

### Case Study

## Large Rarely Occurring Fibromatous Epulis in a Snake Antivenom Producing Horse

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### ABSTRACT

Epulis is a benign neoplasms of the oral cavity, derived from the periodontal ligament or connective tissue, occur commonly in dogs and rare in cats. However, it is very rare in horse. The tumor can be very large to interfere with normal mastication. Several forms of epulides can histologically be distinguished in dogs. Fibromatous epulis microscopically characterized by a dense well vascularized stroma populated by expansile mass of stellate fibroblasts surrounded by variable amounts of densely packed fibrillar collagen. The present report is related to a sixteen- years-old mixed breed stallion, had been used for several years in production of snake antivenom. The animal showed abnormality in mastication and difficulties in swallowing food. Therefore, clinical examination was performed. Close examination of the oral cavity revealed that there was a large proliferating mass (measured 15 × 12 cm in diameter) on the gingival of the right mandible. There was no good prognosis, therefore, the animal was euthanized and, subsequently, necropsied. Based on location of the lesion as well as gross and microscopic features, the protruded mass was diagnosed and classified as fibromatous epulis.

**Keywords:** Horse, Fibromatous epulis, Histopathology

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### INTRODUCTION

Epulis is a benign local exophytic growth of the oral mucosa, derived from the periodontal ligament or connective tissue, occur commonly in dogs and rare in domestic cats. Reports of neoplasms in oral cavity of zoo animals are sporadic (Bruijn *et al* 2007, Catsro *et al* 2011, Jones *et al* 1997, Stebbins *et al* 1989). There are few reports of Fibrous epulides (gingival hyperplasia) in horses, that, indicating it is rare in this species. The

classification of these gingival lesions in the literatures varies greatly and leads to some confusion when trying to compare reports from different sources (Vezzali *et al* 2010). Several forms of epulides can histologically be distinguished in the dog: 1) fibromatous, 2) acanthomatous, 3) ossifying, and 4) giant cell epulis. Clinical behavior and histopathologic features are well established in dogs (Bruijn *et al* 2007). Microscopically they are characterized by a dense well vascularized stroma populated by expansile mass of stellate fibroblasts surrounded by variable amounts of densely packed fibrillar collagen, resembling the periodontal

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ligament. Mitotic figures are rare. It is considered a peripheral odontogenic neoplasm, indistinguishable clinically from fibrous hyperplasia (Brown *et al* 2007, Jones *et al* 1997). They vary in size from incidental masses to large masses several centimeters in size and interfering with normal mastication (Head *et al* 2002). This paper reports a case of fibromatous epulis in a stallion, had been used for several years in production of the snake antivenom.

### CASE HISTORY

A sixteen- years- old mixed breed stallion, had been used for production of snake antivenom, showed abnormality in mastication and difficulties in swallowing food. Close examination of the oral cavity revealed that there was a large proliferating mass on the gingival of the right mandible, originated adjacent to the first premolar (wolf) tooth and caused it to be loosed (Figure 1).



**Figure 1.** Head of the horse, median aspect of sagittal section (right part). The arrow points to the neoplastic mass.

The exophytic mass had covered all the premolar and first molar tooth. Gradually the animal became thin and weak. There was no good prognosis and, therefore, euthanasia indicated. During necropsy of the animal the oral mass was excised, fixed in 10% neutral formalin and processed according to routine histopathologic techniques at the department of pathology, Razi vaccine and serum research institute, Karaj- Iran. The prepared sections of tissues stained by Haematoxylin and Eosin (H&E), as well as, Masson trichrome

techniques and subsequently examined by a light microscope.

### RESULTS

Grossly, the proliferation was a large (measured 15 × 12 cm in diameter), solid, firm, pinkish white mass (Figure 2).



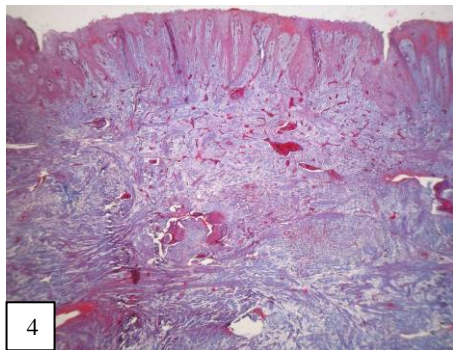
**Figure 2.** Mandible of the horse, median aspect of the right part (fixed in 10% formalin). A large neoplastic mass on the surface of the gingival is seen.

It was protruded immediately adjacent to the first premolar (wolf) tooth and covered 3-4 premolar and 1st molar tooth. The protruded mass was a bifurcate shape growth, toward the cheek and oral cavity, and caused displacement and loosening of the first premolar (wolf) tooth and difficulties in mastication, as well as, difficulties in swallowing food. Coronal cross sections of the exophytic growth, on mandible, exposed that: there was continuity toward periodontal ligament (Figure 3). Microscopically the neoplastic mass was covered by intact epithelium, but, in some regions it was necrotic. Applying Masson trichrome staining technique showed that the stroma composed of an expansile mass of stellate to spindle fibroblasts surrounded by dense fibrillar collagen background (Figure 4) Blood vessels were present throughout the stroma. However, rarely mitotic figures were seen. Mildly hyperplastic overlying gingival epithelium has sent some long irregular branching cords of epithelial cells deep into the neoplasm in a manner resembling pseudoepitheliomatous hyperplasia (Figure 5). The

epithelial cells were resembled to basal or prickle cells with prominent intracellular bridges (Figure 6).



**Figure 3.** Mandible of the horse, serial coronal sections. bifurcation of neoplastic mass is seen. It seems to be continued toward the periodontal ligament.



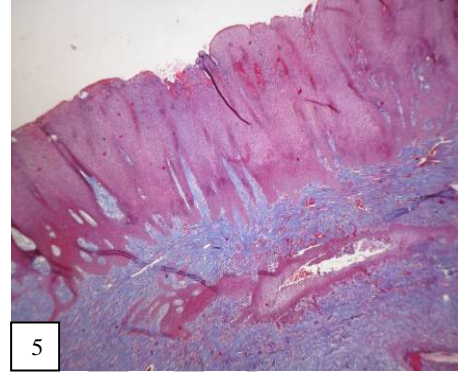
**Figure 4.** Fibromatous epulis, horse. Intact gingival epithelium with long branching cords, deep into the neoplasm, is covered neoplastic mass. Bundle of collagen fibers are seen in blue. (Masson trichrome  $\times 40$ ).

Based on the location of the lesion as well as the gross and microscopic features, the neoplastic mass was diagnosed and classified as fibromatous epulis.

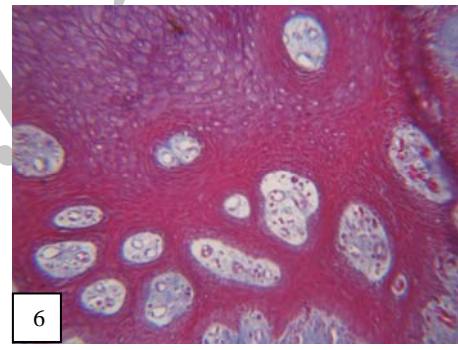
## DISCUSSION

Several morphological forms of epulides were classified in dogs (Bruijn *et al* 2007). But, most feline epulides could not be diagnosed as one of the 4 canine classical type but show a combination of lesions. This may be proper for equine, horse, epulids since in present case, in some parts of the neoplastic mass, there were some similarities to acanthomatous epulis. In a recent retrospective study of 52 cases of cat epulis, fibromatous was the most common type corresponding

to 57.7% of all cases. (Bruijn *et al* 2007, Castro *et al* 2011).



**Figure 5.** Fibromatous epulis, horse. Branching cords of epithelial cells resembling pseudoepitheliomatous hyperplasia is seen (Arrows). (Masson trichrome  $\times 100$ ).



**Figure 6.** Fibromatous epulis, horse. The epithelial cells with prominent intracellular bridges is seen on top of the picture. (Masson trichrome  $\times 200$ ).

In a review by Gorlin and Peterson (1967) on 1135 biopsied of neoplastic and nonneoplastic oral and pharyngeal lesions of canine (1,002), bovine (15), feline (62), equine (50), ovine (5) and porcine (1); they reported Fibromatous epulis of periodontal origin, canine oral papillomatosis, fibroma, neurofibroma, lipoma, sebaceous adenoma, transmissible reticulum-cell tumor, and melanocytic as the benign neoplastic lesions. It was not possible, for us, to radiograph the lesion for detecting alveolar bone involvement. However, the gross morphology, histological features and the localization of the present case is in agreement with other reports in dogs and cats (Bruijn *et al* 2007, Castro *et al* 2011, Head *et al* 2002). Based on our

knowledge there are few reports of Fibrous epulides (gingival hyperplasia) in horses. Vezzali *et al* (2010) reported a case of fibrous epulis in a horse. They described the features of the tumor as a 5-cm-mass with mature fibrous tissue with chronic-active inflammatory reaction developed in the gingival of a 18-years-old Italian saddle horse gelding, and diagnosed as fibrous epulis or fibrous hyperplasia. Whereas, the present case was an incomparable case. Because, it was a large neoplastic mass (measured 15 ×12 cm in diameter) that caused abnormality in mastication and difficulties in swallowing food. Histologically fibromatous epulis of periodontal ligament origin in dogs is characterized by presence of a mesenchyme suggesting the periodontal ligament with a dense cellularity fibroblast cells regularly positioned in a dense fibrillar collagen background. Localized deposition of collagen matrix is seen, and the matrix can have characteristic of bone, cementum, or dentin. Large vessels are evenly spaced in the stroma. Frequently odontogenic epithelium is seen and forms long fronds that can attaching to the surface epithelium. (Head *et al* 2002). Although there are some similar features, to periodontal ligament, in present case suggesting that it may be originated from periodontal ligament. But, it is not completely documented. However, based on our knowledge this is the first report of the fibromatous epulis in a snake antivenom producing horse.

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