



TELEMEDICINE REPORT: Orthopaedics

Report number: TELE-XXX

Report date: XXXX

Referring Veterinarian: XXXX

Referring Practice: XXXXX

Email address: XXXXX

Owner: XXXXX

Patient: XXXX

Species: Canine

Breed: Pug

Sex: Female Neutered

Age: 5 months

Associated cases: XXXXX

Clinical History:

Previously diagnosed with forelimb angular limb deformity affecting radius and ulna at another vets. On examination today is walking normally without any lameness and possibly mild valgus deviation affecting both carpi.

Questions to be answered:

Would a CT be recommended in this dog to further assess the elbow? If so would this be now or when older? Also is surgery likely to be indicated if not causing signs? Would this lead to development of elbow OA if left untreated?

Date: 14/07/2015

Prior imaging conclusions:

1. Moderate bilateral elbow incongruity
2. Cranial curvature of the radius and ulna
3. Mild bilateral ulna shortening
4. Bilateral carpal rotation and valgus- mild



Reported by VetCT

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This report is based on the available history and radiographic interpretation only and not on a physical examination of the patient. It must therefore only be interpreted by a currently licensed and registered veterinary surgeon responsible for the care of this patient.

Orthopaedic opinion:

Angular limb deformities are a very challenging subset of veterinary orthopaedics and there is rarely only one correct management option. There are typically several different directions that can be taken early in the course of diagnosis and management. This case is a classic example where the magnitude of current abnormality is mild but the possibility of a developing moderate to severe defect remains. Without a 'crystal ball' it is impossible to definitively predict this dog's outcome. I do not believe that further imaging (ie. computed tomography) at this point in time will have any influence on decision making so I would not pursue this at present. It may however play a role in time and repeat imaging will be necessary as this dog approaches skeletal maturity. The timing of repeat imaging will depend on the management approach selected.

The previously reported bilateral elbow incongruity is concerning and may possibly worsen over time. Although this is a multifactorial event, the most obvious contributing factor in this case is short ulna syndrome which is most likely secondary to premature distal ulna physal closure. Both distal ulna growth plates look to be closing which would be considered early (average age of closure is not reported in Pugs but in Beagles occurs between 222-250 days).

When the radial procurvatum (Θ) is measured (left 23° and right 29°) it remains within normal limits published for Labrador retrievers (21.3° to 31.8°) (*figure 1a and b*). There does appear to be a developing deformity in the sagittal plane within the proximal radius, with the anatomic caudal proximal radial angle (aCdPRA) being reduced (left 78° and right 70° ; mean in Labrador retrievers being 85°). This is supported by the apparently abnormal position of the right proximal epiphysis which appears to be slipping caudally relative to the metaphysis (*figure 2a and b*). The anatomic caudal distal radial angle (aCdDRA) is also abnormal (more so on the right) when compared to published normal ranges (mean 77°).

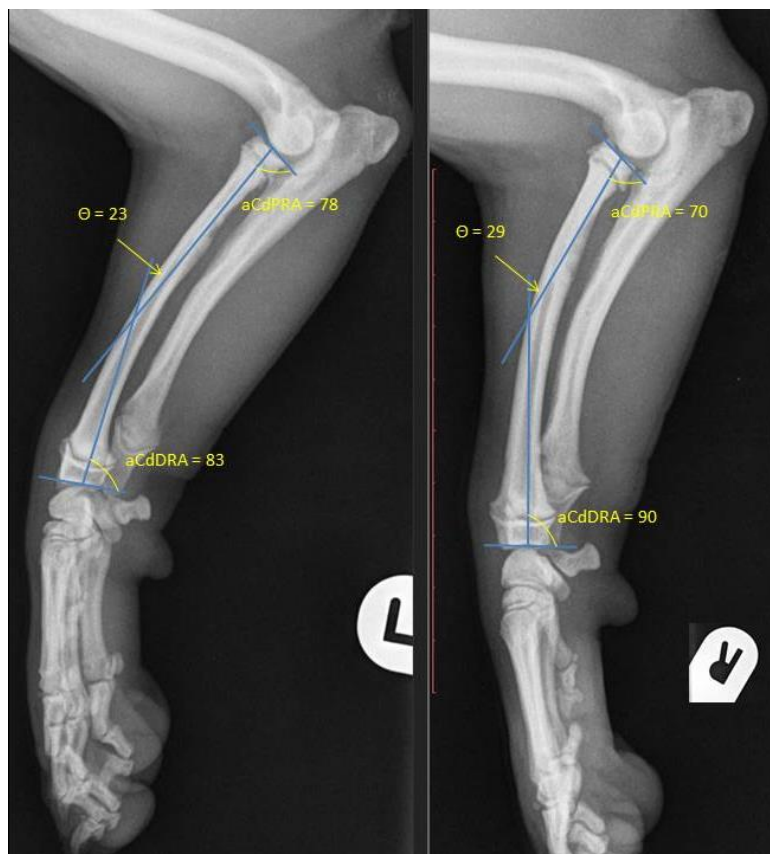


Figure 1a and b: mediolateral views of both antebrachii with sagittal plane anatomic axis recorded



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Figure 2a and b: mediolateral views of both elbows. Note the apparent caudal displacement of the radial epiphysis on the right

The frontal plane (Figure 3a and b) measurements support a developing deformity of the proximal radius bilaterally. The anatomic medial proximal radial angle is reduced compared with reported normal means (83°) supporting a proximal radial varus deformity. The anatomic lateral distal radial angle (aLDRA) normal reference has been reported as a mean of 86° which is similar to that recorded in this dog.



Figure 3a and b: cranio-caudal projections of both antebrachii with front plane anatomic axis recorded



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Additional comments:

It is critically important to acknowledge that the aforementioned joint measurement angles are estimations. The supplied radiographs are imperfectly positioned for accurate determination of these angles – the elbow is rotated in the sagittal plane (bilaterally) and the left carpus is rotated in the frontal plane (this may be positional or reflect a mild torsional abnormality).

Dogs appear to tolerate a variable degree of these deformities and it is important to match surgical intervention with clinical function rather than solely on the basis of imaging abnormalities. The greatest concern in this case is the potential for deformity exacerbation due to ongoing growth. Options at this point include;

- Bilateral distal ulnar ostectomy's to free radial growth and limit the effect of the shortened ulna (this can safely be performed as a single session bilateral surgery by surgeons suitably trained in the technique)
- Serial radiographic and clinical monitoring every two weeks until skeletal maturity and if the deformity worsens or becomes clinically significant then surgical intervention should be considered

It is possible that several surgical interventions may be needed over time depending on the developing growth of this dog.

Some surgeon's advocate proximal ulnar osteotomy to improve elbow congruity in animals of this age but it is my opinion that the morbidity of this surgery outweighs potential benefit. At this age this dog should have some degree of laxity within the ulnar to permit improvement in joint congruity following the much safer distal technique.

It is important to communicate the potential severity of this problem to this dog's owner and that there are several unknowns until Penny reaches skeletal maturity. Although I believe early surgical intervention may be beneficial in this case, it is possible that this may need to be repeated (due to ostectomy healing) or a second corrective procedure necessary if the angular deformity worsens. The main goals of any surgical intervention should be to alleviate pain, improve function and protect joint health. Elbow and carpal osteoarthritis are potential concerns long term.

Reporting surgeon:

XXXXXX BVSc GradDipEd MVetSurg MACVSc DipACVS-SA MRCVS
Diplomate, American College of Veterinary Surgeons - Small Animal

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