Basal cell adenoma of zygomatic salivary gland in a young dog – First case report in Mozambique

Adenoma das células basais da glândula salivar zigomática em cão jovem – Primeiro relato de caso em Moçambique

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Summary: Basal cell adenoma of zygomatic salivary gland was described in a 1.2 years old Rottweiler dog with swelling of right zygomatic region tissue. Clinical signs were related to anorexia, slight pain on either opening of the mouth. Complete blood count, serum biochemistry, urinalysis, thoracic radiographic examination; and transabdominal ultrasound showed no alteration. The findings of cytology examination were consistent with benign tumour and surgical treatment was elected. The histopathologic examinations were consistent with basal cell adenoma of zygomatic salivary gland. Seven days after the surgery no alteration was observed. One year later, the dog returned to check up and confirmed that the dog was healthy and free of clinical and laboratorial signs of tumour recurrence or metastases. Reports of basal cell adenoma of salivary gland in young dogs were lack on the veterinary literature. To author’s knowledge, this was the first report of clinical and surgery description of basal cell adenoma of zygomatic salivary gland in a young dog in Mozambique.

Keywords: Dog, epithelial cells, salivary gland, tumour.

Resumo: Adenoma das células basais da glândula salivar zigomática foi descrito em cão da raça Rottweiler, macho, 1.2 anos de idade, pesando 38 kg, com tumefação da região zigomática direita. Os sinais clínicos foram relacionados com anorexia e dor ligeira durante a abertura da boca. O hemograma, exame bioquímico sérico, urinálise, exame radiográfico de tórax, e ultrassonografia transabdominal não demonstraram alteração. O examen citológico foi compatível com tumor benigno e o tratamento foi o procedimento cirúrgico. O exame histopatológico foi consistente com adenoma das células basais de glândula salivar zigomática. No entanto, após a cirurgia não foi observada alterações. Um ano mais tarde, o animal retornou para o check-up e foi confirmado que o mesmo apresentava-se saudável e livre de sinais clínicos e laboratoriais de recorrência ou metástase tumoral. Referências sobre o adenoma de células basais de glândula salivar zigomática em cães jovens são escassas na literatura veterinária. De acordo com o conhecimento dos autores, este foi o primeiro relato de descrição clínica e cirúrgica do adenoma de células basais de glândula salivar zigomática em cão jovem, em Moçambique.

Palavras-chave: Cão, células epiteliais, glândula salivar, tumor.

Introduction

Salivary glands diseases in small animals include mucocele, salivary gland fistula, sialadenitis, sialadenosis, sialolithiasis and less neoplasia (Spangler and Culbertson, 1991; Johnson, 2008). Primary tumours of salivary glands are rare in dogs and not commonly reported in small animals. The incidence is about 0.17% in dogs with age between 10 and 12 years old (Spangler and Culbertson, 1991; Hammer et al., 2001; Head and Else, 2002). Overall incidence is 1.6 benign tumours per 100,000 dogs at risk (Head and Else, 2002).

Adenocarcinomas of salivary gland are more common than adenomas in dogs and cats, and represent 5% of all salivary gland tumours. Overall incidence is 3.1 per 100,000 dogs at risk (Spangler and Culbertson, 1991; Hammer et al., 2001; Head and Else, 2002). No breeder or sex predilection is reported (Hammer et al., 2001; Head and Else, 2002) and parotid and mandibular salivary glands are most affected and represent 75 - 80%, respectively (Hammer et al., 2001). Furthermore, the zygomatic salivary gland is not frequently affected by tumours (Spangler and Culbertson, 1991).

Clinical signs of salivary gland tumour are non-specific. However, owner’s reported swollen, pain, anorexia and exophthalmia (Hammer et al., 2001; Smrkovski et al., 2006; Johnson, 2008). The differentials diagnostic include sebaceous adenoma (Oh and Eisele, 2006), clear cell variant of acinic cell carcinoma (Brunnert and Altman, 1990), epithelial-myoepithelial carcinoma (Sozmen et al., 1999), salivary duct carcinoma (Sozmen et al., 1999) and sebaceous carcinoma (Sozmen et al., 2002).

To the authors’ knowledge, reports about basal cell adenoma of zygomatic salivary gland in young dogs are rare in the veterinary literature and no re-
ports of description of basal cell adenoma of zygomatic salivary gland in a young dog in Mozambique were done. The present case report describes the clinical and surgery aspects of basal cell adenoma of zygomatic salivary gland in a dog with 1.2 years old attended at School Veterinary Hospital, Maputo, Mozambique.

Case report

An 1.2 years old neutered male Rottweiler dog, weighting 38 kg was attended at School Veterinary Hospital, Maputo, Mozambique, referred for evaluation of a three months history of swelling of right zygomatic region. The owner also reported fast swelling on the first two weeks. No history of trauma was reported and owner’s complaint was related anorexia.

Physical examination revealed a well circumscribed swelling, measuring approximately 8 cms in diameter on right zygomatic region. The swelling was well defined, firm and tender and was fixed to the underlying structures. No pain was revealed but slight pain on either opening of the mouth was observed. Other physical examination parameters were otherwise unremarkable. Complete blood count, serum biochemistry (alanine aminotransferase – ALT, aspartate aminotransferase – AST, blood urea nitrogen – BUN, alkaline phosphatase, total protein, albumin, globulin and creatine kinase – CK) and urinalysis were performed and showed no alteration. Thoracic radiographic examination and transabdominal ultrasound were performed and showing no alteration. The radiographic examination of the head showed an enlargement of the right zygomatic salivary gland region (Figure 1A and 1B).

Fine needle aspiration cytology (FNAC) was done from the right zygomatic region. Small quantity of serosanguineous material was observed. Smear showed cellular smears comprising of neutrophilic cells, erythrocytes and monomorphic and small round-to-oval cells showing few pleomorphism, eosinophil cytoplasm and elongate nucleus. Mitotic figures and anaplasia could not be observed. Features were suggestive of basal cell adenoma. However, histopathological examination was advised to confirm the diagnosis and surgical treatment was elected. Bacterial and fungal culture was negative.

Patient underwent mass and right zygomatic salivary gland extirpation. The dog was premedicated with carprofen (4.4 mg/kg subcutaneous [SC]), morphine (0.3 mg/kg SC), acepromazine (0.05 mg/kg SC). Anaesthesia was done with propofol (2.5 mg/ kg intravenous [IV]) and halothane. The animal was placed in left lateral recumbence and a modified lateral ellipse surgical approach was performed on zygomatic salivary gland region and a marginal resection of 3 cm of the mass was done and both zygomatic salivary gland and mass were removed. A capsule around the tumour was observed. The skin was apposed with 3-0 nylon simple isolate sutures (Figure 2A and 2B).

Postoperatively, was prescribed cephalexin (25 mg/kg per os [PO] q12h) for 10 days and carprofen (4.4 mg/kg PO q24h) for 5 days.

Mass sections were fixed in 10% neutral buffered formalin, embedded in paraffin, cut through transversal and sagittal planes in 5 μm thick sections, staining haematoxylin–eosin (H&E) and examined by light microscopy. The mass revealed a white partially encapsulated soft tissue, measuring 8 cms of diameter. The outer surface was nodular and cut section was lobular. Microscopically, the section showed thick branching cords and irregular islands of epithelial cells, with indistinct cell borders, separated by fibrous tissue stroma and forming small glandular structures. Nuclei were rounded; with infrequent mitoses and low mitotic rate (Figure 3).

Where observed irregular tumour margins, locally infiltrative growth and portions of non-neoplastic salivary gland tissue. Encapsulation could not be identified. Those findings were consistent with basal cell adenoma of zygomatic salivary gland.

Seven days after the surgery, skin suture was removed and no alteration was observed. One year later, the dog returned to check up and confirmed that the dog was healthy and free of clinical signs of tumour recurrence or metastases by transabdominal ultrasound and chest radiography examination.
Discussion

The current case report described the clinical and surgical aspects of basal cell adenoma of zygomatic salivary gland in an 1.2 years old male Rottweiler dog, attended at School Veterinary Hospital, Mozambique. To our knowledge, the present report was the first documented in Mozambique. Similar reports in Africa were lack on the veterinary literature. Furthermore, the lack of reports regarding to this type of tumour can be related to the low prevalence or clinical and histopathological subdiagnosis.

Adenomas of zygomatic salivary gland are rare in dogs and the incidence is higher in older dogs (Spangler and Culbertson, 1991; Hammer et al., 2001), differed from the present case, which was observed in a young dog (1.2 years old). Fibrosarcoma, mast cell tumours and lymphomas were reported as more frequent tumours of salivary glands than basal cell adenomas (Spangler and Culbertson, 1991; Hammer et al., 2001).

The aetiology of salivary glands tumours in small animals is not well defined but genetic factor is suggested in Siamese cats (Hammer et al., 2001). However, radiation, smoking, viruses and genetic factor are predisposition factors for tumours in humans (Laane et al., 2002). Genetic factor could be a possible predisposition for the tumour of the present case report. Benign parotid gland tumour (Warthin’s tumour) was reported by Pinkston and Cole (1996) as possible and strong relation with cigarette smoking. More studies have to be done to confirm the smoking as predisposition factor for salivary gland tumour in young dogs.

Clinical signs were similar to the literature (Hammer et al., 2001; Smrkovski et al., 2006; Johnson, 2008). The enlargement of the salivary gland can cause exophthalmia which is one of clinical signs of retrobulbar disease (Mason et al., 2001). Furthermore, exophthalmia was not observed in the present report case.

Basal cell adenomas grow slowly and are not painful in humans (Izutsu et al., 2003). The same was observed in the present case report but with slight pain when opening the mouth of the dog.

Yerli et al. (2007) reported CT and MRI as more sensitive imaging diagnosing for basal cell adenoma of salivary gland showing de margins of the tumour allowing a better surgical plan. In current case report, CT and MRI cannot be done because these exams are not available for animals in Mozambique. On the other hand, radiographic examination of the head showed swelling of the zygomatic region tissue which indicated only soft tissue involvement.

The FNAC allowed deciding the treatment because the presence of monomorphic and small round-to-oval cells with few pleomorphism, eosinophil cytoplasm and elongate nucleus and absence of mitotic figures and anaplasia suggestive of basal cell adenoma. Presence of neutrophilus and erythrocytes can lead to erroneous diagnosis (Smrkovski et al., 2006; Gonçalves et al., 2007). The histopathologic examination was fundamental for final diagnosis (Smrkovski et al., 2006; Gonçalves et al., 2007) which identified the basal cell adenoma of the present report case. This type of tumour can be mystified with adenoid cystic carcinoma which has another treatment (Sozmen et al., 2003). Basal cell adenoma which is a mixture of basaloid cells, with a distinct basal layer, and larger polyhedral cells, has similar cytological features of basal cell adenocarcinoma (Sozmen et al., 2003; Mardi et al., 2011) and presence of local invasion has to investigate for malignancy. The characteristics of benign tumour of the current case as presence of thick branching cords and irregular islands of epithelial cells, with indistinct cell borders, separated by fibrous tissue stroma; and distinct basal cell layer in some regions (Hammer et al., 2001). Furthermore, the benign tumour was established by clinical follow-up findings 1 year after surgery and was observed no tumour recurrence or metastases. Giudice et al. (2005) reported confirmation of benign tumour 2 years after surgical removal of the tumour. Immunohistochemical staining also can be carried out to distinguish basal cell adenocarcinoma from other salivary gland tumours (Sozmen et al., 2003).

The treatment was similar that described by Hammer et al. (2001), which concerned to remove the af-

Figure 3 - Photomicrography of zygomatic salivary gland basal cell adenoma showing thick branching cords and irregular islands of epithelial cells, with indistinct cell borders, separated by fibrous tissue stroma (white arrows); and distinct basal cell layer in some regions (black arrows) (H&E) (Bar = 50 μm). Final magnification: x400.
fected gland and check the regional lymph nodes and lung for metastasis. The prognosis of salivary gland basal cell adenoma in humans is good, but in dogs is unknown because the difficult to predict in animals, given its rarity. In humans, recurrence of basal cell adenocarcinomas of salivary gland is common but metastasis is rare (Seifert, 1991). Evidence of recurrence of basal cell adenoma in salivary gland is unknown because lower incidence of this type of tumour. Nevertheless, to the authors’ knowledge, reports about salivary gland basal cell adenoma in young dogs are rare in the literature and this is the first report related to basal cell adenoma of zygomatic salivary gland in a dog in Mozambique, Africa.

Bibliography


