and was taken to the recovery room in a stable condition. The patient suffered no complications, and I was present throughout the entire procedure.

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===== AVF (Basilic Vein Transposition) ======

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REPORT OF OPERATIVE PROCEDURE

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NAME: \_\_\_\_

FACILITY: Methodist Hospital of Southern California (Operating Room)

DATE OF PROCEDURE: \_\_\_\_

SURGEON: Peter Lin, MD

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PREOPERATIVE DIAGNOSIS: 1. End-stage renal failure requiring hemodialysis. 2. s/p left brachiobasilic AV fistula creation

POSTOPERATIVE DIAGNOSIS: Same

PROCEDURE: Left AV fistula basilic vein transposition (CPT# 36819)

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ANESTHESIA: general anesthesia

SPECIMEN: none

ESTIMATED BLOOD LOSS: 5 ml

BLOOD ADMINISTERED: None

IV FLUID: 200 ml

DRAIN / TUBE PLACED: None

COMPLICATIONS: None

CONDITION: Stable

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INDICATIONS: This is a \_\_\_ year-old patient who has been diagnosed with end stage renal disease. The patient has been under the care of his nephrologist Dr. \_\_\_\_\_. The patient previously underwent a first-staged brachiobasilic fistula creation, which now requires a second-staged basilic vein transposition procedure. The purpose of the procedure is to elevate the basilic vein which will enable the AV fistula to be cannulated for hemodialysis. I have informed the patient regarding potential risks and complications of this procedure, which include bleeding, hematoma, arterial steal syndrome, arm ischemia, infection, nerve pain, nerve injury, AV access thrombosis, pneumonia, myocardial infarction, stroke, and possible death. The overall risk of these complications is 2%. The patient verbalizes understanding and agrees with the planned procedure.

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PROCEDURE IN DETAIL: The patient was taken to the operating room and placed on the table in the supine position. Appropriate time out was performed in which all nursing and surgical personnel concurred with the surgical plan. The patient's left arm was prepped sterilely and draped in a standard fashion. A skin scalpel was used to make a skin incision in the upper region where side branches were located based on ultrasound evaluation. Dissection was carried down using electrocautery. We identified brachial sheath which was carefully opened. We next identified the basilic vein which was mobilized in its entirety. Multiple side branches of the basilic vein were ligated using 3-0 sutures. A total of four side branches were surgically ligated. The basilic vein was divided near the antecubital fossa. The basilic vein was transposed in the subcutaneous space using a tunneling device. Next the basilic vein was connected to the brachial artery near the antecubital fossa using 5-0 prolene sutures which was performed in a end-to-side fashions. Vascular clamps were removed upon the completion of the anastomotic reconstruction. The wound was next irrigated, and the subcutaneous tissues were closed using #3-0 Vicryl sutures, and skin closure was done using #4-0 Monocryl sutures. Standard gauze dressing was applied over the incision site. The patient remained hemodynamically stable throughout the entire operation. The patient suffered no complications, and the patient was taken to the recovery room in stable condition. I was present throughout the entire operation.

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TREATMENT DISPOSITION - The patient will be discharged to home and return for follow up in four

weeks.

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===== AVF (Brachiobasilic AVF) ======

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PROCEDURE: Left brachiobasilic AV fistula creation (CPT# 36821)

PROCEDURE: Right brachiobasilic AV fistula creation (CPT# 36821)

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INDICATIONS: This is a \_\_\_ year-old patient who has been diagnosed with end stage renal disease. The patient has been under the care of nephrologist Dr. \_\_\_\_. The patient will require a new AVF creation for hemodialysis access. The patient has been evaluated by a venous duplex ultrasound of the upper extremity and is deemed a suitable candidate for hemodialysis via an AVF. The patient also understands that it takes at least six weeks for an AVF to mature following its creation before it can be accessed for hemodialysis. The patient understands the benefit and purpose of this procedure is to create an access site for hemodialysis. I have informed the patient regarding potential risks and complications of this procedure, which include bleeding, hematoma, arterial steal syndrome, arm ischemia, infection, nerve pain, nerve injury, AV access thrombosis, pneumonia, myocardial infarction, stroke, and possible death. The overall risk of these complications is 2%. The patient verbalizes understanding and agrees with the planned procedure.

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PROCEDURE IN DETAIL: The patient was taken to the operating room and placed on the table in the supine position. Appropriate time out was performed in which all nursing and surgical personnel concurred with the surgical plan. The patient's < \_\_\_\_ left right \_\_\_ > arm was prepped sterilely and draped in a standard fashion. A skin scalpel was used to make a skin incision in the antecubital fossa. Dissection was carried down using electrocautery. We identified the cephalic vein which was circumferentially isolated and encircled circumferentially with a vessel loop. We also identified the adjacent brachial artery which was dissected circumferentially and encircled with a vessel loop. The basilic vein was next divided in half and the distal segment of the vein was ligated using a 2-0 silk suture. The proximal segment of the basilic vein was flushed with a heparinized saline solution. Next we placed proximal and distal vascular clamps in the brachial artery in which a vertical arteriotomy was made using a #11 blade. The arteriotomy was next extended using a Potts scissor. The basilic vein was then connected to the adjacent brachial artery in an end-to-side fashion using a 6-0 prolene suture. Appropriate flushing was also performed at the completion of the vascular anastomosis. An end-to-side brachiobasilic AV fistula was performed without difficulty. Excellent thrills were noted in the AV fistula at the completion of the anastomotic reconstruction. At the end of the AV fistula reconstruction, the patient has a good radial and ulnar flow as evidenced by strong palpable pulses. The wound was next irrigated, and the subcutaneous tissues were closed using #3-0 Vicryl sutures, and skin closure was done using #4-0 Monocryl sutures. Standard gauze dressing was applied over the incision site. The patient remained hemodynamically stable throughout the entire operation. The patient suffered no complications, and the patient was taken to the recovery room in stable condition.

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TREATMENT DISPOSITION - The patient will be discharged to home and return for follow up in four

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===== AVF (Brachiocephalic AVF) ======

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PROCEDURE: Left brachiocephalic AV fistula creation (CPT# 36821)

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INDICATIONS: This is a \_\_\_ year-old patient who has been diagnosed with end stage renal disease. The patient has been under the care of nephrologist Dr. \_\_\_. The patient will require a new AVF creation for hemodialysis access. The patient has been evaluated by a venous duplex ultrasound of the upper extremity and is deemed a suitable candidate for hemodialysis via an AVF. The patient also understands that it takes at least six weeks for an AVF to mature following its creation before it can be accessed for hemodialysis. The patient understands the benefit and purpose of this procedure is to create an access site for hemodialysis. I have informed the patient regarding potential risks and complications of this procedure, which include bleeding, hematoma, arterial steal syndrome, arm ischemia, infection, nerve pain, nerve injury, AV access thrombosis, pneumonia, myocardial infarction, stroke, and possible death. The overall risk of these complications is 2%. The patient verbalizes understanding and agrees with the planned procedure.

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PROCEDURE IN DETAIL: The patient was taken to the operating room and placed on the table in the supine position. Appropriate time out was performed in which all nursing and surgical personnel concurred with the surgical plan. The patient's left arm was prepped sterilely and draped in a standard fashion. A skin scalpel was used to make a skin incision in the antecubital fossa. Dissection was carried down using electrocautery. We identified the cephalic vein which was circumferentially isolated and encircled circumferentially with a vessel loop. We also identified the adjacent brachial artery which was dissected circumferentially and encircled with a vessel loop. The cephalic vein was next divided in half and the distal segment of the vein was ligated using a 2-0 silk suture. The proximal segment of the cephalic vein was flushed with a heparinized saline solution. Next we placed proximal and distal vascular clamps in the brachial artery in which a vertical arteriotomy was made using a #11 blade. The arteriotomy was next extended using a Potts scissor. The cephalic vein was then connected to the adjacent brachial artery in an end-to-side fashion using a 6-0 prolene suture. Appropriate flushing was also performed at the completion of the vascular anastomosis. An end-to-side brachiocephalic AV fistula was performed without difficulty. Excellent thrills were noted in the AV fistula at the completion of the anastomotic reconstruction. At the end of the AV fistula reconstruction, the patient has a good radial and ulnar flow as evidenced by strong palpable pulses. The wound was next irrigated, and the subcutaneous tissues were closed using #3-0 Vicryl sutures, and skin closure was done using #4-0 Monocryl sutures. Standard gauze dressing was applied over the incision site. The patient remained hemodynamically stable throughout the entire operation. The patient suffered no complications, and the patient was taken to the recovery room in stable condition.

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TREATMENT DISPOSITION - The patient will be discharged to home and return for follow up in two weeks.

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===== AVF (Cephalic Vein Transposition) ======

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PROCEDURE: \_\_\_\_\_ Right Left \_\_\_\_\_ AV fistula cephalic vein transposition (CPT# 36818)

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INDICATIONS: This is a \_\_\_ year-old patient who has been diagnosed with end stage renal disease, and is under the care of nephrologist Dr. \_\_\_\_\_. The patient previously underwent a first-staged brachiocephalic fistula creation, which now requires a second-staged cephalic vein transposition procedure. The purpose of the procedure is to elevate the cephalic vein which will enable the AV fistula to be cannulated for hemodialysis. I have informed the patient regarding potential risks and complications of this procedure, which include bleeding, hematoma, arterial steal syndrome, arm ischemia, infection, nerve pain, nerve injury, AV access thrombosis, pneumonia, myocardial infarction, stroke, and possible death. The overall risk of these complications is 2%. The patient verbalizes understanding and agrees with the planned procedure.

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PROCEDURE DETAILS - The patient was taken to the operating room and placed on the table in the supine position. Appropriate time out was performed in which all nursing and surgical personnel concurred with the surgical plan. The patient's < \_\_\_\_\_ left right \_\_\_\_\_> arm was prepped sterilely and draped in a standard fashion. A skin scalpel was used to make a skin incision in the upper region where side branches were located based on ultrasound evaluation. Dissection was carried down using electrocautery. We identified a deep lying cephalic vein in its entirety. The entire cephalic vein was mobilized and individual side branches were ligated using 3-0 silk sutures. A total of three side branches were surgically ligated. We proceeded with elevation of the cephalic vein by removing approximately 5mm layer of subcutaneous fat under the skin. A total of 7cm of cephalic vein was transposed to the subcutaneous layer of the skin. This is done be first dividing the cephalic vein proximally, and the cephalic vein was next tunneled in the subcutaneous tissue using a tunneling device. The cephalic vein was next reconnected to the brachial artery in an end-to-end fashion using a 5-0 prolene suture. Upon the completion of the anastomotic reconstruction, vascular clamps were removed and hemostasis was achieved. The wound was next irrigated, and the subcutaneous tissues were closed using #3-0 Vicryl sutures, and skin closure was done using #4-0 Monocryl sutures. Standard gauze dressing was applied over the incision site. The patient remained hemodynamically stable throughout the entire operation. The patient suffered no complications, and the patient was taken to the recovery room in stable condition.

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===== AVF (Radiocephalic AVF) ======

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PROCEDURE: Left radiocephalic AV fistula creation (CPT# 36821)

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INDICATIONS: This is a \_\_\_ year-old patient who has been diagnosed with end stage renal disease. The patient has been under the care of nephrologist Dr. \_\_\_. The patient will require a new AVF creation for hemodialysis access. The patient has been evaluated by a venous duplex ultrasound of the upper extremity and is deemed a suitable candidate for hemodialysis via an AVF. The patient also understands that it takes at least six weeks for an AVF to mature following its creation before it can be accessed for hemodialysis. The patient understands the benefit and purpose of this procedure is to create an access site for hemodialysis. I have informed the patient regarding potential risks and complications of this procedure, which include bleeding, hematoma, arterial steal syndrome, arm ischemia, infection, nerve pain, nerve injury, AV access thrombosis, pneumonia, myocardial infarction, stroke, and possible death. The overall risk of these complications is 2%. The patient verbalizes understanding and agrees with the planned procedure.

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PROCEDURE IN DETAIL: The patient was taken to the operating room and placed on the table in the supine position. Appropriate time out was performed in which all nursing and surgical personnel concurred with the surgical plan. The patient's < \_\_\_ left right \_\_\_\_\_ > arm was prepped sterilely and draped in a standard fashion. A skin scalpel was used to make a skin incision in the wrist area. Dissection was carried down using electrocautery. We identified the cephalic vein which was circumferentially isolated and encircled circumferentially with a vessel loop. We also identified the adjacent radial artery which was dissected circumferentially and encircled with a vessel loop. The cephalic vein was next divided in half and the distal segment of the vein was ligated using a 2-0 silk suture. The proximal segment of the cephalic vein was flushed with a heparinized saline solution. Next we placed proximal and distal vascular clamps in the radial artery in which a vertical arteriotomy was made using a #11 blade. The arteriotomy was next extended using a Potts scissor. The cephalic vein was then connected to the adjacent radial artery in an end-to-side fashion using a 6-0 prolene suture. Appropriate flushing was also performed at the completion of the vascular anastomosis. An end-to-side radiocephalic AV fistula was performed without difficulty. Excellent thrills were noted in the AV fistula at the completion of the anastomotic reconstruction. At the end of the AV fistula reconstruction, the patient has a good radial and ulnar flow as evidenced by strong palpable pulses. The wound was next irrigated, and the subcutaneous tissues were closed using #3-0 Vicryl sutures, and skin closure was done using #4-0 Monocryl sutures. Standard gauze dressing was applied over the incision site. The patient remained hemodynamically stable throughout the entire operation. The patient suffered no complications, and the patient was taken to the recovery room in stable condition.

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===== AVF Hematoma Evacuation ======

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PROCEDURES:

1. Left arm exploration (CPT# 35860)

2. Evacuation of left arm hematoma (CPT# 23930)

3. Repair of left arm bleeding vessel with vein ligation (CPT# 35206)

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INDICATIONS: This is a \_\_\_ year-old patient who has been diagnosed with end stage renal disease, and the patient has been under the care of nephrologist Dr. \_\_\_. The patient recently developed left arm swelling with significant bleeding from the AV fistula wound site. Due to the significant bleeding and arm hematoma, the patient was therefore taken to the OR to undergo arm exploration and hematoma evacuation. The purpose of the procedure is to evacuate the hematoma and repair potential bleeding. I have informed the patient regarding potential risks and complications of this procedure, which include bleeding, hematoma, arterial steal syndrome, arm ischemia, infection, nerve pain, nerve injury, AV access thrombosis, pneumonia, myocardial infarction, stroke, and possible death. The overall risk of these complications is 2%. The patient verbalizes understanding and agrees with the planned procedure.

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PROCEDURE IN DETAIL: The patient was taken to the operating room and placed on the table in the supine position. Appropriate time out was performed in which all nursing and surgical personnel concurred with the surgical plan. The patient's left arm was prepped sterilely and draped in a standard fashion. A skin scalpel was used to make a skin incision in the left antecubital region. Dissection was carried down using electrocautery. We encountered large hematoma which was carefully evacuation. Arm exploration of the wound was performed. We encountered several venous bleeding from branches of the cephalic veins. These venous branch vessels were ligated using 3-0 silk sutures. Electrocautery was used to achieve hemostasis. Antibiotic soaked irrigation fluid was used to irrigate the wound. The wound was next irrigated, and the subcutaneous tissues were closed using #3-0 Vicryl sutures, and skin closure was done using #4-0 Monocryl sutures. Standard gauze dressing was applied over the incision site. The patient remained hemodynamically stable throughout the entire operation. The patient suffered no complications, and the patient was taken to the recovery room in stable condition.

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===== AVF Ligation ======

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PROCEDURES: Left arm AV fistula ligation CPT# (37607)

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-------- INDICATION FOR S/P RENAL TRANSPLANT -------

INDICATIONS: This is a \_\_\_ year-old patient who has been diagnosed with end stage renal disease, and the patient has been under the care of nephrologist Dr. \_\_\_. The patient has received a renal transplant and no longer requires hemodialysis. He reports that his left arm AV fistula has become painful in the past 6 months. Due to the painful symptoms of his AV fistula, the patient was therefore taken to the OR to undergo AV fistula ligation. The purpose of the procedure is to ligate the AV fistula which will reduce the AV fistula associated symptom. I have informed the patient regarding potential risks and complications of this procedure, which include bleeding, hematoma, arterial steal syndrome, arm ischemia, infection, nerve pain, nerve injury, AV access thrombosis, pneumonia, myocardial infarction, stroke, and possible death. The overall risk of these complications is 2%. The patient verbalizes understanding and agrees with the planned procedure.

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-------- INDICATION FOR ARM SWELLING -------

INDICATIONS: This is a \_\_\_ year-old patient who has been diagnosed with end stage renal disease, and the patient has been under the care of nephrologist Dr. \_\_\_. The patient recently underwent an AV fistula creation, and has developed significant upper extremity swelling due to central venous obstruction. Due to the significant upper extremity swelling, the patient was therefore taken to the OR to undergo AV fistula ligation. The purpose of the procedure is to ligate the AV fistula which will reduce the upper extremity swelling symptom. I have informed the patient regarding potential risks and complications of this procedure, which include bleeding, hematoma, arterial steal syndrome, arm ischemia, infection, nerve pain, nerve injury, AV access thrombosis, pneumonia, myocardial infarction, stroke, and possible death. The overall risk of these complications is 2%. The patient verbalizes understanding and agrees with the planned procedure.

procedure.

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-------- INDICATION FOR STEAL SYNDROME -------

INDICATIONS: This is a \_\_\_ year-old patient who has been diagnosed with end stage renal disease, and the patient has been under the care of nephrologist Dr. \_\_\_. The patient recently underwent an AV fistula creation, and developed significant upper extremity arterial steal syndrome. Therefore, the patient was therefore taken to the OR to undergo AV fistula ligation. The purpose of the procedure is to ligate the AV fistula which will reduce the upper extremity steal syndrome. I have informed the patient regarding potential risks and complications of this procedure, which include bleeding, hematoma, arterial steal syndrome, arm ischemia, infection, nerve pain, nerve injury, AV access thrombosis, pneumonia, myocardial infarction, stroke, and possible death. The overall risk of these complications is 2%. The patient verbalizes understanding and agrees with the planned procedure.

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-------- INDICATION FOR ACTIVE BLEEDING -------

INDICATIONS: This is a \_\_\_\_-old patient with end stage renal disease who developed active bleeding in \_\_\_\_ his/ her\_\_\_\_ dialysis access this morning. The patient has been under the care of nephrologist Dr. \_\_\_\_\_\_. The bleeding was temporarily controlled with pressure bandage. Due to severity of dialysis access hemorrhage, The patient was therefore taken to the OR to undergo AV fistula ligation. The purpose of the procedure is to control the bleeding by AV access ligation. I have informed the patient regarding potential risks and complications of this procedure, which include bleeding, hematoma, arterial steal syndrome, arm ischemia, infection, nerve pain, nerve injury, AV access thrombosis, pneumonia, myocardial infarction, stroke, and possible death. The overall risk of these complications is 2%. The patient verbalizes understanding and agrees with the planned procedure.

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PROCEDURE IN DETAIL: The patient was taken to the operating room and placed on the table in the supine position. Appropriate time out was performed in which all nursing and surgical personnel concurred with the surgical plan. The patient's left arm was prepped sterilely and draped in a standard fashion. A skin scalpel was used to make a skin incision in the left antecubital region. Dissection was carried down using electrocautery. We encountered the proximal segment of the brachiocephalic fistula, which was isolated and encircled using a vessel loop. Proximal and distal clamps were applied in the AV fistula, which was divided using a #11 scalpel. The proximal end and distal end of the AV fistula were individually oversewn using running 5-0 prolene sutures. Next clamps were released. Hemostasis was achieved using electrocautery. Antibiotic soaked irrigation fluid was used to irrigate the wound. The wound was next irrigated, and the subcutaneous tissues were closed using #3-0 Vicryl sutures, and skin closure was done using #4-0 Monocryl sutures. Standard gauze dressing was applied over the incision site. The patient remained hemodynamically stable throughout the entire operation. The patient suffered no complications, and the patient was taken to the recovery room in stable condition.

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===== AVF pseudoaneurysm repair with plication ======

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PROCEDURES:

1. Open revision of left arm AV fistula with thrombectomy (CPT# 36833)

2. Repair of left arm AV fistula pseudoaneurysm with direct plication repair using bovine pericardial patch graft  (CPT# 35011)

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INDICATIONS: This is a \_\_\_ year-old patient who has been diagnosed with end stage renal disease, and the patient has been under the care of nephrologist Dr. \_\_\_. The patient developed a left arm AV fistula pseudoaneurysm which resulting in bleeding recently. Due to the concern for pseudoaneurysm rupture as well infected AV fistula pseudoaneurysm, the patient is scheduled to undergo an AV fistula revision, AV fistula pseudoaneurysm removal, and new AV graft creation. The purpose of the procedure is to remove the AV fistula pseudoaneurysm and also to create a hemodialysis access in the upper extremity so dialysis can be performed. I have informed the patient regarding potential risks and complications of this procedure, which include bleeding, hematoma, arterial steal syndrome, arm ischemia, infection, nerve pain, nerve injury, AV access thrombosis, pneumonia, myocardial infarction, stroke, and possible death. The overall risk of these complications is 2%. The patient verbalizes understanding and agrees with the planned procedure.

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PROCEDURE IN DETAIL: The patient was taken to the operating room and placed on the table in the supine position. Appropriate time out was performed in which all nursing and surgical personnel concurred with the surgical plan. The patient's left arm was prepped sterilely and draped in a standard fashion. A skin scalpel was used to make a longitudinal skin incision in the antecubital fossa. The incision encompassed the entire length of the AV fistula pseudoaneurysm. Dissection was carried down using electrocautery. We isolated the entire length of the AV fistula pseudoaneurysm which was 5 cm in length. The AV fistula pseudoaneurysm was controlled proximally and distally with vascular clamps. Next the AV fistula pseudoaneurysm was opened which we encountered moderate amount of thrombus. We next performed thrombectomy of the AV fistula using a #4 Fogarty balloon thrombectomy catheter. A large amount of thrombus was removed from the AV fistula. We performed partial excision of the AV fistula pseudoaneurysm by removing the aneurysmal portion of the fistula. Next we performed direct repair using a plication technique in which a bovine pericardial patch graft was used to repair the AV fistula pseudoaneurysm. A 5-0 prolene suture was used to repair the AV fistula pseudoaneurysm circumferentially using the bovine pericardial patch. Upon the completion of the anastomotic construction, clamps were released and satisfactory hemostasis was achieved in the anastomotic site. The wound was next irrigated, and the subcutaneous tissues were closed using #3-0 Vicryl sutures, and skin closure was done using #4-0 Monocryl sutures. Standard gauze dressing was applied over the incision site.

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===== AVF Pseudoaneurysm Resection, AVG Placement ======

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PROCEDURES:

1. Open revision of left arm AV fistula pseudoaneurysm with thrombectomy (CPT# 36833)

2. Excision of left arm AV fistula pseudoaneurysm (CPT# 35903)

3. Left brachioaxillary arteriovenous graft creation using bovine biological graft (CPT# 36830)

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INDICATIONS: This is a \_\_\_ year-old patient who has been diagnosed with end stage renal disease, and the patient has been under the care of nephrologist Dr. \_\_\_. The patient developed a large 5cm x 14cm left arm AV fistula pseudoaneurysm which has become painful. Due to the concern for pseudoaneurysm rupture as well infected AV fistula pseudoaneurysm, the patient is scheduled to undergo an AV fistula revision, AV fistula pseudoaneurysm removal, and new AV graft creation. The purpose of the procedure is to remove the AV fistula pseudoaneurysm and also to create a hemodialysis access in the upper extremity so dialysis can be performed. I have informed the patient regarding potential risks and complications of this procedure, which include bleeding, hematoma, arterial steal syndrome, arm ischemia, infection, nerve pain, nerve injury, AV access thrombosis, pneumonia, myocardial infarction, stroke, and possible death. The overall risk of these complications is 2%. The patient verbalizes understanding and agrees with the planned procedure.

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PROCEDURE IN DETAIL: The patient was taken to the operating room and placed on the table in the supine position. Appropriate time out was performed in which all nursing and surgical personnel concurred with the surgical plan. The patient's left arm was prepped sterilely and draped in a standard fashion. A skin scalpel was used to make a longitudinal skin incision in the antecubital fossa. The incision encompassed the entire length of the AV fistula pseudoaneurysm. Dissection was carried down using electrocautery. We isolated the entire length of the AV fistula pseudoaneurysm which was 20cm in length. The AV fistula pseudoaneurysm was divided both proximally and distally. Due to the extensive thrombus burden encountered in the distal anastomosis, we performed thrombectomy of the AV fistula using a #4 Fogarty balloon thrombectomy catheter. A large amount of thrombus was removed from the AV fistula. Next the distal end of the cephalic vein was ligated. We next excised the entire segment of the AV fistula pseudoaneurysm. The proximal segment of the cephalic vein was transected and doubly ligated. We continued the dissection next and opened the brachial sheath and carefully identified which was encircled using vessel loops. Next we made a longitudinal incision in the axillary fossa. Dissection was carried down using electrocautery. We carefully opened the axillary sheath and mobilized the axillary vein. Vessel loops were used to encircle the axillary vein. Next we placed a bovine Artegraft 6mm x 50cm in size in the subcutaneous space using a tunneling device. Proximal vascular clamp and distal vascular clamp were applied in the brachial artery. A vertical arteriotomy was made using a #11 blade and extended using a Potts scissor. The graft was connected to the brachial artery in an end-to-side fashion using 5-0 prolene sutures. Upon the completion of the anastomotic construction, clamps were released and satisfactory hemostasis was achieved in the anastomotic site. Next proximal vascular clamp and distal vascular clamp were applied in the axillary vein. A vertical arteriotomy was made using a #11 blade and extended using a Potts scissor. The distal segment of the graft was connected to the axillary vein in an end-to-side fashion using a 6-0 prolene suture in a running fashion. Upon the completion of the anastomotic construction, clamps were released and satisfactory hemostasis was achieved in the anastomotic site. The wound was next irrigated, and the subcutaneous tissues were closed using #3-0 Vicryl sutures, and skin closure was done using #4-0 Monocryl sutures. Standard gauze dressing was applied over the incision site. Appropriate dressing was applied over the incision site. The patient tolerated the procedure well without complication. The patient was taken to the recovery room in stable condition.

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===== AVF Pseudoaneurysm Resection, Brachial Artery Bypass ======

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PROCEDURES:

1. Open revision of left arm AV fistula pseudoaneurysm with thrombectomy (CPT# 36833)

2. Excision of left arm AV fistula pseudoaneurysm (CPT# 35903)

3. Left brachial artery bypass with bovine Artegraft (CPT# 36838)

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INDICATIONS: This is a \_\_\_ year-old patient who has been diagnosed with end stage renal disease, and the patient has been under the care of nephrologist Dr. \_\_\_. The patient developed a large left arm AV fistula pseudoaneurysm which has become painful. Due to the concern for pseudoaneurysm rupture, the patient is scheduled to undergo an AV fistula pseudoaneurysm resection. The purpose of the procedure is to remove the AV fistula pseudoaneurysm. I have informed the patient regarding potential risks and complications of this procedure, which include bleeding, hematoma, arterial steal syndrome, arm ischemia, infection, nerve pain, nerve injury, AV access thrombosis, pneumonia, myocardial infarction, stroke, and possible death. The overall risk of these complications is 2%. The patient verbalizes understanding and agrees with the planned procedure.

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PROCEDURE IN DETAIL: The patient was taken to the operating room and placed on the table in the supine position. Appropriate time out was performed in which all nursing and surgical personnel concurred with the surgical plan. The patient's left arm was prepped sterilely and draped in a standard fashion. A skin scalpel was used to make a longitudinal skin incision in the antecubital fossa. The incision encompassed the entire length of the AV fistula pseudoaneurysm. Dissection was carried down using electrocautery. We isolated the entire length of the AV fistula pseudoaneurysm which was 20 cm in length. The AV fistula pseudoaneurysm was divided both proximally and distally. Due to the extensive thrombus burden encountered in the distal anastomosis, we performed thrombectomy of the AV fistula using a #4 Fogarty balloon thrombectomy catheter. A large amount of thrombus was removed from the AV fistula. We next excised the entire segment of the AV fistula pseudoaneurysm. The proximal segment of the AV fistula pseudoaneurysm was transected and doubly ligated. We continued the dissection next and opened the brachial sheath and carefully identified which was encircled using vessel loops. Next we made a longitudinal incision in the axillary fossa. Dissection was carried down using electrocautery. We carefully opened the axillary sheath and mobilized the distal segment of the AV fistula pseudoaneurysm, which was divided and ligated. The intervening segment of the AV fistula pseudoaneurysm was excised. Due to the aneurysmal degeneration of the intervening brachial artery, decision was made to excised the brachial artery aneurysm followed by brachio-brachial artery bypass. This is done by obtaining proximal and distal control of the brachial artery. Next the aneurysmal segment of the brachial artery was removed in their entirety. We placed a bovine Artegraft 6mm in diameter and connected the Artegraft to the proximal brachial artery in an end-to-end fashion using 5-0 prolene sutures. We next connected the Artegraft to the distal brachial artery in an end-to-end fashion using 5-0 prolene sutures. Upon the completion of the anastomotic construction, clamps were released, and satisfactory hemostasis was achieved in the anastomotic site The wound was next irrigated, and the subcutaneous tissues were closed using #3-0 Vicryl sutures, and skin closure was done using #4-0 Monocryl sutures. Standard gauze dressing was applied over the incision site. The patient remained hemodynamically stable throughout the entire operation. The patient suffered no complications, and the patient was taken to the recovery room in stable condition. The patient has palpable radial pulses at the completion of the procedure.

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===== AVG (Axillary-axillary AVG) ======

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PROCEDURE: Left axillary-axillary arteriovenous graft creation using bovine biological graft (CPT# 36830)

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INDICATIONS: This is a \_\_\_ year-old patient who has been diagnosed with end stage renal disease, and the patient has been under the care of nephrologist Dr. \_\_\_. The patient is scheduled to undergo an AV graft creation for hemodialysis access. The purpose of the procedure is to create a hemodialysis access in the upper extremity so dialysis can be performed. I have informed the patient regarding potential risks and complications of this procedure, which include bleeding, hematoma, arterial steal syndrome, arm ischemia, infection, nerve pain, nerve injury, AV access thrombosis, pneumonia, myocardial infarction, stroke, and possible death. The overall risk of these complications is 2%. The patient verbalizes understanding and agrees with the planned procedure.

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PROCEDURE IN DETAIL: The patient was taken to the operating room and placed on the table in the supine position. Appropriate time out was performed in which all nursing and surgical personnel concurred with the surgical plan. The patient's left arm was prepped sterilely and draped in a standard fashion. A skin scalpel was used to make a longitudinal skin incision in the axillary fossa. Dissection was carried down using electrocautery. We opened the axillary sheath and carefully identified the axillary artery which was encircled using vessel loops. Next we mobilized the axillary vein. Vessel loops were used to encircle the axillary vein. Next we placed a bovine Artegraft 6mm x 50cm in size in the subcutaneous space using a tunneling device in a loop fashion in the upper arm. Proximal vascular clamp and distal vascular clamp were applied in the axillary artery. A vertical arteriotomy was made using a #11 blade and extended using a Potts scissor. The graft was connected to the axillary artery in an end-to-side fashion using 5-0 prolene sutures. Upon the completion of the anastomotic construction, clamps were released and satisfactory hemostasis was achieved in the anastomotic site. Next proximal vascular clamp and distal vascular clamp were applied in the axillary vein. A vertical arteriotomy was made using a #11 blade and extended using a Potts scissor. The distal segment of the graft was connected to the axillary vein in an end-to-side fashion using a 6-0 prolene suture in a running fashion. Upon the completion of the anastomotic construction, clamps were released and satisfactory hemostasis was achieved in the anastomotic site. The wound was next irrigated, and the subcutaneous tissues were closed using #3-0 Vicryl sutures, and skin closure was done using #4-0 Monocryl sutures. Standard gauze dressing was applied over the incision site. The patient remained hemodynamically stable throughout the entire operation. The patient suffered no complications, and the patient was taken to the recovery room in stable condition.

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===== AVG (Brachio-axillary AVG ======

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PROCEDURE: Left brachioaxillary arteriovenous graft creation using bovine biological graft (CPT# 36830)

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INDICATIONS: This is a \_\_\_ year-old patient who has been diagnosed with end stage renal disease, and the patient has been under the care of nephrologist Dr. \_\_\_. The patient is scheduled to undergo an AV graft creation for hemodialysis access. The purpose of the procedure is to create a hemodialysis access in the upper extremity so dialysis can be performed. I have informed the patient regarding potential risks and complications of this procedure, which include bleeding, hematoma, arterial steal syndrome, arm ischemia, infection, nerve pain, nerve injury, AV access thrombosis, pneumonia, myocardial infarction, stroke, and possible death. The overall risk of these complications is 2%. The patient verbalizes understanding and agrees with the planned procedure.

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PROCEDURE IN DETAIL: The patient was taken to the operating room and placed on the table in the supine position. Appropriate time out was performed in which all nursing and surgical personnel concurred with the surgical plan. The patient's left arm was prepped sterilely and draped in a standard fashion. A skin scalpel was used to make a longitudinal skin incision in the antecubital fossa. Dissection was carried down using electrocautery. We opened the brachial sheath and carefully identified the brachial artery which was encircled using vessel loops. Next we made a longitudinal incision in the axillary fossa. Dissection was carried down using electrocautery. We carefully opened the axillary sheath and mobilized the axillary vein. Vessel loops were used to encircle the axillary vein. Next we placed a bovine Artegraft 5mm x 50cm in size in the subcutaneous space using a tunneling device. Proximal vascular clamp and distal vascular clamp were applied in the brachial artery. A vertical arteriotomy was made using a #11 blade and extended using a Potts scissor. The graft was connected to the brachial artery in an end-to-side fashion using 5-0 prolene sutures. Upon the completion of the anastomotic construction, clamps were released and satisfactory hemostasis was achieved in the anastomotic site. Next proximal vascular clamp and distal vascular clamp were applied in the axillary vein. A vertical arteriotomy was made using a #11 blade and extended using a Potts scissor. The distal segment of the graft was connected to the axillary vein in an end-to-side fashion using a 6-0 prolene suture in a running fashion. Upon the completion of the anastomotic construction, clamps were released and satisfactory hemostasis was achieved in the anastomotic site. The wound was next irrigated, and the subcutaneous tissues were closed using #3-0 Vicryl sutures, and skin closure was done using #4-0 Monocryl sutures. Standard gauze dressing was applied over the incision site. The patient remained hemodynamically stable throughout the entire operation. The patient suffered no complications, and the patient was taken to the recovery room in stable condition.

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===== AVG (Brachioaxillary AVG + Viabahn) ======

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PROCEDURES:

1. Left brachioaxillary arteriovenous graft creation using bovine biological graft (CPT# 36830)

2. Transcatheter stent placement (Viabahn Stent 8mm x 15cm) of central dialysis segment (CPT# 36908)

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----- NEW AVG INDICATION ------

INDICATIONS: This is a \_\_\_ year-old patient who has been diagnosed with end stage renal disease, and the patient has been under the care of nephrologist Dr. \_\_\_. The patient is scheduled to undergo an AV graft creation for hemodialysis access. The purpose of the procedure is to create a hemodialysis access in the upper extremity so dialysis can be performed. I have informed the patient regarding potential risks and complications of this procedure, which include bleeding, hematoma, arterial steal syndrome, arm ischemia, infection, nerve pain, nerve injury, AV access thrombosis, pneumonia, myocardial infarction, stroke, and possible death. The overall risk of these complications is 2%. The patient verbalizes understanding and agrees with the planned procedure.

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----- AVG PSEUDOANEURYSM REVISION INDICATION ------

INDICATIONS: This is a \_\_ year-old patient who has been diagnosed with end stage renal disease which require hemodialysis. The patient also has been diagnosed with AV graft malfunction with pseudoaneurysm. The patient is scheduled to undergo AV graft revision with possible new AV graft creation. The purpose of the procedure is to create an upper extremity dialysis access with interposition grafting to allow long term dialysis access site. I have informed the patient regarding potential risks and complications of this procedure, which include bleeding, hematoma, arterial steal syndrome, arm ischemia, infection, nerve pain, nerve injury, AV access thrombosis, pneumonia, myocardial infarction, stroke, and possible death. The overall risk of these complications is 2%. The patient verbalizes understanding and agrees with the planned procedure.

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PROCEDURE IN DETAIL: The patient was taken to the operating room and placed on the table in the supine position. Appropriate time out was performed in which all nursing and surgical personnel concurred with the surgical plan. The patient's left arm was prepped sterilely and draped in a standard fashion. A skin scalpel was used to make a longitudinal skin incision in the antecubital fossa. Dissection was carried down using electrocautery. We isolated the proximal arterial segment of the brachial artery. Next we made a longitudinal incision in the axillary fossa. Dissection was carried down using electrocautery. We isolated the distal segment of the axillary vein. Proximal and distal vascular clamps were applied in the brachial artery. An arteriotomy was made in the brachial artery using a #11 blade. A 6mm bovine carotid artery Artegraft was connected to the brachial artery in an end-to-side fashion using 5-0 prolene sutures. Next the Artegraft was tunneled in the upper am in a semi-circular fashion. Due to the pulsatile flow in the axillary vein, we suspect central venous stenosis in the subclavian vein. The axillary vein was accessed percutaneously using a Seldinger needle, which was followed by a 7F introducer sheath placement. Venography was performed in the central venous system which showed a high grade stenosis in the subclavian vein extending to the axillary vein. Decision was made to place a Viabahn stent-graft in the subclavian vein and axillary vein. We placed an 8 mm x 150 mm self expanding Viabahn nitinol stent in the axillary vein across the venous anastomosis. The proximal segment of the Viabahn stent was connected to a 6mm Artegraft. Upon the completion of the Viabahn anastomotic construction in the venous segment, clamps were released and satisfactory hemostasis was achieved in the anastomotic site satisfactorily. The wound was next irrigated, and the subcutaneous tissues were closed using #3-0 Vicryl sutures, and skin closure was done using #4-0 Monocryl sutures. Standard gauze dressing was applied over the incision site. The patient remained hemodynamically stable throughout the entire operation. The patient suffered no complications, and the patient was taken to the recovery room in stable condition.

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===== AVG Banding + Wound Vac ======

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PROCEDURES:

1. Left upper extremity brachio-axillary AV graft banding (CPT# 37607)

2. Wound vac placement in left arm (area of wound vac coverage: 10cm x 10cm x 5cm; CPT# 97606)

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INDICATIONS: This is a \_\_\_ year-old patient who has been diagnosed with end stage renal disease, and the patient has been under the care of nephrologist Dr. \_\_\_. The patient recently developed upper extremity steal syndrome secondary to pre-existing upper arm AV graft resulting in suboptimal arterial perfusion to the hand and fingers. Due to the arterial steal syndrome caused by the AV graft, the patient is scheduled to undergo an upper extremity AV graft banding procedure to improve the upper extremity arterial circulation. The purpose of the procedure is to improve the upper extremity arterial circulation with banding of the AV graft. I have informed the patient regarding potential risks and complications of this procedure, which include bleeding, hematoma, arterial steal syndrome, arm ischemia, infection, nerve pain, nerve injury, AV access thrombosis, pneumonia, myocardial infarction, stroke, and possible death. The overall risk of these complications is 2%. The patient verbalizes understanding and agrees with the planned procedure.

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PROCEDURE IN DETAIL: The patient was taken to the operating room and placed on the table in the supine position. Appropriate time out was performed in which all nursing and surgical personnel concurred with the surgical plan. The patient's < \_\_\_\_\_ right left \_\_\_\_\_\_> arm was prepped sterilely and draped in a standard fashion. A skin scalpel was used to make a longitudinal skin incision in the antecubital fossa. Dissection was carried down using electrocautery. We opened the brachial sheath and carefully identified the AV graft as it connected to the brachial artery. Next we placed multiple suture ligatures with 2-0 silk sutures to constrict the AV graft. The circumference of the AV graft was constricted to approximately 50% in size. Doppler examination of the radial and ulnar arteries showed significantly improved arterial flow following the AV graft banding. Excellent Doppler signals remain present in the AV graft. Due to the large cavitary space in the antecubital wound, a wound vac sponge was next placed in the wound. The area of wound vac sponge coverage was 10cm by 10cm by 5cm. Next a standard wound vac dressing was placed in the skin area. Continual suctioning tube was connected to the wound vac. Dressing was applied in the standard fashion. The patient remained stable and was taken to the recovery room in a stable condition. The patient suffered no complications, and I was present throughout the entire procedure.

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===== AVG Excision (infection) + Wound Vac ======

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PROCEDURES:

1. Excision of left arm AV graft pseudoaneurysm (CPT# 35903)

2. Wound vac placement in left arm (area of wound vac coverage: 10cm x 10cm x 5cm; CPT# 97606)

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INDICATIONS: This is a \_\_\_ year-old patient who has been diagnosed with end stage renal disease, and the patient has been under the care of nephrologist Dr. \_\_\_. The patient recently developed upper arm AV graft infection with sepsis, and the patient is scheduled to undergo an AV graft excision with possible wound vac placement. The purpose of the procedure is to remove the infected AV graft and remove the source of sepsis. I have informed the patient regarding potential risks and complications of this procedure, which include bleeding, hematoma, arterial steal syndrome, arm ischemia, infection, nerve pain, nerve injury, AV access thrombosis, pneumonia, myocardial infarction, stroke, and possible death. The overall risk of these complications is 2%. The patient verbalizes understanding and agrees with the planned procedure.

P.ROCEDURE IN DETAIL: The patient was taken to the operating room and placed on the table in the supine position. Appropriate time out was performed in which all nursing and surgical personnel concurred with the surgical plan. The patient’s < \_\_\_\_\_ right left \_\_\_\_\_\_> arm was prepped sterilely and draped in a standard fashion. A skin scalpel was used to make a longitudinal skin incision in the antecubital fossa. The incision encompassed the entire length of the AV graft segment. Dissection was carried down using electrocautery. We isolated the entire length of the AV graft which was 10cm in length. The AV graft was dissected free from the arterial and venous anastomosis. The graft was next excised and removed. The proximal and distal end of the vessels were oversewn using 5-0 prolene sutures. The wound was next irrigated, and the subcutaneous tissues were closed using #3-0 Vicryl sutures. Due to the infected cavitary space in the antecubital wound, a wound vac sponge was next placed in the wound. The area of wound vac sponge coverage was 10cm by 10cm by 5cm. Next a standard wound vac dressing was placed in the right groin skin area. Continual suctioning tube was connected to the wound vac. Dressing was applied in the standard fashion. The patient remained stable and was taken to the recovery room in a stable condition. The patient suffered no complications, and I was present throughout the entire procedure.

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===== AVG DRIL ======

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PROCEDURE: Left brachial artery distal revascularization with interval ligation (DRIL Procedure) using bovine Artegraft (CPT# 36838)

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INDICATIONS: This is a \_\_\_ year-old patient who has been diagnosed with end stage renal disease, and the patient has been under the care of nephrologist Dr. \_\_\_. The patient recently developed upper extremity steal syndrome secondary to pre-existing upper arm AV graft resulting in suboptimal arterial perfusion to the hand and fingers. Due to the arterial steal syndrome caused by the AV graft, the patient is scheduled to undergo an upper extremity revascularization procedure to improve the upper extremity arterial circulation. The purpose of the procedure is to improve the upper extremity arterial circulation with brachial artery revascularization which will resolve the hand ischemia. I have informed the patient regarding potential risks and complications of this procedure, which include bleeding, hematoma, arterial steal syndrome, arm ischemia, infection, nerve pain, nerve injury, AV access thrombosis, pneumonia, myocardial infarction, stroke, and possible death. The overall risk of these complications is 2%. The patient verbalizes understanding and agrees with the planned procedure.

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PROCEDURE IN DETAIL: The patient was taken to the operating room and placed on the table in the supine position. Appropriate time out was performed in which all nursing and surgical personnel concurred with the surgical plan. The patient's left arm was prepped sterilely and draped in a standard fashion. A skin scalpel was used to make a longitudinal skin incision in the antecubital fossa. Dissection was carried down using electrocautery. We opened the brachial sheath and carefully identified the brachial artery which was encircled using vessel loops. Next we made a longitudinal incision in the axillary fossa. Dissection was carried down using electrocautery. We carefully opened the axillary sheath and mobilized the axillary artery. Vessel loops were used to encircle the axillary artery. Next we placed a bovine Artegraft 5mm x 50cm in size in the subcutaneous space using a tunneling device. Proximal vascular clamp and distal vascular clamp were applied in the axillary artery. A vertical arteriotomy was made using a #11 blade and extended using a Potts scissor. The graft was connected to the axillary artery in an end-to-side fashion using 5-0 prolene sutures. Upon the completion of the anastomotic construction, clamps were released and satisfactory hemostasis was achieved in the anastomotic site. Next vascular clamp and distal vascular clamp were applied in the brachial artery. A transverse arteriotomy was made using a #11 blade and extended using a Potts scissor. The distal segment of the graft was connected to the distal brachial artery in an end-to-end fashion using a 6-0 prolene suture in a running fashion. Upon the completion of the anastomotic construction, clamps were released and satisfactory hemostasis was achieved in the anastomotic site. The interval segment of the brachial artery was ligated using 2-0 silk ties. The wound was next irrigated, and the subcutaneous tissues were closed using #3-0 Vicryl sutures, and skin closure was done using #4-0 Monocryl sutures. Standard gauze dressing was applied over the incision site. The patient remained hemodynamically stable throughout the entire operation. The patient suffered no complications, and the patient was taken to the recovery room in stable condition. The patient has palpable radial pulses at the completion of the procedure.

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===== AVG Excision (Infected Femoral Graft ======

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PROCEDURE: Excision of infected left femoral AV graft (CPT# 35903)

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INDICATIONS: This is a \_\_\_ year-old patient who has been diagnosed with end stage renal disease, and the patient has been under the care of nephrologist Dr. \_\_\_. The patient recently developed AV graft infection in the left groin as evidenced by purulent fluid discharge. The patient was therefore taken to the OR to undergo excision of infected AV graft. The purpose of the procedure is to remove the infected graft. I have informed the patient regarding potential risks and complications of this procedure, which include bleeding, hematoma, arterial steal syndrome, arm ischemia, infection, nerve pain, nerve injury, AV access thrombosis, pneumonia, myocardial infarction, stroke, and possible death. The overall risk of these complications is 2%. The patient verbalizes understanding and agrees with the planned procedure.

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PROCEDURE IN DETAIL: The patient was taken to the operating room and placed on the table in the supine position. Appropriate time out was performed in which all nursing and surgical personnel concurred with the surgical plan. The patient's left groin was prepped sterilely and draped in a standard fashion. A skin scalpel was used to make a skin incision in the left femoral region. Dissection was carried down using electrocautery. We opened the femoral sheath and carefully identified the arterial and venous component of the prosthetic PTFE AV graft. The arterial component of the AV graft was clamped and divided. The proximal end of the graft was oversewn using 4-0 prolene sutures. The venous component of the AV graft was also clamped and divided. The proximal end of the graft was oversewn using 4-0 prolene sutures. The intervening portion of the graft was excised in its entirely. The wound was irrigated using antibiotic solution. The wound was next irrigated, and the subcutaneous tissues were closed using #3-0 Vicryl sutures, and skin closure was done using #4-0 Monocryl sutures. Standard gauze dressing was applied over the incision site. The patient remained hemodynamically stable throughout the entire operation. The patient suffered no complications, and the patient was taken to the recovery room in stable condition.

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===== AVG Ligation ======

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PROCEDURES:

1. Open revision of left arm AV graft with thrombectomy (CPT# 36833)

2. Left arm AV graft ligation (CPT# 37607)

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INDICATIONS: This is a \_\_\_ year-old patient who has been diagnosed with end stage renal disease, and the patient has been under the care of nephrologist Dr. \_\_\_. The patient recently developed severe left arm swelling due to central venous occlusion. The patient is scheduled to undergo an AV graft thrombectomy with revision and possible ligation. The purpose of the procedure is to remove the AV graft thrombus and restore the AV access flow. I have informed the patient regarding potential risks and complications of this procedure, which include bleeding, hematoma, arterial steal syndrome, arm ischemia, infection, nerve pain, nerve injury, AV access thrombosis, pneumonia, myocardial infarction, stroke, and possible death. The overall risk of these complications is 2%. The patient verbalizes understanding and agrees with the planned procedure.

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PROCEDURE IN DETAIL: The patient was taken to the operating room and placed on the table in the supine position. Appropriate time out was performed in which all nursing and surgical personnel concurred with the surgical plan. The patient's left arm was prepped sterilely and draped in a standard fashion. A skin scalpel was used to make a longitudinal skin incision in the antecubital fossa. Dissection was carried down using electrocautery. We isolated the proximal arterial segment of the AV graft. A transverse incision was made in the AV graft, and we performed thrombectomy of the AV graft in the arterial segment using a #4 Fogarty balloon thrombectomy catheter. A large amount of thrombus was removed from the AV graft. Next we made a longitudinal incision in the axillary fossa. Dissection was carried down using electrocautery. We isolated the distal venous segment of the AV graft. A transverse incision was made in the AV graft, and we performed thrombectomy of the AV graft in the venous segment using a #4 Fogarty balloon thrombectomy catheter. A large amount of thrombus was removed from the venous segment of the AV graft. Vascular clamps were applied in the proximal and distal segment of the graft incision site for vascular control. The arterial incision in the AV graft was closed using a 5-0 prolene suture in a figure-of-eight fashion. Next the venous incision in the AV graft was closed using a 5-0 prolene suture in a figure-of-eight fashion. Upon the completion of the anastomotic site closure, clamps were released and satisfactory hemostasis was achieved in the anastomotic site. Due to the severity of the central venous occlusion, it is not feasible to proceed with further AV graft revision. Therefore a decision was made to ligate the AV graft to reduce the left arm swelling. The AV graft was therefore ligated using 2-0 silk suture near the arterial anastomosis. The wound was next irrigated, and the subcutaneous tissues were closed using #3-0 Vicryl sutures, and skin closure was done using #4-0 Monocryl sutures. Standard gauze dressing was applied over the incision site. Appropriate dressing was applied over the incision site. The patient tolerated the procedure well without complication. The patient was taken to the recovery room in stable condition.

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===== AVG Pseudoaneurysm Resection, AVG Placement ======

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PROCEDURES:

1. Open revision of left arm AV graft pseudoaneurysm with thrombectomy (CPT# 36833)

2. Excision of left arm AV graft pseudoaneurysm (CPT# 35903)

3. Left brachioaxillary arteriovenous graft creation using bovine biological graft (CPT# 36830)

4. Percutaneous access of right jugular vein under ultrasound guidance (CPT# 76937)

5. Placement of tunneled dialysis Permacath in the right jugular vein (CPT# 36558)

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INDICATIONS: This is a \_\_\_ year-old patient who has been diagnosed with end stage renal disease, and the patient has been under the care of nephrologist Dr. \_\_\_. The patient recent developed a large

 << bleeding vs painful >>

left arm AV graft pseudoaneurysm. Due to the concern for pseudoaneurysm rupture as well infected AV graft pseudoaneurysm, the patient is scheduled to undergo an AV graft revision, AV graft pseudoaneurysm removal, and new AV graft creation. The purpose of the procedure is to remove the AV graft pseudoaneurysm and also to create a hemodialysis access in the upper extremity so dialysis can be performed. I have informed the patient regarding potential risks and complications of this procedure, which include bleeding, hematoma, arterial steal syndrome, arm ischemia, infection, nerve pain, nerve injury, AV access thrombosis, pneumonia, myocardial infarction, stroke, and possible death. The overall risk of these complications is 2%. The patient verbalizes understanding and agrees with the planned procedure.

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PROCEDURE IN DETAIL: The patient was taken to the operating room and placed on the table in the supine position. Appropriate time out was performed in which all nursing and surgical personnel concurred with the surgical plan. The patient’s l

<< right vs left >>

arm was prepped sterilely and draped in a standard fashion. A skin scalpel was used to make a longitudinal skin incision in the antecubital fossa. The incision encompassed the entire length of the AV graft pseudoaneurysm. Dissection was carried down using electrocautery. We isolated the entire length of the AV graft pseudoaneurysm which was 20cm in length. The AV graft pseudoaneurysm was divided both proximally and distally. Due to the extensive thrombus burden encountered in the distal anastomosis, we performed thrombectomy of the AV graft using a #4 Fogarty balloon thrombectomy catheter. A large amount of thrombus was removed from the AV graft. Next the distal end of the cephalic vein was ligated. We next excised the entire segment of the AV graft pseudoaneurysm. The proximal segment of the cephalic vein was transected and doubly ligated. We continued the dissection next and opened the brachial sheath and carefully identified which was encircled using vessel loops. Next we made a longitudinal incision in the axillary fossa. Dissection was carried down using electrocautery. We carefully opened the axillary sheath and mobilized the axillary vein. Vessel loops were used to encircle the axillary vein. Next we placed a bovine Artegraft 6mm x 50cm in size in the subcutaneous space using a tunneling device. Proximal vascular clamp and distal vascular clamp were applied in the brachial artery. A vertical arteriotomy was made using a #11 blade and extended using a Potts scissor. The graft was connected to the brachial artery in an end-to-side fashion using 5-0 prolene sutures. Upon the completion of the anastomotic construction, clamps were released and satisfactory hemostasis was achieved in the anastomotic site. Next proximal vascular clamp and distal vascular clamp were applied in the axillary vein. A vertical arteriotomy was made using a #11 blade and extended using a Potts scissor. The distal segment of the graft was connected to the axillary vein in an end-to-side fashion using a 6-0 prolene suture in a running fashion. Upon the completion of the anastomotic construction, clamps were released and satisfactory hemostasis was achieved in the anastomotic site. The wound was next irrigated, and the subcutaneous tissues were closed using #3-0 Vicryl sutures, and skin closure was done using #4-0 Monocryl sutures. Standard gauze dressing was applied over the incision site. Appropriate dressing was applied over the incision site. The patient tolerated the procedure well without complication. The patient was taken to the recovery room in stable condition.

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===== Axillobifemoral bypass ======

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PROCEDURES:

1. Axillobifemoral artery bypass using PTFE graft (CPT# 35654)

2. Right common femoral endarterectomy (CPT# 35371)

3. Left common femoral endarterectomy (CPT# 35371-XU)

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INDICATIONS: This is a \_\_\_ year-old patient who has been experiencing < \_\_\_\_\_\_ right , left , bilateral \_\_\_\_\_> lower extremity ischemic rest pain due to severe aortoiliac occlusive disease. Due to the severe aortoiliac occlusive disease and the patient’s cardiac dysfunction, the patient was taken to the operating room to undergo an axillobifemoral artery bypass grafting procedure. I've discussed with the patient regarding the benefits and risks of the procedure. The patient is aware of the benefits of the planned procedure which is to improve his lower leg circulation by means of an axillobifemoral artery bypass. The patient is also aware of the potential risks of the procedure, which include wound infection, bleeding, bypass graft occlusion, compartment syndrome, nerve injury, pneumonia, renal failure, myocardiac infarction, spinal cord paralysis, graft infection, stroke, and death. The overall incidence of these risks and complications was 2%. The patient has accepted these benefits and risks and agreed to undergo the planned bypass procedure.

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PROCEDURE IN DETAIL: The patient was taken to the operating room and placed on the table in the supine position. The patient received general anesthesia induction via orotracheal intubation. The patient's axillary area and bilateral legs were prepped sterilely and draped in the standard fashion. Appropriate time out was performed whereby the patient and site of surgery were identified. We made a right groin incision and continued the dissection using electrocautery. We identified the femoral sheath which was carefully opened. We isolated the common femoral artery, profunda femoral artery, and superficial femoral artery. Vessel loops were used to encircle these vessels. Next we made a left groin incision and continued the dissection using electrocautery. We identified the femoral sheath which was carefully opened. We isolated the common femoral artery, profunda femoral artery, and superficial femoral artery. Vessel loops were used to encircle these vessels. We next made an infraclavicular incision in the< \_\_\_\_\_ right left \_\_\_\_\_> upper chest region. Dissection was carried down using electrocautery. We carefully divided the pectoral sheath and opened the pectoral major muscle. We continued the dissection inferiorly and identified the axillary artery which was isolated using vessel loops. Systemic heparin was given intravenously for anticoagulation. We placed proximal and distal clamps in the axillary artery. A longitudinal incision was made in the axillary artery which was extended with a Potts scissor. An 8 mm PTFE graft was trimmed and connected to the axillary artery in an end-to-side fashion using 5-0 prolene sutures. Clamps were next released to ensure adequate hemostasis in the suture line. Next the PTFE graft was tunneled in the subcutaneous plane using a long tunneling device and the graft was brought out through the right femoral incision. We placed vascular clamps in the right common femoral artery, profunda femoral artery, and superficial femoral artery. A vertical arteriotomy was made using a #11 blade which was extended using a Potts scissor. We encountered a large amount of femoral artery plaque and performed femoral artery endarterectomy by removing the plaque from the common femoral artery and profunda femoral artery. An 8 mm PTFE graft was trimmed and connected to the femoral artery in an end-to-side fashion using 5-0 prolene sutures. Clamps were next released to ensure adequate hemostasis in the suture line. Next the PTFE graft was tunneled in the subcutaneous plane using a tunneling device and the graft was brought out through the left femoral incision. We then placed vascular clamps in the left common femoral artery, profunda femoral artery, and superficial femoral artery. A vertical arteriotomy was made using a #11 blade which was extended using a Potts scissor. We encountered a large amount of femoral artery plaque and performed femoral artery endarterectomy by removing the plaque from the common femoral artery and profunda femoral artery. An 8 mm PTFE graft was trimmed and connected to the femoral artery in an end-to-side fashion using 5-0 prolene sutures. Clamps were next released to ensure adequate hemostasis in the suture line. Next we placed two vascular clamp in the right PTFE graft. A vertical incision was made in the PTFE graft. We connected the distal axillary graft to the right femoro-femoral graft using 5-0 prolene sutures in an end-to-side fashion. Upon the completion of the anastomotic reconstruction, clamps were released and satisfactory hemostasis was achieved. The right femoral sheath was closed using 3-0 PDS sutures and the skin was closed using 4-0 Vicryl subcuticular sutures. The left femoral sheath was closed using 3-0 PDS sutures and the skin was closed using 4-0 Vicryl subcuticular sutures. Subcutaneous tissues were closed using 3-0 PDS sutures in the right pectoral wound, and the skin was closed using 4-0 Vicryl subcuticular sutures. The patient remained clinically stable throughout the entire operation. The patient suffered no complications, and the patient was taken to the recovery room in stable condition. I was present throughout the entire operation.

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===== Axillo-uni-femoral bypass ======

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 PROCEDURES:

1. Right Axillofemoral artery bypass using PTFE graft (CPT# 35621)

2. Right common femoral endarterectomy (CPT# 35371)

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INDICATIONS: This is a \_\_\_ year-old patient who has been experiencing < \_\_\_\_\_\_ right , left , bilateral \_\_\_\_\_> lower extremity ischemic rest pain due to severe aortoiliac occlusive disease. Due to the severe aortoiliac occlusive disease and the patient’s cardiac dysfunction, the patient was taken to the operating room to undergo an axillobifemoral artery bypass grafting procedure. I've discussed with the patient regarding the benefits and risks of the procedure. The patient is aware of the benefits of the planned procedure which is to improve his lower leg circulation by means of an axillobifemoral artery bypass. The patient is also aware of the potential risks of the procedure, which include wound infection, bleeding, bypass graft occlusion, compartment syndrome, nerve injury, pneumonia, renal failure, myocardiac infarction, spinal cord paralysis, graft infection, stroke, and death. The overall incidence of these risks and complications was 2%. The patient has accepted these benefits and risks and agreed to undergo the planned bypass procedure.

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PROCEDURE IN DETAIL: The patient was taken to the operating room and placed on the table in the supine position. The patient received general anesthesia induction via orotracheal intubation. The patient's axillary area and bilateral legs were prepped sterilely and draped in the standard fashion. Appropriate time out was performed whereby the patient and site of surgery were identified. We made a right groin incision and continued the dissection using electrocautery. We identified the femoral sheath which was carefully opened. We isolated the common femoral artery, profunda femoral artery, and superficial femoral artery. Vessel loops were used to encircle these vessels. We next made an infraclavicular incision in the< \_\_\_\_\_ right left \_\_\_\_\_> upper chest region. Dissection was carried down using electrocautery. We carefully divided the pectoral sheath and opened the pectoral major muscle. We continued the dissection inferiorly and identified the axillary artery which was isolated using vessel loops. Systemic heparin was given intravenously for anticoagulation. We placed proximal and distal clamps in the axillary artery. A longitudinal incision was made in the axillary artery which was extended with a Potts scissor. An 8 mm PTFE graft was trimmed and connected to the axillary artery in an end-to-side fashion using 5-0 prolene sutures. Clamps were next released to ensure adequate hemostasis in the suture line. Next the PTFE graft was tunneled in the subcutaneous plane using a long tunneling device and the graft was brought out through the right femoral incision. We placed vascular clamps in the right common femoral artery, profunda femoral artery, and superficial femoral artery. A vertical arteriotomy was made using a #11 blade which was extended using a Potts scissor. We encountered a large amount of femoral artery plaque and performed femoral artery endarterectomy by removing the plaque from the common femoral artery and profunda femoral artery. We connected the distal axillary graft to the right femoral artery in an end-to-side fashion using 5-0 prolene sutures. Upon the completion of the anastomotic reconstruction, clamps were released and satisfactory hemostasis was achieved. The right femoral sheath was closed using 3-0 PDS sutures and the skin was closed using 4-0 Vicryl subcuticular sutures. Subcutaneous tissues were closed using 3-0 PDS sutures in the right pectoral wound, and the skin was closed using 4-0 Vicryl subcuticular sutures. The patient remained clinically stable throughout the entire operation. The patient suffered no complications, and the patient was taken to the recovery room in stable condition. I was present throughout the entire operation.

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===== BKA ======

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PROCEDURE: Right below knee amputation (CPT# 27880)

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INDICATIONS: This is a \_\_\_ year-old patient who recently developed lower extremity foot gangrene due to arterial occlusion. Because of the severe foot gangrene as well as significant ischemic rest pain, the patient was taken to the operating room to undergo a below-the-knee amputation procedure. Benefits of the proposed procedure, including elimination of gangrenous foot and infectious source and elimination of cause of ischemic rest pain were discussed with the patient's family. Potential risks and complications of the proposed procedures including hematoma formation, bleeding, wound infection, myocardial infarction, stroke, pneumonia, and phantom nerve pain were also discussed with the patient's family. I've informed the patient's family that the overall risk of these complications was 2%. The patient's family verbalized understanding and agreed to proceed.

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PROCEDURE IN DETAIL: The patient was brought to the operating room and placed on the operating room table in the supine position. General anesthesia was administered through endotracheal intubation by the anesthesiologist. The patient's < \_\_\_\_ right left \_\_\_ > leg was prepped sterilely and draped in the standard fashion. Appropriate time out was performed whereby the patient and site of surgery were identified. A transverse incision made about the mid shaft of the tibial bone. A long posterior flap was created using a skin scalpel. The posterior skin flap incision was taken to the subcutaneous tissues with electrocautery. Further dissection was carried down using electrocautery to divide the underlying subcutaneous tissues, fascia, and muscle compartment. Superficial peroneal nerve was next identified, clamped, and cut. The anterior neurovascular bundle was also identified, clamped, and divided. The superficial compartment was next reflected posteriorly. Tibial nerve and tibial vessels were identified, clamped, and divided using 3-0 silk sutures. The tibial periosteum was elevated proximally along with the fibula. The tibia was then cut using an oscillating saw. It was beveled anteriorly and smoothed down with a rasp. The fibula was disarticulated from its origin. The peroneal bundle identified, clamped, and divided. The leg was then passed off of the field. Adequate bleeding from the tissues was noted, and hemostasis was obtained using electrocautery. Next gastrocnemius and soleus fascia were brought up and attached to the anterior fascia and periosteum with #1 Vicryl in an interrupted fashion. The remaining fascia was closed with #1 Vicryl. Subcutaneous tissues were then closed with 2-0 PDS sutures in interrupted fashion. Skin closed with 2-0 Nylon sutures. Xeroform gauze, 4 x 4, and a padded soft dressing were applied. A knee immobilizer was placed across the knee join. The patient was extubated and taken to recovery in stable condition. The patient tolerated the procedure well without any complications. I was present throughout the entire operation.

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===== CEA ======

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PROCEDURE: Right carotid artery endarterectomy (CPT# 35301)

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INDICATIONS: This is a \_\_\_ year-old patient who has been diagnosed with a high grade < \_\_\_ right left \_\_\_\_ > carotid artery stenosis. The findings of the carotid artery occlusive disease were also confirmed by carotid duplex ultrasound as well as CT scan. Because of the patient's high grade carotid artery occlusive disease which is associated with a stroke risk of 14% per year, operative treatment of carotid endarterectomy was discussed with the patient who agreed to proceed with the treatment plan. I've discussed with the patient regarding the benefits and risks of carotid endarterectomy. The patient is aware of the surgical benefit which will reduce patient's risk of stroke to less than 1%. The patient is also aware of the risks of the operation which include neck hematoma, bleeding, stroke, and death. The overall risk of these risks and complications was 2%. The patient accepted these benefits and risks and has agreed to undergo the planned operation in an effort to reduce the patient's risk of stroke occurrence.

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PROCEDURE IN DETAIL: The patient was taken to the operating room and placed on the table in the supine position. The patient's < \_\_\_ right left \_\_\_\_ > neck was prepped sterilely and then draped in a standard fashion. The patient was given general anesthesia via orotracheal intubation by anesthesiology physician. Appropriate time out and site of surgery were identified and confirmed by all personnel in the operating room. Using an oblique incision in the neck, skin incision was made and dissection was carried down using electrocautery. We carefully opened the platysma muscle. The facial vein was next identified and divided. The jugular vein was next retracted laterally to provide exposure to the common carotid artery. We continued the dissection and isolated the common carotid artery. We also isolated the external carotid artery and the internal carotid artery. Circumferential control was obtained in the internal carotid artery, external carotid artery, and the common carotid artery. Vessel loops were used to encircle these vessels. At this point, heparin was given in which we placed a vascular clamp on the common carotid artery, external carotid artery, and internal carotid artery. We proceeded with a vertical incision in the common carotid artery which was extended into the internal carotid artery. A carotid shunt was inserted in the common carotid artery and internal carotid artery. The shunt was maintained throughout the entire operation. Carotid plaque was identified in the carotid bulb which involved the common carotid artery, internal carotid artery, and external artery. The carotid plaque was removed in its entirety from the common carotid artery, external carotid artery, and internal carotid artery. Distal edge of the plaque was removed with excellent visualization. Appropriate saline flush of the carotid intima was performed to ensure all plaque materials were removed completely. The carotid plaque was removed using a vertical eversion technique. Following that, the carotid arteriotomy was closed with a bovine pericardial patch using a #6-0 prolene suture in a running fashion. Prior to completion of the carotid arteriotomy closure, appropriate flushing was performed, and clamps were removed once the arteriotomy closure was completed. The wound was irrigated, and the platysma muscle was closed using #3-0 Vicryl and #4-0 Vicryl subcuticular sutures were used to close the skin. The patient remained neurologically stable throughout the entire operation. The patient suffered no neurologic complications, and the patient was taken to the recovery room in stable condition. I was present throughout the entire operation.

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===== Neck exploration (s/p CEA with neck hematoma ======

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PROCEDURES:

1. Right neck exploration with neck hematoma evacuation (CPT# 35800)

2. Repair of carotid artery for bleeding control with interrupted suture placement (CPT# 35201)

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INDICATIONS: This is a \_\_\_ year-old patient who underwent carotid endarterectomy earlier today with uneventful operative course. However, the patient developed neck hematoma postoperatively. Due to the expansion of the neck hematoma as well as concerns for airway compromise, the patient was taken back to the operating room to undergo neck exploration, hematoma evacuation, and possible repair of the carotid artery. I have discussed with the patient regarding the need for this urgent neck exploration. The patient is aware of the benefit of the treatment which is to evacuate the neck hematoma and repair potential bleeding vessel. The patient is also aware of the risks of the operation which include neck hematoma, bleeding, stroke, and death. The overall risk of these risks and complications was 2%. The patient accepted these benefits and risks and has agreed to undergo the planned operation in an effort to reduce the patient's risk of stroke occurrence.

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PROCEDURE IN DETAIL: The patient was taken to the operating room and placed on the table in the supine position. The patient's < \_\_\_ right left \_\_\_\_ > neck was prepped sterilely and then draped in a standard fashion. The patient was given general anesthesia via orotracheal intubation by anesthesiology physician. Appropriate time out and site of surgery were identified and confirmed by all personnel in the operating room. Using an oblique incision in the neck, skin incision was reopened with a scalpel. We reopened the fascia and entered the surgical cavity from the recent endarterectomy site. Next we evacuated approximately 30 ml of hematoma from the neck wound. Further evaluation revealed a small bleeding site along the carotid artery endarterectomy suture line. This area was repair with 5-0 prolene sutures in an interrupted fashions. Wound was next irrigated with saline fluid. The platysma muscle was closed using #3-0 Vicryl and #4-0 Vicryl subcuticular sutures were used to close the skin. The patient remained neurologically stable throughout the entire operation. The patient suffered no neurologic complications, and the patient was taken to the recovery room in stable condition. I was present throughout the entire operation.

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===== LEG AV Malformation/Hemangioma Excision ======

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PROCEDURE:

Excision of right lower extremity hemangioma (leg/ankle area, subfascial, intramuscular region; <5cm) (CPT# 27619)

Excision of right lower extremity hemangioma (thigh/knee area, subfascial, intramuscular region; <5cm) (CPT# 27328)

Excision of right lower extremity hemangioma (pelvis/hip area, subfascial, intramuscular region; <5cm) (CPT# 27048)

Excision of right lower extremity hemangioma (foot/toe area, subfascial, intramuscular region; <5cm) (CPT#28045)

Excision of left lower extremity hemangioma (leg/ankle area, subfascial, intramuscular region; <5cm) (CPT# 27619)

Excision of left lower extremity hemangioma (thigh/knee area, subfascial, intramuscular region; <5cm) (CPT# 27328)

Excision of left lower extremity hemangioma (pelvis/hip area, subfascial, intramuscular region; <5cm) (CPT# 27048)

Excision of left lower extremity hemangioma (foot/toe area, subfascial, intramuscular region; <5cm) (CPT#28045)

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INDICATIONS: This is a \_\_\_ year-old patient who has been experiencing lower extremity pain due to an enlarging skin mass consistent with a hemangioma. Due to the painful symptom as well as lesion enlargement, the patient was therefore taken to the operating room to undergo excision of the mass. The purpose of the procedure is to remove the mass and alleviate the lower extremity swelling and pain. The patient also understands the risks and complications of this procedure which include hematoma, bleeding, and infection. The patient agrees with the planned procedure of mass excision.

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PROCEDURE IN DETAIL: The patient was taken to the operating room and placed on the table in the supine position.

Appropriate time out was performed in which all nursing and surgical personnel concurred with the surgical plan. The patient's < right vs left > lower extremity was prepped sterilely and draped in a standard fashion. The area of the hemangioma located in the < pelvis vs. thigh vs. knee vs. ankle vs. foot > was identified.

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General anesthesia was given via orotracheal intubation.

The region of the hemangioma was injected with local anesthetic using 10 mL of 1% lidocaine without epinephrine solution.

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Using a sharp scalpel, an elliptical incision was made around the area of the hemangioma which was approximately 4cm by 5cm in size. The hemangioma lesion was carefully isolated using both blunt dissection and electrocautery dissection. The area of the hemangioma was isolated and excised. Areas of the bleeding vessels were oversewn using 5-0 prolene sutures in a running locking fashion. Electrocautery was used to achieve hemostasis. The lesion extended to the fascia and intramuscular layer which was removed in its entirety. Extensive undermining was required in order to close the large defect caused by the hemangioma excision. After extensive undermining, the deepest layer was closed with 3-0 PDS, the more intermediate layer was closed with 3-0 PDS, and the most superficial layer was closed with 4-0 PDS suture, followed by treatment with Dermabond dressing tape placement. The patient remained hemodynamically stable throughout the entire operation. The patient suffered no complications, and the patient was taken to the recovery room in stable condition.

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==Leg (fem. art repair + rect. femoris muscle flap + wound vac.) == =======================================================

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 PROCEDURES:

1. Repair of right femoral artery pseudoaneurysm (CPT# 35226)

2. Right groin debridement (CPT# 11043)

3. Right groin rotational muscle flap using rectus femoris muscle (CPT# 15738)

4. Placement of right groin wound vac (area of wound vac coverage: 10cm x 10cm x 5cm; CPT# 97606)

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INDICATIONS: This is a \_\_\_ year old patient has been experiencing groin pain and swelling, and the patient has been diagnosed with a femoral artery pseudoaneurysm based on a recent CT scan. Clinical exam showed erythematous groin with skin blisters and excoriation, which were suggestive of an infected femoral artery pseudoaneurysm. The patient was taken to the OR to undergo an operative exploration and femoral artery pseudoaneurysm repair. I've discussed with the patient regarding the benefits and risks of the procedure. The patient is aware of the benefits of the planned procedure which is to repair the femoral artery aneurysm which will prevent rupture. The patient is also aware of the potential risks of the procedure, which include wound infection, bleeding, artery occlusion, compartment syndrome, nerve injury, pneumonia, renal failure, myocardiac infarction, stroke, postoperative leg amputation, and death. The overall incidence of these risks and complications was 1%. The patient has accepted these benefits and risks and agreed to undergo the planned procedure.

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PROCEDURE IN DETAIL: The patient was taken to the operating room and placed on the table in the supine position. Following general anesthesia induction via orotracheal intubation, the patient's < \_\_\_\_\_ right left \_\_\_\_ > leg was prepped sterilely and draped in the standard fashion. Appropriate time out was performed whereby the patient and site of surgery were identified. We made an oblique groin incision and continued the dissection using electrocautery. We encountered large amount of infected tissues involving the skin, subcutaneous tissues, and muscle. Areas of tissue necrosis involving the skin, subcutaneous tissues, and groin muscles were sharply excised using electrocautery. We next identified and isolated the common femoral, profunda femoral, and superficial femoral arteries. A large femoral pseudoaneurysm was identified and isolated. Following clamp placement of the common femoral artery, profunda femoral artery, and superficial femoral artery, we opened the femoral artery pseudoaneurysm. The femoral artery defect where the pseudoaneurysm originated was repaired using multiple 5-0 prolene sutures with interrupted fashion. Hemostasis was achieved once femoral artery repair was completed. Due to the extensive soft tissue infection and large groin cavity, we decided to perform right groin rotational muscle flap using rectus femoris muscle. A vertical incision was made in the distal thigh just above the patellar ligament. Dissection was carried down using electrocautery. We identified and isolated the ligament of the rectus femoris muscle which was attached to the patella. The ligament was next detached. The rectus femoris muscle was carefully mobilized anteriorly. The rectus femoris muscle was next rotated anteriorly and brought out in the groin wound. The muscle flap was next used to cover the femoral artery and the groin cavity. The distal thigh wound was irrigated, and fascia was closed using a 3-0 PDS suture. A wound vac sponge was next placed in the groin wound. The area of wound vac sponge coverage was 10cm by 10cm by 5cm. Next a standard wound vac dressing was placed in the right groin skin area. Continual suctioning tube was connected to the wound vac. Dressing was applied in the standard fashion. The patient remained stable and was taken to the recovery room in a stable condition. The patient suffered no complications, and I was present throughout the entire procedure.

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== Leg (infect. graft removal + fem-fem bypass + rect. femoris muscle flap) ===

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PROCEDURES:

1. Repair of right femoral artery pseudoaneurysm (CPT# 35226)

2. Evacuation of right groin hematoma (CPT# 27301)

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INDICATIONS: This is a \_\_\_\_ year old patient who has been diagnosed with groin hematoma. The patient underwent CT scan which revealed evidence of femoral artery contrast extravasation with femoral artery pseudoaneurysm. The patient was taken to the OR to undergo an operative exploration and femoral artery pseudoaneurysm repair. I've discussed with the patient's family regarding the benefits and risks of the procedure. The patient is aware of the benefits of the planned procedure which is to repair the femoral artery aneurysm which will prevent rupture. The patient is also aware of the potential risks of the procedure, which include wound infection, bleeding, artery occlusion, compartment syndrome, nerve injury, pneumonia, renal failure, myocardiac infarction, stroke, postoperative leg amputation, and death. The overall incidence of these risks and complications was 1%. The patient's family has accepted these benefits and risks and agreed to undergo the planned procedure.

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PROCEDURE IN DETAIL: The patient was taken to the operating room and placed on the table in the supine position. Following general anesthesia induction via orotracheal intubation, the patient's < \_\_\_\_\_\_ right left \_\_\_\_\_ > leg was prepped sterilely and draped in the standard fashion. Appropriate time out was performed whereby the patient and site of surgery were identified. We made an oblique groin incision and continued the dissection using electrocautery. We encountered large amount of hematoma in the right medial thigh compartment, which was evacuated. We next identified and isolated the common femoral, profunda femoral, and superficial femoral arteries. A large femoral pseudoaneurysm was identified and isolated. Following clamp placement of the common femoral artery, profunda femoral artery, and superficial femoral artery, we opened the femoral artery pseudoaneurysm. The femoral artery defect where the pseudoaneurysm originated was repaired using multiple 5-0 prolene sutures with interrupted fashion. Hemostasis was achieved once femoral artery repair was completed. The thigh wound was irrigated, and fascia was closed using a 3-0 PDS suture. The skin was closed using a 4-0 monocryl suture in a subcuticular fashion. Dressing was applied in the standard fashion. The patient remained stable and was taken to the recovery room in a stable condition. The patient suffered no complications, and I was present throughout the entire procedure.

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== Leg (fem. art. thrombectomy + fasciotomy ===

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PROCEDURES:

1. Right femoral artery thrombectomy using Fogarty thrombectomy balloon catheter (CPT# 34201)

2. Right lower leg calf four-compartment fasciotomy (CPT# 27602)

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INDICATIONS: This is a \_\_\_\_ year old patient who has been diagnosed with lower leg arterial thrombosis. The patient also developed compartment syndrome. The patient was taken to the OR to undergo an operative exploration with femoral artery thrombectomy and fasciotomy. I've discussed with the patient's family regarding the benefits and risks of the procedure. The patient is aware of the benefits of the planned procedure which is to remove the femoral artery thrombus which will restore the lower leg arterial circulation. The patient is also aware of the potential risks of the procedure, which include wound infection, bleeding, artery occlusion, nerve injury, pneumonia, renal failure, myocardiac infarction, stroke, postoperative leg amputation, and death. The overall incidence of these risks and complications was 1%. The patient's family has accepted these benefits and risks and agreed to undergo the planned procedure.

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PROCEDURE IN DETAIL: The patient was taken to the operating room and placed on the table in the supine position. Following general anesthesia induction via orotracheal intubation, the patient's < \_\_\_\_\_\_ right left \_\_\_\_\_ > leg was prepped sterilely and draped in the standard fashion. Appropriate time out was performed whereby the patient and site of surgery were identified. We made an oblique groin incision and continued the dissection using electrocautery. We isolated the femoral artery circumferentially. Next proximal vascular clamp and distal vascular clamps were applied in the femoral artery for vascular control. A transvere arteriotomy was made using #11 scalpel. A No. 3 Fogarty embolectomy balloon was inserted in the femoral artery for thromboembolectomy. We removed a large amount of thrombus from the lower leg arterial circulation. Multiple passages of the balloon was performed into the popliteal and tibial arteries for embolectomy. Once we were satisfied with the brisk back bleeding, the arteriotomy was closed using 5-0 prolene sutures. The skin and fascia were closed using PDS sutures. Next we turned our attention to the fasciotomy procedure. A longitudinal skin incision was made in the medial as well as the lateral portion of the calf. Dissection was carried down using electrocautery. We carefully opened the fascia surrounding all four calf compartment including the anterior compartment, lateral compartment, superficial posterior compartment, and deep posterior compartment. Electrocautery was used to achieve hemostasis. Next Kerlex dressing was used to wrap the fasciotomy site which was followed by Ace bandage. Dressing was applied in the standard fashion. The patient remained stable and was taken to the recovery room in a stable condition. The patient suffered no complications, and I was present throughout the entire procedure.

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=== Leg (iliac art. Repair intraop injury) ==

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PROCEDURES: Repair of right iliac artery injury with primary repair (CPT# 35226)

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INDICATIONS: This is a \_\_\_\_ year old patient who has been diagnosed with a large pelvic mass due to ovarian mass. The patient underwent exploratory laparotomy with tumor resection by Dr. Alan Schlaerth. During the tumor resection procedure, significant intraoperative bleeding was encountered due to right iliac artery injury. I was asked to participate in the operation urgently to repair the right iliac artery injury.

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PROCEDURE IN DETAIL: The patient’s abdomen was already opened in exploratory laparotomy. The pelvic tumor has already been resected by Dr. Alan Schlaerth. Further inspection of the pelvic revealed a 3mm injury in the right common iliac artery. Proximal and distal clamps were applied in the right common iliac artery. The injured segment of the iliac artery was repaired primarily using 5-0 prolene suture in a figure-of-eight fashion. Hemostasis was achieved once the iliac artery repair was completed. Clamps were next removed and the lower leg arterial circulation was restored. At this point, Dr. Schlaerth continued with the remainder portion of the tumor resection operation. The patient remained stable throughout the procedure. She was taken to the ICU at the completion of the procedure.

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===== Leg (peroneal nerve decompression) ======

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PROCEDURE: < \_\_\_\_ Right Left \_\_\_\_ > Peroneal nerve decompression with neurolysis and neuroplasty (CPT# 64708)

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INDICATIONS: This is a \_\_\_ year old patient who has been diagnosed with peroneal nerve entrapment syndrome of the lower extremity with symptoms including leg pain and sensory deficit along the dorsum of the foot. The patient was taken to the OR to undergo an operative decompression of the peroneal nerve. I've discussed with the patient regarding the benefits and risks of the procedure. The patient is aware of the benefits of the planned procedure which is to release the peroneal nerve and decompress the entrapped peroneal nerve. The patient is also aware of the potential risks of the procedure, which include wound infection, bleeding, nerve injury, and leg pain. The overall incidence of these risks and complications was 1%. The patient has accepted these benefits and risks and agreed to undergo the planned procedure.

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PROCEDURE IN DETAIL: The patient was taken to the operating room and placed on the table in the supine position. Following general anesthesia induction via orotracheal intubation, the patient's <\_\_\_\_\_\_ right left \_\_\_\_\_\_ > leg was prepped sterilely and draped in the standard fashion. Appropriate time out was performed whereby the patient and site of surgery were identified. We made a 3 cm skin incision along the lateral portion of the fibular head. Dissection was carried down using electrocautery. Subcutaneous fat and tissues were carefully dissected away using blunt dissection. The deep peroneal fascia was identified and carefully opened. This exposed the common peroneal nerve underneath the fascia. Next using finger dissection, the space beneath the peroneal longus muscle was carefully opened. The common peroneal nerve travels underneath the peroneal longus muscle was released. We next performed a fasciotomy of the superficial fascia of the muscle belly, and then retracted the muscle anteriorly and medially. Next we performed neurolysis of the nerve distally. The entrapped nerve was completely decompressed. Subcutaneous tissues were closed using 3-0 PDS sutures. The skin was closed using a 4-0 monocryl suture in a subcuticular fashion. Dermabond was applied over the incision site in the usual fashion. Dressing was applied in the standard fashion. The patient remained stable and was taken to the recovery room in a stable condition. The patient suffered no complications, and I was present throughout the entire procedure.

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===== Leg bypass (fem-AK-pop) ======

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PROCEDURES:

1. Right femoral artery to above-knee popliteal artery bypass using < \_\_\_\_ GORE PTFE prosthetic graft | bovine carotid artery graft (Artegraft) \_\_\_ > (CPT# 35656)

2. Right common femoral artery endarterectomy (CPT# 35371)

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INDICATIONS: This is a \_\_\_ year old patient who has been experiencing lower extremity arterial ischemia with symptoms including toe gangrene and ischemic rest pain. The patient was scheduled to undergo a leg bypass operation to improve the leg arterial circulation. I've discussed with the patient regarding the benefits and risks of the procedure. The patient is aware of the benefits of the planned procedure which is to improve the lower leg arterial circulation. The patient is also aware of the potential risks of the procedure, which include wound infection, bleeding, bypass graft occlusion, compartment syndrome, nerve injury, pneumonia, renal failure, myocardiac infarction, stroke, postoperative leg amputation, and death. The overall incidence of these risks and complications was 1%. The patient has accepted these benefits and risks and agreed to undergo the planned lower leg bypass procedure.

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PROCEDURE IN DETAIL: The patient was taken to the operating room and placed on the table in the supine position. Following general anesthesia induction via orotracheal intubation, the patient's < \_\_\_\_ right left \_\_\_\_ > leg was prepped sterilely and draped in the standard fashion. Appropriate time out was performed whereby the patient and site of surgery were identified. We made a groin incision and continued the dissection using electrocautery. We identified and isolated the common femoral, profunda femoral, and superficial femoral arteries. A distal incision was made in the distal thigh portion of the popliteal fossa just above the knee. Dissection was carried down using electrocautery. We open the popliteal compartment fascia and isolated the popliteal artery. The popliteal artery was controlled circumferentially using vessel loops. Next systemic heparin was next given intravenously. Vascular clamps were next placed in the proximal and distal segments of the common femoral artery. An arteriotomy was opened in the femoral artery using a #11 blade, which was extended using a Potts scissor. We encountered a circumferential common femoral artery plaque which was removed for common femoral artery endarterectomy. Once the common femoral artery endarterectomy was completed, a 6 mm

< \_\_\_\_ GORE PTFE prosthetic graft | bovine carotid artery graft (Artegraft) \_\_\_ >

was next connected to the femoral artery in an end-to-side fashion using a 5-0 Prolene sutures. Next the bypass graft was tunneled in a subfascial space and brought out in the distal incision site where popliteal artery was exposed above the knee. The popliteal artery was next controlled with both proximal and distal vascular clamps. An arteriotomy was next opened in the artery using #11 blade. Next the distal end of the bypass graft was connected to the popliteal artery in an end-to-side fashion using a 6-0 prolene suture. Upon the completion of the end-to-side anastomotic reconstruction, the clamps were released and excellent blood flow was noted in the femoro-popliteal artery bypass graft. The wound was irrigated, and fascia was closed using a 3-0 PDS suture. The skin was closed using a 4-0 monocryl suture in a subcuticular fashion. Dermabond was applied over the incision site in the usual fashion. The patient tolerated the procedure well without any complication. I was present throughout the entire operation.

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===== Leg bypass (fem-AT) ======

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PROCEDURES:

1. Right common femoral artery to anterior tibial artery bypass using < \_\_\_\_\_\_ GORE PTFE prosthetic graft | bovine carotid artery graft (Artegraft) \_\_\_\_\_\_ > (CPT# 35666)

2. Right common femoral artery endarterectomy (CPT# 35371)

3. Creation of distal anastomotic vein patch using bovine pericardial patch (CPT# 35685)

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INDICATIONS: This is a \_\_\_ year old patient who has been experiencing lower extremity arterial ischemia with symptoms including toe gangrene and ischemic rest pain. The patient was scheduled to undergo a leg bypass operation to improve the leg arterial circulation. I've discussed with the patient regarding the benefits and risks of the procedure. The patient is aware of the benefits of the planned procedure which is to improve the lower leg arterial circulation. The patient is also aware of the potential risks of the procedure, which include wound infection, bleeding, bypass graft occlusion, compartment syndrome, nerve injury, pneumonia, renal failure, myocardiac infarction, stroke, postoperative leg amputation, and death. The overall incidence of these risks and complications was 1%. The patient has accepted these benefits and risks and agreed to undergo the planned lower leg bypass procedure.

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PROCEDURE IN DETAIL: The patient was taken to the operating room and placed on the table in the supine position. Following general anesthesia induction via orotracheal intubation, the patient's < \_\_\_\_ right left \_\_\_\_ > leg was prepped sterilely and draped in the standard fashion. Appropriate time out was performed whereby the patient and site of surgery were identified. We made a right groin incision and continued the dissection using electrocautery. We identified and isolated the common femoral, profunda femoral, and superficial femoral arteries. A distal incision was made in the mid portion of the lateral calf. Dissection was carried down using electrocautery. We opened the anterior tibial compartment fascia and isolated the anterior tibial artery in its proximal segment. Vessel loops were used to isolate the anterior tibial artery. Next systemic heparin was next given intravenously. Vascular clamps were next placed in the proximal and distal segments of the common femoral artery. An arteriotomy was opened in the femoral artery using a #11 blade, which was extended using a Potts scissor. We encountered a circumferential common femoral artery plaque which was removed for common femoral artery endarterectomy. Once the common femoral artery endarterectomy was completed, a 6 mm

< \_\_\_\_\_\_ GORE PTFE prosthetic graft | bovine carotid artery graft (Artegraft) \_\_\_\_\_\_ >

was next connected to the femoral artery in an end-to-side fashion using a 5-0 Prolene sutures. Next the prosthetic graft was tunneled in a subfascial space and brought out in the distal incision site where anterior tibial artery was exposed. The anterior tibial artery was next controlled with a sterile tourniquet. An arteriotomy was next opened in the anterior tibial artery using #11 blade. We created a vein patch in the distal anastomosis using a bovine pericardial patch which was connected to the anterior tibial artery using 6-0 prolene suture. Next the distal end of the bypass graft was connected to the anterior tibial artery in an end-to-side fashion using a 6-0 prolene suture. Upon the completion of the end-to-side anastomotic reconstruction, the tourniquet was released and excellent blood flow was noted in the femoro-anterior tibial artery bypass graft. The wound was irrigated, and fascia was closed using a 3-0 PDS suture. The skin was closed using a 4-0 monocryl suture in a subcuticular fashion. Dermabond was applied over the incision site in the usual fashion. The patient tolerated the procedure well without any complication. I was present throughout the entire operation.

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===== Leg bypass (fem-BK-pop) ======

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PROCEDURES:

1. Right femoral artery to below -knee popliteal artery bypass using < \_\_\_\_ GORE PTFE prosthetic graft | bovine carotid artery graft (Artegraft) \_\_\_ > (CPT# 35656)

2. Right common femoral artery endarterectomy (CPT# 35371)

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INDICATIONS: This is a \_\_\_ year old patient who has been experiencing lower extremity arterial ischemia with symptoms including toe gangrene and ischemic rest pain. The patient was scheduled to undergo a leg bypass operation to improve the leg arterial circulation. I've discussed with the patient regarding the benefits and risks of the procedure. The patient is aware of the benefits of the planned procedure which is to improve the lower leg arterial circulation. The patient is also aware of the potential risks of the procedure, which include wound infection, bleeding, bypass graft occlusion, compartment syndrome, nerve injury, pneumonia, renal failure, myocardiac infarction, stroke, postoperative leg amputation, and death. The overall incidence of these risks and complications was 1%. The patient has accepted these benefits and risks and agreed to undergo the planned lower leg bypass procedure.

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PROCEDURE IN DETAIL: The patient was taken to the operating room and placed on the table in the supine position. Following general anesthesia induction via orotracheal intubation, the patient's < \_\_\_\_ right left \_\_\_\_ > leg was prepped sterilely and draped in the standard fashion. Appropriate time out was performed whereby the patient and site of surgery were identified. We made a groin incision and continued the dissection using electrocautery. We identified and isolated the common femoral, profunda femoral, and superficial femoral arteries. A distal incision was made in the mid portion of the popliteal fossa just below the knee. Dissection was carried down using electrocautery. We open the popliteal compartment fascia and isolated the popliteal artery. The popliteal artery was controlled circumferentially using vessel loops. Next systemic heparin was next given intravenously. Vascular clamps were next placed in the proximal and distal segments of the common femoral artery. An arteriotomy was opened in the femoral artery using a #11 blade, which was extended using a Potts scissor. We encountered a circumferential common femoral artery plaque which was removed for common femoral artery endarterectomy. Once the common femoral artery endarterectomy was completed, a 6 mm

< \_\_\_\_ GORE PTFE prosthetic graft | bovine carotid artery graft (Artegraft) \_\_\_ >

was next connected to the femoral artery in an end-to-side fashion using a 5-0 Prolene sutures. Next the bypass graft was tunneled in a subfascial space and brought out in the distal incision site where popliteal artery was exposed below the knee. The popliteal artery was next controlled with both proximal and distal vascular clamps. An arteriotomy was next opened in the artery using #11 blade. Next the distal end of the bypass graft was connected to the popliteal artery in an end-to-side fashion using a 6-0 prolene suture. Upon the completion of the end-to-side anastomotic reconstruction, the clamps were released and excellent blood flow was noted in the femoro-popliteal artery bypass graft. The wound was irrigated, and fascia was closed using a 3-0 PDS suture. The skin was closed using a 4-0 monocryl suture in a subcuticular fashion. Dermabond was applied over the incision site in the usual fashion. The patient tolerated the procedure well without any complication. I was present throughout the entire operation.

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===== Leg bypass (fem-fem) ======

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1. Femoro-femoral artery bypass (right-to-left) using PTFE graft (CPT# 35661)

1. Femoro-femoral artery bypass (left-to-right) using PTFE graft (CPT# 35661)

2. Right common femoral endarterectomy (CPT# 35371)

3. Left common femoral endarterectomy (CPT# 35371-XU)

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INDICATIONS: This is a \_\_\_ year-old patient who has been experiencing < \_\_\_\_\_\_ right , left \_\_\_\_> lower extremity ischemic rest pain due to severe aortoiliac occlusive disease. Due to the severe aortoiliac occlusive disease and the patient’s cardiac dysfunction, the patient was taken to the operating room to undergo a << right to left , left to right > > femorofemoral artery bypass grafting procedure. I've discussed with the patient regarding the benefits and risks of the procedure. The patient is aware of the benefits of the planned procedure which is to improve his lower leg circulation by means of an axillobifemoral artery bypass. The patient is also aware of the potential risks of the procedure, which include wound infection, bleeding, bypass graft occlusion, compartment syndrome, nerve injury, pneumonia, renal failure, myocardiac infarction, spinal cord paralysis, graft infection, stroke, and death. The overall incidence of these risks and complications was 2%. The patient has accepted these benefits and risks and agreed to undergo the planned bypass procedure.

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PROCEDURE IN DETAIL: The patient was taken to the operating room and placed on the table in the supine position. The patient received general anesthesia induction via orotracheal intubation. The patient's bilateral legs were prepped sterilely and draped in the standard fashion. Appropriate time out was performed whereby the patient and site of surgery were identified. We made a right groin incision and continued the dissection using electrocautery. We identified the femoral sheath which was carefully opened. We isolated the common femoral artery, profunda femoral artery, and superficial femoral artery. Vessel loops were used to encircle these vessels. Next we made a left groin incision and continued the dissection using electrocautery. We identified the femoral sheath which was carefully opened. We isolated the common femoral artery, profunda femoral artery, and superficial femoral artery. Vessel loops were used to encircle these vessels. We placed vascular clamps in the right common femoral artery, profunda femoral artery, and superficial femoral artery. A vertical arteriotomy was made using a #11 blade which was extended using a Potts scissor. We encountered a large amount of femoral artery plaque and performed femoral artery endarterectomy by removing the plaque from the common femoral artery and profunda femoral artery. An 8 mm PTFE graft was trimmed and connected to the femoral artery in an end-to-side fashion using 5-0 prolene sutures. Clamps were next released to ensure adequate hemostasis in the suture line. Next the PTFE graft was tunneled in the subcutaneous plane using a tunneling device and the graft was brought out through the left femoral incision. We then placed vascular clamps in the left common femoral artery, profunda femoral artery, and superficial femoral artery. A vertical arteriotomy was made using a #11 blade which was extended using a Potts scissor. We encountered a large amount of femoral artery plaque and performed femoral artery endarterectomy by removing the plaque from the common femoral artery and profunda femoral artery. An 8 mm PTFE graft was trimmed and connected to the femoral artery in an end-to-side fashion using 5-0 prolene sutures. Clamps were next released to ensure adequate hemostasis in the suture line. The right femoral sheath was closed using 3-0 PDS sutures and the skin was closed using 4-0 Vicryl subcuticular sutures. The left femoral sheath was closed using 3-0 PDS sutures and the skin was closed using 4-0 Vicryl subcuticular sutures. Subcutaneous tissues were closed using 3-0 PDS sutures in the right pectoral wound, and the skin was closed using 4-0 Vicryl subcuticular sutures. The patient remained clinically stable throughout the entire operation. The patient suffered no complications, and the patient was taken to the recovery room in stable condition. I was present throughout the entire operation.

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===== Leg bypass (ilio-fem) ======

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PROCEDURES:

1. Ilio-femoral artery bypass (right-to-left) using PTFE graft (CPT# 35665)

1. Ilio-femoral artery bypass (left-to-right) using PTFE graft (CPT# 35665)

2. Right common femoral endarterectomy (CPT# 35371)

3. Left common femoral endarterectomy (CPT# 35371-XU)

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INDICATIONS: This is a \_\_\_ year-old patient who has been experiencing < \_\_\_\_\_\_ right , left \_\_\_\_> lower extremity ischemic rest pain due to severe aortoiliac occlusive disease. Due to the severe aortoiliac occlusive disease and the patient’s cardiac dysfunction, the patient was taken to the operating room to undergo a << right to left , left to right > > iliofemoral artery bypass grafting procedure. I've discussed with the patient regarding the benefits and risks of the procedure. The patient is aware of the benefits of the planned procedure which is to improve his lower leg circulation by means of an axillobifemoral artery bypass. The patient is also aware of the potential risks of the procedure, which include wound infection, bleeding, bypass graft occlusion, compartment syndrome, nerve injury, pneumonia, renal failure, myocardiac infarction, spinal cord paralysis, graft infection, stroke, and death. The overall incidence of these risks and complications was 2%. The patient has accepted these benefits and risks and agreed to undergo the planned bypass procedure.

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PROCEDURE IN DETAIL: The patient was taken to the operating room and placed on the table in the supine position. The patient received general anesthesia induction via orotracheal intubation. The patient's bilateral legs were prepped sterilely and draped in the standard fashion. Appropriate time out was performed whereby the patient and site of surgery were identified.

------- << RIGHT TO LEFT ILIOFEMORAL BYPASS >> --------

We made a right groin incision and continued the dissection using electrocautery. We identified the femoral sheath which was carefully opened. We isolated the common femoral artery, profunda femoral artery, and superficial femoral artery. Vessel loops were used to encircle these vessels. The groin incision was extended proximally to isolate the iliac artery. Next we made a left groin incision and continued the dissection using electrocautery. We identified the femoral sheath which was carefully opened. We isolated the common femoral artery, profunda femoral artery, and superficial femoral artery. Vessel loops were used to encircle these vessels. We placed vascular clamps in the right iliac artery and common femoral artery. A vertical arteriotomy was made in the iliac artery extending to the femoral artery using a #11 blade which was extended using a Potts scissor. We encountered a large amount of femoral artery plaque and performed femoral artery endarterectomy by removing the plaque from the common femoral artery. An 8 mm PTFE graft was trimmed and connected to the iliac artery in an end-to-side fashion using 5-0 prolene sutures. Clamps were next released to ensure adequate hemostasis in the suture line. Next the PTFE graft was tunneled in the subcutaneous plane using a tunneling device and the graft was brought out through the left femoral incision. We then placed vascular clamps in the left common femoral artery, profunda femoral artery, and superficial femoral artery. A vertical arteriotomy was made using a #11 blade which was extended using a Potts scissor. We encountered a large amount of femoral artery plaque and performed femoral artery endarterectomy by removing the plaque from the common femoral artery and profunda femoral artery. An 8 mm PTFE graft was trimmed and connected to the femoral artery in an end-to-side fashion using 5-0 prolene sutures. Clamps were next released to ensure adequate hemostasis in the suture line. The right femoral sheath was closed using 3-0 PDS sutures and the skin was closed using 4-0 Vicryl subcuticular sutures. The left femoral sheath was closed using 3-0 PDS sutures and the skin was closed using 4-0 Vicryl subcuticular sutures. Subcutaneous tissues were closed using 3-0 PDS sutures in the right pectoral wound, and the skin was closed using 4-0 Vicryl subcuticular sutures. The patient remained clinically stable throughout the entire operation. The patient suffered no complications, and the patient was taken to the recovery room in stable condition. I was present throughout the entire operation.

------- << LEFT TO RIGHT ILIOFEMORAL BYPASS >> --------

We made a left groin incision and continued the dissection using electrocautery. We identified the femoral sheath which was carefully opened. We isolated the common femoral artery, profunda femoral artery, and superficial femoral artery. Vessel loops were used to encircle these vessels. The groin incision was extended proximally to isolate the iliac artery. Next we made a right groin incision and continued the dissection using electrocautery. We identified the femoral sheath which was carefully opened. We isolated the common femoral artery, profunda femoral artery, and superficial femoral artery. Vessel loops were used to encircle these vessels. We placed vascular clamps in the left iliac artery and common femoral artery. A vertical arteriotomy was made in the iliac artery extending to the femoral artery using a #11 blade which was extended using a Potts scissor. We encountered a large amount of femoral artery plaque and performed femoral artery endarterectomy by removing the plaque from the common femoral artery. An 8 mm PTFE graft was trimmed and connected to the iliac artery in an end-to-side fashion using 5-0 prolene sutures. Clamps were next released to ensure adequate hemostasis in the suture line. Next the PTFE graft was tunneled in the subcutaneous plane using a tunneling device and the graft was brought out through the right femoral incision. We then placed vascular clamps in the right common femoral artery, profunda femoral artery, and superficial femoral artery. A vertical arteriotomy was made using a #11 blade which was extended using a Potts scissor. We encountered a large amount of femoral artery plaque and performed femoral artery endarterectomy by removing the plaque from the common femoral artery and profunda femoral artery. An 8 mm PTFE graft was trimmed and connected to the femoral artery in an end-to-side fashion using 5-0 prolene sutures. Clamps were next released to ensure adequate hemostasis in the suture line. The right femoral sheath was closed using 3-0 PDS sutures and the skin was closed using 4-0 Vicryl subcuticular sutures. The left femoral sheath was closed using 3-0 PDS sutures and the skin was closed using 4-0 Vicryl subcuticular sutures. Subcutaneous tissues were closed using 3-0 PDS sutures in the right pectoral wound, and the skin was closed using 4-0 Vicryl subcuticular sutures. The patient remained clinically stable throughout the entire operation. The patient suffered no complications, and the patient was taken to the recovery room in stable condition. I was present throughout the entire operation.

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===== Leg embolectomy (popliteal) ======

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PROCEDURES:

1. Right leg thromboembolectomy using Fogarty balloon of the popliteal artery, peroneal artery, anterior tibial artery, and posterior tibial artery (CPT# 34203)

2. Creation of distal vein patch using bovine pericardial patch (CPT# 35685)

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INDICATIONS: This is a \_\_\_ year old patient who has been experiencing lower extremity arterial ischemia with symptoms including toe gangrene and ischemic rest pain. The patient recently underwent lower leg angiogram which revealed popliteal and tibial artery occlusion due to thromboembolism. The patient is scheduled for thromboembolectomy procedure. I have discussed with the patient regarding the benefits and risks of the procedure. The patient is aware of the benefits of the planned procedure which is to improve the lower leg arterial circulation by removing the arterial embolism. The patient is also aware of the potential risks of the procedure, which include wound infection, bleeding, bypass graft occlusion, compartment syndrome, nerve injury, pneumonia, renal failure, myocardiac infarction, stroke, postoperative leg amputation, and death. The overall incidence of these risks and complications was 1%. The patient has accepted these benefits and risks and agreed to undergo the planned lower leg bypass procedure.

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PROCEDURE IN DETAIL: The patient was taken to the operating room and placed on the table in the supine position. Following general anesthesia induction via orotracheal intubation, the patient's < \_\_\_\_ right left \_\_\_\_ > leg was prepped sterilely and draped in the standard fashion. Appropriate time out was performed whereby the patient and site of surgery were identified. We made a longitudinal incision in the medial portion of the calf, and continued the dissection using electrocautery. We identified and isolated the popliteal artery, anterior tibial artery, peroneal artery, and posterior tibial artery. Vessel loops were placed circumferentially around these vessels for vascular control. Next systemic heparin was given, and clamps were applied in these vessels. A longitudinal arteriotomy was made using a #11 blade in the popliteal artery which was extended to the tibioperoneal trunk. A #3 and #4 Fogarty balloon was used for thromboembolectomy which was carried out in the popliteal artery, anterior tibial artery, peroneal artery, and posterior tibial artery. Multiple thromboemboli were removed from these vessels. Once the thromboembolism was successfully removed, we used a bovine pericardial patch to close the arteriotomy. This is dong using a 5-0 prolene suture to create a vein patch in the popliteal artery. Upon the completion of the vein patch reconstruction, the clamps were was released and excellent blood flow was noted in the tibial arteries. The wound was irrigated, and fascia was closed using a 3-0 PDS suture. The skin was closed using a 4-0 monocryl suture in a subcuticular fashion. Dermabond was applied over the incision site in the usual fashion. The patient tolerated the procedure well without any complication. I was present throughout the entire operation.

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=== Leg Wound Deb, Hematoma Evac, Muscle Flap, Wound Vac ===

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PROCEDURES:

1. Lower extremity exploration for postoperative hemorrhage (CPT# 35860)

2. Right thigh hematoma evacuation (CPT# 27301)

Right leg wound excisional debridement (CPT# 11043)

Right leg rotational muscle flap using gracilis muscle (CPT# 15738)

Placement of right leg wound vac (area of wound vac coverage: 10cm x 10cm x 5cm; CPT# 97606)

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INDICATIONS: This is a \_\_\_ year old patient who previously underwent right leg amputation procedure due to lower extremity gangrene. The patient developed acute onset of pain with purulent discharge from the amputation incision site. Due to the pain associated with wound infection with wound dehiscence, the patient was taken to the OR to undergo an operative exploration and wound debridement with possible wound vac placement. I've discussed with the patient regarding the benefits and risks of the procedure. The patient is aware of the benefits of the planned procedure which is to washout the wound to decrease wound infection and promote wound healing. The patient is also aware of the potential risks of the procedure, which include wound infection, bleeding, artery occlusion, compartment syndrome, nerve injury, pneumonia, renal failure, myocardiac infarction, stroke, postoperative leg amputation, and death. The overall incidence of these risks and complications was 1%. The patient has accepted these benefits and risks and agreed to undergo the planned procedure.

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PROCEDURE IN DETAIL: The patient was taken to the operating room and placed on the table in the supine position. Following general anesthesia induction via orotracheal intubation, the patient's < \_\_\_\_\_ right left \_\_\_\_ > leg was prepped sterilely and draped in the standard fashion. Appropriate time out was performed whereby the patient and site of surgery were identified.

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We made a longitudinal incision over the lower leg hematoma site which was followed by wound exploration. We encountered a large amount of hematoma over 200 ml in volume which was evacuated. Pulsed lavage using antibiotic irrigation solution was performed to washout the wound. Due to the large cavitary space created by the hematoma, we decided to perform sartorius muscle rotation flap to cover the space as well as to protected the bypass graft. This is done by mobilizing the sartorius muscle circumferentially and detaching the sartorious tendon from anterior superior iliac spine. Next the muscle was rotated medially and attached to the femoral sheath using 2-0 vicryl suture to cover the bypass graft.

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We made a longitudinal incision along the previously made incision area. Further dissection was made using the electrocautery to open the fascia. We encountered large amount of infected tissues involving the skin, subcutaneous tissues, and muscle. Areas of tissue necrosis involving the skin, subcutaneous tissues, and groin muscles were sharply excised using electrocautery. The wound cavity was thoroughly irrigated with antibiotic solution.

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 Due to the extensive soft tissue infection and large wound cavity, we decided to perform right leg gracilis rotational muscle flap to cover the exposed femur. The distal segment of the gracilis muscle was carefully mobilized and rotated medially and anchored to the medial portion of the femur periosteum using 2-0 PDS sutures. This rotational muscle flap was next used to cover the femur as well as the ligated femoral artery.

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 The distal thigh wound was irrigated, and fascia was closed using a 3-0 PDS suture. A wound vac sponge was next placed in the groin wound. The area of wound vac sponge coverage was 10cm by 10cm by 5cm. Next a standard wound vac dressing was placed in the right groin skin area. Continual suctioning tube was connected to the wound vac. Dressing was applied in the standard fashion. The patient remained stable and was taken to the recovery room in a stable condition. The patient suffered no complications, and I was present throughout the entire procedure.

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===== PD catheter insertion ======

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PROCEDURE: Laparoscopic peritoneal dialysis catheter placement (CPT# 49324)

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INDICATIONS: This is a \_\_\_ year-old patient who recently was diagnosed with end stage renal failure. The patient is scheduled for laparoscopic peritoneal dialysis catheter insertion. Benefits of the procedure were discussed with the patient, which include peritoneal dialysis catheter insertion to enable home peritoneal dialysis. Potential risks and complications of the proposed procedures including bowel injury, catheter occlusion, catheter migration, bleeding, wound infection, and catheter malfunction were also discussed with the patient and patient's family. I've informed the patient that the overall risk of these complications was 1%. The patient verbalized understanding and agreed to proceed.

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PROCEDURE IN DETAIL: The patient was brought to the operating room and placed on the operating room table in the supine position. General anesthesia was administered through endotracheal intubation by the anesthesiologist. The patient's abdomen was prepped sterilely and draped in the standard fashion. Appropriate time out was performed whereby the patient and site of surgery were identified. A small incision was made in the left upper quadrant of the abdomen. A 5mm trocar was inserted in the abdominal cavity under laparoscopic camera visualization. We next placed a 12mm trocar in the periumbilical region. Gas insufflation was established to maintain adequate pneumoperitoneum. Next we inserted a peritoneal dialysis catheter with the support of a stiff guidewire which was inserted via the 12mm trocar. Under direct visualization, the catheter was positioned in the pelvis. The catheter was tunneled subcutaneously and brought out in a separate incision site in the right lower quadrant of the abdomen. Next trocars were removed and the abdominal fascia was closed using 3-0 PDS sutures. Skin layer was closed using 4-0 monocryl sutures. Saline flush was infused in the catheter and clear fluid was aspirated from the catheter without difficulty. Dressing was applied in the usual fashion. The patient was extubated and taken to recovery in stable condition. The patient tolerated the procedure well without any complications. I was present throughout the entire operation.

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===== PD Catheter Removal ======

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PROCEDURE: Removal of peritoneal dialysis catheter (CPT# 49422)

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INDICATIONS: This is a \_\_\_ year-old patient who recently was diagnosed with end stage renal failure who has been receiving home peritoneal dialysis. The patient recently developed peritoneal catheter infection with abdominal pain. We plan to remove the peritoneal dialysis catheter under general anesthesia. Benefits of the procedure were discussed with the patient, which include peritoneal dialysis catheter removal for infection control. Potential risks and complications of the proposed procedures including bowel injury, catheter occlusion, bleeding, wound infection, and bladder injury were also discussed with the patient and patient's family. I've informed the patient that the overall risk of these complications was 1%. The patient verbalized understanding and agreed to proceed.

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PROCEDURE IN DETAIL: The patient was brought to the operating room and placed on the operating room table in the supine position. General anesthesia was administered through endotracheal intubation by the anesthesiologist. The patient's abdomen was prepped sterilely and draped in the standard fashion. Appropriate time out was performed whereby the patient and site of surgery were identified. A small incision was made in the left upper quadrant of the abdomen over the catheter exit site. Dissection was carried down using electrocautery. The catheter was isolated and removed from the abdominal cavity. The abdominal fascia was closed using 3-0 PDS sutures. Skin layer was closed using 4-0 monocryl sutures. Dressing was applied in the usual fashion. The patient was extubated and taken to recovery in stable condition. The patient tolerated the procedure well without any complications. I was present throughout the entire operation.

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===== PD Catheter Replacement ======

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PROCEDURES:

1. Diagnostic laparoscopy (CPT# 49320)

2. Laparoscopic lysis of adhesion (CPT# 44180)

3. Removal of peritoneal dialysis catheter (CPT# 49422)

4. Laparoscopic peritoneal dialysis catheter placement (CPT# 49324)

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INDICATIONS: This is a \_\_\_ year-old patient who has been diagnosed with end stage renal failure and has been receiving peritoneal dialysis at home. The peritoneal dialysis catheter in the patient recently malfunctioned and the patient is scheduled for diagnostic laparoscopic examination with possible peritoneal catheter revision or replacement. Benefits of the procedure were discussed with the patient, which include identification of possible cause of the peritoneal dialysis catheter malfunction and correct the cause of catheter malfunction, which will enable to the patient to continue with peritoneal dialysis at home. Potential risks and complications of the proposed procedures including bowel injury, catheter occlusion, catheter migration, bleeding, wound infection, and catheter malfunction were also discussed with the patient and patient's family. I've informed the patient that the overall risk of these complications was 1%. The patient verbalized understanding and agreed to proceed.

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PROCEDURE IN DETAIL: The patient was brought to the operating room and placed on the operating room table in the supine position. General anesthesia was administered through endotracheal intubation by the anesthesiologist. The patient's abdomen was prepped sterilely and draped in the standard fashion. Appropriate time out was performed whereby the patient and site of surgery were identified. A small incision was made in the left upper quadrant of the abdomen. A 5mm trocar was inserted in the abdominal cavity under laparoscopic camera visualization. Gas insufflation was established to maintain adequate pneumoperitoneum. The entire peritoneal cavity was carefully inspected under laparoscopic guidance. We identified the cause of the catheter malfunction which was due to significant omentum encasing the catheter. A significant degree of peritoneal adhesions was encountered, and laparoscopic lysis of adhesions was performed. Individual adhesions attaching intestinal loops were carefully removed to created a intraabdominal space for peritoneal dialysis. Due to the significant degree of omentum wrapping around the previous catheter, it was determined that the malfunctioned catheter should be removed followed by a placement of a new catheter. A small incision was made in the left upper quadrant of the abdomen over the catheter exit site. Dissection was carried down using electrocautery. The catheter was isolated and removed from the abdominal cavity. We next placed a 12mm trocar in the periumbilical region. Next we inserted a peritoneal dialysis catheter with the support of a stiff guidewire which was inserted via the 12mm trocar. Under direct visualization, the catheter was positioned in the pelvis. The catheter was tunneled subcutaneously and brought out in a separate incision site in the right lower quadrant of the abdomen. Next trocars were removed and the abdominal fascia was closed using 3-0 PDS sutures. Skin layer was closed using 4-0 monocryl sutures. Saline flush was infused in the catheter and clear fluid was aspirated from the catheter without difficulty. Dressing was applied in the usual fashion. The patient was extubated and taken to recovery in stable condition. The patient tolerated the procedure well without any complications. I was present throughout the entire operation.

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===== Permacath Insertion (R. IJ) ======

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PROCEDURES:

1. Percutaneous access of right jugular vein under ultrasound guidance (CPT# 76937)

2. Placement of tunneled dialysis Permacath in the right jugular vein (CPT# 36558)

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INDICATIONS: This is a \_\_\_ year-old patient who developed end stage renal failure requiring hemodialysis. I was asked by Dr. \_\_\_\_ to place a tunneled Permacath catheter for hemodialysis access. Benefits and risks of the procedure were explained to the patient and patient's family who agreed to undergo the planned procedure.

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PROCEDURE IN DETAIL: The patient was brought to the operating room and placed on the operating room table in the supine position. Appropriate time out was performed whereby the patient and site of surgery were identified. The patient's right neck was prepped sterilely and then draped in a standard fashion. The patient was given local anesthesia with 10 ml of 1% of lidocaine. Using a portable ultrasound unit, the jugular vein was visualized and accessed percutaneously. A guidewire was inserted in the vein, which was followed by dilator and peel away sheath placement into the vein. Next we made an inferior lateral counter incision using a scalpel approximately 5 cm away from the venous puncture site. A double lumen tunneled dialysis Permacath was inserted subcutaneously from the counter incision site and brought out through the venous puncture site. The Permacath was introduced into the vein via the peel-away sheath. The position of the catheter was placed in the vena cava which was confirmed by fluoroscopy. A 3-0 prolene suture was used to anchor the catheter to the skin site securely. Excellent blood flow was withdrawn from the catheter lumens without difficulty. High concentration of heparin solution was used to pack the Permacath catheter. Appropriate dressing was applied over the incision site. The patient tolerated the procedure well without complication.

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===== Porta-Cath Insertion ======

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PROCEDURES:

1. Ultrasound guided venous access of jugular vein (CPT# 76937)

2. Placement of Porta-Cath in the jugular vein (CPT# 36561)

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INDICATIONS: This is a \_\_\_ year-old patient who has been diagnosed with \_\_\_\_\_. The patient is scheduled to undergo Porta-Cath placement for chemotherapy treatment. Benefits and risks of the procedure were explained to the patient who agreed to undergo the planned procedure.

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PROCEDURE IN DETAIL: The patient was taken to the operating room and placed on the operating room table on a supine position. The patient was given general anesthesia via endotracheal intubation. The patient's < \_\_\_\_ right left \_\_\_\_ > chest and neck regions were prepped sterilely and then draped in a standard fashion. Using a portable ultrasound system, the jugular vein was visualized and accessed percutaneously. A 0.035" guidewire was inserted in the vein, which was followed by dilator and peel away sheath placement into the jugular vein. Next the Porta-Cath catheter was inserted in the jugular vein using the peel away introducer sheath. The catheter was next tunneled subcutaneously to an infraclavicular region. Next we made a transverse incision in the infraclavicular area and created a 3cm by 3cm subcutaneous space. A low-profile Porta-Cath was inserted in the subcutaneous space which was anchored to the myofascial tissue using 2-0 prolene sutures. The catheter was next connected to the Porta-Cath and securely anchored together using the attachment connected. Excellent blood flow was withdrawn from the Porta-Cath without difficulty. Subcutaneous tissues were closed using 3-0 PDS sutures and skin was closed using 4-0 monocryl sutures. High concentration of heparin solution was used to pack the Porta-Cath port. Appropriate dressing was applied over the incision site. The patient tolerated the procedure well without complication.

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===== Porta-Cath Removal ======

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PROCEDURE: Porta-Cath removal (CPT# 36590)

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INDICATIONS: This is a \_\_\_ year-old patient who had a Porta-Cath placement previously which the patient no longer needs it. The patient was scheduled to undergo Porta-Cath removal procedure. Benefits and risks of the procedure were explained to the patient who agreed to undergo the planned procedure.

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PROCEDURE IN DETAIL: The patient was taken to the operating room and placed on the operating room table on a supine position. The patient was given general anesthesia via endotracheal intubation. The patient's < \_\_\_\_ right left \_\_\_\_ > chest and neck regions were prepped sterilely and then draped in a standard fashion. We made a transverse incision in the infraclavicular region over the site of Porta-Cath. Dissection was carried out using electrocautery. We identified the Porta-Cath in the subcutaneous pocket. The port and the indwelling catheter were isolated. The anchoring sutures were removed and detached from the Porta-Cath. The catheter was removed from the subclavian vein, and the Porta-Cath was removed from the patient. The wound was irrigated using saline solution. Subcutaneous tissue was closed using 3-0 PDS sutures and the skin was next closed using 4-0 monocryl sutures. Dressing was applied in the standard fashion. High concentration of heparin was used to pack the Porta-Cath. Appropriate dressing was applied over the catheter insertion site to secure the catheter. The patient tolerated the procedure well without complication.

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===== Quinton Catheter Placement ======

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1. Percutaneous access of right jugular vein under ultrasound guidance (CPT# 76937)

2. Placement of non-tunneled hemodialysis catheter in the right jugular vein (CPT# 36556)

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INDICATIONS: This is a \_\_\_ year-old patient who developed acute renal failure requiring urgent hemodialysis. I was asked by Dr. \_\_\_\_ to place a non-tunneled hemodialysis catheter so hemodialysis can be initiated immediately. Benefits and risks of the procedure were explained to the patient who agreed to undergo the planned procedure.

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PROCEDURE IN DETAIL: The patient was brought to the cath lab and placed on the cath lab table in the supine position. Appropriate time out was performed whereby the patient and site of surgery were identified. The patient's < \_\_\_\_ right neck \_\_\_\_\_ left neck \_\_\_\_\_ right groin \_\_\_\_\_ left groin \_\_\_\_ > was prepped sterilely and then draped in a standard fashion. The patient was given local anesthesia with 10 ml of 1% of lidocaine. Using a portable ultrasound unit, the < \_\_\_\_ jugular femoral \_\_\_> vein was visualized and accessed percutaneously. A guidewire was inserted in the vein, which was followed by dilator placement. Next the dilator was removed, and a non-tunneled Trialysis hemodialysis catheter was inserted over the guidewire and placed in the vein. The tip of the catheter was positioned in the vena cava. The guidewire was next removed. Excellent flow of blood with excellent blood return was established from both catheter ports. Both lumens of the catheters were infused with heparinized solution. The catheter was sutured to the skin using 3-0 Nylon sutures. High concentration of heparin was used to pack the dialysis catheter ports. Appropriate dressing was applied over the catheter insertion site to secure the catheter. The patient tolerated the procedure well without complication.

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===== RFA (GSV) + Trivex (revised for CMS guideline) ======

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PROCEDURES:

1. Ultrasound guided venous access of right great saphenous vein (CPT# 76937)

2. Radiofrequency ablation of right great saphenous vein (CPT# 36475)

3. Stab phlebectomy of right lower leg varicose veins with TRIVEX system (with removal of more than 20 varicose vein segments/incisions) (CPT# 37766)

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INDICATIONS: This is a \_\_\_ year-old patient who has been diagnosed with lower leg symptomatic chronic venous insufficiency with varicose veins over the past 12 months. The patient's symptoms have progressively worsened with more pain and swelling. The patient reports leg symptoms including swelling, burning sensation, refractory dependent edema, stasis dermatitis, and leg pain which is characterized as dull aching and constant in nature. These leg symptoms have impaired the patient's ability to ambulate or exercise regularly. The patient’s leg symptoms have failed to improve following a 3-month trial of conservative therapy which include compression stocking therapy, daily exercise program, periodic leg elevation, weight loss counseling, avoidance of prolonged immobility, and home physical therapy. The patient remains symptomatic following a 3-month course of conservative treatment with symptoms including severe pain and burning sensation in the lower extremity which impairs mobility, stasis dermatitis, and recurrent dependent edema. A preoperative venous duplex ultrasound of this patient demonstrated the presence of saphenous vein reflux of the lower extremity with greater saphenous vein diameter of 11 mm, and a venous reflux time greater than 2 seconds. Additionally, venous duplex ultrasound showed absence of venous aneurysm in the affect region of varicose veins, absence of venous thrombosis or venous tortuosity, and absence of significant peripheral arterial disease. Based on these considerations, the patient is scheduled to undergo saphenous vein radiofrequency ablation of the lower extremity. The purpose of the proposed operation is to eliminate the saphenous venous reflux which will decrease the lower leg swelling and pain. This will also decrease the potential risk of post-thrombotic syndrome, thrombophlebitis, and venous thrombosis. The risks and complications of the procedure include wound infection, wound bleeding, superficial cutaneous and sural nerve injury, deep vein thrombosis, thrombophlebitis, and pulmonary embolism. The overall incidence of these risks is 2%. I have discussed in detail regarding the benefits and risks of the procedure to the patient who agreed to proceed.

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PROCEDURE IN DETAIL: The patient was taken to the operating room and placed on the operating room table on a supine position. The patient was given general anesthesia via endotracheal intubation. The patient’s

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leg was prepped sterilely and then draped in a standard fashion. We first proceed with saphenous vein ablation in which we obtained percutaneous access of the saphenous vein at the level of the knee using ultrasound guidance. A 7F introducer sheath was next inserted in the saphenous vein. Next we injected copious amount of tumescent anesthetic fluid subcutaneously along the entire course of the saphenous vein. A radiofrequency saphenous vein ablation catheter (VNUS device) was delivered through the 7F introducer sheath and positioned near the level of the saphenofemoral junction. Ultrasound examination was performed which confirmed the catheter was placed in a satisfactory position. The radiofrequency catheter was activated and the entire length of the saphenous vein was successfully ablated. The radiofrequency catheter and introducer sheath were next removed. Pressure was applied at the insertion site to achieve hemostasis. We next turned our attention to the stab phlebectomy procedure. Using an endoscopic saphenous vein removal system or TRIVEX system, we make multiple incisions along the medial and lateral portions of the leg in which varicose veins were removed using the endoscopic varicose vein removal system. Multiple incisions and counter-incisions were made to allow successful endoscopic varicose vein removal system to remove all the visible varicose veins. Tumescent anesthetic fluid was also delivered subcutaneously as varicose veins were removed. The total number of varicose veins removed was greater than 20 segments. Following successful removal of the varicose veins via stab phlebectomy, standard compression dressing using ABD pads, Kerlex dressing, and Coban dressing were applied in the lower leg circumferentially. The patient remained stable throughout the entire operation. The patient was taken to the recovery room in stable condition. The patient suffered no complications. I was present throughout the entire operation.

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===== Temporal Artery Biopsy ======

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PROCEDURE: Right temporal artery biopsy (CPT# 37609)

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INDICATIONS: This is a \_\_\_ year-old patient who has been experiencing severe headache in recent months. Based on the clinical symptoms, a clinical suspicion of temporal arteritis was raised. The patient was scheduled to undergo temporal artery biopsy to determine the cause of the headache. The purpose of the operation is to remove a segment of the temporal artery to determine the cause of the headache as well as to determine the presence of temporal arteritis. Potential risks and complications of the proposed procedures including incisional infection, bleeding, incisional pain, wound dehiscence, and facial nerve injury were discussed with the patient. I've informed the patient that the overall risk of these complications was 1%. The patient verbalizes understanding and agrees to proceed.

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PROCEDURE IN DETAIL: The patient was brought to the operating room and placed on the operating room table in the supine position. Intravenous sedation was administered by the staff anesthesiologist. The patient's < \_\_\_\_ right left \_\_\_\_ > temporal region was prepped sterilely and draped in the standard fashion. Appropriate time out was performed whereby the patient and site of surgery were identified. Local anesthetic agent with 3 cc of 1.0% lidocaine was injected lateral to the temporal artery. An incision through the dermis was made directly over the artery with a No. 15 scalpel blade. Using blunt tipped dissecting scissors along with skin hooks to separate the edges of the incision, dissection through the adipose to uncover the superficial temporal fascia was performed. The fascia was grasped with forceps a few millimeters lateral to the artery to expose the temporal artery. A 3 cm segment of the temporal artery was dissected free, and the artery was isolated in its entirely. A 3-0 silk suture was used to ligate the temporal artery both proximally and distally. The temporal artery was divided and sent for specimen analysis. Hemostasis was achieved using electrocautery. The fascia was next closed using 3-0 PDS sutures, and the skin was closed using a 4-0 monocryl suture in a subcuticular fashion. Dressing was placed in the usual fashion. The patient was taken to recovery in stable condition. The patient tolerated the procedure well without any complications. I was present throughout the entire operation.

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PROCEDURES:

1. Right first rib resection (CPT# 27882)

2. Anterior scalenectomy (CPT# 21705)

3. Brachial plexus neurolysis and neuroplasty (CPT# 64713)

4. Release of pectoralis minor muscle tendon (CPT# 24341)

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INDICATIONS: This is a \_\_\_ year-old patient who has been diagnosed with < \_\_\_\_\_ right left \_\_\_\_> thoracic outlet syndrome with symptoms including upper extremity pain and swelling. Due to the neurovascular compression caused by the first rib in the thoracic outlet region, the patient is taken to the operation room to undergo surgical removal of the first rib and scalenectomy. The purpose of the operation is to remove the first rib and decompress the thoracic outlet region which will alleviate the symptoms of thoracic outlet syndrome. Potential risks and complications of the proposed procedures including hematoma formation, bleeding, wound infection, nerve injury, venous injury, and pneumothorax were also discussed with the patient. I've informed the patient that the overall risk of these complications was 1%. The patient verbalizes understanding and agrees to proceed.

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PROCEDURE IN DETAIL: The patient was brought to the operating room and placed on the operating room table in the supine position. General anesthesia was administered through endotracheal intubation by the anesthesiologist. The patient's < \_\_\_\_ right left \_\_\_\_ > neck and chest wall region were prepped sterilely and draped in the standard fashion. Appropriate time out was performed whereby the patient and site of surgery were identified. A transverse incision was made parallel in the supraclavicular fossa using a skin scalpel. The incision was extended from the sternocleidomastoid muscle to the anterior border of the trapezius. The platysma muscle was next encountered which was divided using electrocautery. After platysma muscle was opened, we identified the underlying scalene fat pad which was mobilized from medial to lateral fashion. Next we identified the anterior scalene muscle and phrenic nerve. The phrenic nerve was encircled and protected using a vessel loop. Next using blunt dissection, we isolated the entire anterior scalene muscle which was removed in its entirely using electrocautery. The muscle was sent to pathology for specimen analysis. Next subclavian artery and brachial plexus were identified. Neurolysis of the brachial plexus was performed in which all of the fibroinflammatory tissues attached to the brachial plexus were carefully removed from the entire segment of the brachial plexus. The removal of all fibroinflammatory tissues from the brachial plexus completed the neurolysis with brachial plexus neuroplasty portion of the procedure. Next we turned our attention to the first rib resection portion of the procedure. We identified the middle scalene muscle lying lateral to the brachial plexus. The middle scalene muscle was carefully divided using electrocautery. The long thoracic nerve was identified and preserved throughout the entire operation. We next identified the lateral segment of the first rib. The first rib was located beneath the divided middle scalene muscle. Using a periosteal elevator, we separated the ligamentous attachment from the first rib in its anterior and posterior segments. Next we divided the first rib using a bone cutter from its proximal and distal segment. The first rib was sent to pathology for specimen analysis. Electrocautery was used to achieve hemostasis from adjacent muscle tissues. Next saline solution was used to fill the operative field. A Valsalva maneuver was performed by the anesthesia service and we identified no evidence of air leak from the lung. A Jackson-Pratt drain was placed in the wound. A 3-0 PDS suture was used to close the platysma muscle, and skin layer was closed using a 4-0 monocryl suture in a subcuticular fashion. Next we made a 2cm incision anterior to the acromial process. Incision was carried down using electrocautery. We identified the pectoralis major muscle which was carefully split open. Underneath the pectoralis major, we identified the tendon of pectoralis minor muscle as it attached to the acromial process. Using electrocautery, we divided the tendon of the pectoralis minor tendon which decompressed the space under which the brachial plexus passes through. The fascia was next closed using 3-0 PDS sutures, and the skin was closed using a 4-0 monocryl suture in a subcuticular fashion. Dressing was placed in the usual fashion. The patient was extubated and taken to recovery in stable condition. The patient tolerated the procedure well without any complications. I was present throughout the entire operation.

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===== CPT CODES ======

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36821 AV anastomosis, direct, any site (eg. Cimino)

36830 AV graft - nonautogenous PTFE graft (other than direct)

36818 AV anastomosis, cephalic vein transposition

36819 AV anatomosis; basilic vein transposition

36820 AV anastomosis; open by forearm vein transposition

36838 Distal revasc & interval ligation (DRIL) for steal syndrome

36832 Open revision AV shunt (AVF/AVG) without thrombectomy

36833 Open revision AV shunt (AVF/AVG) with thrombectomy

36831 Thrombectomy AVF or AVG without revision

37607 Ligation or banding of angioaccess AV fistula

35903 Excision of infected prosthetic graft in extremity

23930 I & D - deep abscess or hematoma or upper arm/elbow

35011 Repair of aneurysm - Excision (partial or complete) and graft insertion for aneurysm, pseudoaneurysm, or associated occlusive disease

**CPT Code PD DIALYSIS CATHETER SURGERY**

49418 Percutaneous insertion of tunneled intraperitoneal catheter under image guidance

49320 Diagnostic laparoscopy

49324 Laparoscopic insertion of intraperitoneal dialysis catheter

49422 Removal of tunneled introperitoneal catheter

49325 Laparoscopic revision of intraperitoneal dialysis catheter

49326 Laparoscopic omentopexy, add-on

**CPT Code OPEN AORTIC ANEURYSM SURGERY**

33875 Repair thoracic aortic graft

33877 Repair thoracoabdominal aortic aneurysm

35001 Repair of aneurysm - carotid, subclavian artery, neck incision

35011 Repair of aneurysm - Excision (partial or complete) and graft insertion for aneurysm, pseudoaneurysm, or associated occlusive disease

35021 Repair of aneurysm - innominate, subclavian, thoracic incision

35081 Repair of aneurysm - abdominal aorta

35082 Repair of aneurysm - ruptured, abdominal aorta

35091 Repair of aneurysm - abdominal aorta involving visceral vessels

35102 Repair of aneurysm - abdominal aorta involving iliacs

35103 Repair of aneurysm - ruptured, abdominal aorta involving iliacs

35131 Repair of aneurysm - iliac artery (common, hypogastric, external)

35141 Repair of aneurysm - common femoral artery (profunda, femoris, SFA)

35151 Repair of aneurysm - popliteal artery

35697 Reimplantation, visceral artery to AAA prosthesis, each artery

CPT Code **EMBOLECTOMY/THROMBECTOMY/GRAFT EXCISION**

34001 Embolectomy/Thrombectomy - carotid, subclavian, innominate artery by neck incision

34101 Embolectomy/Thrombectomy - axillary, brachial, innominate, subclavian artery, by arm incision

34151 Embolectomy/Thrombectomy - renal, celiac, mesentery, aortoiliac artery by abdominal incision

34201 Embolectomy/Thrombectomy - femoropoliteal, aortoiliac artery, by leg incision

34203 Embolectomy/Thrombectomy - popliteal-tibio-peroneal artery by leg incision

34401 Thrombectomy, direct or with catheter; vena cava, iliac vein, by abdominal incision

34421 Thrombectomy, direct or with catheter; vena cava, iliac, fempopliteal vein, by leg incision

34451 Thrombectomy, direct or with catheter; vena cava, iliac vein, femopop vein, by abdominal and leg incision

34490 Thrombectomy, direct or with catheter; axillary and subclavian vein, by arm incision

35875 Thrombectomy of arterial or venous graft (other than hemodialysis graft or fistula)

35876 Thrombectomy of arterial or venous graft (other than hemodialysis graft or fistula) with revision

35881 Revision, lower extremity arterial bypass with w/o thrombectomy, w vein patch angioplasty

35879 Revision, lower extremity arterial bypass with w/o thrombectomy, w segmental vein interposition

35901 Excision of infected graft - neck

35903 Excision of infected graft - extremity

35905 Excision of infected graft - thorax

35907 Excision of infected graft - abdomen

34502 Reconstruction of vena cava, any method

37619 Open surgical ligation of IVC

27602 Decompression fasciotomy, leg; anterior and posterior compartments

34520 Cross-over vein graft to venous system

CPT Code **REPAIR/EXPLORATION OF BLOOD VESSELS**

35190 Repair acquired or traumatic arteriovenous fistula; extremities

35201 Repair blood vessel - direct neck, w/ w/o patch (other than fistula)

35206 Repair blood vessel - upper extremity

35226 Repair blood vessel - lower extremity

35256 Repair blood vessel with vein graft - lower extremity

35721 Exploration of femoral artery (no repair)

35741 Exploration of popliteal artery (no repair)

35800 Exploration - postop. hemorrhage, thrombosis, infection - Neck

35840 Exploration - postop. hemorrhage, thrombosis, infection - Abdomen

35860 Exploration - postop. hemorrhage, thrombosis, infection - Extremity

CPT Code **ENDARTERECTOMY**

35301 Carotid Endarterectomy

35390 Re-operation - CEA (> one month from original CEA)

60600 Excision of carotid body tumor; without excision of carotid artery

60605 Excision of carotid body tumor; with excision of carotid artery

35694 Arterial transposition/reimplantation-subclavian to carotid artery

35695 Arterial transposition/reimplantation-carotid to subclavian artery

35361 Endarterectomy +/- patch combined aortoiliac

35341 Endarterectomy +/- patch mesenteric, celiac, renal

35355 Endarterectomy +/- patch iliofemoral

35371 Endarterectomy +/- patch common femoral

35372 Endarterectomy +/- patch deep (profunda) femoral

CPT Code **BYPASS SURGERY**

35500 Harvest of arm vein, one segment

35522 Bypass graft, with vein; axillary-brachial

35525 Bypass graft, with vein; brachial-brachial

35572 Harvest of femoropopliteal vein

35700 Re-operation - fem-pop bypass graft

35501 Vein bypass graft - carotid

35556 Vein bypass graft - femoral-popliteal

35566 Vein bypass graft - fem - distal

35571 Vein bypass graft - popliteal-tibieal,-peroneal artery

35525 Vein bypass graft - brachial-brachial upper extremity

35583 In-situ vein bypass - femoral -popliteal

35585 In-situ vein bypass - fem - distal

35587 In-situ vein bypass - popliteal-tibial, or-peroneal artery

27641 Partial excision of fibula bone

35656 Prosthetic bypass graft - femoral - popliteal

35666 Prosthetic bypass graft - fem - distal

35606 Prosthetic bypass graft - carotid-subclavian

35621 Prosthetic bypass graft - axillary-femoral

35623 Prosthetic bypass graft - axillary-popliteal or-tibial

35631 Prosthetic bypass graft - aortoceliac, aortomesenteric, aortorenal

35646 Prosthetic bypass graft - aortofemoral or bifemoral

35654 Prosthetic bypass graft - axillary-bi femoral

35661 Prosthetic bypass graft - femoral-femoral

35665 Prosthetic bypass graft - iliofemoral

35685 Placement of vein patch or cuff at distal anastomosisof bypass graft

35686 Creation of AV during lower extremity bypass

27590 Amputation - AKA

27596 Re-amputation - AKA

27880 Amputation - BKA

27882 Amputation - BKA - Guillotine

27886 Re-amputation - BKA

27598 Amputation - TKA with knee disarticulation

28805 Amputation - foot - TMA

28810 Amputation - metatarsal with toe, single

28820 Amputation - toe, metatarsophalangeal joint

CPT Code **DEBRIDEMENT / INCISION & DRAINAGE / FASCIOTOMY / WOUND VAC**

11042 Debridement - skin & subcut. tissue (excisional, <20 sq.cm.)

11043 Debridement -skin, subcutaneous tissue & muscle (excisional, <20 sq.cm.)

27602 Decompression fasciotomy, leg; anterior and posterior compartments

23930 Incision and Drainage - deep abscess, or hematoma - upper arm or elbow area

27301 Incision and Drainage - deep abscess, infected bursa, or hematoma - thigh/knee region

27603 Incision and Drainage - deep abscess, infected bursa, or hematoma - leg or ankle

28001 Incision and drainage bursa - foot

28002 Incision and drainage below fascia - foot - single bursal space

97605 Wound vac (< or = 50 cm area)

97606 Wound vac (> 50 cm area)

15738 Muscle flap, local, lower extremity

11981 Insertion of non-biodegradable drug delivery implant (antibiotic bead placement)

11982 removal of non-biodegradable drug delivery implant (antibiotic bead removal)

11983 removal with re-insertion of non-biodegradable drug delivery implant (antibiotic bead replacement)

CPT Code **THORACIC OUTLET SYNDROME**

21615 Excision first and/or cervical rib

21616 Excision first and/or cervical rib+sympathectomy

64713 Neuroplasty, brachial plexus

21705 Division of anterior scalene muscle

64818 Sympathectomy, lumbar

64802 Sympathectomy, cervical

24341 Pectoralis muscle tendon release and repair

36821 AV anastomosis, direct, any site (eg. Cimino type)

CPT Code **ANTERIOR SPINE INSTRUMENTATION**

22556 Anterior interbody arthrodesis - thoracic

22558 Anterior interbody arthrodesis - lumbar

22585 Anterior interbody arthrodesis (earch add space)

22855 Removal of anterior instrumentation/spine fixation device

22845 Anterior instrumentation: 2-3 vert segments

22846 Anterior instrumentation: 4-7 vert segments

49000 Abdominal laparotomy

39560 Release of median arcuate ligament

64818 Neurolysis of celiac plexus

CPT Code **MISCELLANEOUS PROCEDURE**

37609 Temporal artery biopsy or ligation

64708 Neuroplasty, major periphral nerve (arm or leg, open), Peroneal nerve decompression with neurolysis/neuroplasty

25111 Ganglion cyst removal, or ganglionectomy (primary), of the wrist, finger, or sole of the foot.

25112 Ganglion cyst removal, or ganglionectomy (recurrent), of the wrist, finger, or sole of the foot.

27347 Open excision of extraarticular portion of ganglion cyst of the popliteal artery

**CPT Code EXCISION OF SOFT TISSUE TUMOR**

21011 Excision, tumor, soft tissue of face or scalp, subcutaneous (<2cm)

21013 Excision, tumor, soft tissue of face or scalp, subfascial (eg, subgaleal, intramuscular) (<2cm)

21550 Biopsy, soft tissue of neck of thorax

21555 Excision, tumor, soft tissue of neck or anterior thorax, subcutaneous (<3cm)

21556 Excision, tumor, soft tissue of neck or anterior thorax, subfascial (eg. Intramuscular) (<5cm)

21557 Radical resection of tumor (eg, sarcoma), soft tissue of neck or anterior thorax (<5cm)

21920 Biopsy, soft tissue of back or flank, superficial

21930 Excision, tumor, soft tissue of back or flank, subcutaneous (<3cm)

21932 Excision, tumor, soft tissue of back or flank, subfascial (eg. Intramuscular) (<5cm)

21935 Radical resection of tumor (eg, sarcoma), soft tissue of back or flank (<5cm)

23065 Biopsy, soft tissue of shoulder area, superficial

23075 Excision, tumor, soft tissue of shoulder area, subcutaneous (<3cm)

23076 Excision, tumor, soft tissue of shoulder area, subfascial (eg. Intramuscular) (<5cm)

23077 Radical resection of tumor (eg, sarcoma), soft tissue of shoulder area (<5cm)

24065 Biopsy, soft tissue of upper arm or elbow area, superficial

24075 Excision, tumor, soft tissue of upper arm or elbow area, subcutaneous (<3cm)

24076 Excision, tumor, soft tissue of upper arm or elbow area, subfascial (eg. Intramuscular) (<5cm)

24077 Radical resection of tumor (eg, sarcoma), soft tissue of upper arm or elbow area, (<5cm)

25065 Biopsy, soft tissue of forearm and/or wrist area, superficial

25075 Excision, tumor, forearm and/or wrist area; subcutaneous (<3cm)

25076 Excision, tumor, forearm and/or wrist area; deep, subfascial (eg. Intramuscular) (<3cm)

25077 Radical resection of tumor (eg, sarcoma), soft tissue of forearm and/or wrist area (<3cm)

25111 Removal of wrist ganglion cyst (wrist tendon lesion)

26115 Excision, tumor or vascular malformation, hand or finger; subcutaneous (<1.5cm)

26116 Excision, tumor or vascular malformation, hand or finger; deep, subfascial, intramuscular (<1.5cm)

26117 Radical resection of tumor (eg, malignant neoplasm), soft tissue of hand or finger (<3cm)

27047 Excision, tumor, soft tissue of pelvis and hip area, subcutaneous (<3m)

27048 Excision, tumor, soft tissue of pelvis and hip area, subfascial (eg. Intramuscular) (<5cm)

27049 Radical excision of tumor (eg. sarcoma) soft tissue of pelvis and hip area (<5cm)

27323 Biopsy, soft tissue of thigh or knee area; superficial

27327 Excision, tumor, soft tissue of thigh or knee area, subcutaneous (<3cm)

27328 Excision, tumor, soft tissue of thigh or knee area, subfascial (eg. Intramuscular) (<5cm)

27613 Biopsy, soft tissue of leg or ankle; superficial

27615 Radical excision of tumor (eg. sarcoma) soft tissue of leg or ankle area (<5cm)

27618 Excision, tumor, soft tissue of leg or ankle, subcutaneous (<3cm)

27619 Excision, tumor, soft tissue of leg or ankle area, subfascial (eg. Intramuscular) (<5cm)

28043 Excision, tumor, soft tissue of foot or toe, subcutaneous (<1.5cm)

28045 Excision, tumor, soft tissue of foot or toe area, subfascial (eg. Intramuscular) (<1.5cm)

28046 Radical excision of tumor (eg. sarcoma) soft tissue of foot or toe (<3cm)

22903 Excision of soft tissue tumor of abdominal wall