

What Is Your Diagnosis?

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Figure 1—Computed tomographic (CT) image at the level of the inner ear of a 10-year-old horse with right facial nerve paralysis and a corneal ulcer of the right eye.

History

A 10-year-old Quarter Horse gelding was referred because of a 3-week history of right facial nerve paralysis and a corneal ulcer on the right eye. Clinical signs began acutely after possible trauma to the head. The referring veterinarian had been treating the corneal ulcer with topical antimicrobials and anti-inflammatory drugs.

Physical examination at admission revealed a heart rate of 42 beats/min, respiratory rate of 24 beats/min, and rectal temperature of 37.8°C (100.1°F). Complete blood count and serum biochemical analyses did not reveal abnormalities. The horse had right-sided ptosis, right ear droop, and deviation of the left upper lip. The right eye had a deep corneal ulcer with anterior synechia and iris prolapse. A detailed neurologic examination did not reveal any other abnormalities. These findings localized the lesion to the peripheral cranial nerve VII. Computed tomography (CT) of the skull was performed (Figure 1).

Determine whether additional imaging studies are required, or make your diagnosis from Figure 1—then turn the page →

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Figure 2—Same CT image as in Figure 1. Notice bilateral enlargement of the proximal portions of the stylohyoid bones (solid white arrows) and the large and irregular temporohyoid joint surface (dashed arrows).



Figure 3—Transverse CT scan caudal to the view in Figure 2. Notice bilateral sclerosis of the petrous temporal bones.

Diagnostic Imaging Findings and Interpretation

Computed tomography of the skull revealed bilateral enlargement of the proximal portions of the stylohyoid bones, with the right side being more affected than the left one (Figure 2). The temporohyoid joint is also large and irregular in shape. There is bilateral sclerosis of the petrous temporal bones (Figure 3). These findings are consistent with temporohyoid osteoarthropathy.

Comments

Temporohyoid osteoarthropathy involves proliferation of the tympanic bulla, proximal portion of the stylohyoid bone, and petrous temporal bone.¹⁻⁵ Two syndromes, behavioral and neurologic, are associated with this disease.¹ The syndromes can manifest together or independently. Some of the common clinical signs of the behavioral syndrome are head shaking, ear rubbing, and bit avoidance. Common features of the neurologic syndrome are signs of facial nerve paralysis with or without abnormal vestibular signs.^{1,5}

Exact pathogenesis of this disease has not been established. It has been proposed that it could arise after a middle or inner ear infection of hematogenous origin that leads to osteitis of the tympanic bullae, petrous temporal bone, and proximal portion of the stylohyoid bones.¹ It has also been suggested that temporohyoid osteoarthropathy could be a consequence of degenerative joint disease of the temporohyoid joint.^{1,5} Bilateral involvement is common, although clinical signs are usually unilateral. Differential diagnoses for the clinical signs include infection in the auditory tube diverticulum (guttural pouch), head trauma, otitis media or interna, and peripheral nerve damage.

Walker et al⁶ suggest that endoscopy of the guttural pouch, CT, and magnetic resonance imaging of the skull are better diagnostic tools for this disease than radiography. In that study, only 83% (20/24) of affected horses had radiographic evidence of the disease, whereas all had abnormalities detected by CT and endoscopic examination of

the guttural pouch.⁵ Computed tomography or magnetic resonance imaging is essential to provide a definitive diagnosis and perhaps aid with prognosis. Drawbacks to cross-sectional imaging in horses include the availability of the equipment, expense of the study, and requirement of general anesthesia and the inherent risks associated with it.

Treatment of temporohyoid osteoarthropathy is aimed at reducing inflammation, treating any possible infection, managing secondary complications such as corneal ulcers caused by facial nerve paralysis, or preventing possible fracture of the petrous temporal bone.^{1-3,5} Conservative treatment consists of treatment with antimicrobial and anti-inflammatory drugs. Two surgical options have been proposed: stylohyoidectomy or ceratohyoidectomy.²⁻⁴ The goal of both procedures is to prevent fracture of the skull and worsening of neurologic signs.

The horse of this report was treated with nonsteroidal anti-inflammatory drugs and broad spectrum antimicrobials. A conjunctival flap was created and temporary tarsorrhaphy was performed as treatment of the corneal ulcer. At the time of discharge (8 days after admission), the signs of facial nerve paralysis were almost completely resolved. Instructions were given to continue treating with flunixin meglumine and trimethoprim-sulfamethoxazole for 3 weeks. Reevaluation at 3 months revealed complete resolution of the clinical signs.

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