

Characteristics of Pancreatic Cysts in Patients Undergoing Endoscopic Ultrasound at a Tertiary Care Center

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Purpose

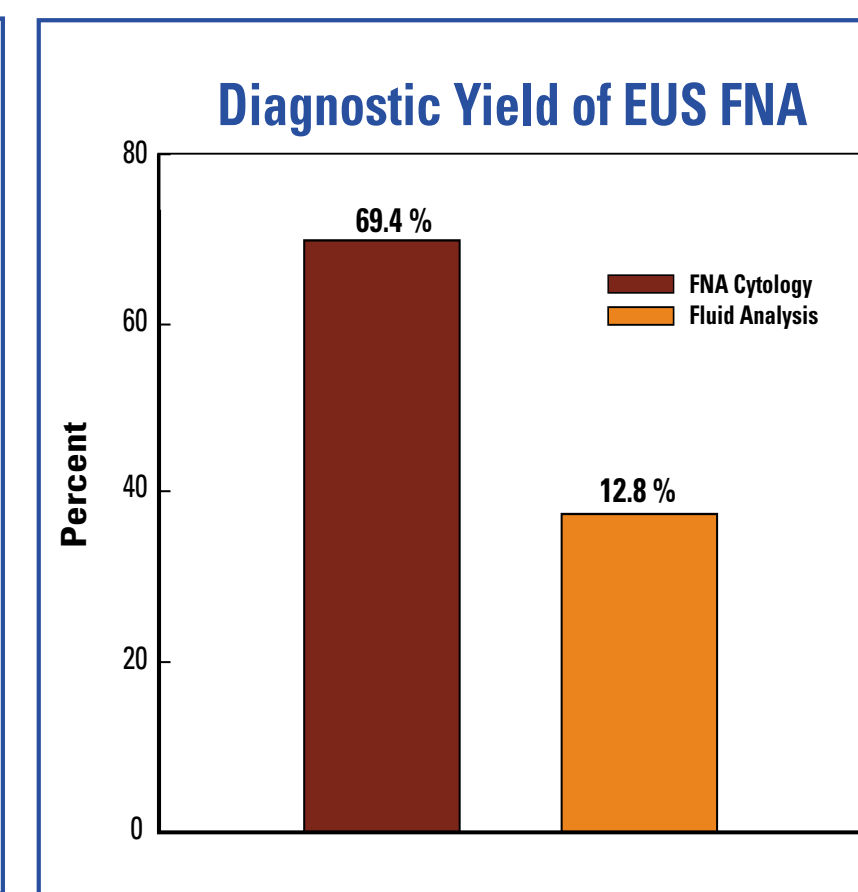
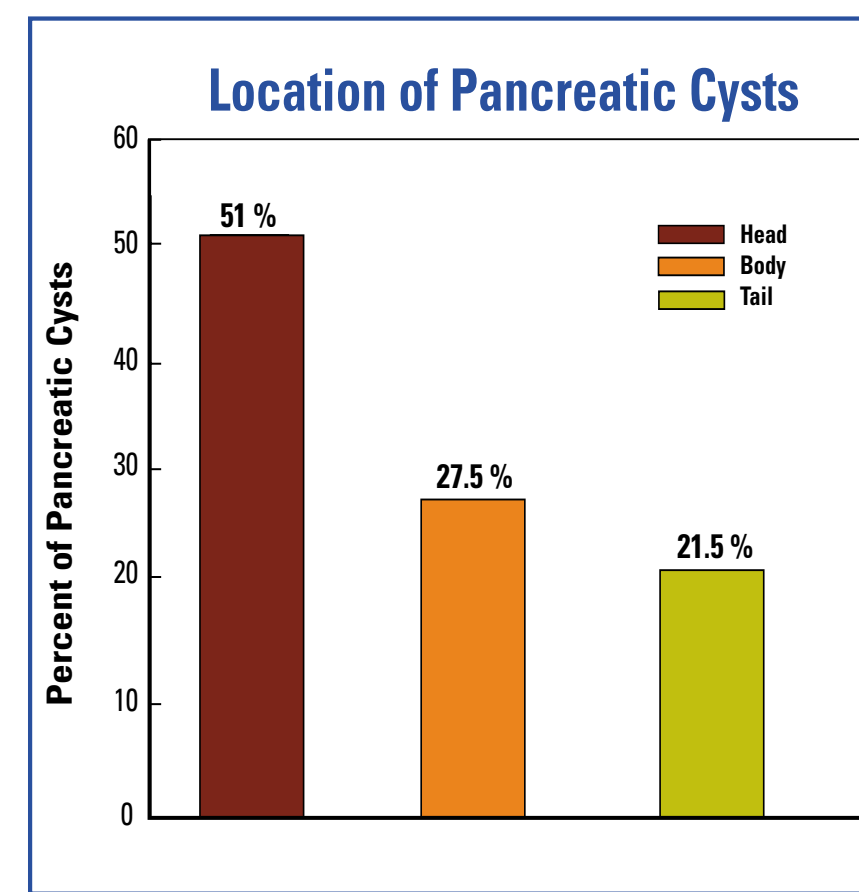
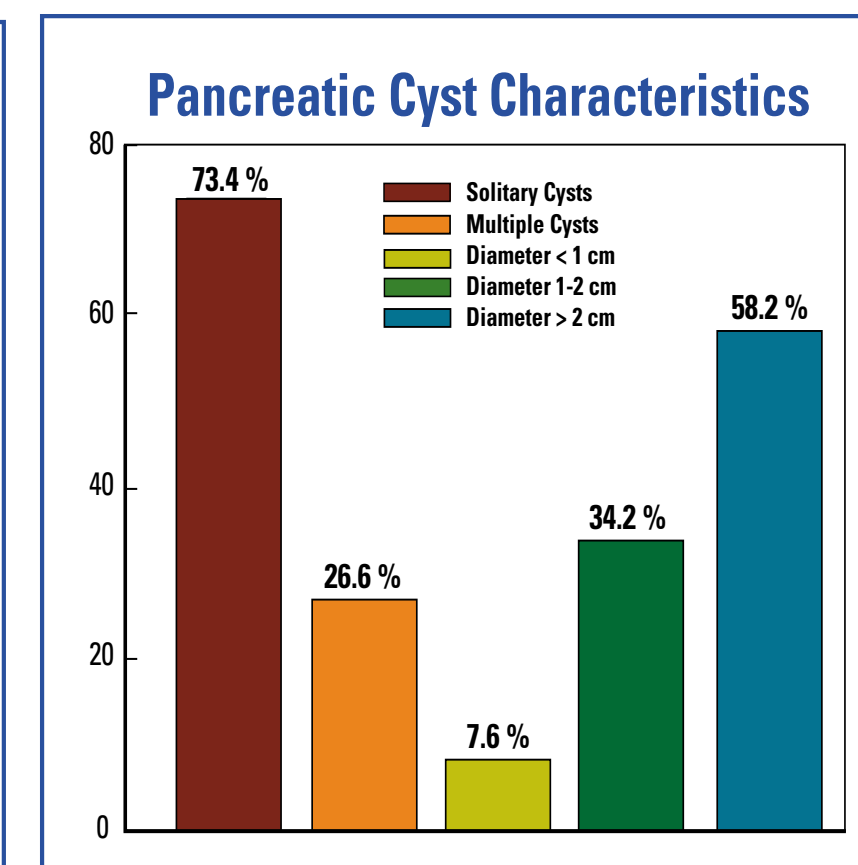
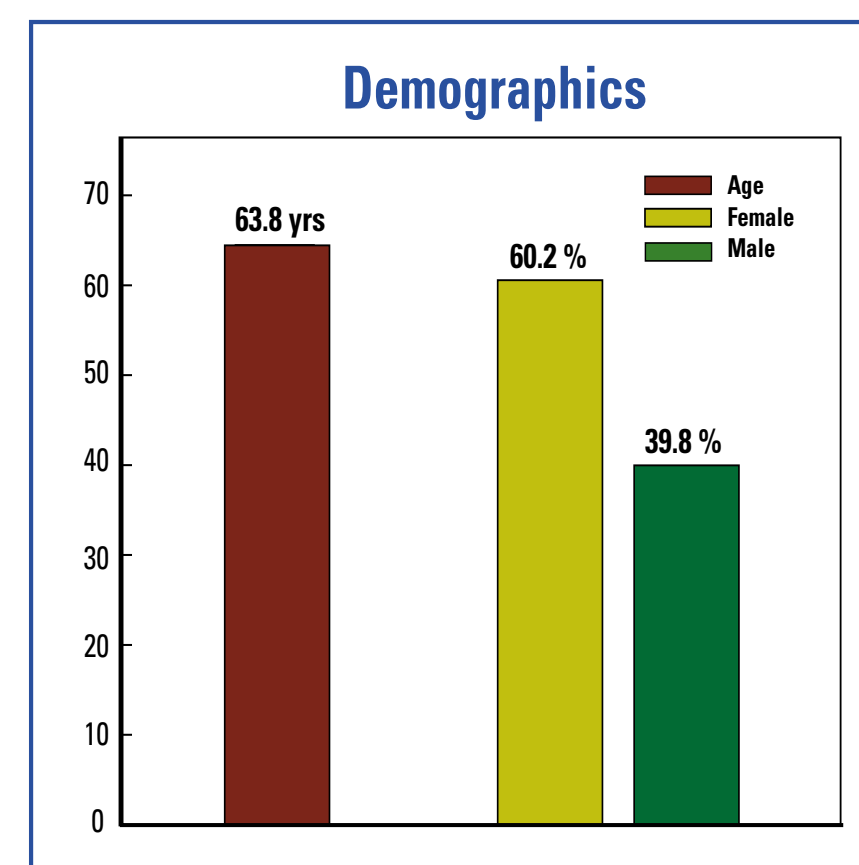
- Pancreatic cystic lesions are increasingly identified with the increased use of higher resolution imaging modalities.
- Endoscopic ultrasound (EUS) with fine needle aspiration (FNA) is often employed to further characterize of these lesions and establish a diagnosis.

Aim

- The aim of this study was to add to the body of literature regarding the benefit of endoscopic ultrasound with fine needle aspiration for the diagnosis of patients presenting with pancreatic cysts.

Methods

- A retrospective analysis was conducted of consecutive EUS procedures performed for evaluation of pancreatic cysts during the period 2000-2005 at our institution.
- All patients who underwent EUS for pancreatic cysts were included in the analysis.
- Patient demographics, cyst characteristics (number, size, location), and the results of fine needle aspiration were analyzed.



Results

- 1094 EUS examinations were performed during the study period. Of these, 135 patients were found to have 170 pancreatic cysts on EUS.
- The mean age of patients with pancreatic cysts was 63.8 yrs in comparison to 60 years of all patients undergoing EUS (range 8-88).
- The gender distribution of patients with a pancreatic cyst (60.2% females and 39.8% males) was similar to the gender distribution of the overall cohort (57.3% females, 42.7% males).
- Solitary cysts were present in 99 patients (73.4%) and 36 (26.6%) patients had two or more cysts.
- Cyst diameter was less than 1 cm in 13/170 (7.6%), 1-2 cm in 58/170 (34.2%), and more than 2cm in 99/170 (58.2%).
- 51% of the cysts were located in the head of the pancreas, 27.5% in the body, and 21.5% in the tail.
- The FNA cytology was diagnostic in 59/88 (69.4%). In an additional 11 patients (12.8%), a definitive diagnosis was made from fluid analysis of amylase in conjunction with CEA.
- The total diagnostic yield of EUS FNA was 82.2%.

Conclusion

- The majority of the pancreatic cysts are seen in elderly women and are solitary.
- Most of the patients referred for EUS have cysts larger than 2 cm in size and are located in the head of the pancreas.

EUS with FNA has a high diagnostic yield for pancreatic cystic lesions.

Success of Argon Plasma Coagulation for Management of Gastric Antral Vascular Ectasia

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Background

- The gastric antral vascular ectasia (GAVE) syndrome is an uncommon cause of anemia and GI bleeding.
- A subset of patients with GAVE will require endoscopic thermal ablation to manage bleeding complications and argon plasma coagulation (APC) has increasingly become the therapeutic modality of choice.
- We hypothesize that the success of thermal ablation may be affected by the coexistence of portal hypertensive gastropathy and present what we believe to be the largest reported experience using APC for the management of GAVE.

Aims

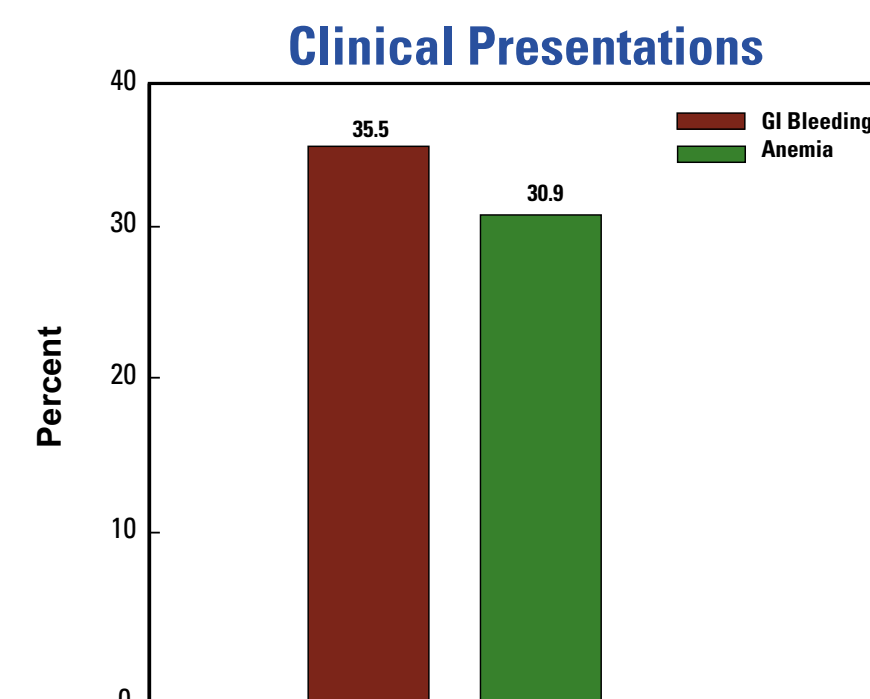
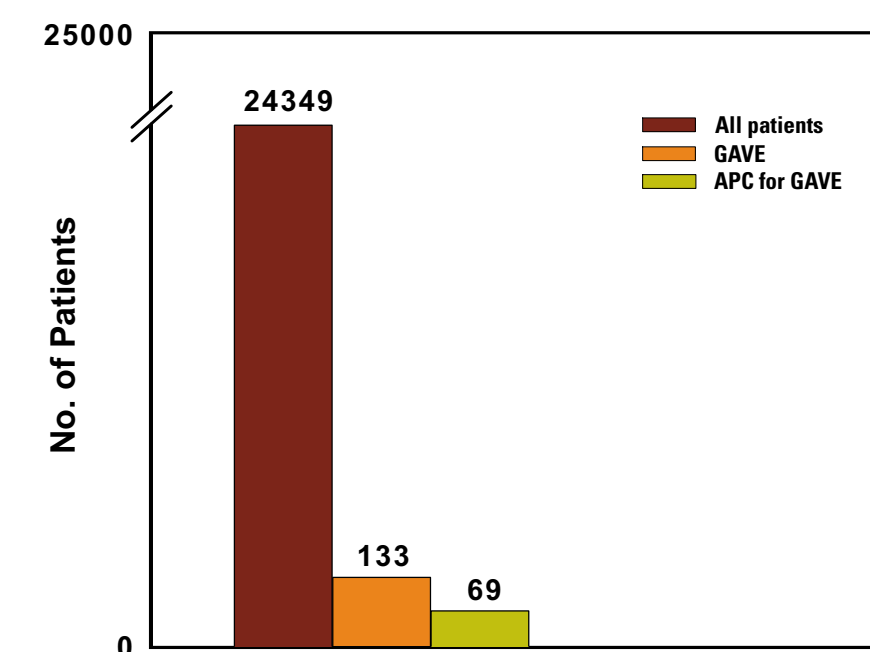
- The aims of this study were to evaluate the efficacy of APC in treating GAVE in a large patient cohort and to assess the impact of portal hypertensive gastropathy on the clinical success of ablation therapy.

Methods

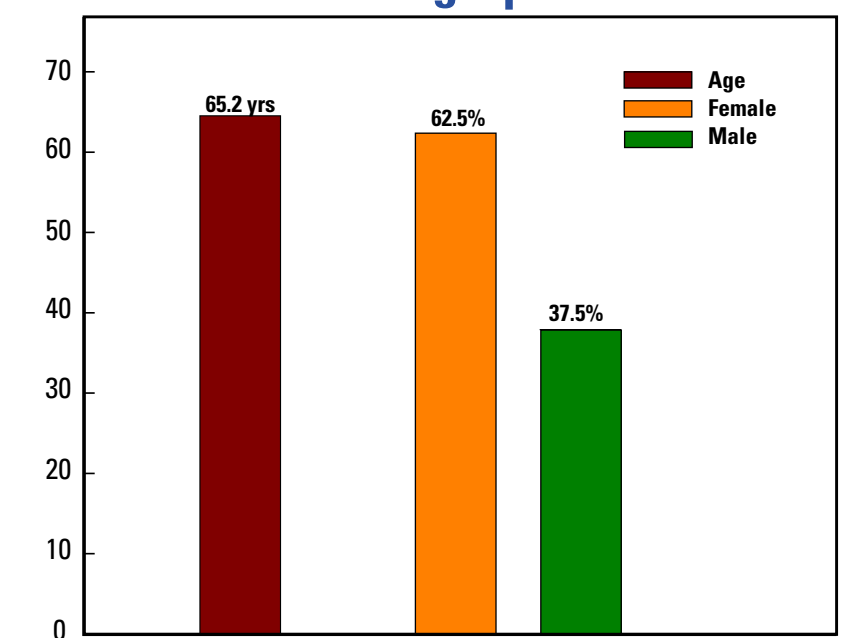
- A retrospective review of all EGD reports from a single tertiary care hospital was performed between 2000 and 2005.
- All patients in whom GAVE was diagnosed based upon endoscopic findings were included in the analysis.
- The clinical presentation, number of treatment sessions with APC, response to therapy, and clinical recurrence were recorded.
- The chi square test and Students t-test were used where appropriate.

Results

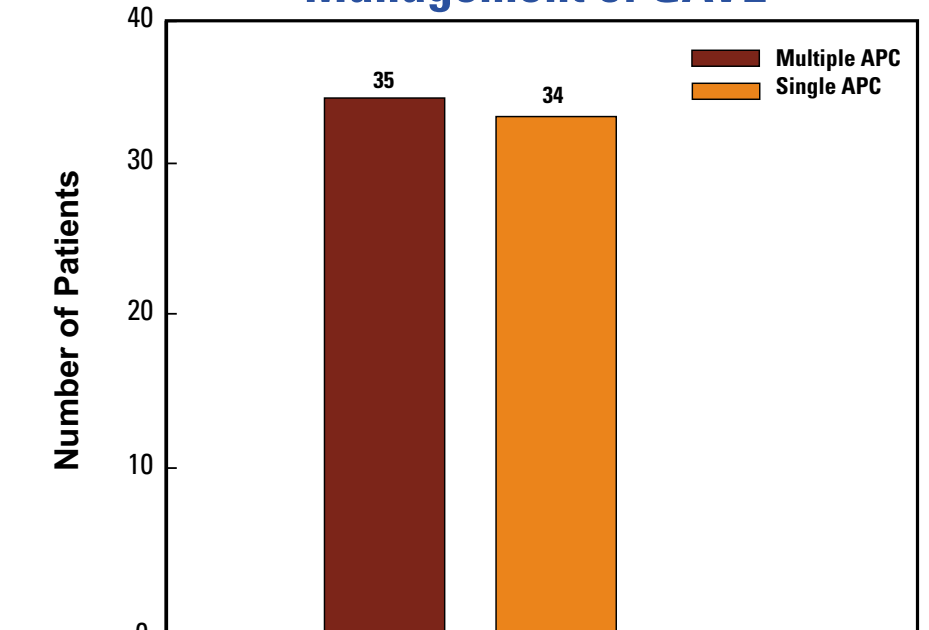
- 24,349 upper endoscopies were performed during the study period of which 133 (0.55%) patients were diagnosed with GAVE.
- The mean age of affected individuals was 65.2 yrs (range 34-99) compared to 57.7 yrs for the entire cohort.
- Women comprised 62.5% of affected individuals and represented 56.3% of all patients undergoing upper endoscopy.
- The most common presentation was GI bleeding (35.5%) followed by anemia (30.9%).
- Of patients with GAVE, 17.3% (23/133) were diagnosed with coexistent portal hypertensive gastropathy.
- 69/133(51.9%) of affected patients underwent ablation therapy with APC with a mean of 2.2 sessions per patient (median=2).
- 34/69 patients (49.3%) required only a single ablative session to manage bleeding or anemia.
- Of those requiring multiple sessions, the mean number was 3.5 (median=3, range=2-12). The mean interval between sessions was 6.3 months.
- When patients were stratified according to the coexistence of portal hypertensive gastropathy there was no significant difference in the percent of patients requiring therapy or the mean number of sessions required.
- No procedure related complications were observed



Demographics



Management of GAVE



Conclusions

- APC is a safe and effective treatment modality for the management of GAVE.
- The coexistence of portal hypertensive gastropathy does not appear to affect clinical outcomes of those requiring ablative therapy.
- Our results are similar to those of the previously reported smaller cohorts of patients with GAVE treated with APC.

Poor Correlation Between Endoscopic and Histologic Findings in the Gastric Antral Vascular Ectasia Syndrome

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Background

- The gastric antral vascular ectasia (GAVE) syndrome is an increasingly recognized cause of persistent upper gastrointestinal bleeding and anemia and has typical endoscopic and histological findings.
- Endoscopically, GAVE is characterized by linear erythema present in the gastric antrum alternating with normal mucosa or diffuse antral erythema.
- Histologically, one observes dilated vessels of the lamina propria containing fibrin thrombi, fibromuscular hyperplasia, and foveolar epithelial changes.

Aims

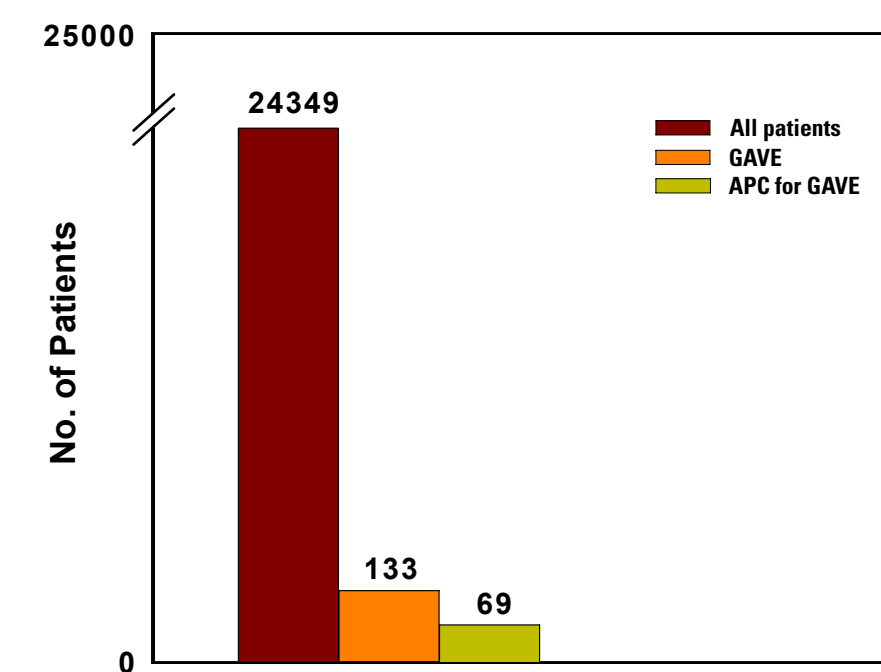
- To describe the correlation between endoscopic and histologic findings in patients with GAVE syndrome.

Methods

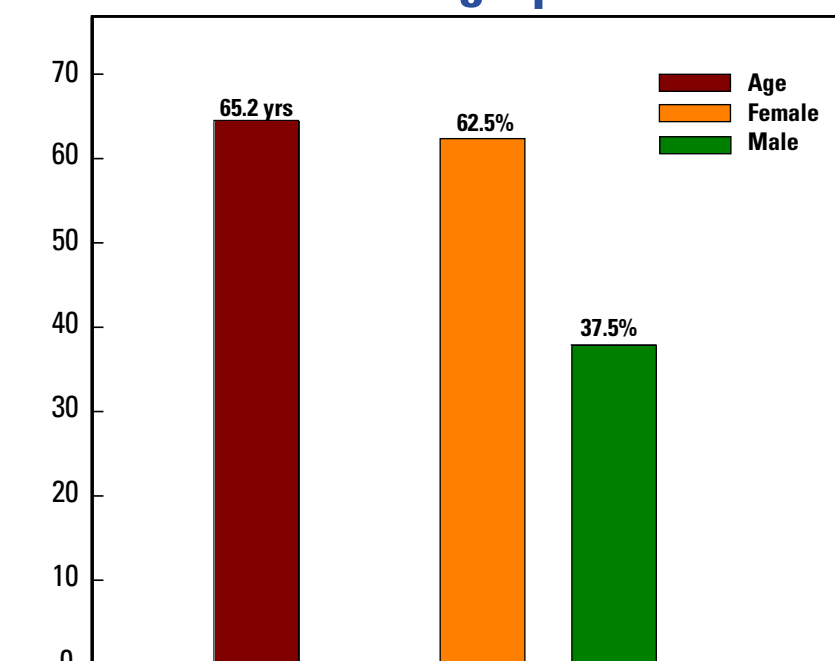
- A retrospective review of all endoscopy reports from a single tertiary care hospital was performed between 2000 and 2005.
- All patients who underwent upper endoscopy and provided GAVE syndrome as a diagnostic impression were included in the analysis.

Results

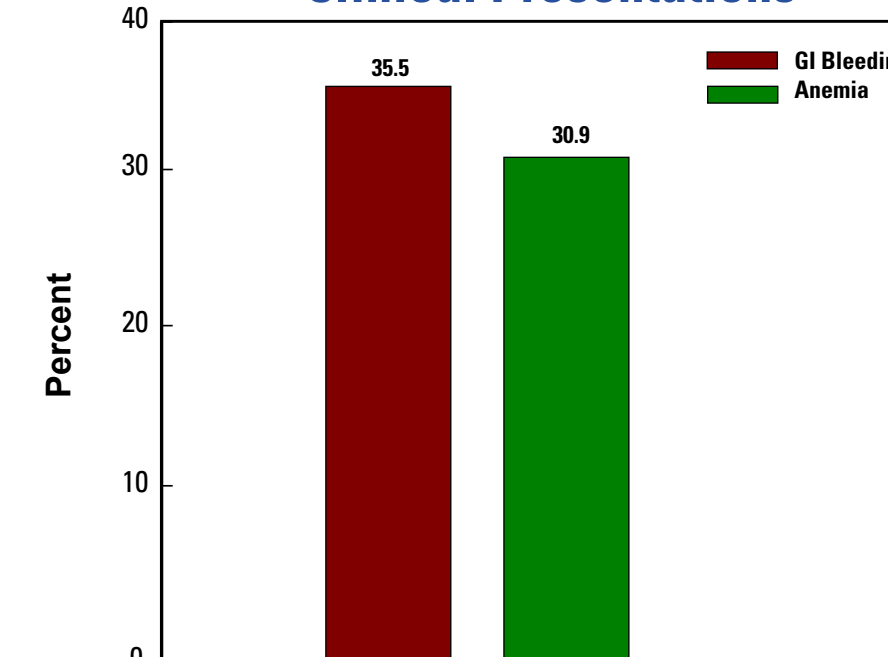
- There were 24,349 upper endoscopies performed between 2000 and 2005.
- 133 (0.5%) of patients were found to have GAVE.
- The mean age of affected individuals was 65.2 yrs (range 34-99) compared to 57.7 yrs for the entire cohort.
- Women comprised 62.5% of affected individuals and represented 56.3% of all patients undergoing upper endoscopy.
- The most common indication in those with GAVE was gastrointestinal bleeding (35.5%) followed by anemia (30.9%).
- In conjunction to GAVE, other diagnostic impressions included portal hypertensive gastropathy (15.8%) and gastritis (27.1%).
- A biopsy of the antrum was performed in 58 (43.6%) patients with endoscopic features suggestive of GAVE.
- Interestingly, only 12 (20.7%) of these patients had histological findings that met criteria for the diagnosis of GAVE.
- Other histologic findings included gastritis in 34 and Helicobacter pylori infection in 8 and normal in 11.
- Using histology as the gold standard, the positive predictive value of an endoscopic impression of GAVE is only 20.7%.



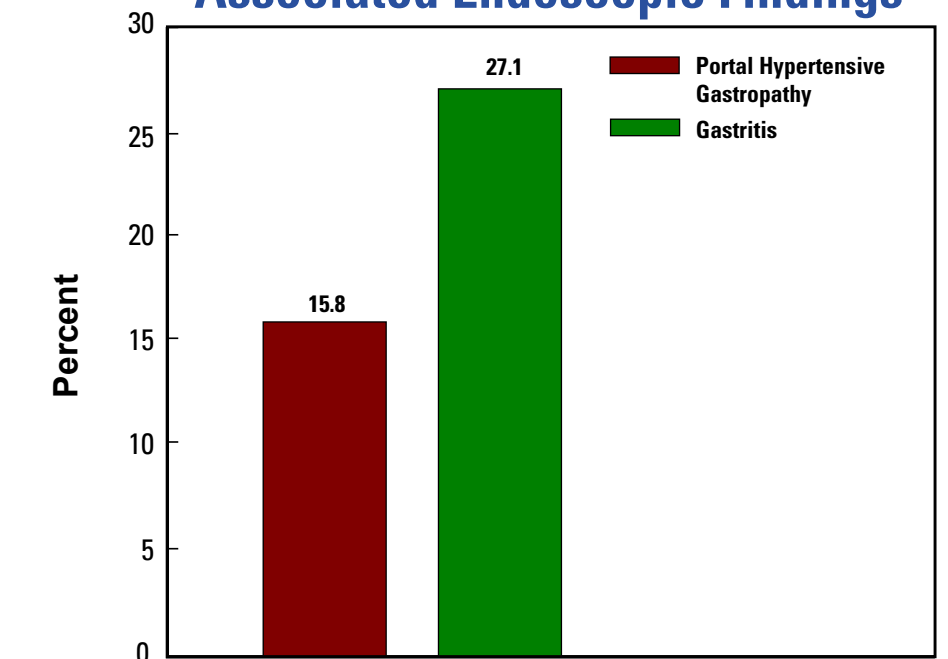
Demographics



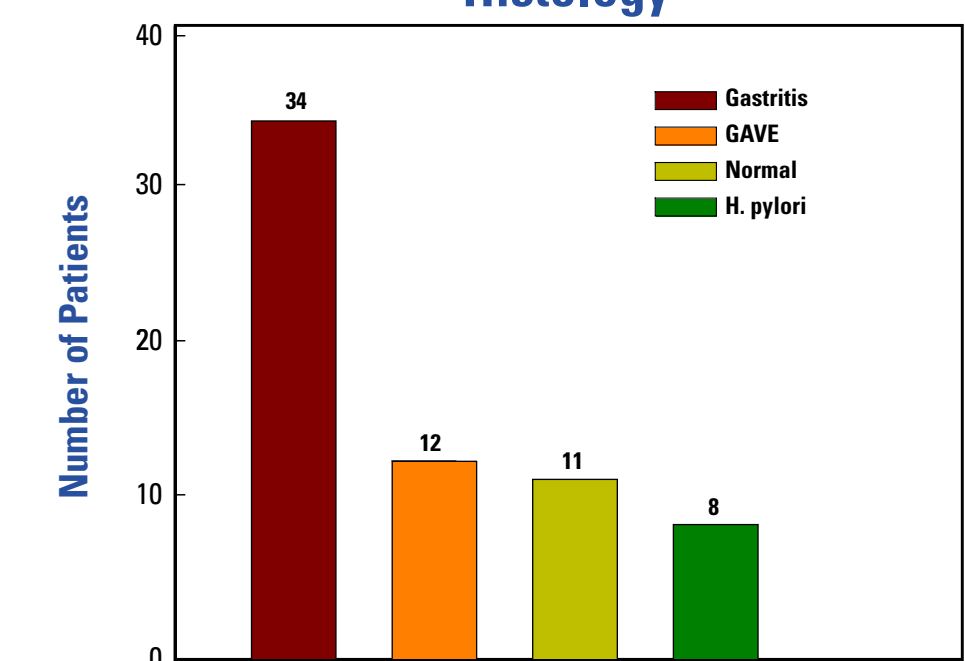
Clinical Presentations



Associated Endoscopic Findings



Histology



Conclusions

- Histological diagnostic findings of GAVE are uncommonly found in those who have an endoscopic appearance suggestive of the disease.
- This finding may be due to heterogeneity in histologic and/or endoscopic findings.
- Further studies are warranted to determine if the histologic diagnosis affects therapeutic and clinical outcomes.

Prevalence and Predictors of Venous Thrombosis in Hospitalized Patients with Cirrhosis

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Background

- Cirrhosis results in impaired regulation of coagulation due to an imbalance of procoagulants, anticoagulants, and fibrinolytics.
- Previous studies have shown an incidence of deep vein thrombosis (DVT) in the hospitalized population of 0.1-3.17%.
- Incidence of DVT in patients with cirrhosis has not been determined.

Aims

- To investigate the incidence and predictors of venous thrombosis in hospitalized patients with cirrhosis.

Methods

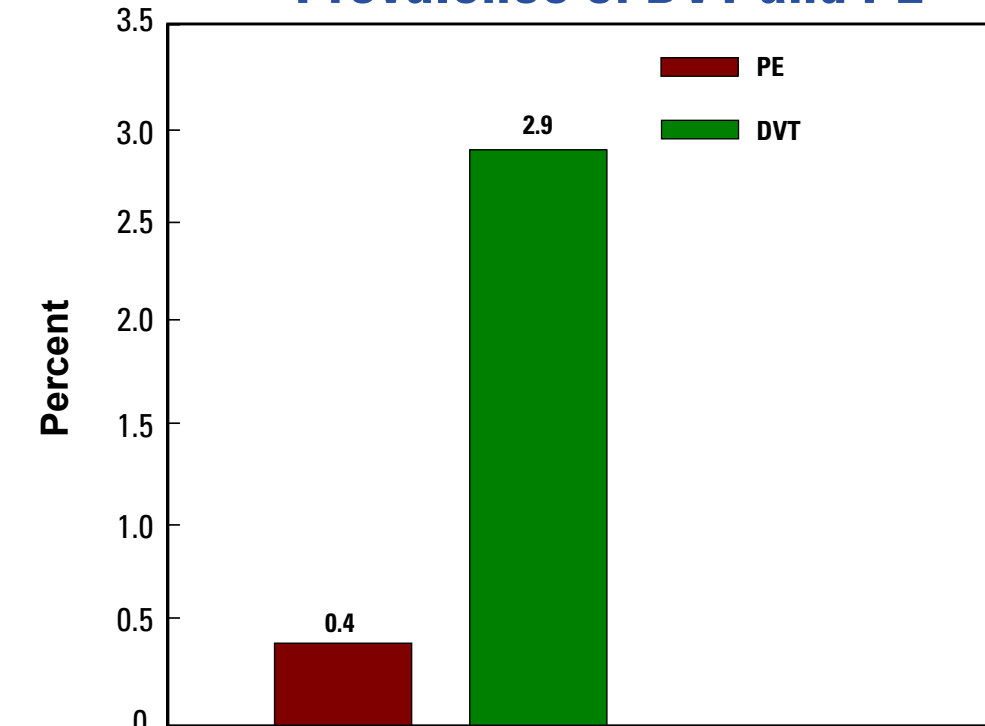
- A retrospective review of patients discharged from a tertiary care institution from 1/1/1985 to 3/31/2005 utilizing an electronic database was conducted.
- Diagnoses of venous thrombosis, DVT, pulmonary embolism (PE), and cirrhosis were searched.
- Only those admission with documented acute DVT were included.

Results

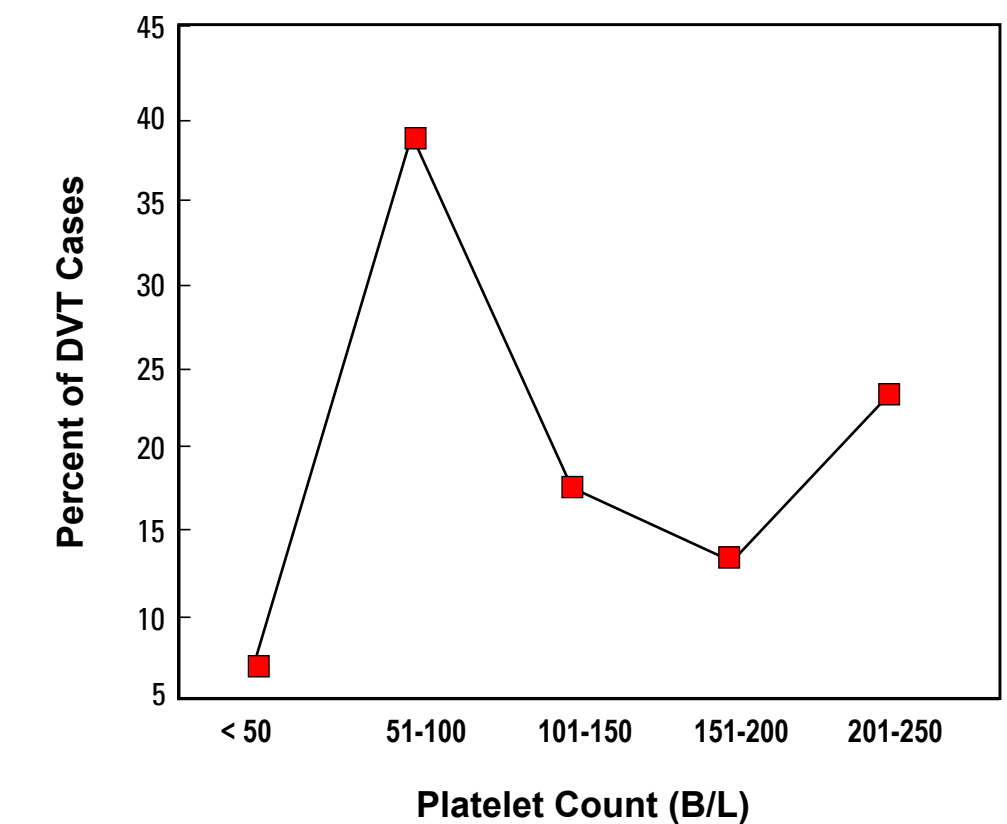
- A total of 3547 patients with cirrhosis were identified.
 - There were 1254 females, and 2293 males.
 - The mean age was 55 ±15 years.
 - There were 16 cases of PE (16/3547=0.4%).
 - DVT occurred in total of 103 patients (2.9%).
- Patients with cirrhosis and DVT (group 1) were compared to patients with cirrhosis and without DVT (group 2).
- Compared to group 2, patients in group 1 were older and had higher rate of mechanical ventilation, and previous history of DVT.
- There was no difference between the groups in respect to rate of malignancy, use of central lines, and coagulation profile. (See Table 1)

	Cirrhosis and DVT	Cirrhosis without DVT	p-value
Age (years)	61±14	55±14	<0.0001
Mechanical ventilation (%)	34	10	<0.0001
History of DVT (%)	8	0.41	<0.0001
Central lines (%)	7	9	NS
Malignancy (%)	21	23	NS
PT (sec)	17 ± 5.4	18 ± 4.2	NS
PTT (sec)	37±16	38 ± 11.3	NS
INR	1.56 ± 0.63	1.45 ± 0.48	NS
Platelets (B/L)	137 ± 89	130 ± 89	NS

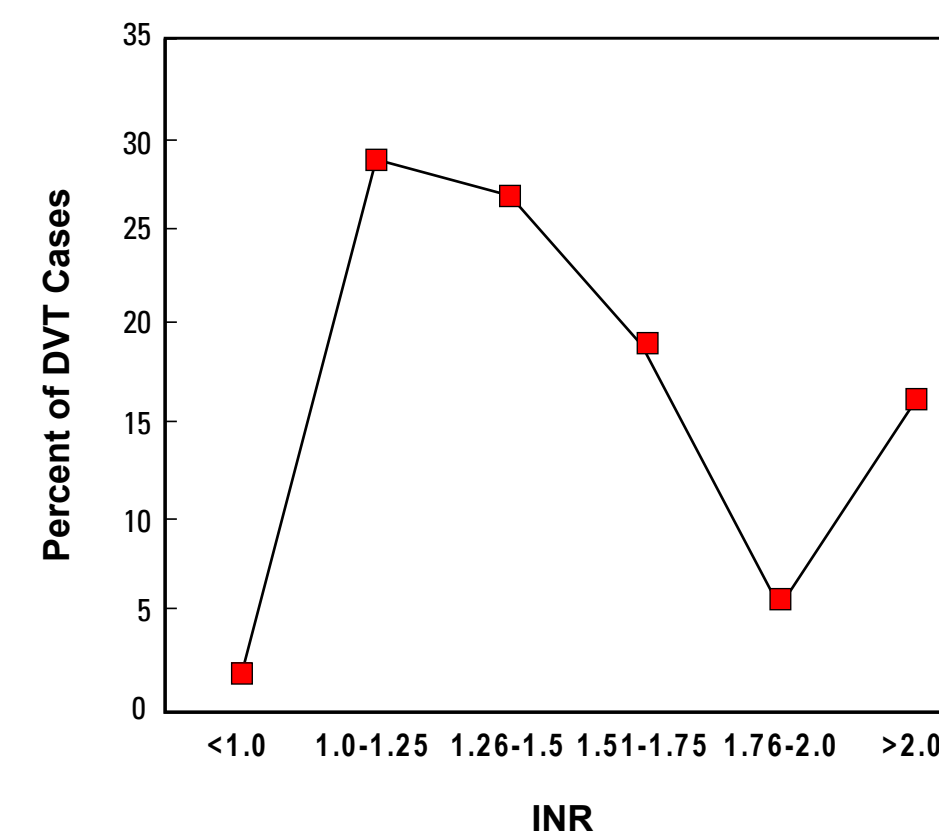
Prevalence of DVT and PE



Relationship Between DVT and Platelet Count



Relationship Between DVT and INR



Conclusions

- Prevalence of DVT in patients with cirrhosis is similar to that of a general hospital population.
- DVT and PE occur in patients with cirrhosis even in the setting of coagulopathy.
- Older age, previous history of DVT and use of mechanical ventilation may serve as risk factors for DVT in patients with cirrhosis.
- Future studies are warranted to establish guideline for DVT prophylaxis in hospitalized patients with cirrhosis.

Comparison of Visual Estimation with Digital Caliper Measurement (DCM) of Common Bile Duct (CBD) and Pancreatic Duct (PD) Diameter During ERCP

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Background

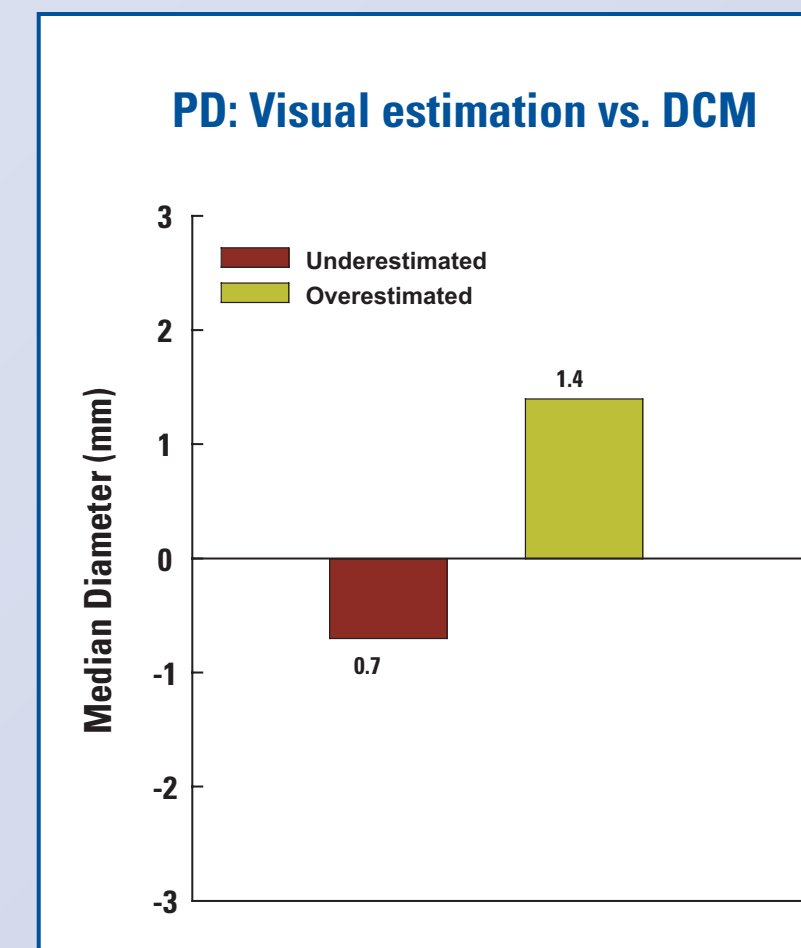
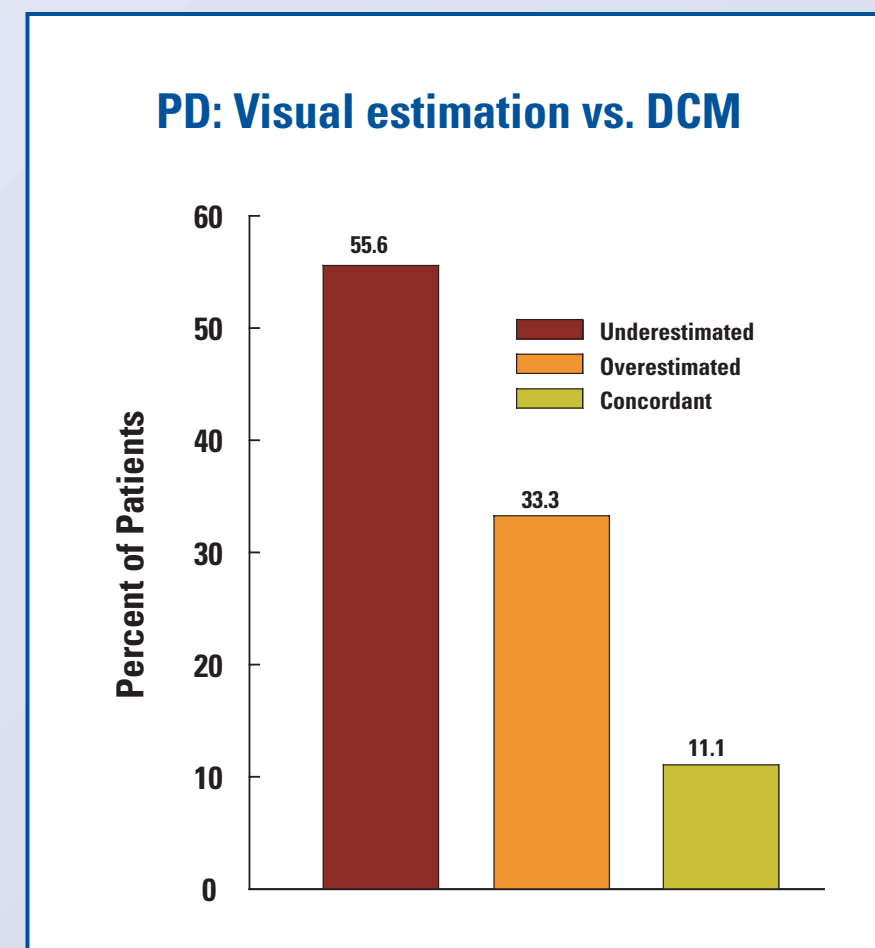
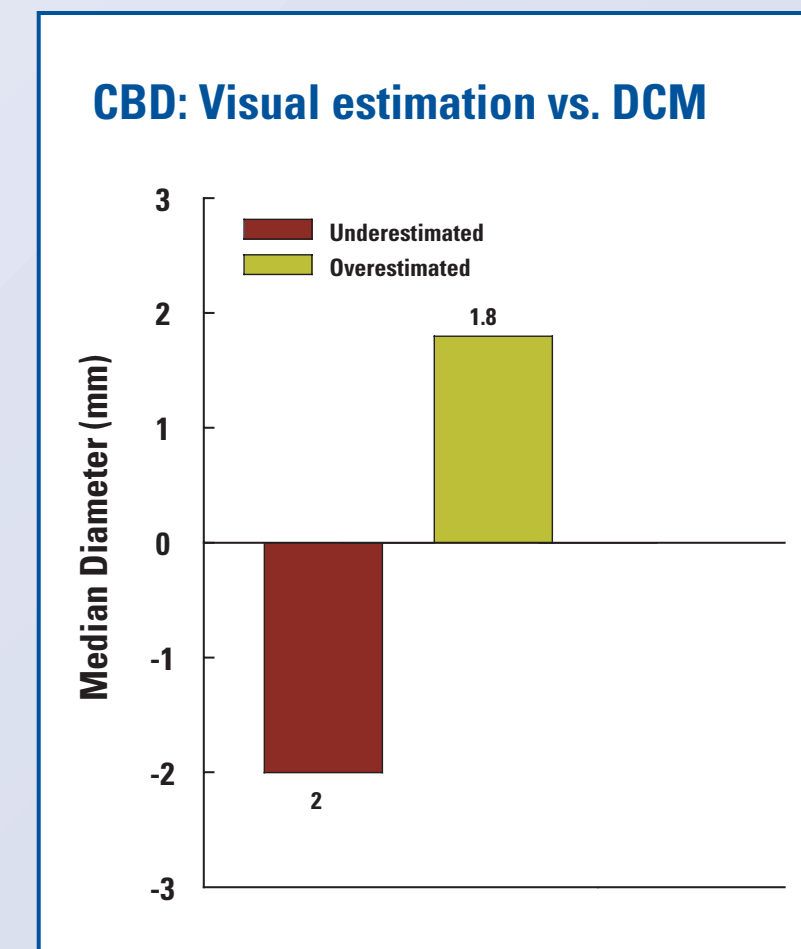
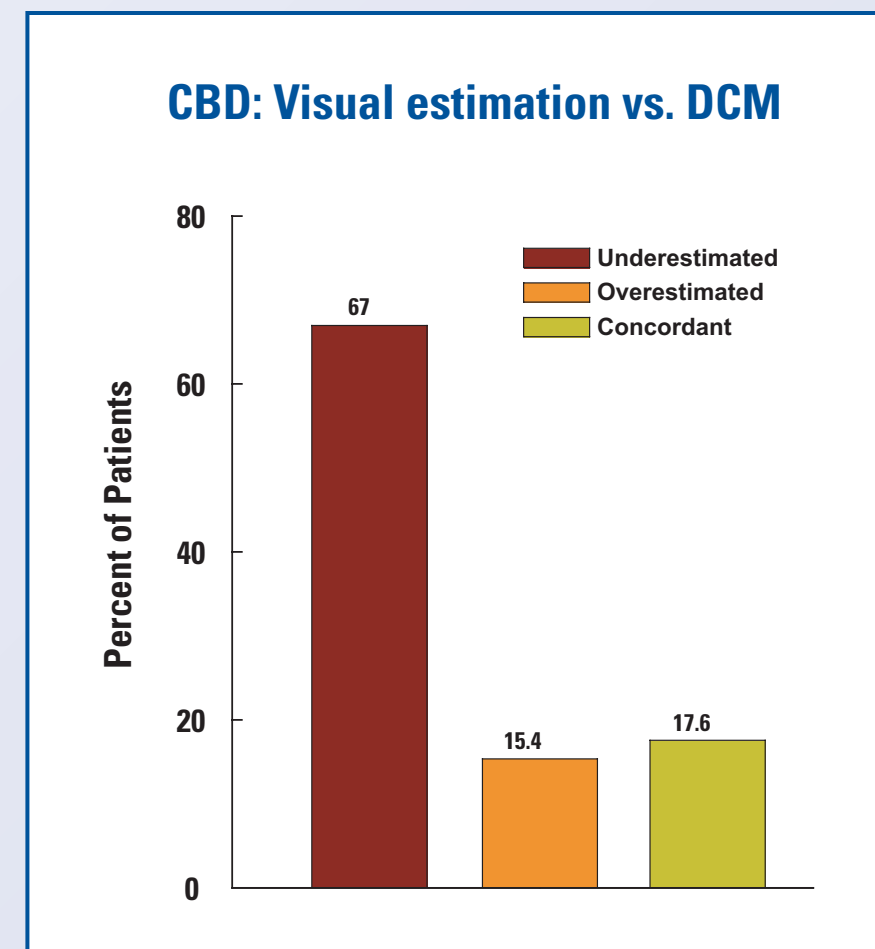
- Assessment of duct diameter during ERCP is traditionally based upon visual estimation relative to the diameter of the duodenoscope.
- The recent use of digital fluoroscopic equipment for ERCP allows digital image processing software to be used to precisely measure pancreaticobiliary duct morphology.

Aim

- To compare visual estimation with DCM of CBD and PD diameters during ERCP.

Methods

- Patients undergoing ERCP in a tertiary-care hospital were retrospectively identified over a period of 5 months.
- All ERCPs were performed with an OEC 9800 digital C-arm (GE; Salt Lake City, Utah).
- Patients were included if the ERCP report provided a visual estimation of CBD or PD diameter.
- ERCP images were re-examined & duct segments were measured with DCM standardized to the duodenoscope.



Results

263 patients underwent ERCP

- 109 patients (41.4%), had CBD (n=91) and/or PD (n=18) diameters reported based on visual estimation

Out of 91 patients with CBD measurements:

- In 61 patients (67%), the visual estimation underestimated DCM diameter by a median of 2.0 mm (range 0.6-6.2)
- In 14 patients (15.4%), the visual estimation overestimated DCM diameter by a median of 1.8 mm (range 0.6-4.0)
- The largest discrepancy in biliary diameter was 6.4 mm (26.7%)
- In 16 patients (17.6%), visual estimation and DCM were concordant

Out of 18 patients with PD measurements:

- The visual estimation underestimated the DCM diameter in 10/18 patients (55.6%), by a median of 0.7 mm (range 0.5-2.4)
- The visual estimation overestimated the DCM diameter in 6 patients (33.3%), by a median of 1.4 mm (range 0.5-2.4)
- The largest pancreatic duct discrepancy was 2.4 mm (40%)
- In 2 patients (11.1%), visual estimation and DCM were concordant

Conclusions

Visual estimation during ERCP is unreliable and most often underestimates duct diameter. When available, digital image processing software should be employed to obtain a precise measurement of pancreaticobiliary structures visualized during ERCP.

Comparison of Endoscopic Retrograde Cholangiopancreatography (ERCP) and Magnetic Resonance Cholangiopancreatography (MRCP) in the Determination of Common Bile Duct (CBD) Diameter

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Background

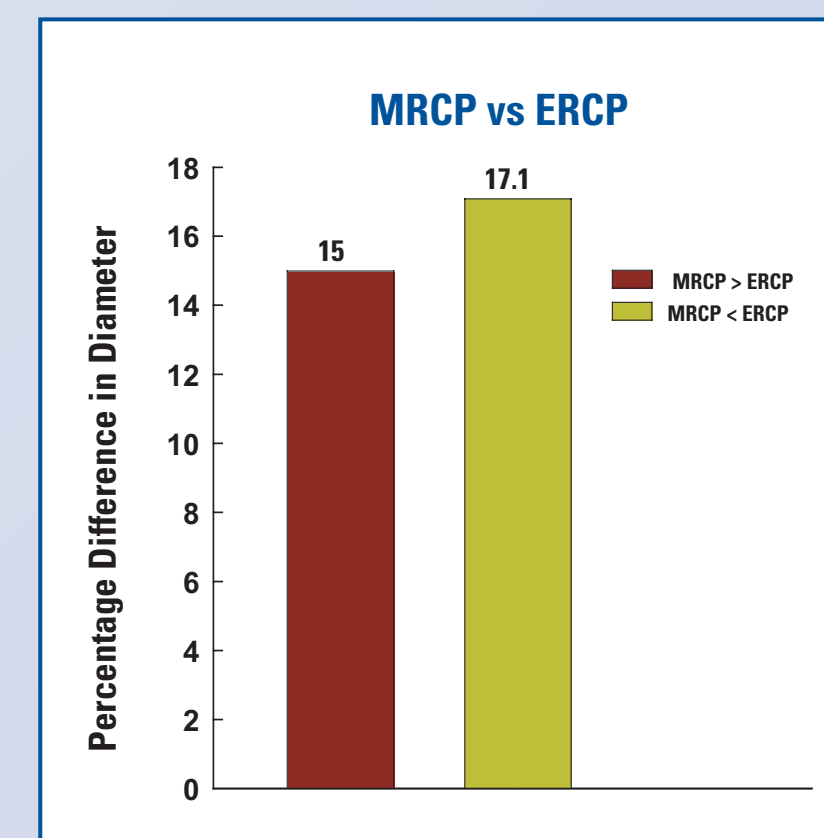
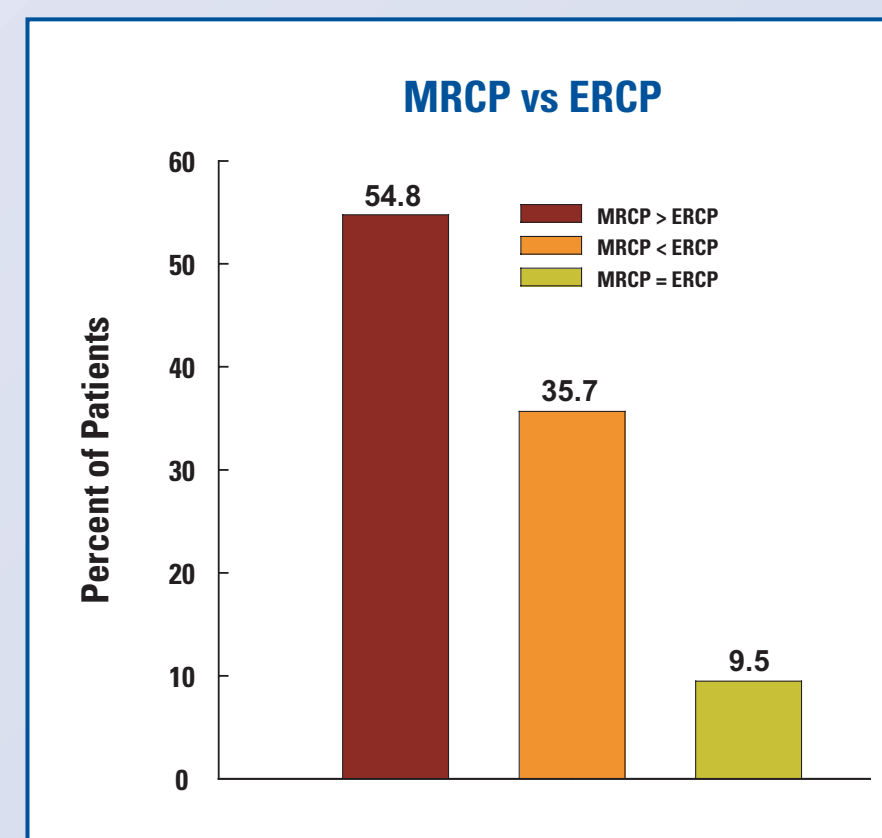
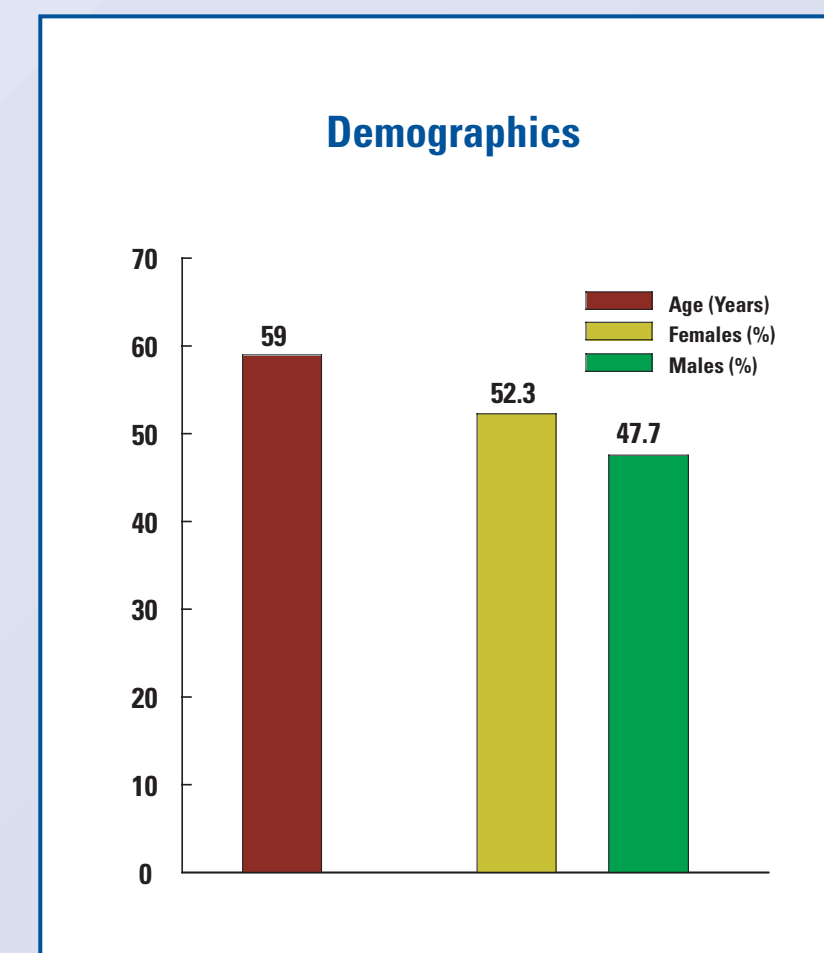
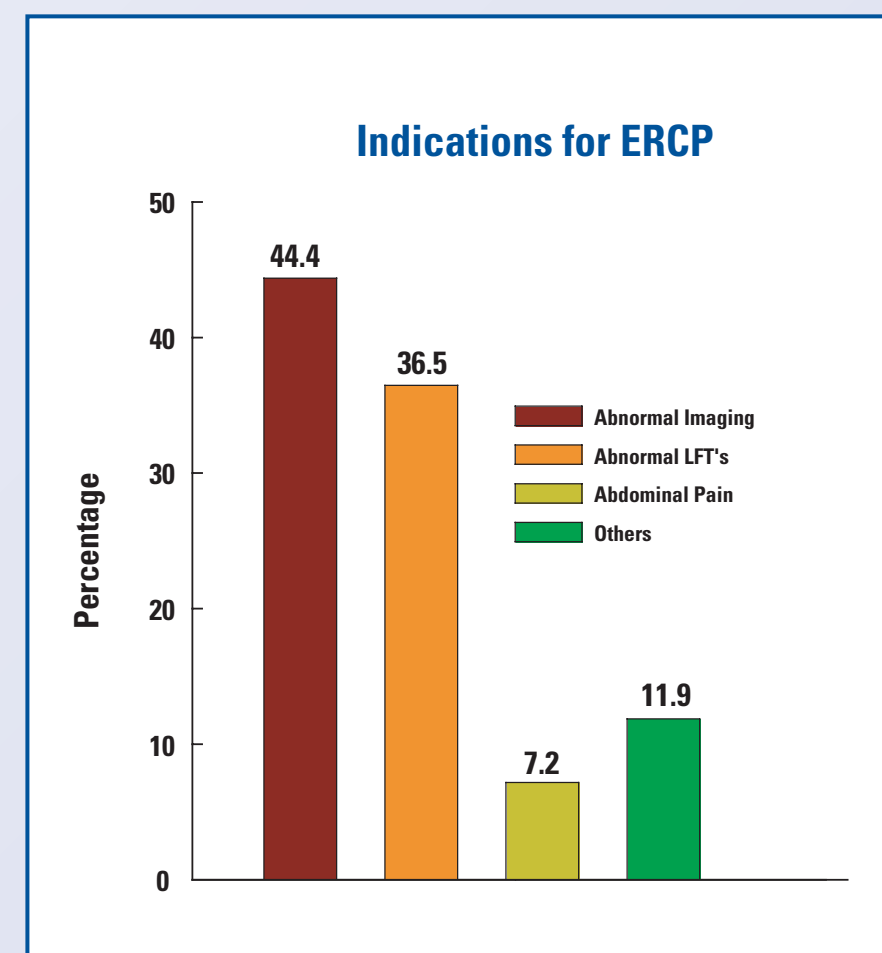
- ERCP and MRCP are the most commonly employed techniques to delineate pancreaticobiliary morphology.
- As the two modalities rely on vastly different biophysical principles to generate images, it is plausible that duct measurements obtained by these modalities may significantly differ.
- Because ERCP determines duct diameters via intraductal injection of radiographic contrast, it has been predicted that duct diameters may be overestimated.

Purpose

- To compare the CBD diameter determined by MRCP and ERCP.

Methods

- A retrospective review of endoscopic and radiologic reports from a single institution was performed for a period between January 2000 and July 2004.
- Patients were included if MRCP was performed before ERCP and both reports provided a numerical assessment of CBD diameter.



Results

- 2107 patients underwent ERCP in a tertiary-care hospital over a 4 year period.
- The most common indications for ERCP were abnormal radiographic findings followed by laboratory abnormalities.
- 147/2107 patients were evaluated by both ERCP and MRCP at the same institution.
 - In 131 patients, MRCP was performed prior to ERCP.
 - In 84 patients both MRCP and ERCP reports provided a numerical assessment of CBD diameter.
 - The mean age of patients included was 59 years.
 - In 46 cases (54.8%), MRCP overestimated the CBD diameter by a median of 1 mm (range 0.5-7.0).
 - In 30 cases (35.7%), MRCP underestimated the CBD diameter by a median of 2 mm (range 1.0-5.0).
 - In 8/84 cases (9.5%), the CBD diameter determined by both MRCP and ERCP were equivalent.

Conclusions

CBD diameters obtained by ERCP closely approximate those obtained by MRCP.

Based on this data and contrary to the predicted discrepancy, ERCP-determined diameters are most often equivalent to or smaller than MRCP-determined diameters.

Experience of Video Capsule Endoscopy In a University Hospital

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Purpose

- Wireless video capsule endoscopy (VCE) is a new technology that enables us to visualize the entire small bowel mucosa. It involves swallowing a video capsule endoscope, which is painless and relatively safe. Its use has been established for suspected small bowel bleeding, and the role of capsule endoscopy in the investigation of inflammatory bowel disease, iatrogenic disease, polyposis syndromes and celiac disease is evolving.

Aim

- To describe the experience of video capsule endoscopy in a large tertiary care center.

Methods

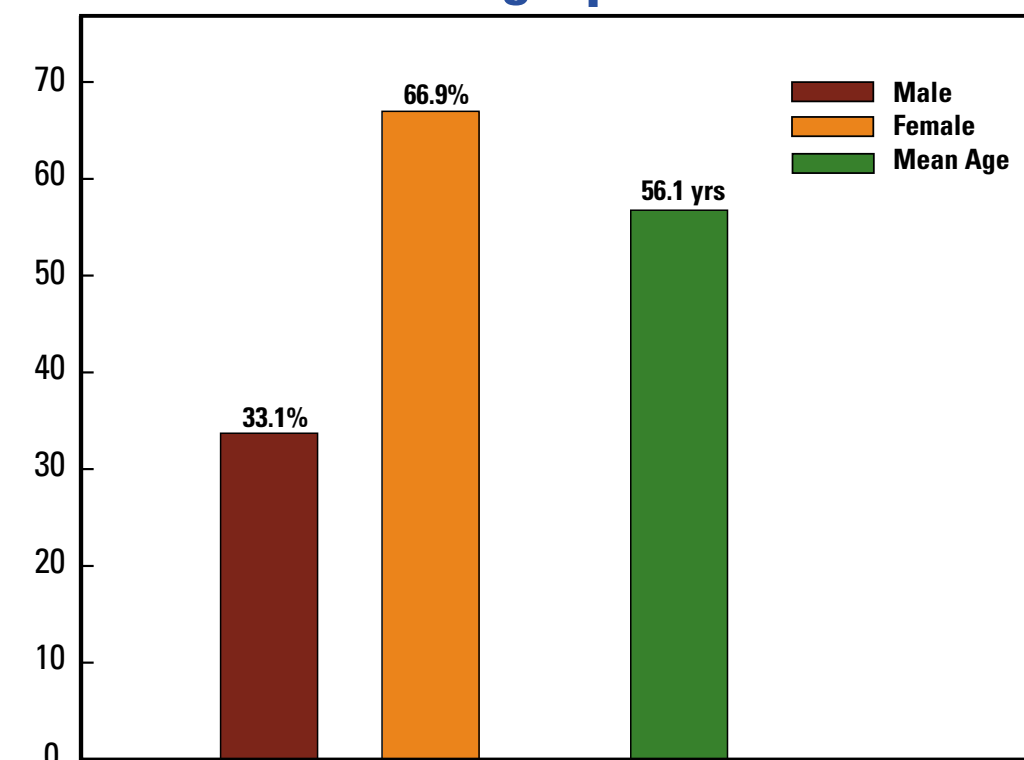
- All charts of patient who underwent VCE between 2001 and 2005 were retrospectively reviewed. There were 466 charts available with the complete VCE reports.

Results

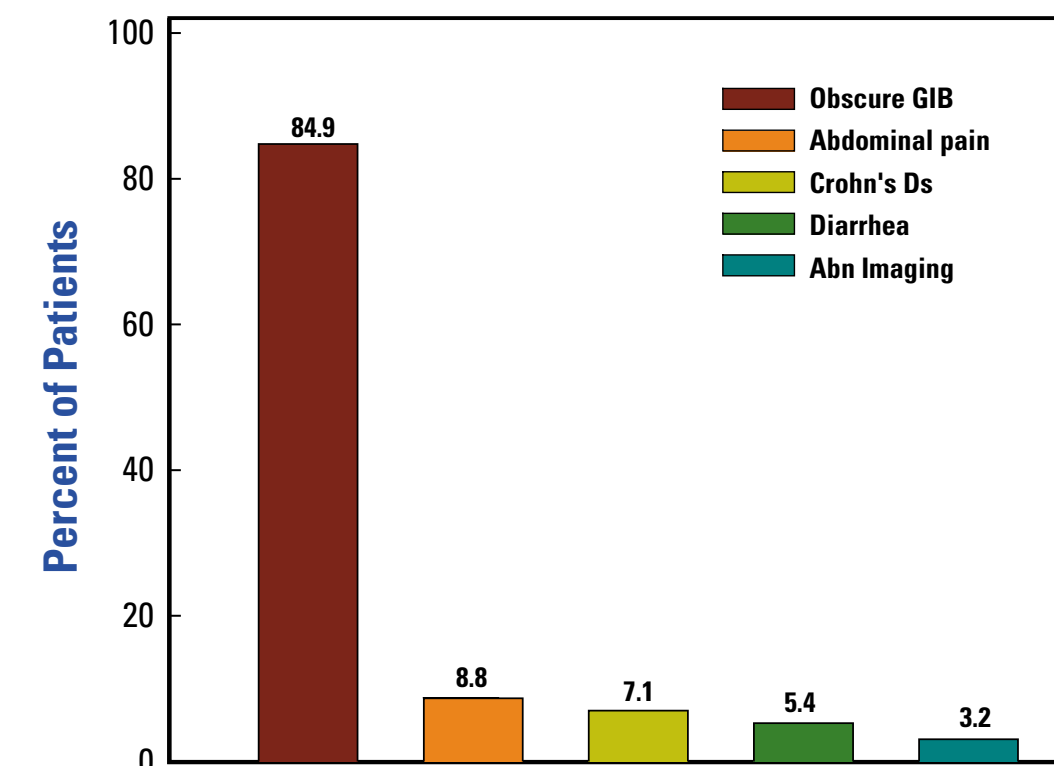
- Total of 466 patients underwent VCE with mean age of 59.5 years (range 7-90).
- Total of 265 female patients and 201 male patients.
- The most common indication was obscure gastrointestinal bleeding (OGIB) (84.9%), followed by abdominal pain (8.8%), Crohn's (7.1%), diarrhea (5.4%) and abnormal imaging (3.2%).

- The etiology of OGIB, abnormal imaging, abdominal pain, and diarrhea was identified in 76.8%, 60%, 41.8%, and 28% respectively.
- New diagnosis of Crohn's was made in 16% with diarrhea.
- 57.6% of patients with Crohn's disease had small bowel involvement.
- Small intestinal mass was identified in 3.6% – 88.3% presented with OGIB.

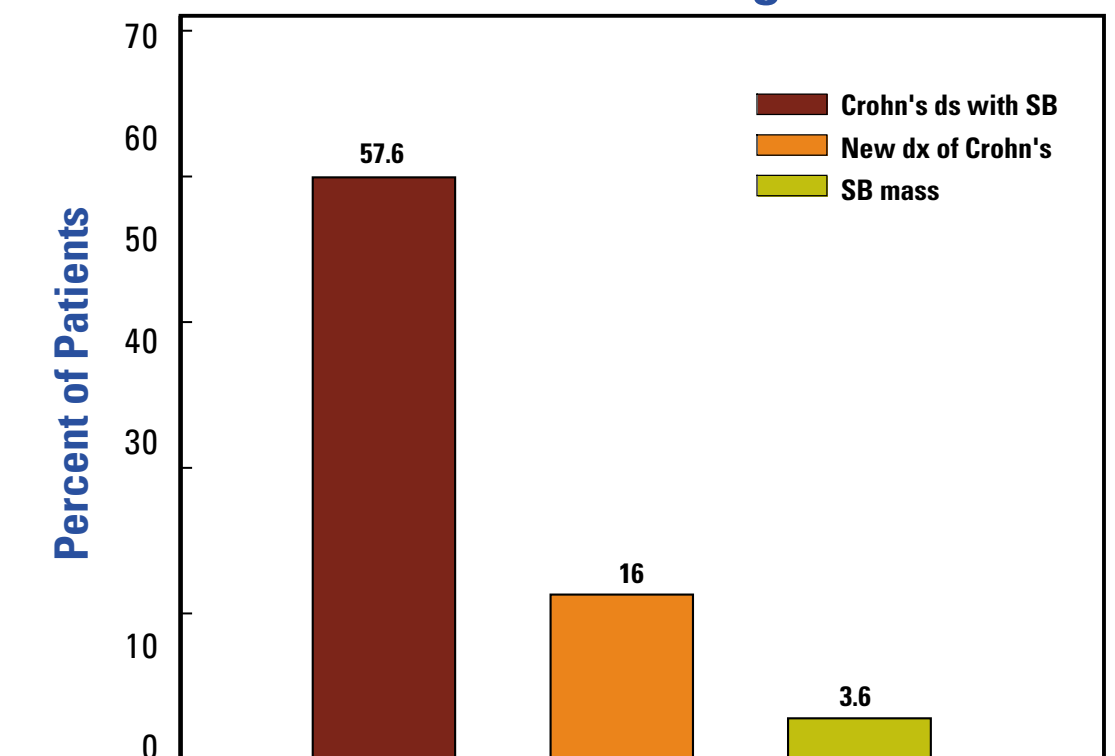
Demographics



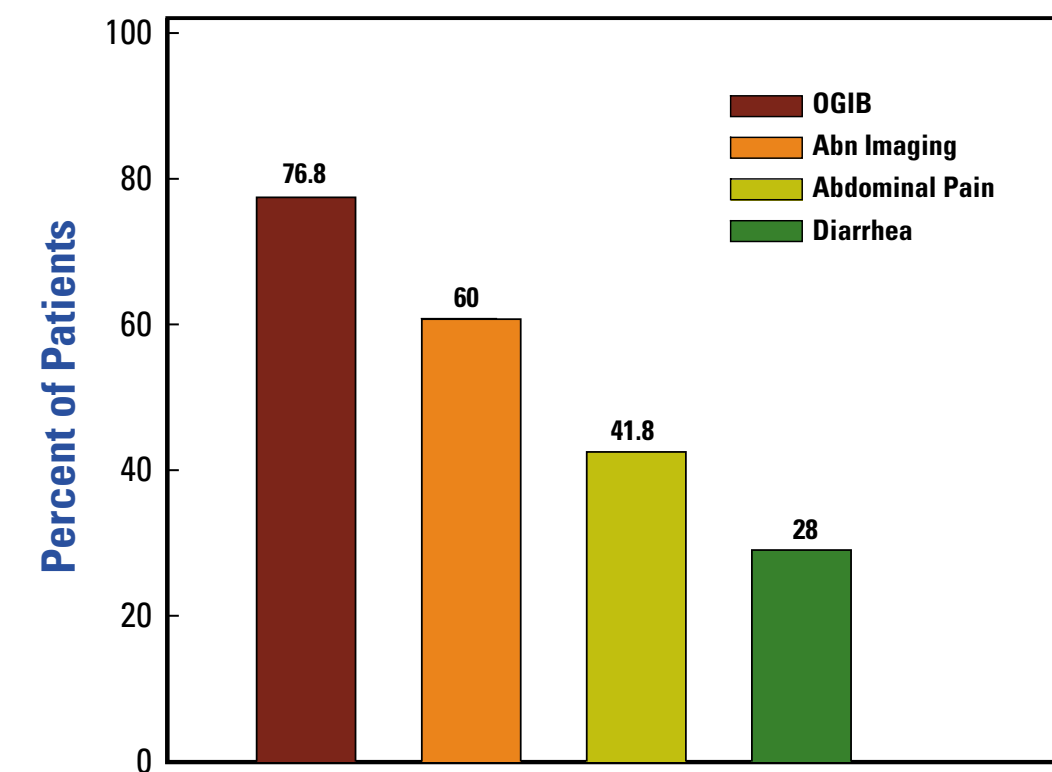
M2A Indications



M2A Findings



Identification of Cause



Conclusions

- VCE is a clear choice for evaluation of obscure gastrointestinal bleeding
- VCE is an important tool in diagnosing early Crohn's disease.
- VCE is an important tool in diagnosing upper gastrointestinal involvement in established Crohn's disease.
- VCE is an important supplementary diagnostic tool in investigating multiple different complaints encountered by gastroenterologist.

Cryptococcus Cellulitis and Myositis without Systemic Cryptococcosis in a Liver Transplant Recipient

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Background

- Cutaneous involvement is an uncommon manifestation of cryptococcal disease, but it may be the initial manifestation of systemic cryptococcosis in solid-organ transplant (SOT) recipients and other immunocompromised hosts.
- Only 36 cases have been described and majority are in renal transplant recipients.
- We describe the only case of cellulitis with fasciitis and myositis and without systemic involvement in a liver transplant recipient.

History

- A 50-year-old white male presented with erythema and swelling of both lower extremities.
- Medical history was significant for liver transplant five years ago.
- Immunosuppressive regimen consisted of prednisone 10mg and sirolimus 1mg QD.

Physical Exam

- Temperature was 100.8F.
- Multiple, irregularly shaped, deep ulcers with surrounding erythema without any evidence of necrosis were seen on both lower extremities (Figure 1, 2).
- There was significant edema as well.



Figure 1



Figure 2

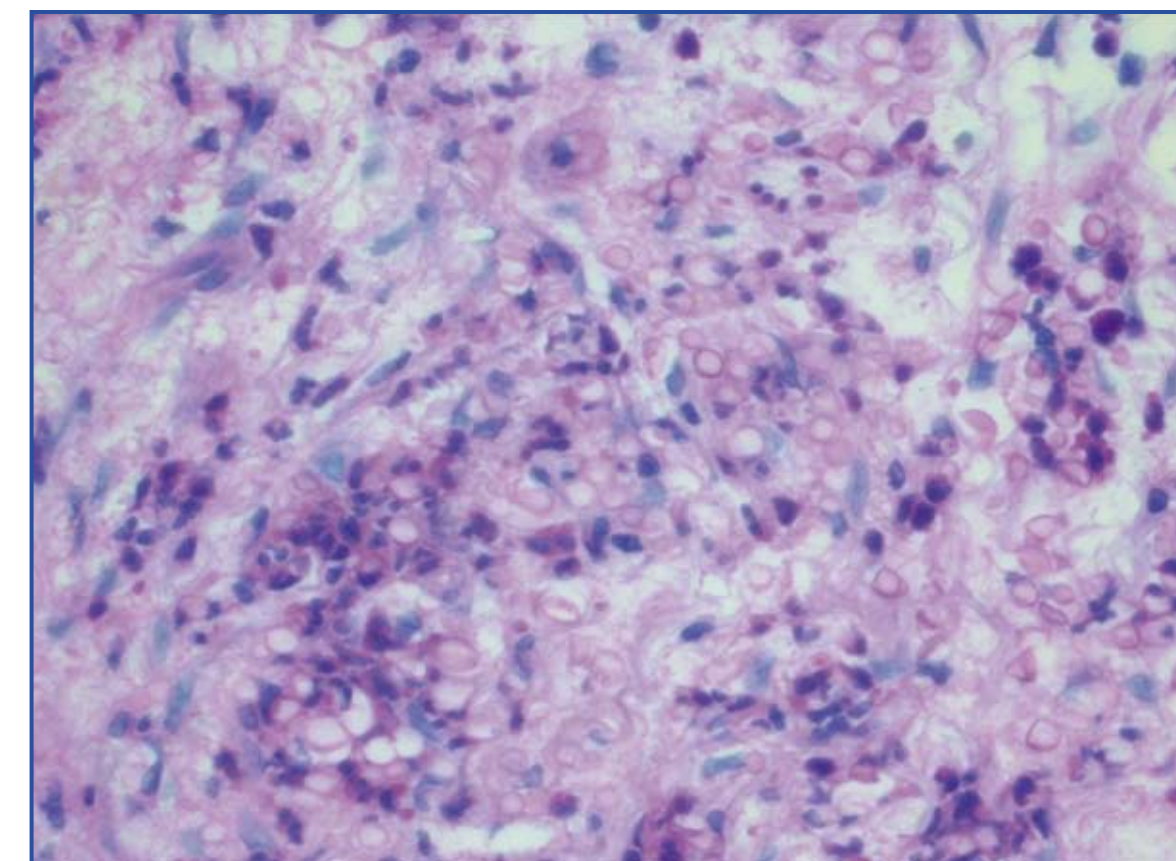


Figure 3: PAS stain

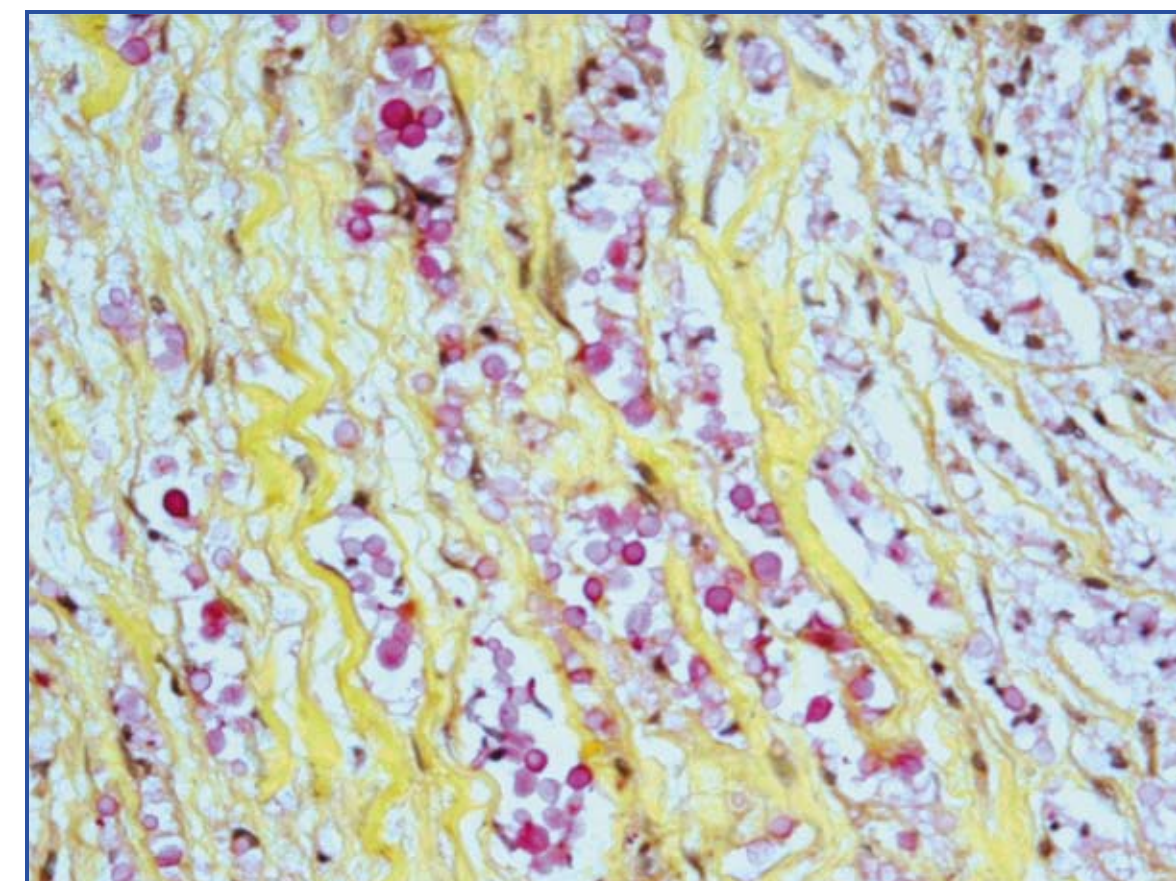


Figure 4: Mucicarmine stain

Hospital Course

- Started on intravenous vancomycin and piperacillin/tazobactam without any improvement.
- Blood cultures remained negative.
- MRI revealed cellulitis of the right lower extremity and myositis with fasciitis on the left.
- Biopsy of the skin lesion revealed diffuse yeast forms with PAS and mucicarmine positive capsules consistent with cryptococcus infection (Figure 3,4).
- Cryptococcal antigen titer was markedly elevated at 1:251.
- Evaluation of cerebrospinal fluid was unremarkable.
- Started on amphotericin B with good resolution of the lesions.

Conclusion

- Cryptococcus infection must be included in the differential diagnosis of refractory cellulitis in SOT recipients.
- Early diagnosis requires tissue acquisition for testing.
- Tissue samples should be stained with fungal stain mucicarmine to reveal the characteristic organisms.
- Cryptococcal antigen test is a simple blood test that may aid in the diagnosis of cryptococcosis.

Spectrum of Advanced Liver Disease in a Tertiary Care Institution

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Background

- In population based studies, the rise of hepatitis C (HCV) infection has surpassed alcoholic liver disease (ALD) as the most common cause of chronic liver disease.
- It is unknown if HCV is becoming the dominant cause of advanced liver disease

Purpose

- To determine the distribution of etiologies in a cohort of patients presenting with advanced liver disease..

Methods

- A retrospective review of patients with advanced liver disease was performed for a period between January 1999 and December 2002.
- Advanced liver disease was defined as the presence of endoscopically identified esophageal (EV) or gastric varices (GV).
- Etiologies of hepatic injury were identified from clinical record and laboratory database.

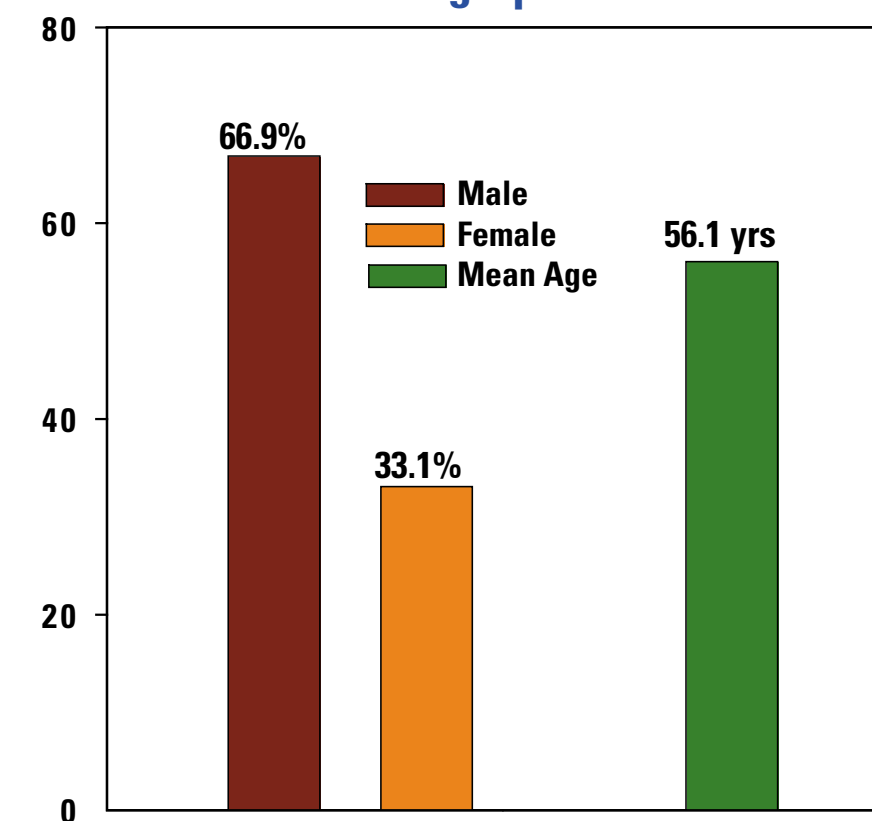
Those with more than one cause or non-hepatic cause of portal hypertension were excluded.

Four groups according to etiology were defined: 1) HCV, 2) ALD, 3) hepatitis B (HBV) and, 4) miscellaneous (cryptogenic cirrhosis, non-alcoholic fatty liver disease, autoimmune hepatitis, portal vein thrombosis).

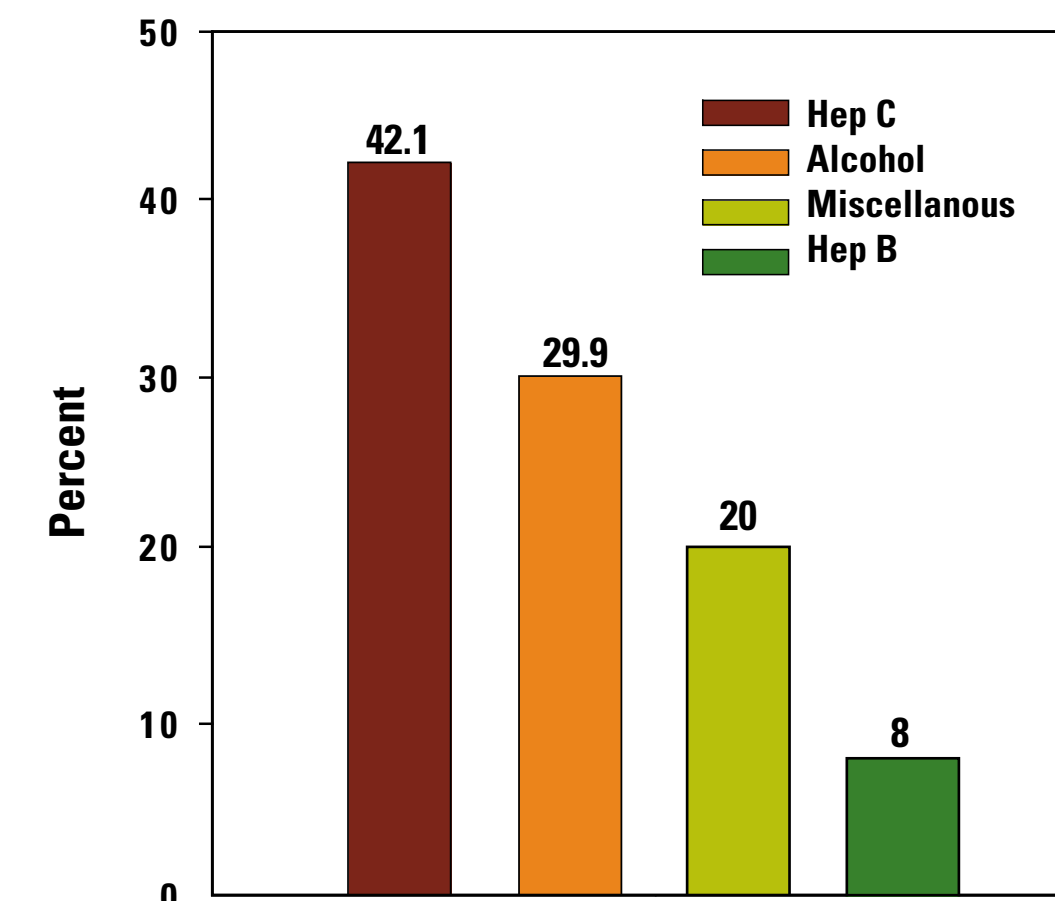
Results

- 411 patients were identified as having EV and/or GV.
 - The mean age was 56.1 years (range 19-89).
 - There were 275 males (66.9%) and 136 females (33.1%).
 - The proportions of females in those with HCV and ALD were similar.
 - Women were predominant in non-viral, non-alcohol related disease group compared to other diagnoses (59.4% vs. 24.3%, $p < 0.0001$).
 - Race was evenly distributed amongst groups.
 - HCV was the most common etiology (42.1%) followed by alcohol (29.9%), other predominantly non-viral, non-alcohol diagnoses (20.0%), and hepatitis B (8.0%).
 - Etiology differed in those older than 65 years of age compared to younger patients for all diagnostic categories ($p < 0.0001$) with ALD being more prevalent than HCV in older patients ($p = 0.0120$).

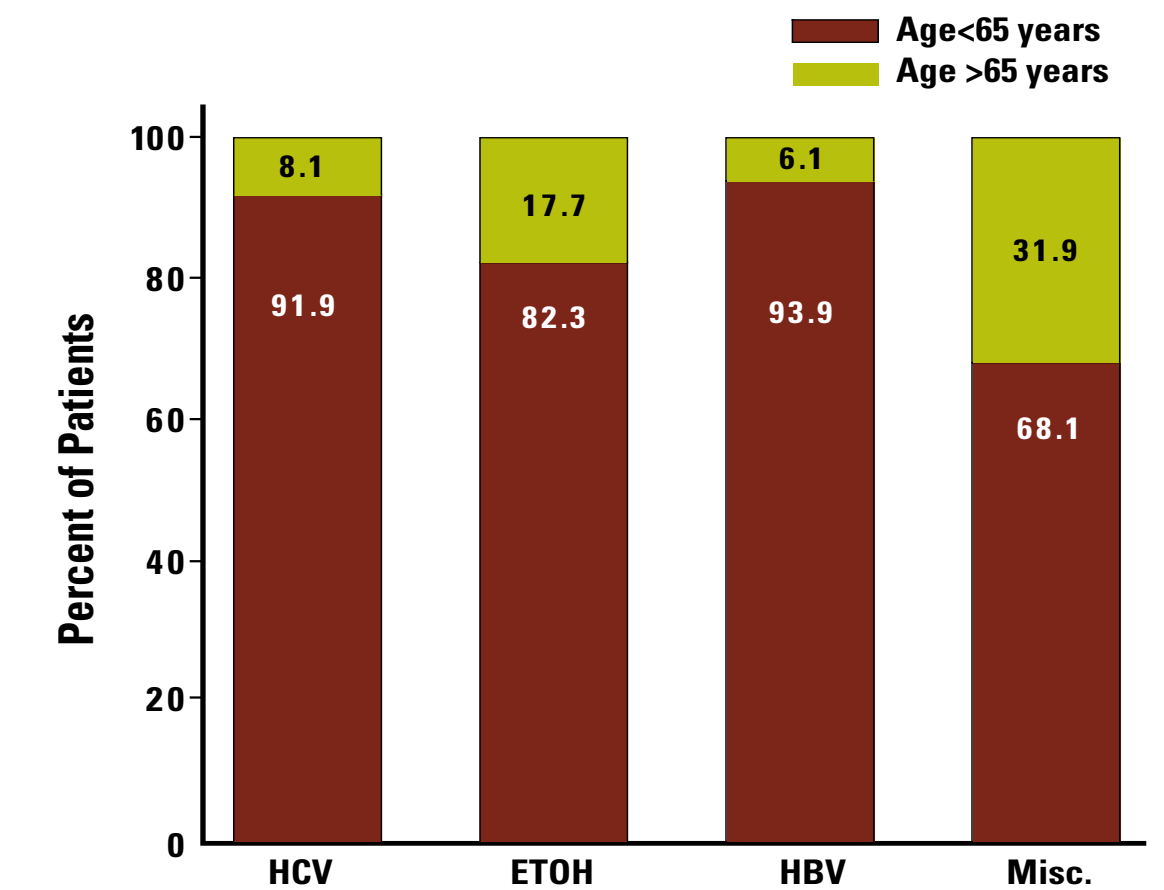
Demographics



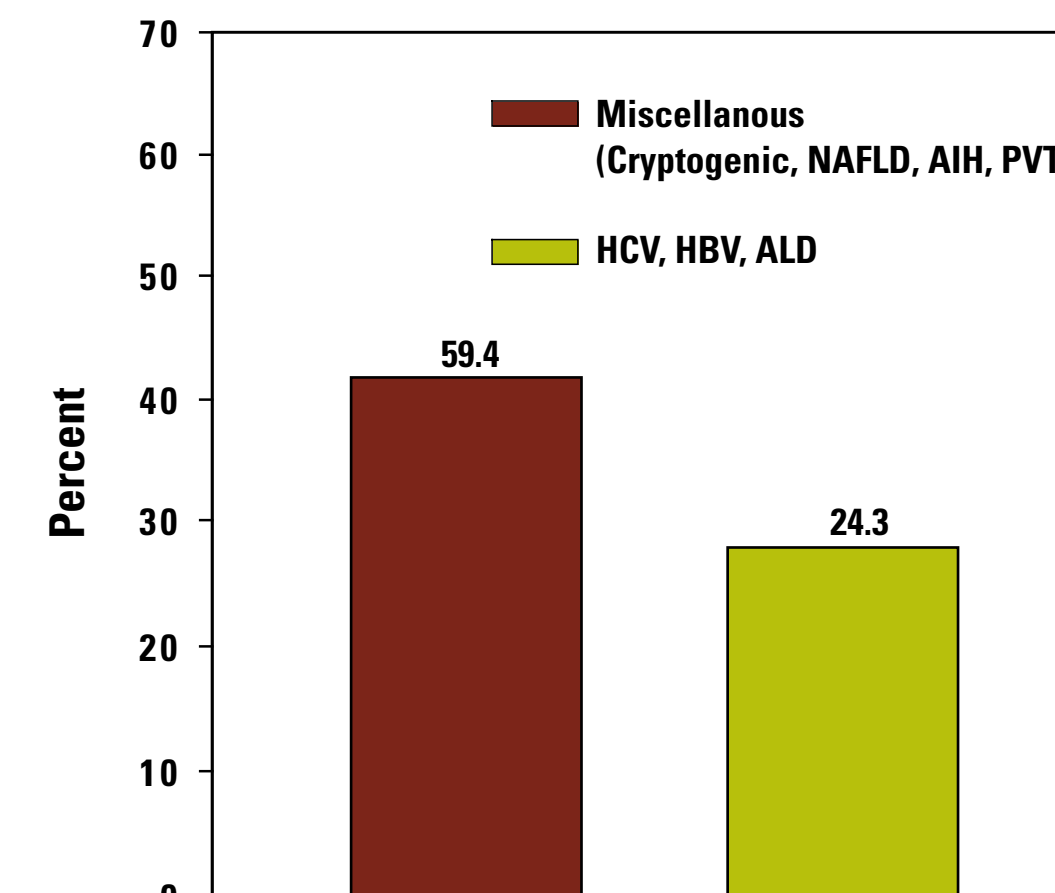
Etiology of Liver Disease



Etiology of Advanced Liver Disease



Etiology of Liver Disease in Women



Conclusions

- Etiology of liver disease drastically differs in those older than 65 years of age compared to younger patients.
- Higher prevalence of ALD rather than HCV in elderly population alludes to different risk behavior pattern between two groups (i.e., intravenous drug use more common in younger patients).
- For patients younger than 65 years of age, HCV is the major cause of cirrhosis and burden of complications of cirrhosis attributable to HCV infection should be expected to rise as this population ages.

Video Capsule Endoscopy For Evaluating Obscure Gastrointestinal Bleeding In A Tertiary Care Center; An Unexpected Finding Of Small Bowel Tumors

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Purpose

- In recent years video-capsule endoscopy has revolutionized the investigation of obscure gastrointestinal bleeding (OGIB).
- Multiple studies have shown superiority over conventional modalities, including push enteroscopy and small bowel radiography.
- Wireless video capsule endoscopy (VCE) is a new technology that enables us to visualize the entire small bowel mucosa. It involves swallowing a video capsule endoscope, which is painless.

Aim

- To investigate etiologies of obscure gastrointestinal bleeding in a large tertiary care institution.

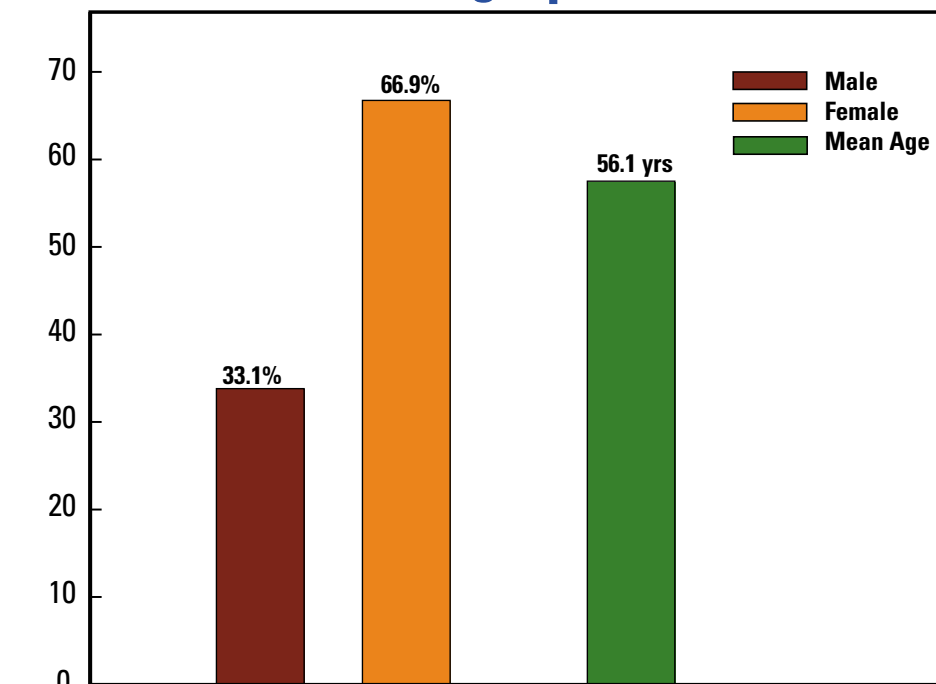
Methods

- All charts of patient who underwent VCE between 2001 and 2005 were retrospectively reviewed. There were 466 charts available with the complete VCE reports.

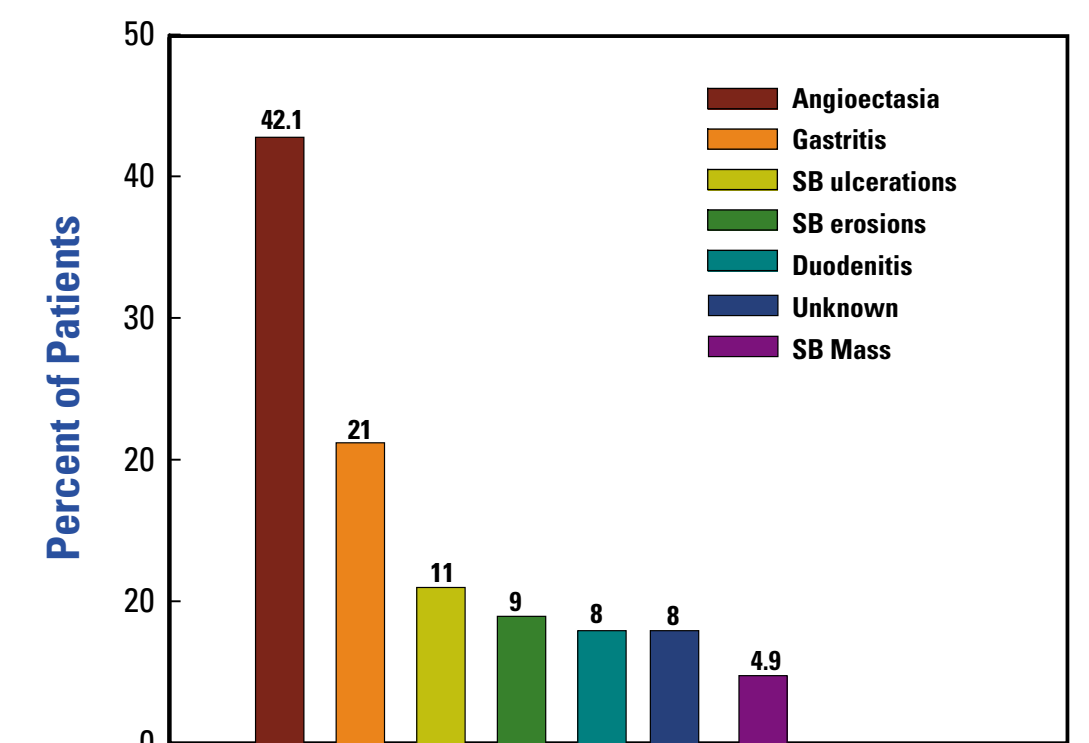
Results

- Total of 466 patients with nondiagnostic upper and lower endoscopies underwent VCE.
- Mean age 59.5 years (range 7-90).
- Total of 265 female patients and 201 male patients.
- The most common indication for the procedure was OGIB in 366 patients (84.9%) and possible cause was identified in 304/366 (76.8%) of patients.
- Angioectasias identified in 42.1% of patients, gastritis in 21% and small bowel ulcerations were visualized in 11%.
- Small bowel erosion and duodenitis were present in 9% and 8% of patients respectively.
- Active bleeding without any identifiable cause was seen in 8% of the patients.
- 4.9% of patients were diagnosed with a small bowel mass.

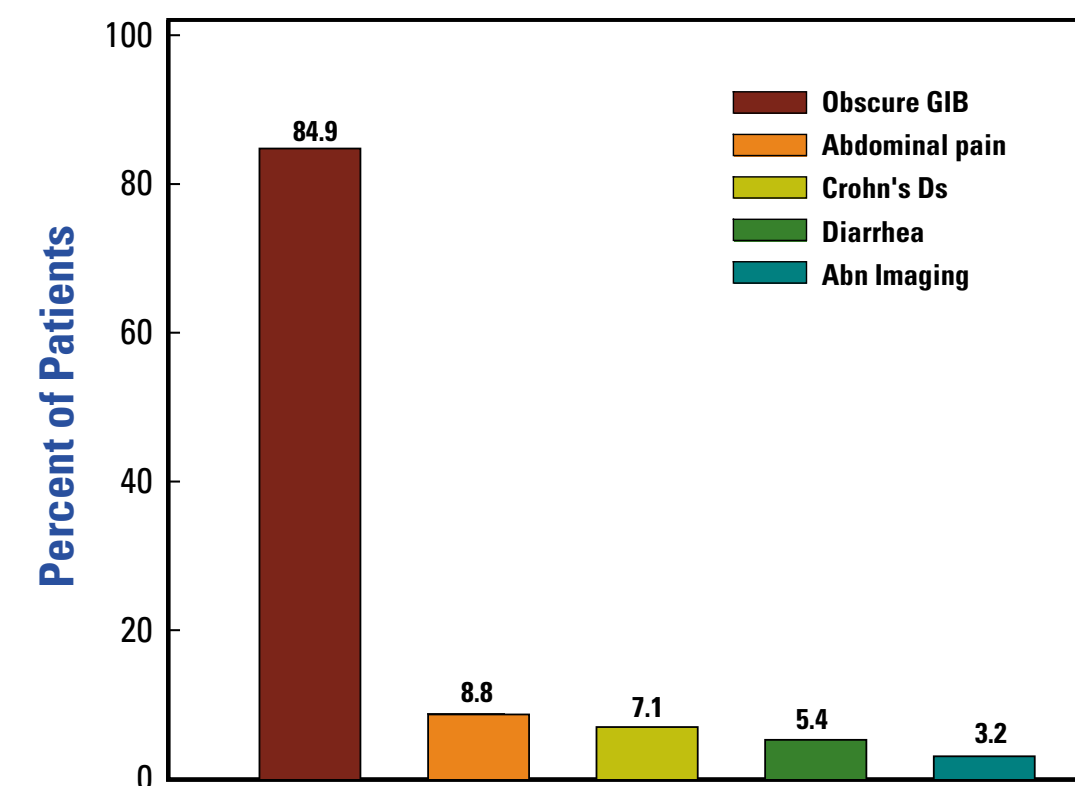
Demographics



Obscure Gastrointestinal Bleeding



M2A Indications



Conclusions

- VCE identifies a possible etiology of OGIB in majority of the patients.
- Angioectasias is the most common finding.
- Small bowel masses are identified in nearly 5% of patients undergoing VCE for OGIB.
- **VCE is a diagnostic modality of choice for investigating obscure gastrointestinal bleeding with a significant yield for previously unrecognized small bowel tumors.**

Characteristics of Juxtapapillary Duodenal Diverticula (JPDD) in Patients Undergoing ERCP at a Tertiary Care Center

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Background

- Juxtapapillary duodenal diverticula (JPDD) are frequently encountered at ERCP with a reported prevalence of 9-27%.
- While often asymptomatic, JPDD may contribute to both pancreaticobiliary pathology and influence success of papillary cannulation.
- Data regarding complications and success of cannulation are conflicting.
- We are interested in further defining the relationship between JPDD, clinical presentation, and ERCP findings in a large patient group.

Aims

- The aims of this study were to investigate the prevalence of JPDD in patients undergoing ERCP and to determine the association of JPDD with clinical findings at ERCP.

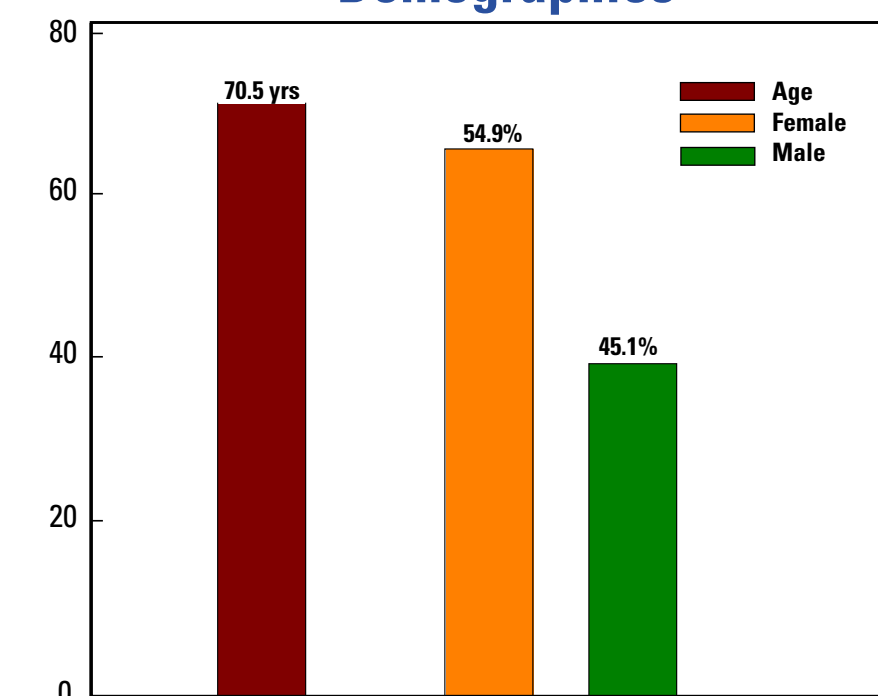
Methods

- A retrospective analysis was conducted of consecutive ERCP procedures performed during the period 2000-2005 at our institution.
- All patients with JPDD were included and compared to the cohort of all ERCP examinations.
- Patient demographics, clinical indication, cannulation success rate, presence of choledocholithiasis, and distortion of the bile duct secondary to the diverticulum were analyzed.

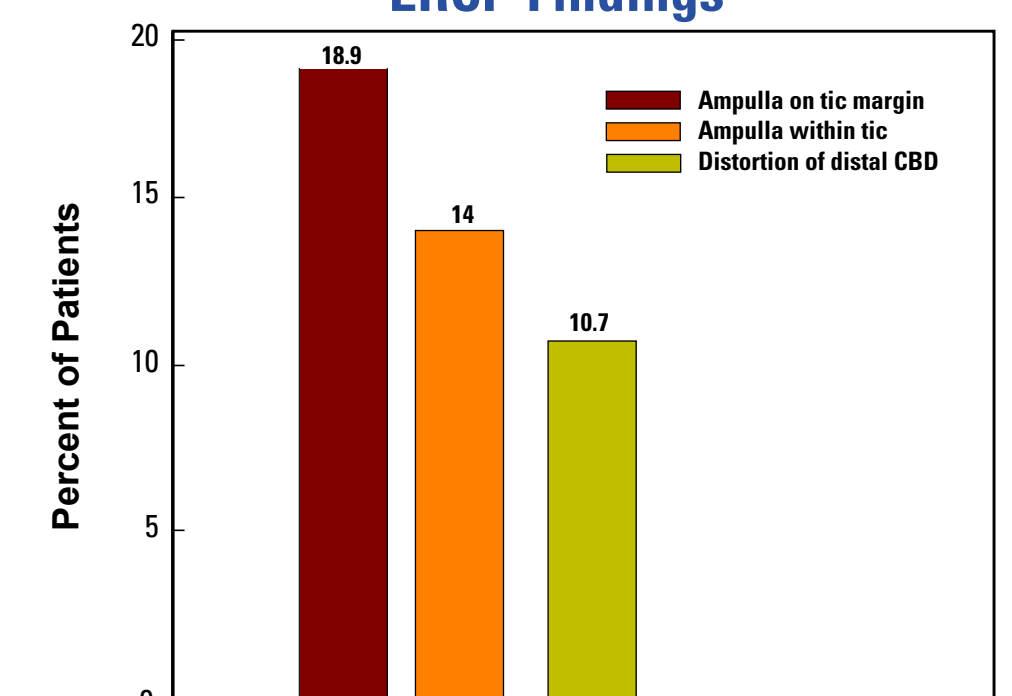
Results

- JPDD were present in 264 of 2787 ERCP examinations (9.5%).
- The mean age of patients with JPDD was 70.5 yrs in comparison to 60 years in the entire cohort. The youngest affected patient was 17 years old.
- The gender distribution of patients with JPDD (54.9% females) was similar to that of the overall cohort (57.3% females).
- In patient's harboring JPDD, abnormal imaging study was the most common indication for ERCP (53.8%) followed by abnormal liver-associated enzymes (14.4%), pancreatitis (13.6%), and abdominal pain (7.6%).
- The corresponding values in the overall cohort were 11.4%, 18.6%, 12.1%, and 10.7% respectively.
- In 37 (14%) patients with JPDD the ampulla was located within the diverticulum and in 50 (18.9%) the papilla was on the diverticulum margin.
- Distortion of the distal CBD attributed to the JPDD was present in 10.7%.
- Cannulation success for patients with JPDD was 94.3%.
- Of those with unsuccessful cannulation, 3/15 had intradiverticular papilla, and in 5/15 the papilla was on the diverticulum margin.
- Choledocholithiasis was seen in 45.1% of patients with JPDD compared to 12.8% of all patients undergoing ERCP.

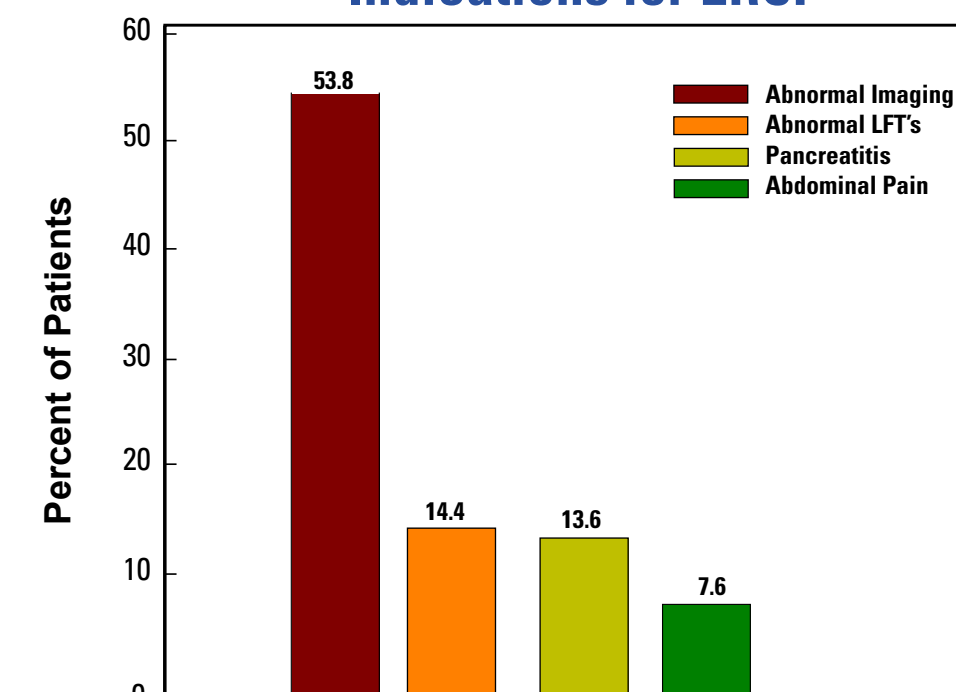
Demographics



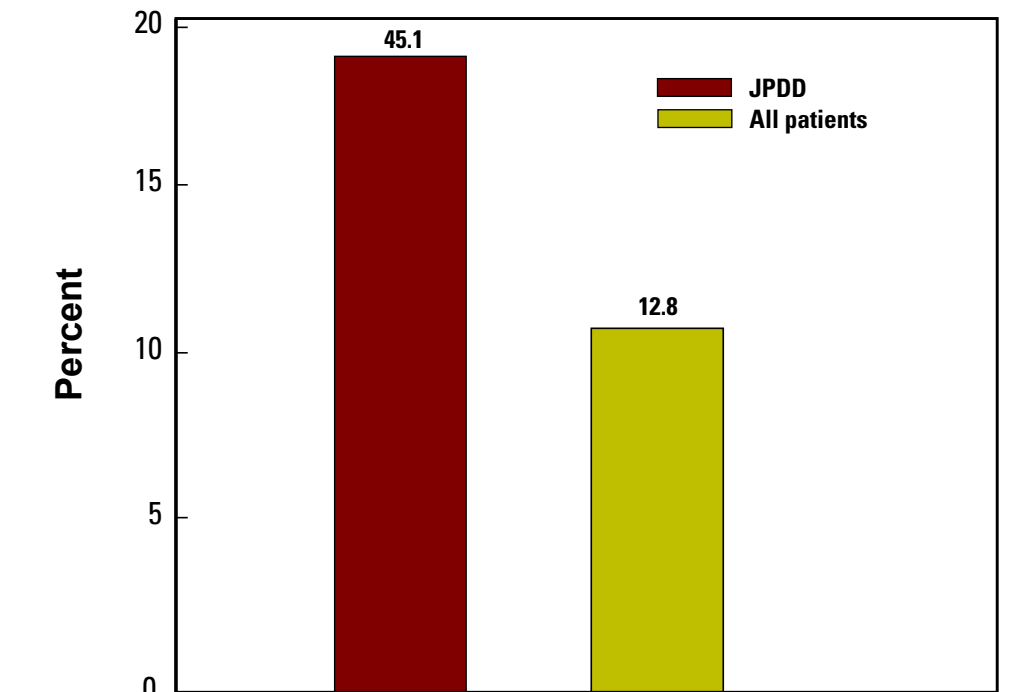
ERCP Findings



Indications for ERCP



Choledocholithiasis



Conclusions

- The prevalence of JPDD approaches 10% of all patients undergoing ERCP and are more prevalent in those with advancing age.
- When compared to all patients undergoing ERCP, choledocholithiasis occurs fourfold more frequently in patients with JPDD.
- Duodenal diverticula are associated with distortion of the CBD in the minority of patients.
- When performed in a high-volume tertiary center, successful ERCP is achieved in the vast majority of patients with JPDD.

Esophageal Tuberculosis with Lymphoesophageal Fistula

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Background

- Mycobacterial tuberculous involvement of the gastrointestinal tract is the sixth most frequent site of extra-pulmonary tuberculosis.
- Esophageal involvement is relatively rare.
- We describe a patient with unique presentation of esophageal tuberculosis.

History and Physical

- A 25-year-old Indian woman had immigrated to U.S. at age of 16.
- Two weeks prior to hospitalization, developed odynophagia and substernal chest discomfort.
- No resolution of symptoms with proton pump inhibitors.
- Upper GI series revealed large esophageal ulcer with possible perforation.
- Healthy and without any medical or surgical history.
- No allergies and taking lansoprazole 30mg once a day.
- No history of alcohol, tobacco, or drug use.
- Purified protein derivative test (PPD) negative 11 years ago.
- No travel since immigration.
- Physical exam and all laboratory tests normal.

Hospital Course

- Started on broad-spectrum antibiotics, and total parenteral nutrition.
- Barium swallow with linear esophageal ulceration of mid-esophagus but no perforation.
- CT scan of chest, abdomen, and pelvis with a subcarinal mass (**Figure 1**).
- EGD with a 4-cm deep, friable ulcer with a sinus/fistula tract (**Figure 2, 3**).
- Cytology and biopsies with stains for AFB, fungus, CMV, and HSV negative
- Bronchoscopy and lavage negative.
- Mediastinoscopy with multiple small lymph nodes surrounding a large, reddish, rubbery mass in subcarinal region (**Figure 4**).
- Biopsies revealed noncaseating granulomas (**Figure 5**).
- PPD positive at more than 15 millimeters.
- Started on ethambutol, isoniazid, pyrazinamide, and rifampin.
- Cultures positive for Mycobacterium tuberculosis.
- Fistula healed with treatment (**Figure 6**).

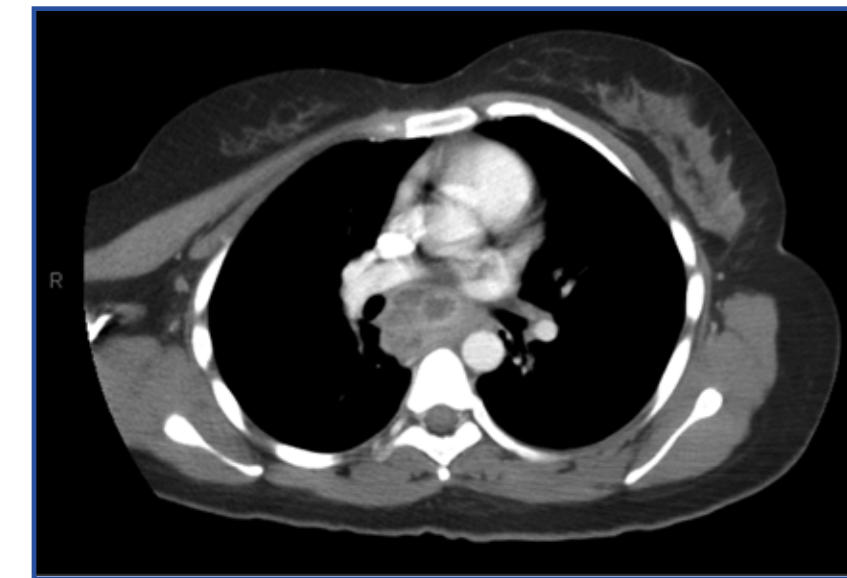


Figure 1: 2.3x3.4x5.0 cm subcarinal mass



Figure 2: 4-cm linear esophageal ulcer

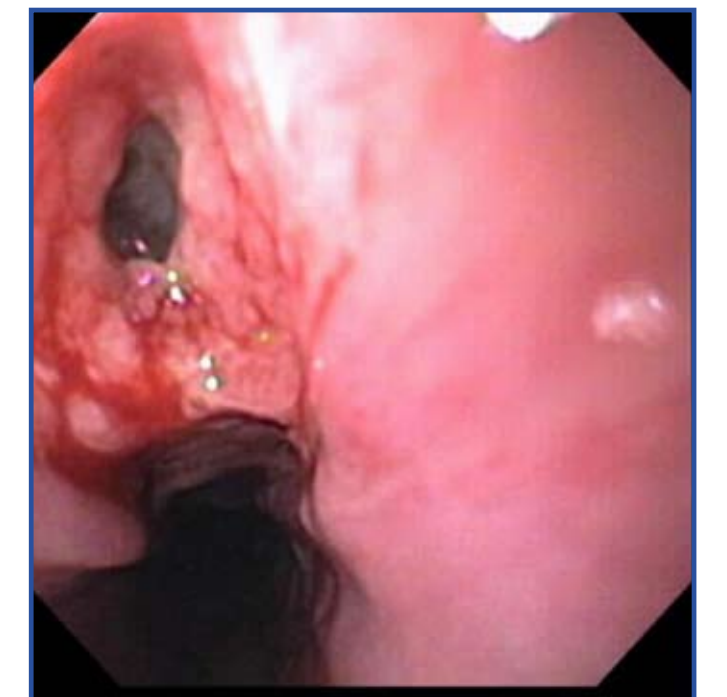


Figure 3: Esophageal ulcer with fistula



Figure 4: Rubberly subcarinal mass

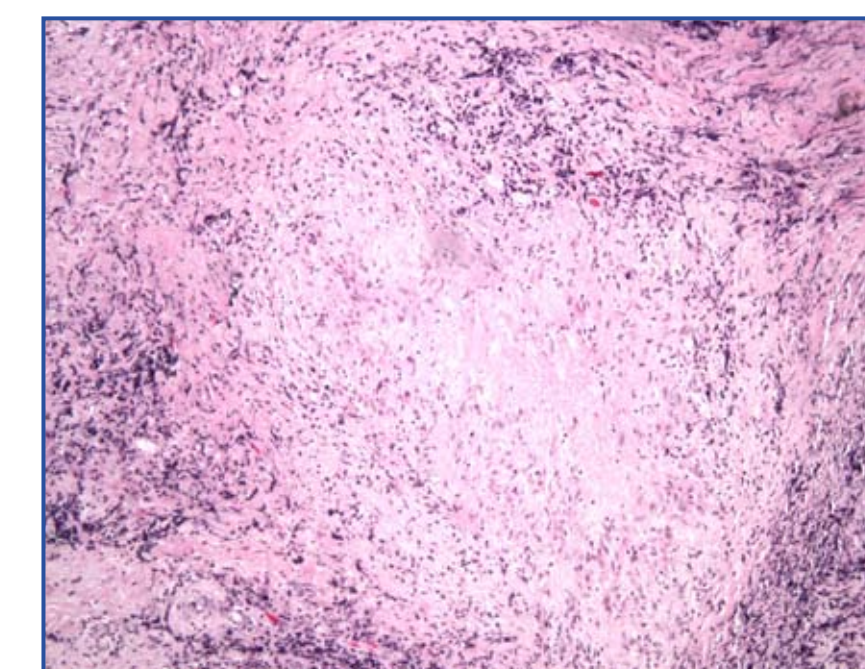


Figure 5: Noncaseating granuloma



Figure 6: Healed fistula

Conclusions

- A high index of suspicion is needed for diagnosing esophageal tuberculosis.
- Early recognition using a variety of diagnostic modalities is an important feature in rapid diagnosis and treatment.
- Esophageal tuberculosis should be treated like pulmonary tuberculosis.
- Prognosis is usually favorable with proper treatment.