



## Proximal Ulna Osteotomy

### The Theory

Medial compartment disease is a progression of elbow dysplasia that results in loss of cartilage of the inner portion of the elbow joint. This results in bone rubbing on bone as the dog walks causing ongoing inflammation and pain in the joint.

Arthroscopy allows examination of the surfaces of the joint and assessment of the degree of damage present. When significant damage is seen, an ulna osteotomy is performed to reduce conflict in this area and so reduce pain.

### The Procedure

Following scoping, the ulna is approached from the back of the leg, and is cut with an oscillating saw. It is then stabilised with a specially designed plate (Proximal Abducting Ulna Osteotomy, PAUL) or left to heal through callus formation (Dynamic Proximal Ulna Osteotomy, DPUO). The net effect is to allow the medial coronoid process to rotate away from the humerus by a small amount to reduce the conflict between the two surfaces. The PAUL procedure is also designed to transfer weight from the inner half to the outer half of the joint to make use of the healthier cartilage in that region.

The choice between the two procedures is dependent on age and size. The PAUL procedure is indicated in dogs over 10 months of age and weighing at least 18kg. In general the PAUL is performed where feasible as the use of a plate on the bone is likely to lead to a smaller callus formation and less discomfort after surgery during the healing phase.

### The Aftercare

Ulna Osteotomy is a major procedure and it is important to follow these instructions closely to have the best chance of a successful outcome.

**Surgical Wound:** Your dog will have a wound on the inside of its leg. You should check this area twice daily, and report any swelling of, weeping from or breakdown (opening) of the wound.

**Medication:** You will be given a combination of medications for pain relief and prevention of infection. It is important you follow instructions closely to avoid complications. Any changes in demeanour, vomiting or



### PAUL Procedure

diarrhoea should be reported immediately to your vet.

**Exercise restriction:** Initially, apart from specific physiotherapy exercises, strict rest for six weeks is essential for uncomplicated healing of the bone. This means confinement to a cage or room with no possibility to jump on and off furniture, especially when your dog is unsupervised. Stairs should be avoided and toileting should always be on a lead.

**Cold & Warm Therapy:** For the first three days after surgery, use an ice pack (or bag of frozen vegetables) wrapped in a damp tea towel to apply cold therapy to the operation wound for 20 minutes two to three times daily. For the next three days apply a warm pack (or a hot water bottle wrapped in a towel) to the wound for 20 minutes two to three times daily. It is normal for your dog to have some soft swelling of the operated leg to the level of the carpus. You can help reduce this with twice daily massage, starting at the carpus, and working upwards to the elbow.

**Gentle Exercises:** Once your dog becomes more comfortable, start gentle passive flexion and extension exercises of the injured joint. Your clinic will show you how to do this. Start with 5 repetitions twice daily,

and increase to 20 repetitions three times daily. Stop immediately if your dog resents this, or seems painful.

**Physiotherapy:** Please refer to our website for the post-operative physiotherapy exercises, as demonstrated by our qualified veterinary nurse. Start these exercises from about four weeks after surgery:

- **Step-overs:** Place 6 to 8 obstacles in front of your dog, spaced far enough apart to allow a couple of steps between each obstacle. They should be high enough to encourage a higher lift of the feet, but not too high to cause your dog to try and hop over them - a few inches is high enough. Walk your dog on a lead over these objects 5 times initially, again increasing by a couple of repetitions weekly.

If any of these exercises seem to make your dog lame, stop them immediately and contact your vet.

**Hydrotherapy:** This can be started once the surgical wound has healed, (usually around two weeks after surgery) under the guidance of your vet.

**Introducing Exercise:** Once check-up radiographs have been taken at six to eight weeks after surgery and satisfactory healing has been shown, you can start with short lead walks of 5-10 minutes twice daily. This can be increased by 5 minutes weekly, and once your dog is

walking comfortably on the lead for 30 minutes, you can let him/her off the lead for the last 5 minutes of the walk.

At all times your dog should make steady progress. If he/she stops improving, or becomes more lame, please contact your vet immediately.

### What To Expect

DPUO and PAUL procedures are salvage procedures that are only used when there is extensive elbow damage present. As such not every undergoing an osteotomy will return to normal. Around 80% of dogs having one of these procedures will show significant improvement leading to greater activity and reduction in need for medication, though chronic progression and loss of function may still occur as the dog ages.

Complications can occur with any major surgery. Dogs having an ulna osteotomy can often show more lameness following surgery than before the operation. This can last up to 6 weeks before an improvement is seen. Especially with DPUO a large callus may occur at the surgery site, which will present as a large hard swelling under the skin. The callus should reduce over time, but it may be possible to feel it in the long term.

Infection may occur following any surgery. Despite modern antibiotics, preparation techniques and disposable drapes and gowns, this occurs in around 3% of cases, and in some dogs requires removal of some implants. This is likely to show as swelling, heat and pain at the surgery site, and a discharge may be present.



DPUO Procedure