



Squamous Odontogenic Tumor in a Cat – Case Report

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ABSTRACT

The present work reports a case of a squamous odontogenic tumor (SOT) in a mixed breed feline. The animal had hyporexia, sialorrhea and increased volume in the right mandibular branch. The parameters evaluated during the clinical examination were in accordance with the normal values for the species. In the full blood count (FBC) and serum biochemistry, no changes were observed. An X-ray of the skull showed a marked bone lytic reaction and a proliferative aspect in the right mandible. Hemimandibulectomy was performed and the removed material was sent for histopathological examination, in which a squamous odontogenic tumor was diagnosed. All tumors originating from odontogenic tissues are considered benign. SOT arises from remnants of the dental lamina and occurs equally in the mandible and maxilla. It is located predominantly in the posterior region of the mandible, and more rarely in the anterior region of this tissue. This neoplasm is taken as quite rare in the human medical literature and citations of this tumor is lacking in the veterinary medicine.

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Introduction

Cancer is a disease caused by a broad amplitude of genomic alterations, which means that the DNA code has changes that make the cells grow disorderly (Meyerson *et al.*, 2010). When a neoplasm is called odontogenic, it means that it is situated in the jaws and might access the teeth structures. Even though they are quite rare, there are several types of odontogenic tumors. Among the benign variety, it is found squamous odontogenic tumor (SOT) (Goldblum *et al.*, 2017).

Squamous odontogenic tumor is a rare, benign epithelial odontogenic neoplasm. There are records of this pathology in humans since first described by Pullon *et al.* (1975). In human beings, this tumor has a tendency to grow in the anterior segment of the maxilla and in the posterior region of the mandible. Besides, it has been documented that the gender ratio among cases is 1:1.6 for men and women (Badni *et al.*,

2012). This tumor can grow into adjacent structures because of its infiltrative character. Usually, it is discovered by routine dental radiographs, since the clinical signs are slightly teeth mobility and swelling (Lúcio *et al.*, 2015).

The present work aimed to report the occurrence of squamous odontogenic tumor in a cat.

History, clinical signs and diagnosis

A 13-year-old female feline, mixed breed, weighting 3.6 kg was treated at the Veterinary Hospital Joaquim Rossi presenting hyporexia and sialorrhea, with evolution of one week. Physical examination revealed an increase in the volume of the right mandibular ramus, consistency mildly firm, painless, non-ulcerated and measuring about 6 centimeters (Fig. 1A). The tumor spread to the gingival region, wrapping molar and premolar teeth and dislocating medially towards the larynx and epiglottis. The animal had good nutritional status and no concomitant clinical alterations were found in the other evaluated systems.

Complementary tests such as chest and skull radiograph, full blood count (FBC), biochemical profile and histopatholog-

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ical examination were solicited. The chest radiograph showed no visible radiological alterations. However, the skull radiograph appeared an accentuated bone reaction with lytic and proliferative aspect in the right mandible, with loss of normal bone limits details and evident adjacent periosteal reaction (Fig. 1B). Yet the FBC and biochemical profile values were within the normal range related to domestic cats.

The histopathological examination revealed epithelial cells nests of various sizes and highly infiltrative, surrounded by abundant reactive fibroblastic stroma (Fig. 2). These nests had a degenerated core (microcytic degeneration), the cells were rounded, with the cytoplasmic boundaries poorly distinct, evident intercellular bridges and elevated nucleus: cytoplasm relation. The cytoplasm was eosinophilic and homogeneous, with round nucleus, dotted chromatin and distinct nucleoli. In peripheral areas of the nests, the cells tended to be cubic, and there was not a palisade organization or a nucleus polarization (Fig. 2- insert). Around the nests, the stroma was organized in a concentric shape. There was, also, intense bone infiltration (Fig. 2), discrete muscle tissue infiltration and the presence of neoplastic nests close to a tooth root. Given such descriptions, the diagnosis was compatible with squamous odontogenic tumor. The checked submandibular lymph node did not present histological alteration compatible to metastasis.

Treatment

Based on the diagnosis, the surgical therapy was chosen, a total hemimandibulectomy was performed on the right portion, associated with intravenous electrochemotherapy with bleomycin sulfate at a dose of 15 UI/m². Besides these interventions, an esophagectomy probe was placed to nutritional support, which was made using humid animal food (a/d® Hill's). The patient was active and drinking water naturally seven days after the surgery. The spontaneous feeding with humid animal food orally started fifteen days later. Thirty days after the hemimandibulectomy, the surgical wound was completely healed. It was not observed any local recurrence of this neoplasm within two months of post-surgical follow-up.

Discussion

The diagnosis of the squamous odontogenic tumor was based on clinical anatomopathological findings of this neoplasm. The tumor consists of islands of differentiated squamous epithelium of varying shape and size. The islands are occasionally tightly packed together. The peripheral layer of cells is characteristically flattened. Centrally, there is a ten-

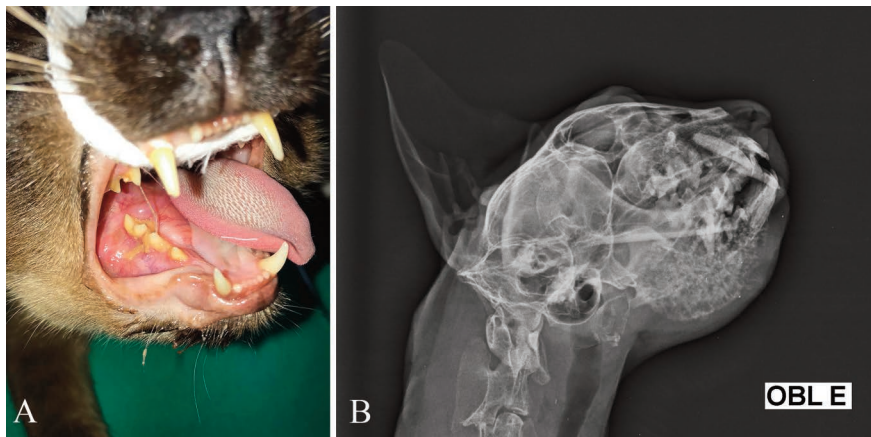


Fig. 1. Squamous odontogenic tumor in a cat. A): Cat showing increase in the volume of the right mandibular ramus measuring about 6 centimeters. B): Skull radiograph with accentuated bone reaction with lytic and proliferative aspect in the right mandible.

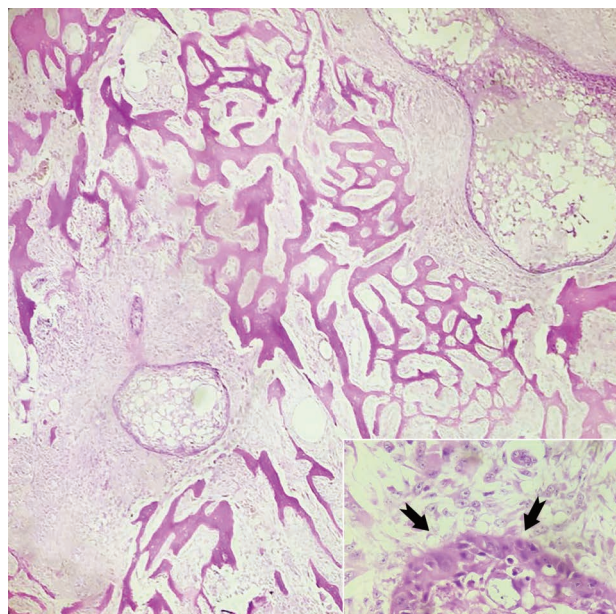


Fig. 2. Squamous odontogenic tumor in a cat. Histopathology showing epithelial cells nests of various sizes and highly infiltrative, surrounded by abundant reactive fibroblastic stroma and intense bone infiltration. Insert. Detail of the peripheral areas of the nests showing cubic cells with no palisade organization or nucleus polarization (arrows).

dency for microcystic degeneration, individual cell keratinization, and calcification. Mitoses are rarely encountered (Wright and Vered, 2017). This neoplasm is taken as quite rare in the human medical literature and citations of this tumor in the veterinary medicine is lacking.

SOT arises from remnants of the dental lamina and occurs equally in the mandible and maxilla. It is located predominantly in the posterior region of the mandible, and more rarely in the anterior region of this tissue (Mohr *et al.*, 2015). In this study, the tumor was located in the posterior region of the mandible, similar to what was observed on human beings.

All tumors originating from odontogenic tissues are considered benign. However, these neoplasms can be expansive and infiltrative and depending on its location, the tumor can cause bone lysis and tooth displacement (Uzal *et al.*, 2016). These characteristics make the surgical removal of this tumor harder. In human medicine, the elected treatment is the surgical one, though. In a study with 50 cases registered of this tumor, 86% of the patients presented clinical improvement after the procedure (Mohr *et al.*, 2015). In this case, the animal was submitted to hemimandibulectomy and survived for 4 months. It was impossible to determine the reason of the death, because the tutors did not authorize a necropsy.

In human medicine, most SOTs are detected during routine radiographic examination as a radiolucent, unilocular, triangular-shaped image associated with the roots of adjacent teeth. However, in this case, SOT was observed as accentuated bone reaction with lytic and proliferative aspect.

Conclusion

It calls attention that despites being about a rare feline's disease, SOT should be included as a differential diagnose on cats with increase of the mandibular volume. In felines, SOT must be differentiated of squamous cell carcinoma and ameloblastoma, which SOT does not have peripheral palisading with reverse nuclear polarity.

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Conflict of interest

The authors declare no conflicts of interests.

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