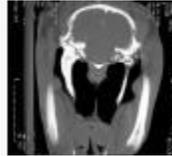


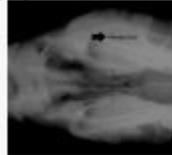
Clinical Findings and Diagnosis

Signs of otitis media include head shaking, rubbing or scratching the affected ear, and tilting or rotating the head toward the affected side; self-trauma can lead to aural hematoma. The most common cause of recurrent otitis externa is undiagnosed otitis media. When otitis externa (see [Otitis Externa](#)) accompanies otitis media, the external ear canal may look inflamed and contain an abnormal discharge. The pinna or ear canal may be painful and malodorous, and the hair surrounding the base of the ear may be wet or matted. Because the facial (cranial nerve VII) and sympathetic nerves course through the middle ear, animals with otitis media may exhibit signs of facial nerve paralysis (eg, ear droop, lip droop, ptosis, collapse of the nostril) and/or Horner syndrome (eg, miosis, ptosis, enophthalmos, protrusion of the nictitating membrane) on the same side as the affected ear. Exposure keratitis and corneal ulceration may develop. With facial paralysis, the nasal philtrum or lip may deviate away from the affected side. These signs help to distinguish otitis media from simple otitis externa.

Otitis media-interna, horse, CT



Otitis media-interna, horse, radiograph



With otitis interna, inflammation impairs function of the vestibulocochlear nerve (cranial nerve VIII), resulting in hearing loss and signs of peripheral vestibular disease such as head tilt, circling, leaning or falling toward the affected side, general incoordination, or spontaneous horizontal nystagmus with the fast phase away from the affected side. Extension of infection from the inner ear to the brain leads to meningitis, meningoencephalitis, or abscesses, with signs referable to those conditions. In horses, severe otitis media/interna can result in fusion and fracture of the tympanohyoid joint; extension of the fracture line to the calvarium can lead to intracranial spread of infection or cause hematoma and death.

Whereas animals with otitis media/interna are usually alert, nonfebrile, and have a good appetite, those with meningitis or meningoencephalitis are usually depressed, febrile, and inappetent. A major differential diagnosis for otitis media/interna in ruminants is listeriosis. However, in listeriosis, cranial nerves other than VII and VIII may be affected, causing signs such as dysphagia or loss of facial sensation, and affected animals are usually depressed.

In large animals, otitis media and interna are presumptively diagnosed based on history and clinical signs. A history of bottle feeding or feeding of contaminated milk to neonates, concurrent or previous respiratory

disease, chronic ear infection, or aural foreign body, in conjunction with typical signs of otitis media/interna, should prompt examination of the ear canal. Otitis media is confirmed by visualizing a bulging, discolored, or ruptured tympanic membrane. Although the tympanic membrane may be visualized using a simple otoscope in many cases, the anatomy of the ear canal hinders visualization in some species, such as horses and llamas; endoscopy, or video otoscopy, is an alternative approach. Imaging methods assist in diagnosis and assessment of lesion severity. Radiography can detect osseous changes in the tympanic bulla and fluid in the tympanic cavity if appropriate positioning and techniques are used. However, CT and MRI are more sensitive and are the preferred methods when feasible. In some cases, diagnosis is made only at necropsy, using special techniques to expose the tympanic region. Diagnosis of clinical otitis media/interna in one ear should always prompt examination of the other ear to determine whether subclinical otitis is present.

Otitis media has been reported to be present in 16% of dogs with otitis externa and in >50% of dogs with chronic otitis externa. The tympanic membrane has also been reported to be intact in >70% of cases, and the disease is usually bilateral in dogs. Primary and secondary causes and factors of otitis externa can lead to otitis media. Diagnosis can be challenging, because the tympanic membrane can be intact. Palpation of the tympanic membrane with a blunt instrument is not an accurate method of determining the patency of the tympanic membrane. Advanced imaging techniques (CT or MRI) are more sensitive than routine radiographs but are not 100% sensitive and specific. In some cases, exploratory (and therapeutic) bulla osteotomy may be necessary.

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