

MYOSITIS

Myositis may arise from direct or indirect trauma to muscle and occurs as part of a syndrome in a number of specific diseases, including blackleg, foot-and-mouth disease, bluetongue, ephemeral fever, swine influenza, sarcosporidiosis, and trichinosis, although clinical signs of myositis are not usually evident in the latter. Sporadic cases of a localized infectious myositis of skeletal muscles, associated with *Escherichia coli*, may occur in calves. An asymptomatic eosinophilic myositis is not uncommon in beef cattle and may cause economic loss through carcass condemnation. The cause has not been determined

Acute Myositis of Limb Muscles

Acute myositis is accompanied by severe lameness, swelling, heat, and pain on palpation. There may be accompanying toxemia and fever.

In chronic myositis there is much wasting of the affected muscles, and this is difficult to differentiate clinically from atrophy as a result of other causes. Biopsy of the muscles may be necessary to confirm the diagnosis. Injury to the gracilis muscle can cause acute, severe lameness in performance Quarter horses. Horses competing in barrel racing may be susceptible to gracilis muscle injury because the muscle functions to adduct the hindlimb. The prognosis is good for returning to athletic use after an adequate period of muscle healing and mild exercise. However, fibrotic myopathy or muscle atrophy can be a complication of the injury resulting in persistent gait deficits. In horses, traumatic myositis of the posterior thigh muscles

may be followed by the formation of fibrous adhesions between the muscles (fibrotic myopathy) and by subsequent calcification of the adhesions (ossifying myopathy). External trauma can result in fibrotic myopathy, but it may also be associated with excessive exercise or secondary to intramuscular injections. Occasionally similar lesions may be seen in the foreleg. The lesions cause a characteristic abnormality of the gait in that the stride is short in extension and the foot is suddenly withdrawn as it is about to reach the ground. The affected area is abnormal on palpation. Generalized myositis ossificans, is also characterized by deposition of bone in soft tissues. In traumatic injuries caused by penetration of foreign bodies into muscle masses, ultrasonography may be used to detect fistulous tracts and the foreign bodies. Extensive damage to or loss of muscle occurs in screwworm and sometimes blowfly infestation, although the latter is more of a cutaneous lesion, and by the injection of necrotizing agents. For example, massive cavities can be induced in the cervical muscles of horses by the intramuscular injection of escharotic iron preparations intended only for slow IV injection. Similarly, necrotic lesions can result from the IM injection of infected or irritant substances. Horses are particularly sensitive to tissue injury, or are at least most commonly affected. Some common causes are chloral hydrate, antimicrobials suspended in propylene glycol, and even antimicrobials alone in some horses.

Injection-Site Lesions in Cattle

Muscle lesions associated with injection sites in the cattle industry are a source of major economic loss because of the amount of trim required at slaughter. The presence of injection-site lesions in whole muscle cuts, such as the top sirloin and outside round, limits their use and value. The occurrence of injection-site lesions in muscle remains among the top five quality challenges for both beef and dairy market

cows and bulls. Because injection-site lesions are concealed in muscles and/or are under subcutaneous fat, they are seldom found during fabrication at the packing plant and appear instead during wholesale/retail fabrication or at the consumer level. Historically, most IM injections were given in the gluteals and the biceps femoris muscles, which are prime cuts of beef. It is now recommended that all IM injections be given in the cervical muscles (in front of the shoulder). Reducing the incidence of injection-site lesions requires that manufacturers of biological and antibiotic preparations develop less irritating formulations. Products should be formulated for subcutaneous use whenever possible and administered in the neck muscles, which are not prime cuts of beef. The outcome of an IM injection depends on the nature of the lesion produced.

Myodegeneration following IM injections of antibiotics in sheep results in full muscle regeneration within less than 3 weeks. Necrosis following the injection results in scar formation with encapsulated debris, which persists for more than a month and leaves persistent scar tissue. An outbreak of myositis, lameness, and recumbency occurred following the injection of water-in adjuvanted vaccines into the muscles of the left and right hips of nearterm pregnant beef cattle. Within 24 hours, some cattle were recumbent, some had nonweight-bearing lameness, and, within 10 days, 50% of the herd developed firm swellings up to 24 cm in vaccination sites. Histologically, granulomatous myositis with intralesional oil was present. The swellings resolved over a period of 6 months. The acute transient lameness was attributed to the use of two irritating biological vaccines in the hip muscles of cows near parturition.

Injection-Site Clostridial Infections in Horses

Clostridial myositis, myonecrosis, cellulitis, and malignant edema are terms used to describe a syndrome of severe necrotizing soft tissue infection associated with *Clostridium* spp. Affected horses typically develop peracute emphysematous soft tissue swelling in the region of an injection or wound within hours of the inciting cause. Myositis can occur following the IM or inadvertent perivascular administration of a wide variety of commonly administered drugs.

In a series of 37 cases, the lesion occurred in most cases within 6 to 72 hours of a soft tissue injection, and most lesions were in the neck musculature. Aggressive treatment of clostridial myositis can be associated with a survival rate of up to 81% for cases resulting from *Clostridium perfringens* alone; survival rates for other *Clostridium* spp. are lower. A combination of a high dose of IV antibiotic therapy, surgical fenestration and aggressive debridement, antiinflammatory and analgesic therapy, and general supportive care is recommended.