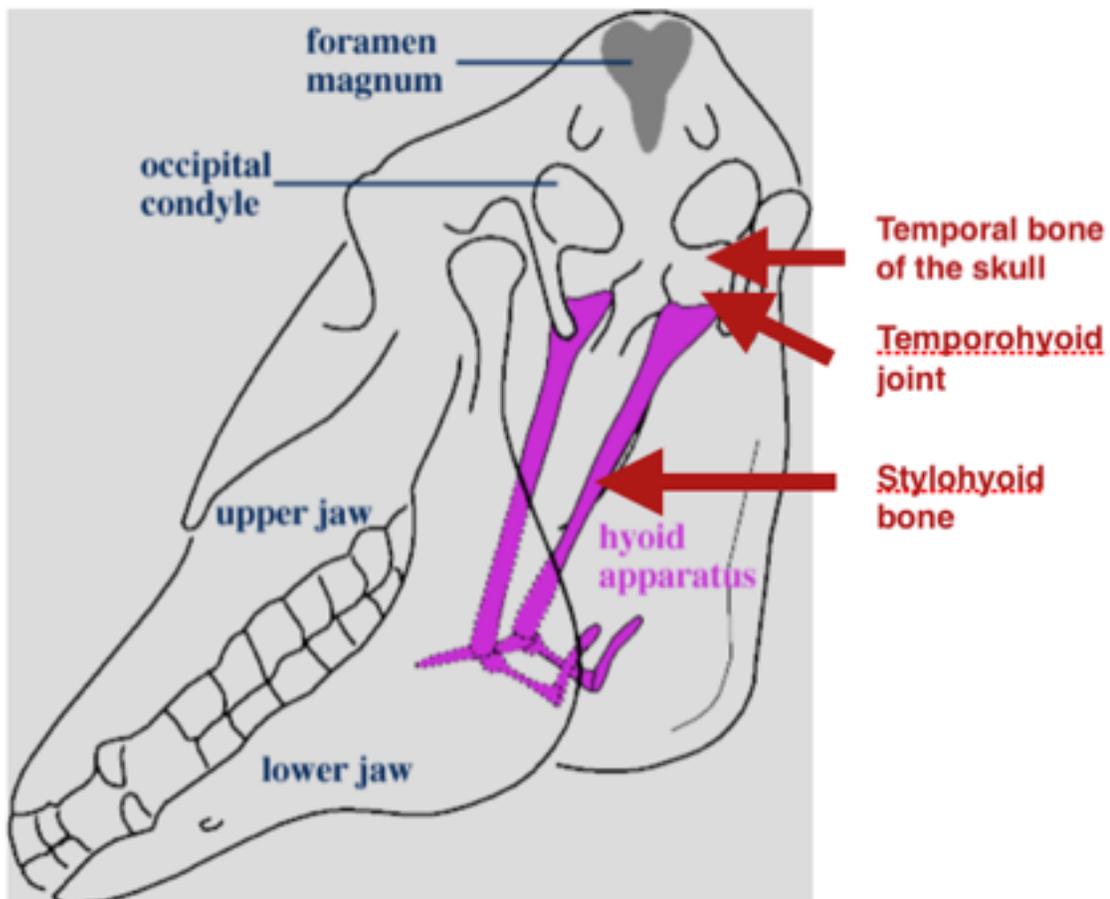


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Temporohyoid Osteoarthropathy (THO)

Definition

Temporohyoid osteoarthropathy (THO) is a progressive disease involving the stylohyoid bone, temporohyoid joint, temporal bone of the skull, and the middle ear (see the red labels in the image). The stylohyoid bone is part of the hyoid apparatus, a group of bones that supports and suspends the larynx (voicebox) from the skull. The hyoid apparatus is purple in the below image. The stylohyoid bone articulates (forms a joint) with the base of the skull, specifically the temporal bone of the skull. This articulation is called the temporohyoid joint. There are two stylohyoid bones, one on each side of the head. The middle ear runs very close to these structures and thus, THO is sometimes referred to as “middle ear disease.” The characteristic feature of THO is proliferation of the bones surrounding this joint and fusion of the temporohyoid joint. This bony proliferation can disrupt important nerves that are near this area resulting in neurologic deficits for the horse.



Pathophysiology

The exact pathophysiology of THO is not entirely understood. It is thought that an infectious (bacterial) or inflammatory process occurring in the middle ear or guttural pouch may spread to the temporohyoid joint and associated structures resulting in the bony proliferation. It is also suggested that the disease of the temporohyoid joint is a degenerative osteoarthritis such as is often seen in horse's hocks. A third explanation is that disease is a consequence of repetitive trauma to these structures. Regardless of the exact cause, bony proliferation is the end result. This can disrupt nearby structures such as the facial nerve and vestibular nerve resulting in clinical signs as discussed below. If the temporohyoid joint fuses, this decreases its range of motion. Motion created by chewing, swallowing, or turning of the head may result in fracture of the stylohyoid or temporal bone resulting in acute neurologic signs.

Clinical Signs

A wide variety of clinical signs have been reported for THO. In early stages, a horse may be sensitive to pressure applied near the base of the ear. They may also become resistant to working in a frame when ridden under saddle. In more advanced cases where the facial and vestibular nerves become affected, facial paralysis may develop. Typical features of this are a floppy ear, drooped upper eyelid, and deviation of the muzzle. Corneal ulcers may develop secondarily. If the vestibular nerve is affected, the horse may be ataxic (unsteady), exhibit a head tilt, and circle when walking. These signs may develop gradually and not every horse develops the same clinical signs. However, if a fracture occurs of the bones of the temporohyoid joint, the horse's clinical signs may progress rapidly.

Diagnosis

If your veterinarian suspects THO, they may take radiographs of the skull looking for changes to the stylohyoid bone. A diagnosis of THO is not always conclusive based on radiographs, and further diagnostics such as computed tomography (CT) or endoscopy of the guttural pouch are often recommended. The stylohyoid bones run through the guttural pouches and changes to the bone can be visualized when a camera is advanced into the guttural pouch.

Treatment

Broad spectrum antibiotics and anti-inflammatories are administered because of the common association with middle ear infections. Steroids and DMSO are also used in some cases. In many cases surgical treatment is pursued particularly when the horse is refractory to initial medical therapies. The typical surgery is called a ceratohyoidectomy and is when a small bone of the hyoid apparatus called the ceratohyoid bone is removed. This limits the force placed on the temporohyoid joint when the horse chews and swallows and greatly decreases the risk of fracture. It also removes the pain stimulus produced by the diseased joint.

Prognosis

It is important to note that not all horses develop significant clinical signs. For example, some horses may develop mild facial nerve deficits such as a slightly floppy ear and does not progress. In many cases however, the signs do progress and surgery is recommended. If surgery is performed, the prognosis is quite favorable and many horses go on to be ridden and perform for many years particularly if the severity of clinical signs is mild prior to surgery. Horses typically show improvement of their clinical signs within 30-60 days post-surgery.