Update on Disorders and Treatment of the Guttural Pouch

David E. Freeman, MVB, PhD

KEYWORDS

• Guttural pouch • Tympany • Mycosis • Temporohyoid osteoarthropathy
• Ceratohyoidectomy • Arterial occlusion

KEY POINTS

- The most common diseases of the guttural pouch are empyema, tympany, mycosis, and temporohyoid osteoarthropathy.
- The challenge in diagnosis and treatment of the guttural pouch lies in the complex anatomy of the guttural pouch and its close relationship with other important structures in the skull.
- Endoscopy of the guttural pouch interior remains the gold standard for identifying most guttural pouch diseases.
- Surgical approaches to the guttural pouch include hyovertebrotomy, Viborg triangle approach, Whitehouse approach, and modified Whitehouse approach.
- Arterial occlusion for guttural pouch mycosis can be performed with balloon catheters, microcoils, and nitinol plugs.
- Ceratohyoidectomy is the preferred surgical procedure for temporohyoid osteoarthropathy.

The most common diseases of the guttural pouches are empyema, tympany, mycosis, and temporohyoid osteoarthropathy (THO), and updates on these diseases and their treatments are the focus of this review. Related to guttural pouch tympany is a form of nasopharyngeal obstruction in adult horses that also is addressed. A variety of other diseases have been documented, but these are rare and include neoplasia, fractured stylohyoid bone (with or without abscessation), foreign bodies, cysts, and rupture of the ventral straight muscles of the head.

The challenge in diagnosis and treatment of all these diseases lies in the complex anatomy of the guttural pouch, its close relationship with other important structures

Disclosures: None.
Large Animal Clinical Sciences, College of Veterinary Medicine, University of Florida, 2015 SW. 16th Avenue, PO Box 100136, Gainesville, FL 32610, USA
E-mail address: freemand@ufl.edu

Vet Clin Equine 31 (2015) 63–89
http://dx.doi.org/10.1016/j.cveq.2014.11.010 **vetequine.theclinics.com**
0749-0739/15/$ – see front matter

at the base of the skull, easy confusion with diseases in other sites with similar clinical signs, and difficulty in safe surgical access to the affected structures within or in close contact to the guttural pouch. Improvements in diagnostic methods have considerably facilitated diagnosis, understanding, and treatment of guttural pouch diseases; however, endoscopy of the guttural pouch interior remains the gold standard for identifying most guttural pouch diseases.

MRI can provide useful information about the extent of soft tissue involvement in areas that cannot be examined by endoscopy, especially those deep to the mucosal lining, but is used only in select cases, and high-powered equipment requires general anesthesia. Examples of lesions suitable for MRI include melanomas and other tumors of the lateral compartment and parotid gland (**Fig. 1**). Whereas conventional angiography of the equine head requires surgical exposure of an artery and can be technically challenging, time-of-flight magnetic resonance angiography (TOF-MRA) uses signal intensity changes related to differences in saturation between tissues that are flowing and stationary, and does not require contrast agents (**Fig. 2**).[1] This technique can demonstrate all major intracranial vessels to approximately 2 mm in diameter so that third to fourth branches of ramification can be identified.[1] By contrast, veins have lower signal intensity, so the arteries are more visible. This method can be used to demonstrate a defect caused by guttural pouch mycosis and arteriovenous fistulas and thromboses, and to plan preoperatively for mass removals, so that critical vessels in the area can be identified beforehand.

GUTTURAL POUCH TYMPANY IN FOALS

Tympany is a unilateral or bilateral distention of the guttural pouches with air, with or without some fluid accumulation, in an otherwise healthy foal. Possible causes include a mucosal flap (or plica salpingopharyngea) acting as a one-way valve that traps air and fluid in the pouch, inflammation from an upper airway infection, persistent coughing, and muscle dysfunction.[2] Genetic studies have provided new information on

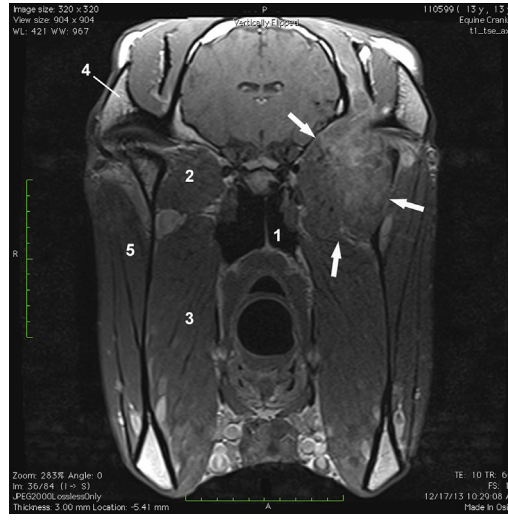

Fig. 1. MRI of horse with parotid melanoma (between *arrows*) extending rostrally from the left guttural pouch (1). 2, pterygoideus lateralis muscle; 3, pterygoideus medialis muscle; 4, squamous part of temporal bone; 5, masseter muscle. *Courtesy of* Dr. Carter Judy, Alamo Pintado Equine Medical Center.