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# The first case of mastitis in sheep caused by *Actinobacillus ureae* from Iran

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**Abstract** *Actinobacillus ureae*, previously known as *Pasteurella urea*, is a commensal bacterium, which rarely causes disease in humans and has not been reported from any animal case in the veterinary literature. In this report, the occurrence of acute mastitis caused by *A. ureae* in an Iranian Ghezel sheep is described.

**Keywords** *Actinobacillus ureae* · Mastitis · Sheep

## Introduction

The ewe at any time during the milking period is prone to be affected by mastitis. Factors such as poor and dirty bedding, intensive animal husbandry, the presence of older suckling lambs with irregular denture, harsh diet and bramble grass, and lesions created in the teat area all provide an appropriate ambient environment for different types of bacteria and opportunistic agents to cause mastitis (Quinn et al. 2003; Radostits et al. 2007). Mastitis caused by *Pasteurella* is common in ewes. Other pathogens which can cause ovine mastitis, *Staphylococcus aureus*, *Streptococcus pyogenes*, *Streptococcus agalactiae* and *Corynebacterium pyrogenes* have already been reported (Quinn et al. 1994).

*Actinobacillus ureae* is part of the natural flora in the human respiratory airways, which may cause meningitis, sinusitis, septic arthritis, bronchopneumonia, bronchitis, endocarditis, bacteraemia, atrophic rhinitis and otitis media. *A. ureae* was first described in 1960 and named as *Pasteurella ureae* (Janda and Muttere 2006). In 1980, it was classified again under *A. ureae* by Mutters et al. (1985). This report describes a case of acute mastitis in an Iranian Ghezel sheep, caused by *A. ureae*.

## Case report

In January 2008, an Iranian Ghezel female sheep with unilateral lameness, unilateral swelling and inflammation of the left teat, fever of 40.5°C, anorexia and dyspnoea was referred to the veterinary clinic. A milk sample was collected from the infected teat using sterile techniques and standard methods. Preliminary culture followed by diagnostic and additional biochemical and antibacterial sensitivity tests were conducted. These tests identified *A. ureae* as the agent of infection.

The isolated bacteria were characterized by: Gram-negative coccobacillus; oxidase-, catalase-, and urease-positive; no-growth in MacConkey medium; no haemolysis in 5% sheep blood agar; tiny and transparent colonies; and motility, and indole tests were negative. Glucose fermentation occurred as aerobic and facultative; the response of A/A reaction in TSI medium was without gas and H<sub>2</sub>S production. After enrichment of the bacteria, the patterns of antibiotic resistance were determined by the disc diffusion method according to NCCLS guidelines. The treatment regime for mastitis included penicillin plus streptomycin, vitamin AD<sub>3</sub>E, intramammary ointment (containing penicillin, streptomycin, neomycin, methylprednisolone) every 12 h.

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## Result and discussion

Culture of milk samples showed Gram-negative coccobacillus bacteria confirmed as *A. ureae* based on standard biochemical tests. The isolated bacteria were detected as sensitive to the impregnated antibiotic discs of penicillin, tylosin, sulfamethoxazole plus trimethoprim, tetracycline, gentamicin, neomycin and streptomycin and were found resistant to chloramphenicol.

The results of treatment were satisfactory. The therapy lasted up to 5 days, but from the second day on, the appetite of the animal was improved and the fever, inflammation and oedema of the udder were reduced. Finally, the infection disappeared, but the involved teat no longer had any milk and was dry.

To our knowledge there is no report in the literature worldwide of mastitis caused by *Actinobacillus ureae*. This is the first report of the mentioned organism causing mastitis in sheep.

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