

## Sesamoid disease

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Orthopedic conditions of the metacarpal phalangeal sesamoid bones are relatively uncommon and can be confusing to sort out. Racing greyhounds account for the majority of traumatic sesamoid injuries but an equal or larger number of Rottweilers have sesamoid abnormalities (1). Other breeds make up only a small percentage of cases. Some dogs may be born with bipartite sesamoids which are not associated with clinical disease but may confuse radiographic evaluation of a forelimb lameness. Others may have traumatic or degenerative sesamoid changes that are incidental findings and may similarly cloud the evaluation of lameness. One study found sesamoid lesions that were deemed incidental in 44% of 50 Rottweilers (2), while another study noted radiographic sesamoid changes in 73% of 55 Rottweiler pups, but only 22% were deemed to have lameness attributable to their sesamoid pathology (3). Especially in the Rottweiler, where developmental conditions of the elbow and shoulder are so common, sesamoid abnormalities must be viewed with a jaded eye in the context of clinical lameness (1,4). However, there are cases in which sesamoid disease is a significant cause of lameness. In fact, in Rottweiler pups under the age of 6 months, sesamoid disease appears to be the most common cause of forelimb lameness (1).

Traumatic sesamoid injuries will produce acute, moderate forelimb lameness with pain and swelling at the site of injury. Degenerative sesamoid conditions produce a milder lameness, especially after exercise, with a more chronic course. Again, pain may be detected on palpation and flexion of the affected joint. Most affected dogs are puppies or young, active adults (4). Careful palpation of the metacarpal phalangeal joints will usually identify the painful area although interpretation of the response can be difficult in dogs that resent handling of their paws. Perhaps the most important aspect of diagnosing sesamoid disease is ruling out other causes of forelimb lameness since sesamoid changes are so frequently incidental findings.

Radiographic changes are best seen on a high quality dorso-palmar view of the paw. The paired sesamoids are numbered 1 to 8 from medial to lateral with sesamoids 2 and 7 most commonly showing abnormalities. These include fragmentation of the sesamoid, and, in chronic cases, adjacent mineralization and degenerative changes of the metacarpal phalangeal joint (1,4). Sesamoid bones in the hind paws can be affected, but this is extremely uncommon.

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The pathogenesis of sesamoid disease is not clear but certainly varies between cases.

Fragmentation of sesamoids in some dogs is merely a congenital abnormality that would more properly be termed “bipartite sesamoids.” Some dogs, especially racing greyhounds, clearly suffer traumatic fractures. Radiographs of these cases show sharp fracture fragment edges and the lameness is acute. It is thought that the action of the digital flexor tendons on the sesamoids at high impact, during which the metacarpal phalangeal joints can hyperextend, may produce fractures in some dogs (1,4). Still other dogs appear to develop degenerative disease. A chronic course, with dystrophic mineralization on radiographs and histologic evidence of decreased vascularity and bony necrosis in the affected sesamoids speaks to a degenerative process (1).

Treatment of sesamoid disease can be medical or surgical. The literature has advocated surgical removal of the offending sesamoid fragments in cases of “chronic” lameness (4). More recently, it has been suggested that most of these cases will be lame for what could be classed as a “chronic” period of at least 4 wk but that with nonsteroidal anti-inflammatory medications and sufficient rest, most cases will resolve without surgery (1). Further, ultimate treatment success rates, as judged by owner observation of lameness, are no better with surgery than with medical therapy. The radiographic appearance of degenerative joint disease at the metacarpal phalangeal joint is more severe after surgery undoubtedly because surgery disrupts the collateral ligamentous support of the joint (1). This parallels a post-surgical increase in thickening and decreased range of motion in the joint (1). The “take-home” message seems to be that persistence with conservative therapy in sesamoid disease will be rewarded in most cases, but that surgical removal of fragments remains an option. While surgical treatment, should it be required, may be expected to improve clinical signs, many dogs will be left with a mild intermittent lameness, especially after exercise (1). Ultimately, the prognosis for recovery in most dogs is good.

## References

1. Matthews KG, Koblik PD, Whitehair JG, Kass PH, Bradley C. Fragmented palmar metacarpo-phalangeal sesamoids in dogs: A long-term evaluation. *Vet Comp Orthop Traumatol* 2001;14:7–14.
2. Vaughan LC, France C. Abnormalities of the volar and plantar sesamoid bones in Rottweilers. *J Small Anim Pract* 1986;27:551–8.
3. Read RA, Black AP, Armstrong SJ, MacPherson GC, Peek J. Incidence and clinical significance of sesamoid disease in Rottweilers. *Vet Rec* 1992; 130:533–535.
4. Weinstein MJ, Mongil CM, Smith GK. Orthopedic conditions of the Rottweiler. Part I. *Compend Contin Educ Pract Vet* 1995;17:813–828.