Osselets--it's one of those obscure and shadowy terms out of the bowels of a Victorian veterinary manual, something you could lump in with mysterious and vaguely distasteful-sounding conditions called lampas, sweeny, or fistulous withers. We don't hear these terms all that often today; many were problems suffered mostly by 19th-century workhorses with punishing schedules and ill-fitting tack, and some have since been redefined (or, in the case of lampas, are now understood to be perfectly normal, and not a pathology at all!). But osselets seem to have endured --even if many horse owners aren't exactly sure what the term describes.

As set forth by today's veterinary medicine, an osselet is a traumatic arthritis of the metacarpophalangeal joint (a.k.a. the fetlock) of the front leg--not to be confused with sesamoiditis, which involves the sesamoid bones found at the back of the fetlock. Osselets begin with swelling on the front of the fetlock joint, with the possible addition of synovial distensions on the sides of the joint (commonly called windpuffs). It's painful when the horse flexes the joint, and can cause lameness. Because osselets often brew in both front ankles at once, the lameness might manifest itself as a short, choppy gait with no one leg visibly more sore than the other. If only one fetlock is involved, the horse will "point" the affected leg and try to avoid bearing weight on it. At that stage, the condition is sometimes called "green osselets."

As the condition worsens, so does the horse's lameness, and the interior structures of the joint become more and more irritated. The fibrous joint capsule starts to thicken (synovitis and capsulitis), and the periosteum--the sheath covering the bony surfaces--when pulled and stressed by the attached joint capsule and the end of the digital extensor tendon (which runs down the front of the cannon and helps extend the front legs) begins to trigger new bone growth, a common response to trauma. Extra bone begins to form on the lower end of the third metacarpal bone (cannon bone) and the high end of the first phalanx (long pastern bone), which meet at the fetlock joint. This bony growth technically is called an exostosis (a bony protuberance), and it can easily be palpated through the skin. As it progresses, it can limit the amount of flexion in the fetlock joint.

Left unchecked, the formation of osselets damages the periosteum (periostitis) and the articular cartilage at the ends of the bones. In some cases, the point of attachment of the digital extensor tendon can become degraded, leading to chronic lameness. The joint capsule becomes noticeably thickened, the ulcerated cartilage leads to recurring inflammation, and the cycle of irritation eventually compromises the horse's athletic potential and his ability to move soundly and fluidly.

Cause And Effect

Why do osselets form? As with many kinds of lameness, there can be several contributors, but most veterinarians agree that short, upright pasterns are the single most important predisposing factor to traumatic arthritis. A pastern designed this way (as opposed to one which is long and sloping) is an inefficient shock absorber, and repeated concussion from working on hard surfaces can travel straight up from the hoof to the fetlock, which takes the brunt of the punishment. Picture a 19th-century draft horse pounding his feet day after day on cobblestone roads, and you can easily imagine how the stresses of his work could cause his ankles to degrade.
Other contributors to osselets include uneven stresses to the fetlock joint (usually caused by poor or unbalanced shoeing), uneven and unforgiving terrain, and rushed conditioning. The latter often leads to muscle fatigue and fails to protect the horse's joints from stumbling or "bad steps" as he works.

Young Thoroughbreds and Standardbreds in race training are the most common victims of osselets in this day and age. Rushed conditioning might indeed have something to do with this, as most sufferers are two-year-olds new to working at speed. Osselets are also seen in draft horses today, many of which tend to have short, upright pasterns and work on hard surfaces.

**Diagnosis**

Pain on flexion, or when you press on the affected front of the fetlock, is indicative of osselets, as is the short choppy gait that results when both front fetlocks are involved. (Caution is needed when observing the gait, as shoulder problems also can cause a horse to move that way.) Heat and swelling around the fetlock will be obvious when a horse has "green" osselets. To zero in and get a definitive diagnosis, however, your veterinarian will need to employ some time-honored diagnostic techniques.

He or she will likely start by "blocking" the fetlock area with an intra-articular nerve block; a horse with osselets will go sound once the nerves are temporarily numbed. Radiographs then can help determine what's going on inside the joint, and how far the damage has progressed. This is important, because as with many arthritic conditions, the sooner you catch osselets in development, the better your luck with treatment.

In the early stages of osselet formation, swelling around the fetlock might extend at least halfway around the joint. It's easy to mistake this initial swelling for bone formation, but in fact it is due to the thickening of the joint capsule (which can feel surprisingly firm to the touch). Radiographs can help determine how far along the osselets have progressed (new bone formation will be visible on X rays, soft tissue swelling will not) as well as help rule out chip fractures in the fetlock, which can produce many of the same symptoms. In advanced cases, radiographs will show the narrowing of the joint spaces in the fetlock, which are consistent with new bone growth encroaching on the joint surfaces.

Infrared thermography can be used in some cases to help diagnose a case of osselets. Your veterinarian will observe an increased thermal gradient (shown in different colors on the monitor) over the affected joint space as well as a broad area around the front of the fetlock.

**Treatment Options**

The good news is that osselets don't have to be a permanently crippling development. In many cases -- if treated promptly -- osselets resolve to the point that the horse can resume normal work, even racing (although the horse might wear the "jewelry" of an enlarged ankle as a result of the trauma).

When a horse first shows signs of soreness and inflammation in his fetlocks, his work schedule should be curtailed, and he should be started on cold therapy (cold hosing and/or ice packs applied to the ankle several times a day) for about 48 hours. Usually, this will take care of the acute irritation. By the third day, most horses will benefit more from the application of warm, moist heat (warm compresses, warm-water hosing, or whirlpool boots), alternating with applications of dimethyl sulfoxide (DMSO) or capsaicin, on the advice of your veterinarian. If a strict routine of stall rest and heat therapy is followed for about four to six weeks, the horse has a very good chance of a complete recovery and return to work. In essence, you've stopped in its tracks the worst of the inflammatory process that leads to chronic arthritis.

If, however, your horse's fetlocks don't respond to this regime, or if it took you some time to realize his problem before you began treatment, further measures might be necessary.
In decades past, caustic leg paints or blisters often were employed to trigger a "counter-irritant" effect, which was said to increase circulation to the affected area and speed healing. Most veterinarians now feel this approach potentially can cause far more harm than good. The same can be said for the ancient (and some call cruel) practice of pin-firing.

More recently, osselets have been treated with the injection of cortisone into the joint. While this usually has a very good pain-relieving effect, allowing the horse to return to work sooner, steroids (like cortisone) can sometimes trigger further cartilage damage down the road (particularly when used on a continuing basis). A better option for many horses is the injection of polysulfated glycosaminoglycans (PSGAGs) -- brand name Adequan -- or sodium hyaluronate, either intra-articularly or systemically. Both have the effect of reducing inflammation within the joint capsule, and they can help repair damaged cartilage if administered early in the inflammatory cycle.

Although stall rest is indicated when osselets are "green," careful exercise is a good idea once the acute inflammation is past. Some veterinarians recommend swimming as rehabilitative exercise; it has the advantage of toning the muscles and challenging the cardiovascular system while putting no pressure on stressed leg joints.

Osselets often respond to treatment if they're discovered early and dealt with diligently, but the prognosis is considerably poorer once bony changes begin to accumulate within the fetlock joints and encroach on the articular surfaces. Much depends on exactly where the new bone growth shows up (something which is best assessed by X ray). Ulceration of the joint cartilage, which can occur in advanced cases, is tough to reverse since cartilage heals very slowly and imperfectly. The prognosis with that sort of damage is for chronic, recurring lameness, and almost certainly a reduction in the level of athletic performance.

Osselets that have resolved can recur, especially in horses used for high-performance sports such as racing or three-day eventing, unless some of the causative conditions are eliminated. One of the biggest differences you can make is to assess your horse's shoeing. If his hooves are unbalanced or strike the ground unevenly, they can create stress for all of the joints above them, including the fetlock. Therapeutic shoeing can help reduce the amount of torque on the joints and minimize the chance of problems resurfacing. You also might want to consider using special shock-absorbing pads or shoes.

If your horse has upright conformation that contributes to his ankle problems, he'll likely be prone to aggravating his osselets all of his life. It's possible a change of career to something low-key and low-impact will help keep him sounder, longer.