BJVP
Brazilian Journal of Veterinary Pathology

Case Report

Fibromatous Epulis in a Captive Lion (*Panthera leo*)

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Submitted May 19th 2011, Accepted June 22nd 2011

Abstract

An epulis in the oral cavity of an aged captive lion in Brasilia, Brazil, is reported. Oral inspection of the animal revealed a pale blunt and irregular multilobulated mass involving the upper left caninum tooth. Microscopic features of the mass included a fibrous stroma (mesenchyme) interspaced with a few blood vessels, suggesting a periodontal ligament origin. The dense collagen fiber background had a moderate cellularity composed of regularly orientated fibroblasts and it surrounded foci of osteoid or mineralized material. Mild overlying gingival epithelial hyperplasia with some irregular cellular cords was also observed. Based on the location of the lesion as well as the gross and microscopic features, the lesion was classified as fibromatous epulis and is believed to be the first report in this species.

Key Words: Epulis, lion, *Panthera leo*, neoplasms, oral cavity.

Introduction

Although neoplasia is a common diagnosis in both domestic and wild cats, reports of neoplasms in the oral cavity of zoo animals are sporadic.

Epulis is a nonspecific, clinical descriptive term referring to a benign gingival exophytic proliferation common in dogs, but with rare occurrence in domestic cats (1, 4). Despite epulides are considered rare in cats some reports highlight that it represents 0-7,8% of oral feline neoplasms (4, 11). The term epulis has no specific pathologic connotation, and should not be used in morphologic diagnosis, except in the context of fibromatous epulis of periodontal ligament origin (1).

Fibromatous epulides are microscopically characterized by a dense, well vascularized stroma populated by stellate cells with abundant fibrillar collagen resembling the periodontal ligament (2). It is considered a peripheral odontogenic neoplasm, indistinguishable clinically from fibrous hyperplasia, and most common in dogs (1).

In a recent report, fibromatous epulis was described in an adult male tiger (*Panthera tigris*) detected during routine oral exam. Unfortunately, because this tiger died after three months as a consequence of serious renal disease, a follow up of the oral lesion could not be performed (5).

Oral health problems in felids have become increasingly apparent to zoo veterinarians (10, 11). The pathogenesis of oral disease may be affected by genetics, age, behavioral and environmental influences as well as by concurrent systemic diseases (1). As the husbandry and medical problems of zoo animals have become better understood, so has the need to study the importance of oral disease, increasing careful scrutiny in the reporting of oral pathology and the results of preventive and therapeutic techniques (10).

This paper reports a case of fibromatous epulis in an aged captive African lion.

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Case Report

An aged male lion (*Panthera leo*) seized from a circus was taken to the Brasília Zoo Hospital for the removal of myiasis from the upper lip. The feline was submitted to general anesthesia for the procedure. Oral inspection revealed an external orifice with 2.0 cm of diameter in the right upper lip and visible larvae inside but also a pale blunt and irregular multilobulated mass with 6 cm of diameter involving the upper left caninum tooth (Fig. 1). A thorough clinical evaluation displayed no other medical occurrence. The oral mass was excised, fixed in 10% neutral formalin and processed according to routine histopathologic techniques at the Veterinary Pathology Laboratory in University of Brasília (UnB) - Brazil.



Figure 1. Pale blunt and irregular multilobulated oral mass involving the upper left caninum tooth of the lion.

Microscopic examination of a tissue sample from the oral mass revealed a fibrous stroma (mesenchyme) interspaced with a few blood vessels, suggesting a periodontal ligament origin. The dense collagen fiber background had a high cellularity composed of small stellate to spindle fibroblasts regularly orientated in a dense fibrillar collagen background and it surrounded foci of osteoid or mineralized material that should be interpreted as dental substance (Fig. 2). Mild overlying gingival epithelial hyperplasia with some irregular cellular cords was also observed. Based on the location of the lesion as well as the gross and microscopic features, the lesion was classified as fibromatous epulis.

Six months later a 4.0 cm diameter sized oral mass grown in the very same anatomical location was excised. This tumor's gross and microscopic aspects were the same of the previous one. Unfortunately, it was not possible to radiograph the lesion to detect a likely alveolar bone involvement that could justify recurrence of the neoplasm.

Discussion

Although the gross morphology, the histological features and the localization of epulides are in agreement with other reports in dogs and cats, retrospective survey of pathologic findings in zoo animals failed to reveal previous cases of epulides in lions.

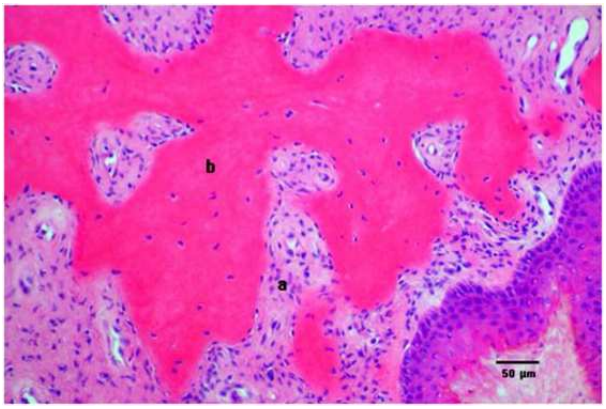


Figure 2. Dense collagen fiber background with high fusiform cellularity (a) surrounding foci of osteoid or mineralized material (b). Hematoxylin and eosin.

Under light microscopy inspection, epulis displays several morphological forms classified in the dog as fibromatous, acanthomatous, ossifying or giant cell type (7). In the case of cats, fibromatous, ossifying, and rarely giant cell epulides are reported (3). Nevertheless, ossifying and acanthomatous components are frequently described in the fibromatous epulides (FE) of the cat (2, 3). In a recent retrospective study of 52 cases of cat epulis, fibromatous was the most common type corresponding to 57,7% of all cases meanwhile 7,7% were acanthomatous, 5,8% ossifying and 28,8% were of giant cell type (2).

Fibromatous epulis of periodontal ligament origin (FEPL) is a recent denomination used to classify lesions with features of the one observed in the present case. Histologically FEPL is characterized by a mesenchyme with a dense cellular population of fibroblasts in a collagen matrix supporting occasional areas with bone, cementum or dentin tissue (6). The common feature in FEPL cases is the evidence of periodontal ligament stroma within the tumor mass. However, instead of FEPL, fibromatous and ossifying epulides denomination was still used to describe similar feline oral lesions (2). FELP is sometimes categorized as fibromatous or ossifying, depending on the abundance of hard tissue, with no prognostic value, since these all are benign tumors (1).

Gross morphology, histological features and the site of the growth in the lion oral cavity herein described are in agreement with most features reported for dog and cat epulides (2, 6, 7). However, in spite of the similar morphological aspects, it is not possible to assure that epulis biological behavior in lions is comparable to that of domestic animals. In the case of dogs and cats local excision of epulis, for example, is usually curative (6) and in the cat recurrences of fibromatous and ossifying epulides are considered very rare (2). The recurrence of tumor in the lion from the present report may be associated to deeper infiltration of the tumor not detected during surgical procedure and associated with an incomplete excision but might also

indicate a more aggressive and yet unknown clinical course in this species.

Etiology of epulides in cats is unknown and this neoplasm has been reported in both young and old cats (2, 3). In a survey with 46 jaguars (*Panthera onca*) all captive animals (n=42) showed various degrees of periodontal disease while free-living feline (n=4) showed no alterations (10). It is tempting to speculate that longevity and differences in environment and dietary management between in captive and free-living animals may contribute to the rise of periodontal disease and maybe epulides in this lion. Since wildcats may survive longer in captivity and old age-related dental problems are more frequent than in nature (10), the knowledge about oral diseases in captive wild Felidae is an important issue for Zoo management. This issue, however, shall be highlighted only by a closer surveillance, better diagnosis and the availability of the records of oral cavity diseases in both free-living and captive wild animals.

Acknowledgment

We thank Fundação Zoológico de Brasília for submitting this case to the LPV-UnB .

References

1. BROWN CC., BAKER DC., BARKER IK. Alimentary System. MAXIE MG. Ed. Jubb, Kennedy, and Palmer's Pathology of domestic animals. 5.ed., vol.2, Philadelphia: Elsevier Saunders, 2007:1-296.

2. DE BRUIJN ND., KIRPENSTEIJN J., NEYENS IJS., VAN DEN BRAND JMA., VAN DEN INGH TSGAM. A clinicopathological study of 52 feline epulides. Vet. Pathol., 2007, 44, 161-9.

3. COLGIN LMA., SCHULMAN FA., DUBIELZIG RR. Multiple Epulides in 13 Cats. Vet. Pathol., 2001, 38, 227-229.

4. DUBIELZIG RR. Proliferative dental and gingival diseases of dogs and cats. J. Am. Anim. Hosp. Assoc., 1982, 18, 577-584.

5. FECCHIO RS., GOMES MS., LOPES FM., HOFMANN F., PERINELLI AF., KLEEB S., XAVIER JG., GIOSO MA. Fibromatous epulis oral in tiger (*Panthera tigris*) - case report. Clin. Vet., supl., 2009, 14, 58.

6. HEAD KW., ELSE, RW., DUBIELZIG RR. Tumors of the alimentary tract. MEUTEN, DJ. Ed. Tumors in domestic animals. 4.ed. Ames:Iowa State Press, 2002: 401-81.

7. HEAD KW. Tumors of odontogenic origin. HEAD KW., CULLEN JM., DUBIELZIG RR., ELSE RW., MISDORP W., PATNAIK AK., TATEYAMA S., VAN DER GAAG I. Eds. Histological Classification of Tumors of the Alimentary System of Domestic Animals. second series, Washington DC: WHO, Armed Forces Institute of Pathology, 2003: 48-53.

8. ROBINSON PT. A literature review of dental pathology and aging by dental means in nondomestic animals-Part I. J. Zoo An. Med. 1979, 10, 57-65.

9. ROBINSON PT. A literature review of dental pathology and aging by dental means in nondomestic animals-Part II. J. Zoo An. Med. 1979, 10, 81-91.

10. ROSSI JR. JL., GIOSO MA., DOMINGUES-FALQUEIRO LM. 2007. Estudo comparativo sobre prevalência de doença periodontal em *Panthera onca* mantida em cativeiro e em indivíduos de natureza. Pesq. Vet. Bras. 2007, 27, 209-14.

11. STEBBINS KE., MORSE CC., GOLDSCHMIDT MH. Feline oral neoplasia: a ten-year survey. Vet. Pathol., 1989, 26, 121-8.

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