INFRASPINATUS TENDON-BURSA OSSIFICATION
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Key Points
- Heterotopic ossification of the infraspinatus tendon and osteochondromatosis affecting the infraspinatus bursa are uncommon causes of canine shoulder lameness
- The condition is readily diagnosed on a caudocranial radiograph of the shoulder
- Shoulder arthroscopy should be considered in view of the high incidence of concomitant ligament and tendon problems
- Surgical excision of the insertion of the infraspinatus tendon and osteochondral masses may be considered in cases that fail to respond to conservative treatment

Bone formed at an abnormal site is termed heterotopic or metaplastic bone. It can arise from non-osseous musculoskeletal connective tissues such as tendon, ligament and joint capsule. Synovial osteochondromatosis is an idiopathic disorder of synovial tissue characterised by chondroid metaplasia and the formation of osteochondral nodules or loose bodies. In humans, nodules affecting the shoulder are most commonly intra-articular, however, extra-articular osteochondral nodules affecting the subacromial and subcoracoid bursae of the shoulder in humans have been reported. Heterotopic ossification of the infraspinatus tendon and osteochondromatosis affecting the infraspinatus bursa has been described in 13 dogs (all Labrador retrievers)1. Age at presentation ranged from 28 to 121 months (median 58 months). The term infraspinatus tendon-bursa ossification (ITBO) was proposed in view of the similar clinical and radiographic features (Fig 1). Clinical features were generally non-specific, however, direct pressure over the infraspinatus tendon of insertion caused apparent pain in 7 of 14 lame limbs. Histological examination of affected infraspinatus tendon revealed lamellar bone within the tendon tissue. Bone fragments were surrounded by narrow margins of cartilage and protruded into the bursa. Focal areas of synoviocyte hyperplasia and villous synovitis were evident. Examination of loose bodies revealed trabeculae of mature bone blended with cartilage (Fig 2).

Infraspinatus tendon-bursa ossification is readily diagnosed on a caudocranial radiograph of the shoulder. Subtle abnormalities are readily missed on a mediolateral view. Diagnosis is based on the detection of single or multiple masses of mineral density lateral to the proximal humerus or glenohumeral joint. The adjacent humeral bone is often sclerotic. Shoulder arthroscopy should be considered in all cases in view of the high incidence of concomitant ligament and tendon problems. Infraspinatus tendon-bursa ossification is difficult to diagnose as a specific cause of lameness. As with other conditions affecting the shoulder it may be a coincidental finding and not of clinical significance. Abnormalities on clinical examination may be minimal or non-specific, for example, spinatus muscle atrophy. In the report by McKee and others1 radiographic changes were evident in 23 / 26 shoulders, however, lameness was only attributable to 14 shoulders. The optimal management for ITBO is not known. Conservative management should be considered initially, especially in cases where there is doubt regarding the significance of radiographic changes. Surgical excision of the insertion of the infraspinatus tendon and osteochondral masses may be considered in cases that fail to respond to conservative treatment, especially those dogs where there is apparent pain on direct pressure on the insertion of the infraspinatus tendon.

Figure 1: Radiographs of the left shoulder of a 10-year-old Labrador retriever with infraspinatus tendon-bursa ossification. The caudocranial view (a) shows multiple mineralised masses lateral to the glenohumeral joint and proximal humerus and enthesiophytes affecting the acromion. The mediolateral view (b) shows patchy areas of increased radiopacity caudal to the greater tubercle and mild periarticular osteophytes.

Figure 2: (a) photograph of osteochondral loose bodies removed from the infraspinatus bursa. Note the "tear drop" appearance of one of the masses with an apparent stalk (arrow). (b) photograph of infraspinatus tendon-bursa ossification intra-operatively. The insertion of the infraspinatus tendon has been elevated from the humerus revealing a large mass attached to the tendon (large open arrow) and a small loose body (small closed arrow). Two forceps are holding the edge of the infraspinatus bursa.