

## Successful enucleation of an osseous-cyst-like-lesion in the lateral intertubercular groove of the humerus.

A 14 year old high level show jumper was presented at with a history of intermittent, severe, acute left forelimb lameness. The horse would intermittently become severely lame for no apparent reason and then often improve without therapy within hours. The lameness was associated with a dramatic reduction in the anterior phase of the stride and an inability to protract the leg. This pattern of lameness had continued for approximately 8-9 months but the frequency and duration of lameness had increased. In the weeks prior to presentation the horse had been almost continuously lame.

### Clinical signs

On the day of examination the horse was noted to be 8/10 lame on the left forelimb. Lameness was greatest at the walk, and there was the inability to protract the leg beyond the contralateral forelimb when it was in a weight bearing position. Flexion tests did not affect the lameness. Extension of the proximal limb was resented. Clinical examination of the forelimbs revealed no significant abnormalities except evidence of generalised left fore shoulder muscle atrophy.

### Imaging

Due to the vague and severe clinical signs a nuclear scintigraphic (bone scan) examination was undertaken. This revealed significant increased radiopharmaceutical uptake (IRU) in the proximal area of the left fore humerus on a lateromedial projection.

Following removal from the nuclear scintigraphy suite, after the statutory 48 hours isolation, intrathecal anaesthesia of the intertubercular (bicipital) bursae was undertaken and this dramatically improved the lameness.

Radiographic assessment of the humerus revealed the presence of an osseous-cyst-like-lesion (OCLL) in the lateral intertubercular groove within the proximal humerus (Figs 1,2 and 3).

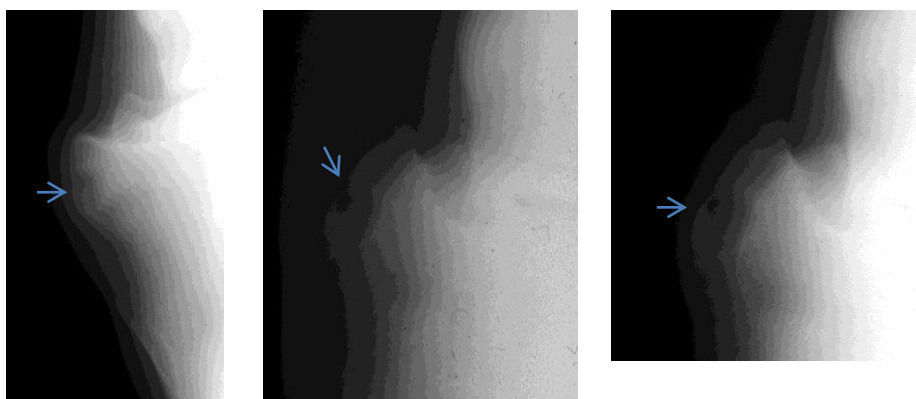


Figure 1,2 and 3 demonstrating the osseous-cyst-like-lesion in the lateral intertubercular groove of the humerus (blue arrow). Caudal to the right in all images

Ultrasonographic assessment of the entire shoulder and bicipital area (Gillis 1996) revealed no abnormalities associated with the shoulder joint or the biceps tendon. Considerable effusion was noted within the bicipital bursa and a roughening in the fibrocartilage of the lateral intertubercular groove was detected, approximately 4 cm distal to the proximal aspect of the humerus. This was adjacent to the area of the OCLL seen radiographically.

## Treatment

Following consultation with the owner it was decided to further examine the area via bursoscopy under general anaesthesia. The horse was anaesthetised and placed in right lateral recumbency. The intertubercular bursa was entered tenoscopically using the standard approach (Adams and Turner 1999). This revealed a rent in the fibrocartilage of the lateral intertubercular groove approximately 4cm distal to the most proximal area of the lateral groove on the abaxial side of the intermediate tubercle. Guided by spinal needles a second portal was made allowing good triangulation to the affected area. On probing the damaged fibrocartilage with an arthroscopic probe an area of soft subchondral bone was entered (as usually occurs when treating OCLL of the medial femoral condyle in the stifle joint). The OCLL was then enucleated with a combination of hand held and motorised equipment and the underlying 'healthy' bone underwent microfracture therapy using a micropik®. The frayed and loose fibrocartilage was removed and the bursa was thoroughly lavaged prior to routine closure.

Post-operatively the horse was considerably more comfortable and he remained at the hospital for a further 10 days prior to discharge from the hospital. Over the following 6 months the horse regained soundness and was then reintroduced into normal work. The horse was then able to resume his show jumping career with the owner reporting no apparent adverse effects.

## Discussion

OCLL of the lateral intertubercular groove has only been mentioned in a few reports in the veterinary literature (McDiarmid 1999, Ramzan 2004, Arnold *et al* 2008 and Little *et al* 2009).

Subchondral bone cysts are generally located within the epiphysis underlying the articular cartilage and are generally located in the weight-bearing areas of joints (e.g. the medial femoral condyle (MFC) of the femur or the condyle of the proximal phalanx in the pastern joint). It is classically thought that OCLL lesions develop as a result of osteochondrosis however other hypothesis include linear defects in the articular cartilage leading to an influx of synovial fluid, osseous vascular damage, intraosseous fibroplasia and damage to the subchondral bone plate. In the horse described above the OCLL has formed in a non-weight bearing area however it occurred at the same area as that described in most of the other recorded cases suggesting a common aetiology. In the one paper describing 5 cases of intertubercular bursae OCLL it was proposed that the condition may occur as a result of fibrocartilage trauma or altered limb biomechanics (Little *et al* 2009). The 7 reported cases all involved mature horses in full work suggestive that osteochondrosis is probably not the primary cause of the cyst formation. Little *et al* (2009) produced some preliminary evidence that subchondral bone oedema and damage in the lateral tubercular groove may occur in horses with chronic bicipital bursitis and tendonitis of the biceps tendon. They speculated that could lead to bone necrosis a predisposing to OCLL development

It should be noted that there can be variable communication between the intertubercular bursae and the shoulder joint so this structure should always be thoroughly evaluated before concluding that the problem definitely exists in the bursa. In this case radiographs of the shoulder revealed no abnormalities. Scintigraphy in all but one of the recorded cases proved to be a very sensitive indicator of bone remodelling at the site of the OCLL.

This OCLL could also have been treated with intralesional steroid injections whilst the horse was under general anaesthesia as currently advocated for the treatment of OCLL of the MFC of the stifle. In this case however it was decided not to undertake this therapy because of the presence of the loose flap of fibrocartilage overlying the cyst, the horse's age and because there was no distinct 'neck' to the cyst. There are now several papers that suggest that intra-cyst medication rather than intra-articular medication with corticosteroids provide a more successful and long term outcome for the treatment of OCLL of the MFC (Wallis *et al* 2008). This is probably due to the direct affect on reducing interleukin and metalloproteinase levels that are elevated in the cystic fluid and lining of MFC OCLL in horses (von Rechenberg *et al* 2001).

Arnold *et al* (2008) described the treatment of a similar cyst using hand held instruments (curette and Ferris smith ronguers) but not with motorised burrs and micropik® as in this case. Similar to this case the horse made a successful recovery.

## References

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