



TUBERCULOUS MASTITIS IN A GOAT-A CASE REPORT

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Tuberculosis in goats, caused by *Mycobacterium bovis* and *M. caprae*, is a zoonotic disease with economic significance as it decreases production and increases mortality rates and costs of diagnosis. It was reported that goats acquire tuberculosis when they maintain close contact and share pasture with infected cattle (Radostits *et al.*, 2007). Transmission of tuberculosis to humans is mainly by inhalation and ingestion of raw milk or unpasteurised dairy products (Rahman and Samad, 2008; Doran *et al.*, 2009). A case report of tuberculous mastitis in a goat and its diagnosis by acid fast staining and histopathology is presented.

A goat aged three years and in the 4th lactation was presented to the University Veterinary Hospital with a complaint of swelling of the udder and clots in the milk since three weeks. The animal was treated by the local veterinarian with different antibiotics and was not responding to the treatment.

On examination the animal was weak and emaciated. The left half of the udder was enlarged with several nodular swellings (Fig.1). The supramammary lymphnodes were also swollen and hard. The milk from the affected half was normal in colour but was thick and with clots. There was reduction in the milk production from two litres to half litre. Clinical parameters such as temperature, pulse, respiration and rumen motility were within the normal range. Milk was collected under sterile conditions and subjected to bacterial and fungal culture. Milk

was centrifuged at 3000xg for five minutes and the sediment was stained with acid fast stain for detection of mycobacterial organisms. The fine needle biopsy material was collected from one of the nodule and was stained with acid fast stain. Single intradermal tuberculin test was done using 0.1 ml of purified protein derivative of *Mycobacterium bovis* intradermally at the middle third of neck. One of the nodules was removed surgically under local anaesthesia and was subjected to histopathological examination.

Bacterial culture in brain heart infusion agar did not reveal any bacterial growth. Fungal culture in sabourauds dextrose agar with chloramphenicol and cyclohexamide did not yield any fungal growth. Acid fast staining of the milk smear was negative, but the aspiration from the nodule revealed few clumps of pink coloured, long and slender rods suggestive of mycobacterial organisms (Fig.2). The tuberculin test was also negative without any appreciable change in the thickness of skin at the site of inoculation after 96h. Histopathological examination of biopsy material from a nodule revealed classical tubercles with central caseation and calcification surrounded by a zone of epithelioid macrophages and multinucleate giant cells, bounded by lymphocytes and fibrous tissue (Fig.3 & 4) suggestive of tuberculosis. The owner was advised to dispose the animal by slaughter because of its public health significance.



Fig. 1. Nodular swellings on the udder

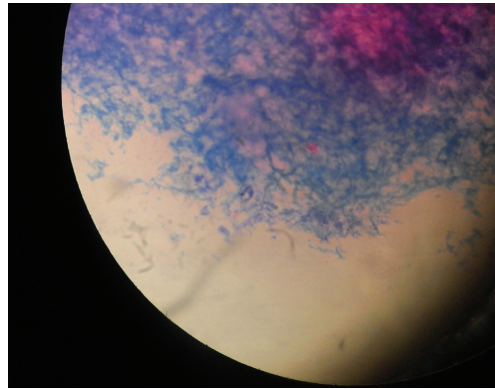


Fig. 2. Acid fast tubercle bacilli in smear of aspiration from the nodular swelling of udder

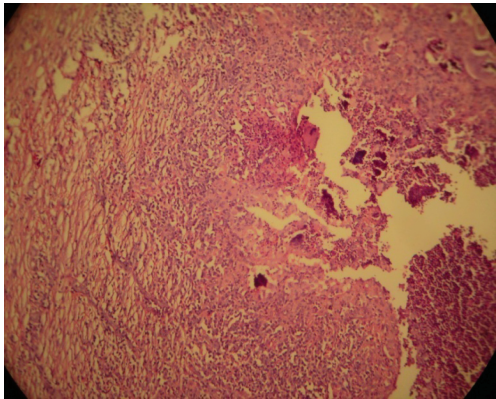


Fig. 3. Classical tubercles with central caseation and calcification surrounded by a zone of epithelioid macrophages and multinucleate giant cells bounded by lymphocytes and fibrous tissue

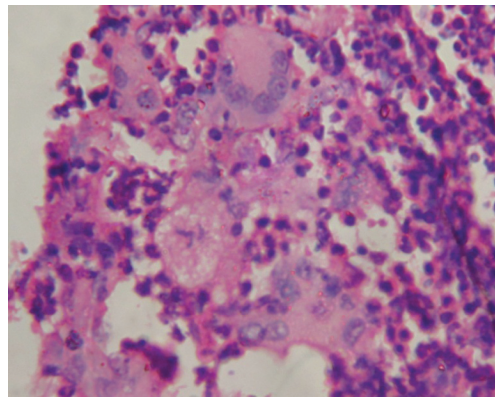


Fig. 4. Multinucleate giant cells

There are several reports of tuberculosis in goats (Quintas *et al.*, 2010; Cadmus *et al.*, 2009) but reports of tuberculous mastitis in goats are scanty. Similar cases of tuberculous mastitis with nodular type of lesions were described by Chauhan *et al.* (1974). False negative reaction to tuberculin testing in the present case might be due to the advanced stage of disease as suggested by Radostitis *et al.* (2007). The relative importance of rearing goats has increased nowadays because of decline of land holding and scarcity of grazing land. There is also a belief that goat's milk has medicinal value and preferred to be given to children and the aged. Milk borne tuberculosis is mainly associated with tuberculous mastitis.

Hence proper diagnosis and control measures are important to prevent this zoonosis. This report also stresses the need for including goats also in the control strategies for eradication of tuberculosis in livestock.

Summary

A case report of tuberculous mastitis in a goat and its diagnosis by acid fast staining and histopathology is presented.

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