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Ameloblastic fibro-odontoma in mandibular incisor of a bullock-a case report

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Abstract
A three year old bull showed a medium sized tumor mass of 3 cm thick and 3.5 cm wide in between first two lower mandibular incisors. After excision the cut surface of tumor mass appeared white and firm with streaks of hard tissue. On histopathological examination, tumorous growth revealed long cords of well differentiated odontogenic epithelium in a background of loose mesenchymal tissue. Neoplasm composed of islands, cords and strands of odontogenic epithelium separated by a large amount of fibrous connective tissue. Foci showed edema and infiltration of neutrophils. Fibroblastic cell proliferation was more prominent. Low-power view showed nests of ameloblastic cells in a fibroblastic stroma. The odontogenic epithelial cells have distinct cell borders, moderate amounts of pale eosinophilic fibrillar cytoplasm, basilar nucleus with 1-2 distinct nucleoli. On the basis of gross and histopathological examination, neoplasm was diagnosed as ameloblastic fibro-odontoma. The tumor mass was excised under local anaesthesia and there was no recurrence reported upto 4 week.

Keywords: Ameloblastic, fibro-odontoma, bullock

Introduction
An odontoma also termed as odontome (Ireland, 2010) [4]. Odontoma is a benign tumor composed of osseous tissue and develops from budding of extra-odontogenic epithelial cells from dental lamina and it may occupies a position anywhere in mandible or maxilla but mostly the alveolar process of lower jaw is involved (Singh *et al*., 1993) [6]. So, it is a dental hematoma, meaning that it is composed of normal dental tissue that has grown in an irregular way. Dental tissue neoplasms comprise of hamartomatous, benign or malignant tumour. Among animals, dental tissue tumour have been reported in other animals (Hatai *et al*. 2013; Andrews, 2014) [3, 1].
It has been speculated that odontogenic tumor are associated with development of mandibular permanent incisors because they appear at an early age (Tetens *et al*., 1995) [7]. 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 (Masegi *et al*., 1994) [5].

History and Clinical Observations
A 3 year old bull was presented with tumorous growth at central region of mandible involving incisor. Growth was not painful and the animal had no difficulty in mastication, deglutition and prehention.

Material and Methods
Animal was presented to TVCC, PGIVAS, and Akola for surgically removal of tumour. The tumour was successfully removed under local anaesthesia. Removed mass was collected and fixed in 10% formalin solution. After fixing wash the tissue for overnight and then the tissue were dehydrated by immersion in a graded series of alcohols of increasing concentration (from 70% to absolute), infiltrated with xylene, and embedded in paraffin (Luna, 1968) [8]. A microtome was used to make 5-mm cuts that were mounted in glass slides and stained with

Masson's trichrome. Mount slide with DPX mountant and Observe under microscope (40x, 100x, 400x and 1000x).

Result

The diagnosis was confirmed by history, clinical examination, gross examination and histological examination. On gross examination, growth revealed white and firm with streaks of hard tissue. The mass was embedded in gums in between lower mandibular incisor and the mass was protruding from lower jaw (fig.1).

On histopathological examination, tumorous growth revealed long cords of well differentiated odontogenic epithelium in a background of loose mesenchymal tissue (fig.2). Neoplasm composed of islands, cords and strands of odontogenic epithelium separated by a large amount of fibrous connective tissue (Fig.3). Foci showed edema and infiltration of neutrophils (Fig.4). Fibroblastic cell proliferation was more prominent. Low-power view shows nests of ameloblastic cells in a fibroblastic stroma. The odontogenic epithelial cells have distinct cell borders, moderate amounts of pale eosinophilic fibrillar cytoplasm, basilar nucleus with 1-2 distinct nucleoli. Islands of odontogenic epithelium have a peripheral palisading layer of columnar cells with anti-basilar nuclei and clearing of the basilar pole (fig. 5). On the basis of gross and histopathological examination, neoplasm was diagnosed as ameloblastic fibro-odontoma.

Fig 1: Showing firmly attached tumorous mass in between first mandibular incisor

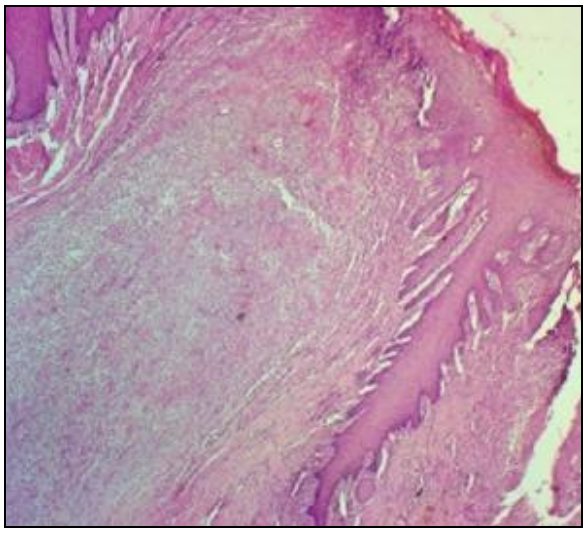

Fig 2: Tumorous growth revealed long cords of well differentiated odontogenic epithelium in a background of loose mesenchymal tissue. (H&E x 40)

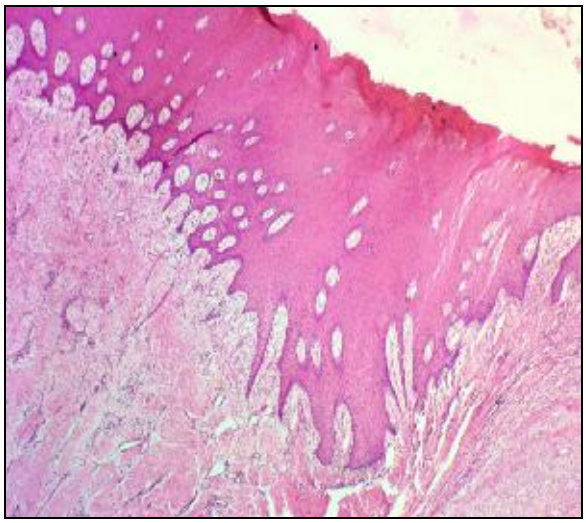

Fig 3: Neoplasm composed of islands, cords and strands of odontogenic epithelium separated by a large amount of fibrous connective tissue (H&E x 100)

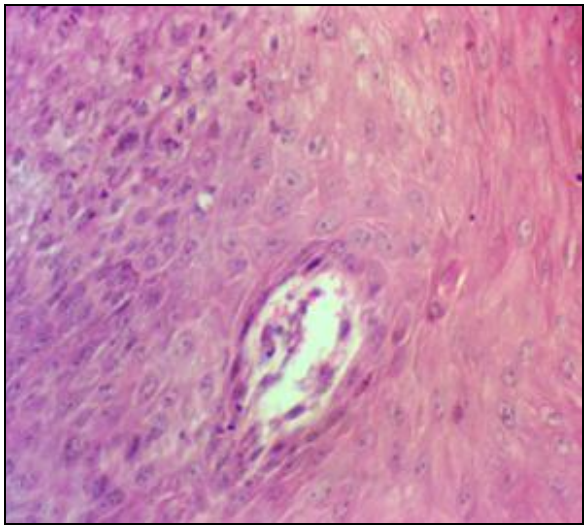

Fig 4: Foci showed edema and infiltration of neutrophils (H & E x 400)

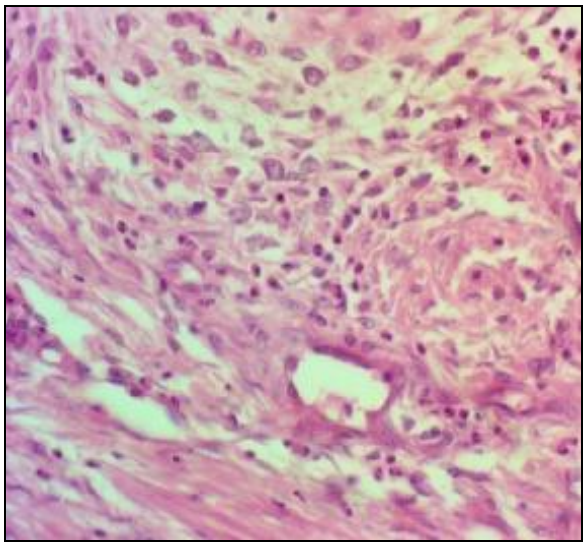

Fig 5: Islands of odontogenic epithelium have a peripheral palisading layer of columnar cells with anti-basilar nuclei and clearing of the basilar pole (H & E x 400)

Discussion

Odontogenic tumor in animals are limited and often confusing (Gardner, 1992) [9]. Odontoma arises from odontogenic epithelial remnants, generally in incisors region of mandible. These neoplasm usually are cystic and cause resorption of root of adjacent teeth (Theilen and Madewell, 1979) [10]. The surgical excision provides good control of the condition. The treatment of odontoma includes curetting or chiselling out the tumor growth and closing the cavity as much as possible (Singh *et al*., 1993) [6]. Due to their potential for attaining large size, destroying the mandible and resorption of root of adjacent teeth, surgical excision of tumorous mass is recommended. Long cords of well differentiated odontogenic epithelium in a background of loose mesenchymal tissue and also observed long narrow cords and islands odontogenic epithelium on histopathological examination (Bologna-Molina *et al*., 2013) [2]. However, in present cases, microscopically, tumorous growth had fibroblastic cell proliferation and inflammatory cell infiltration.

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