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A rare case of multilobular osteochondrosarcoma in a non-descript goat

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Abstract

The objective of the present study is to report the rare incidence of multilobular osteochondrosarcoma in a Goat. A two year old Non-Descript breed male goat was referred to the Veterinary College and Research Institute, Salem with the history of anorexia and a progressive swelling at the left side of the facial region. Detailed clinical examination, haemogram and serum biochemistry were carried out to assess the health condition of the animal. The Impression cytology and biopsy specimen were collected to determine the type and nature of the growth. Clinically the animal exhibited dullness, pale mucus membrane and a huge mass at the left side of the maxillary region. The haemogram and serum biochemistry showed anaemic picture (Hb-6.8 g/dl) and hypoproteinemia (3.92 g/dl) respectively. Grossly, there was a large, irregular, solid and hard mass with superficial ulceration originated from the left cheek and extended to the end of the hard palate. Histopathologically, The tumor invaded the bone and consisted of multiple lobules of bone and cartilage with an intense fibroblastic stroma.

Keywords: Goat, maxilla, mesenchymal tumour and osteochondrosarcoma

Introduction

Multilobular osteochondrosarcomas are a rare form of slow-growing bony tumour. They originate most often from the membranous or flat bones of the cranium, mandible or maxilla (Dernell *et al.*, 1998) ^[1] and rarely from other sites. Older, large and medium sized dogs are most commonly affected without breed or sex predilection (Straw *et al.*, 1989) ^[2]. In bovine, this tumour may occupy anywhere in mandible or maxilla (Kumar *et al.*, 2019) ^[3], but mostly involves lower jaw (Tyagi and Singh, 1993) ^[4]. Clinical signs depend on the location of the tumor and are typically caused by compression of adjacent structures (Liptak and Ehrhart, 2005) ^[5]. Although multilobular osteochondrosarcoma has been reported in the skull, pelvis, ribs, axilla and hard palate in the dog and two reports in cattle, there have been no previous reports of this tumour in goat. Hence, this paper deserves to record the rarest case of oral multilobular osteochondrosarcoma in a Non-Descript goat.

Materials and methods

A two year old Non-Descript breed male goat was referred to the Veterinary College and Research Institute, Salem with the history of anorexia and a progressive swelling at the left side of the facial region. The clinical data was recorded *viz.* age, sex, breed, duration of the mass and location of the mass. Detailed clinical examination was carried out to assess the prognosis of the tumour.

Clinical pathology:

Blood and serum samples were collected for haemogram and serum biochemistry respectively to assess the health status of the animal.

Gross pathology

The sizes, shape and location of the mass were noted. In addition the severity and extent of growth were also recorded.

Cytology

Impression method and fine needle aspiration cytology were employed to collect the cytological smears. Impression cytology was taken by applying gentle pressure on a slide against the neoplastic tissue and allowing the smear to dry at room temperature.

Fine needle aspiration cytology (FNAC) was taken using 23-25 Gauge needle and 5 ml syringe. After collection, the slides were fixed in methanol for 5 minutes and were subjected to Giemsa and Leishman stain (Cowell and Meinkoth, 2008) [6] to study the cytomorphological features of the growth.

Histopathology: The biopsy specimen from the intact growth were collected in 10 per cent neutral-buffered formalin and sent to Department of Veterinary pathology for histopathology examination. The paraffin embedded tissues were sectioned to 5 µm thickness and stained by haematoxylin and eosin (H&E) for microscopic examination (Bancroft and Gamble, 2006) [7].

Results and Discussion

Clinically the animal exhibited dullness, pale mucus membrane, normal temperature, elevated pulse and respiration rate. There was a huge mass at the left side of the maxillary region.

Clinical pathology

The haemogram showed anaemic picture *viz.*, Hb-6.8 g/dl, PCV- 19%, RBC- 3.13×10^6 /cumm, WBC - 4.14×10^3 /cumm. Serum biochemistry showed hypoproteinemia (3.92 g/dl) and hypoalbuminemia (2.81 g/dl).

Gross pathology

On physical examination, there was a huge mass with exudation noticed at the left side of the maxillary region (Figure. 1). The oral cavity examination revealed that there was a large irregular spherical ulcerated mass originating from the left cheek and the growth was extended as irregular tubular mass till the end of the hard palate (Figure. 2). The mass was a solid, hard and firm in consistency while on palpation and superficial haemorrhage was noticed from the ulcerated areas. Similar observations in dogs were recorded by earlier authors (Banks and Straw, 2004) [8].



Fig 1: A large growing mass seen at the left maxillary to lower mandible region



Fig 2: Large, irregular, spherical and ulcerated mass originating from the left cheek to the end of the hard palate

Cytology

The impression and FNAB samples exhibited spindle shaped cells showing anisokaryosis, poikilokaryosis, prominent and multiple nucleoli in a mixture of bluish pink matrix background suggestive of mesenchymal origin with the involvement of bone and cartilage.

Histopathology: Microscopically, the tumor invaded the bone and consisted of multiple lobules of bone and cartilage. The lobules had a central area of bone and cartilage (Figure.3) surrounded by plump fibrous tissue and mesenchymal cells. The mesenchymal cells were mildly to moderately pleomorphic with round nuclei and small nucleoli. There were areas of necrosis and occasional mitosis were noticed. The tumor was composed of irregular neoplastic osteoid masses formed by poorly differentiated hyperchromatic polygonal or fusiform cells in the bone. There was irregular masses of clumped chondroblasts and irregularly oriented osseous tissue with an intense fibroblastic stroma.

The owner not willing to proceed for further treatment or surgery and he wanted to dispose the animal.

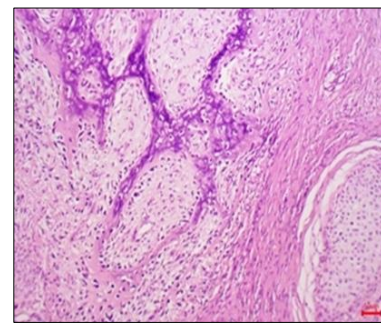


Fig 3: The lobules had a central area of bone and cartilage surrounded by fibrous tissue (H&E, 400)

Conclusion

Based on the cytology and histopathology, the tumour was confirmed as the multilobular osteochondrosarcoma. This case is unique as the osteochondrosarcoma is the first report in goat.

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