SQUAMOUS CELL CARCINOMA OF THE TONGUE IN A DOG

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ABSTRACT

A dog was evaluated for chronic sialorrhea, oral hemorrhage and hyporexia. Physical examination of the oral cavity revealed scattered ulcerative lesions on dorsal aspect of lingual surface. Based on histopathological evaluation, diagnosis of well differentiated squamous cell carcinoma was established and the animal submitted to glossectomy and adjuvant chemotherapeutic treatment.

Key-words:

CASE REPORT

A 13 year-old male mongrel dog was presented to the Veterinary Hospital of the School of Veterinary Medicine and Animal Science, Univ. Estadual Paulista, Botucatu, SP, Brazil, due to chronic sialorrhea, halitosis, oral hemorrhage and hyporexia with 60 days of clinical onset. Physical examination revealed multiple asymmetric deep ulcerative lesions at the lingual apex and body, ranging from 0.4 to 1.0 centimeters in diameter, scattered at the dorsal and ventral aspect of the lingual surface. The other organic systems show no abnormalities.

As complementary tests, it was used thorax radiographic study, hematological evaluation and blood biochemistry analysis. Hemogram revealed discrete lymphocytopenia (470/µL; reference interval [RI] = 1000 – 4800/µL) with total leucocyte count within reference interval (7000/ µL; [RI] = 6000 – 17000/µL). Plasma biochemistry revealed mild increase in total plasmatic protein (7.7g/dl; [RI] = 5.4 – 7.1 g/dl) due to mild increase in plasmatic globulin (3.6g/dl; [RI] = 2.7 – 4.4 g/dL). Thorax radiographic examination did not find any detectable change.

Under general anesthesia with propofol (5mg/kg), multiple incisional biopsies were performed at the dorsal surface of the tongue apex and body in order to obtain a definitive diagnosis. Tissue samples were 10% formalin fixed, routinely processed, paraffin embedded, sectioned at 4µm thickness and stained with hematoxilin and eosin (H&E). Slides were examined under light microscopy.

Histopathology revealed an epithelial neoplasm having squamous cell differentiation, originated from the epithelium of the lingual mucosa, composed of cords and nests of neoplastic cells invading into the submucosa with loss of basal membrane layer and dissection of subjacent skeletal muscle bundles. The neoplastic keratinocytes were characterized by distinct and large fibrillar eosinophilic cytoplasm with polygonal outlines. Nuclei were large, vesicular, mild pleomorphic with moderate anisokaryosis and one or more distinct nucleoli. Mitotic index was very low with rare typical mitotic figures. There was also extensive formation of keratin pearl and multiple foci of superficial ulceration with serocellular crusts and degenerate neutrophils (Figure

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Thus, the diagnosis was well differentiated squamous cell carcinoma. Based on this, patient 4 was submitted to partial glossectomy.

The animal was positioned in dorsal decubitus and an endotracheal tube was placed through pharyngostomy to allow the flow of inhalational anesthetic. Then, two rows of horizontal mattress type suture were made using polyglactin 2-0, approximately 2 cm caudal to the last caudal lesion. The rostral portion of the tongue was excised through a longitudinal oblique incision. The lingual arteries were ligated at tongue’s base with nylon 4-0. Sultan type sutures were made using polyglactin 3-0 to align the lingual musculature. Finally, the mucosa of the tongue was sutured with simple interrupted type sutures usig polyglactin 3-0. At the end of the surgery, the endotracheal tube was replaced by a number 12 gastroesofagic tube. It was prescribed metronidazole (30mg/kg/S.I.D.), sodium dypirone (25mg/kg/T.I.D.), tramadol cloridrate (2mg/kg/T.I.D.), and daily cleaning of the oral cavity with 0.12% chlorhexidine solution. All prescribed drugs and liquid feed were administered parenterally.

After 7 days, all clinical parameters were normal and surgical wound was intact with no exsudation. The patient still had mild sialorrhea. The owner was instructed to provide soft food and liquids for the animal to adapt to their new condition and acquire the ability to suck.

Figure 1: Well differentiated squamous cell carcinoma on tongue. There are extensive invasion of submucosa and dissecting of muscle bundles (arrow) by neoplastic cells. Note the formation of keratin pearls (arrowhead). 10x, H&E.
After 30 days, the animal still had sialorrhea but fed exclusively by mouth. The gastroesophageal tube was removed and it was prescribed firocoxib (5mg/kg/S.I.D.), during 60 days.

DISCUSSION

Squamous cell carcinoma (SCC) is the second most common oral malignant neoplasm in dogs (1) and one of the most common human oral cancer in India (2). It has been described on the lips, gingiva, tonsils, buccal mucosa and tongue, being the latter responsible for only 1.2 – 4.3 per cent of cases (3,4,5).

The etiology of canine oral SCC is largely unknown (4,5), although it has been proposed a possible association between canine oral papillomavirus and the development of oral SCC (6). In humans it is associated with prolonged exposure to carcinogenic agents like benzo[a]pyrene and nitrosamines present in tobacco and areca nut (2,7). Squamous cell carcinoma (SCC) is a common malignant neoplasm in dogs, being the second most common malignancy of the oral cavity (1). Breeds like Poodles, Labrador Retriever and Samoyeds, and females of all breeds are predisposed to the development of lingual squamous cell carcinoma (4,5), with mean occurrence age of 9.5 years (range 7 to 13) (4). Although, the patient breed and sex do not agree with epidemiological data reported in literature, we must consider that this is an isolated case and therefore do not represent a large epidemiological study.

Although it has been described that progression of canine oral viral papilloma into squamous cell carcinoma may occur (6), it is unlikely for this case due to no papillomatous lesions were previously noted by the owner or on physical examination.

In many cases, metastasis occurs by lymphatics principally to regional mandibular and/or retropharyngeal lymphnodes, and lung (4,8). However, no signs of metastasis were noted on physical and radiographic evaluation probably due to the well differentiated feature of the tumor, since metastasis seen to be related to the degree of differentiation of the neoplastic cells, being more likely to occur with poorly differentiated tumors (9).

The treatment of choice for most lingual neoplasms is surgical excision with survival rates up to 25 to 50 per cent after one year (8,10). Surgical excision of 40 to 60 per cent of the tongue is well tolerated as can been seen in this case, and with training the animal may develop again the capacity to hold and swallowing (11). Cranial lesions have a more favorable prognosis because it tends to be more easily detected and surgical excision performed with wide margins of safety (11,12).

Immunexpression of ciclooxigenase 2 (COX-2) in canine squamous cell carcinoma, as well adjuvant chemotherapy with COX-2 inhibitors has been reported in literature (13,14,15). In one study, 60 per cent of 5 dogs with SCC present partial remission of the disease (13).

The treatment was satisfactory with no post operative complications and rapid return to oral feeding. Moreover, it is necessary more studies related to the effectiveness of anti-inflammatory COX-2 inhibitors in the adjuvant treatment of tumors in tongue and oral cavity of dogs.

REFERENCES


