

5th International Conference "Agriculture for Life, Life for Agriculture"

Medical and Surgical Management of Otitis in Sheep-Case Report

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Abstract

Bacterial otitis is more common in livestock in a feedlot environment. Otitis externa is an inflammation of the external auditory meatus and pinna that is similar to epithelium and soft tissue infection. Acute localized disease in sheep occurs in the form of pustules, furuncles or crusts in woolled areas and typically result from *Staphylococcus aureus*. In Romania, there are little studies on the otitis in sheep; therefore the purpose of this study was to manage clinical and chirurgical the case, to determine the bacterial agents from that area and its sensitivity to antibiotic. A three years old female crossbred sheep, pregnant in the 4th month, from Giurgiu county was examined, this thing revealed display unilateral head tilt (toward the left side of the lesion), left ear ptosis. Ultrasonographic and radiographical images describe the inflammation of peripheral ear conduct tissue but no bulla damage. The diameter of the ear canal had 0,35 cm. The bacterial species isolated were *Staphylococcus aureus* and *Proteus* spp., and were sensitive to Ciprofloxacin and Amoxicillin. Seven days after the surgery the head and left ear were drooped (sequelae of the cranial nerve VII and cranial nerve VIII) but no inflammation or pain were seen. The conclusion is that the lateral left ear canal resection may be a reliable surgical method for the sheep otitis if it is made rapidly after the otitis diagnosis.

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Peer-review under responsibility of the University of Agronomic Sciences and Veterinary Medicine Bucharest

Keywords: sheep, otitis, bacteria, surgery.

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1. Introduction

In farm animals, otitis is common in calves and pigs but young and adult of all species are susceptible, in lambs especially those that are bottle-fed (Ali, 2001; Al-Farwachi and Al-Hassan, 2008, Leask et al., 2013).

Otitis externa is an inflammation of the external auditory meatus and pinna that is similar to epithelium and soft tissue infection. There are two major type of external otitis regarding the clinical evolution: acute and chronic (Ali, 2001; Adkesson, 2009; Hayyawi, 2012). Acute external otitis may be localized and diffuse. Acute localized disease in sheep occurs in the form of pustules, furuncles or crusts in woolled areas and typically result from *Staphylococcus aureus* (Hayyawi, 2012; Smith, 2015). Many factors can predispose small ruminants to otitis externa, but the most important is the anatomic orientation of the ear canal itself and cause an inflammation of the outer ear and ear canal (Ali, 2001; Hayyawi, 2012).

In dogs, otitis externa is the most common disease of the ear canal and it has a various etiology like *Staphylococcus intermedius* and *Malassezia pachydermatis* (Oliveira et al., 2008).

This kind of otitis has a multifactorial etiology and bacteria play an important role in otic diseases. Most of the bacteria incriminated in ear infections including *Staphylococcus* spp., *Pseudomonas* spp., *Escherichia* spp., *Mannheimia haemolytica*, *Pasteurella multocida* and *Proteus* spp. (Ali, 2001; Al-Farwachi and Al-Hassan, 2008; Hayyawi, 2012).

Bacterial otitis is more common in livestock in a feedlot environment, as both a clinical and subclinical problem. Bacterial otitis in calves is common and generally observed as a sequel to bacterial respiratory infections (Al-Farwachi and Al-Hassan, 2008) and may be associated with a variety of agents including *Histophilus somnus*, *Mannheimia haemolytica*, *Pasteurella multocida*, *Streptococcal* spp., *Actinomyces* spp., *Arcanobacterium pyogenes* and *Mycoplasma bovis* (Adkesson, 2009; Foster et al., 2009; Smith, 2015).

Mycoplasma ovipneumoniae contribute to the etiology of the all-age pneumonia epizootics and severe purulent otitis media in lambs (Besser et al., 2008). Viral infections in ruminant otitis media/interna remains speculative; it is possible that viruses play a similar role in facilitating otitis media interna as they do in facilitating lower respiratory tract disease (Smith, 2015).

The normal flora of external ear is similar to flora of the conjunctival sac qualitatively except *pneumococci*, *Staphylococcus aureus* and *Enterobacteriaceae*, *Pseudomonas aeruginosa* and non-*Candida albicans* (Hayyawi, 2012). Scabies, other mite species (*Raillietia auris* and *Dermanyssus avium*), ticks (*Otobius magnini*), larvae (*Stephanofilaria zahaeri*), free-living nematodes (*Rhabditis bovis*), and blue fly (*Chrysomia bezziana*) were reported to be important causes of otitis because there were more commonly in tropical and subtropical regions. *Malassezia* spp. have been demonstrated at a higher prevalence in cattle with otitis in these regions (Adkesson, 2009).

Otitis media/interna is considered to most commonly result from ascending infection of the middle ear from the nasopharynx via the eustachian (auditory) tube. Infection that progresses from the external ear into the middle ear is less common but may occur secondary to aural infestation by ectoparasites. Once infection is established in the middle ear, extension into the inner ear may occur as a result of erosion of bone or extension of the infection through the round and/or oval windows (Smith, 2015).

Otitis media-interna and secondary meningitis associated with *Corynebacterium pseudotuberculosis* have been reported in small ruminants, horses (Rand et al., 2011) and cattle (Leask et al., 2013). *Trueperella* (*Arcanobacterium*) *pyogenes* has been identified as a cause of otitis externa in cats (Leask et al., 2013).

Wirth and Goldani (2012), noticed that *Rhodotorula* genus (yeast) can produce otitis in sheep and cattle.

In pigs the skin lining of the external ear canal has a large numbers of gland which produce large amounts of secretions which provide good suitable media for irritation and infection (Hayyawi, 2012).

Jang et al., (2010) reported that nebulizing the natural bovine pulmonary surfactant in treating otitis media with effusion in guinea pigs can play an important role. It is effective in reducing the Eustachian tube's passive opening pressure and the edematous inflamed bullar mucosa.

Because sheep had significant anatomical and histological similarities to the human ear, according to the measurements, it can be a model for otologic training such as exploratory tympanotomies, tympanoplasties, ossiculoplasties, stapedectomies, myringotomies, and studies of the facial nerve and the auditory tube (Seibel et al.,

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