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Surgical management of odontoma in cattle

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Abstract

Odontoma is a tumor composed of osseous tissue and develops from budding of extra-odontogenic epithelial cells from dental lamina. It may occupy a position anywhere in mandible or maxilla but mostly the alveolar process of lower jaw is involved. It may be associated with unerupted tooth, dentigerous cyst or normal tooth. The odontoma develops by degeneration of epithelial component of enamel that results in accumulation of fluid and encapsulated by fibrous tissue. These tumors have been reported in cattle. In the present case, a 6-year-old female crossbred H.F cattle was presented to the Veterinary Clinical Complex, CVAS, Navania with history of growth at mandibular incisor region with difficulty in prehension. The growth was hard but not painful. Clinical examination revealed tumours growth at mandible as odontoma. Surgical excision was undertaken and tumorous growth was removed from its attachment to mandible under xylazine sedation (1ml I/M) and bilateral mental nerve block with 10 ml of 2% Lignocaine hydrochloride using 18-gauge needle. Oral cavity was irrigated with potassium permanganate solution. Inj. Streptopenicillin 2.5 gm for 5 days and Meloxicam (Melonex) @ 0.2 mg/kg b. wt. for 3 days were administered intramuscularly post-operatively. The animal was given restricted feeding and intravenous fluid therapy using 5 liters of 5% Dextrose normal saline for 4 days post-operatively. Uneventful recovery was observed post-operatively.

Keywords: Cattle, mandibular, odontoma, osteotomy, surgery

Introduction

Odontoma is a tumour composed of osseous tissue like enamel, cementum, dentin and pulpal tissue and develops from budding of extra-odontogenic epithelial cells from dental lamina. These tumours occur predominantly in the mandibular incisor region of young cattle and have often in the past referred to as ameloblastoma (Gardner, 1996)^[2]. These tumours rarely occur in domestic animals (Venugopalan, 2000)^[7]. The treatment includes chiselling or curetting out tumorous growth and closing cavity in maximum possible manner to oppose mucosal surfaces. Radiation therapy, thermocautery and cryotherapy in conjunction have also been recommended (Ziemer *et al.*, 1986 and Tetens *et al.*, 1995)^[6, 3].

History and Clinical examination

A 6 years old female crossbred H.F cattle was presented to the Veterinary Clinical Complex, CVAS, Navania with history of growth at mandibular incisor region with difficulty in prehension (Fig.1). The animal was suffering with dysphasia, felt difficulty in feeding (mastication and deglutition) and drinking due to a large growth over lower jaw area. Clinical signs included excessive salivation, losing of tooth and bleeding. However, animal was apparently healthy and alert.

Diagnosis and Treatment

The diagnosis was confirmed by history, clinical signs and clinical examination. The animal was sedated with xylazine (1 ml I/M) and bilateral mental nerve block was achieved using 2% lignocaine hydrochloride 10 ml on both sides after securing in lateral recumbency. The surgical site was prepared aseptically. A gingival incision ventral to visible margin of mass and mucous membrane was taken to make lower flap. Surgical excision was undertaken and tumorous growth was removed from its attachment to mandible (Fig.2). Subsequently, osteotomy was performed using chisel and hammer. Haemostasis was achieved by digital pressure over the sterilized gauze, cauterization and administration of inj. Texableed. Oral cavity was irrigated with potassium permanganate solution with normal saline mix with povidone iodine. The flaps were opposed by interrupted mattress sutures though lower lip skin

using silk thread (Fig.3). Inj. Streptopenicillin 2.5 gm for 5 days and Meloxicam (Melonex) @ 0.2 mg/kg b. wt. for 3 days were administered intramuscularly post-operatively. The animal was given restricted feeding and intravenous fluid therapy using 5 liters of 5% Dextrose normal saline for 4 days post-operatively. The sutures were removed after 12 days. Uneventful recovery was observed post-operatively. Daily flushing of wound with normal saline solution mix with povidone iodine for fifteen days led to uneventful recovery when the sutures were removed. No recurrence was reported up to a period of 9 months.



Fig 1: Odontoma case in cattle before treatment



Fig 2: Excised tumor's growth of Odontoma after surgery



Fig 3: Recovery of animal after surgically treatment of Odontoma

Odontoma arises from odontogenic epithelial remnants, generally in incisor region of mandible (Theilen and Mandewell, 1979) [4]. These neoplasms usually are cystic and cause resorption of roots of adjacent teeth. However, in the present case odontoma was from entire tooth bud and consisted of cement forming tumour like masses on root of normal teeth giving appearance of many displaced or extra teeth. Further, all incisors were involved in tumorous mass which is in agreement with findings of Tyagi and Singh (1993) [5] who also reported higher incidence of lower jaw involvement in odontoma of animals. Tumors are seen as mass like lesions causing dysphagia and excessive salivation. Chalmers and Shaklady (1991) [1] have also observed similar clinical signs causing interference with mastication in young cattle. The surgical excision of growth provided good control for benign odontoma in this case report with no recurrence observed during 9 months of follow up period.

Conclusion

A successful treatment of odontoma in a 6-year-old crossbred H.F. cattle is reported.

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