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SARCOMA OF THE NASAL CAVITIES IN A DOG: CASE REPORT

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Abstract:

Sarcomas comprise approximately one-third of canine intranasal tumors; however few veterinary studies have described survival times of dogs with histologic subtypes of sarcomas separately from other intranasal tumors. The particularity of the case is due to nature of nasal tumor – sarcoma - something unusual on nasal tumors and then something extraordinary at the age of occurrence of this tumor – dog of 5 years age. The surgical technique consisted of nasal cavities oral approach and cutting a bone fragment length located in bony floor of the nasal cavity left, which allowed wide access to the cavity.

Key words: *dog, cronic rinithis, sarcoma.*

INTRODUCTION

This clinical case, a dog, female, 5 years old, Belgian Malinois breed was directed for consult to the Department of Pathology and Surgical Clinic of the École Nationale Vétérinaire Nantes by a veterinarian for a suspected disease to the nasal cavities or sinus.

The originality of this case derives from the long evolution of the disease (over 18 months) during which there were many additional tests done which tried to establish a diagnosis of certainty which proved to be unsuccessful, but also by the specific surgical act that managed through surgical technique to approach a certain diagnosis, to stop animal suffering and improve patient comfort due to favorable postoperative clinical outcome even if long-term prognosis is very reserved.

The particularity of the case is also due to nature of nasal tumor – sarcoma - something unusual in terms of nasal tumors and extraordinary in terms of age of tumour occurrence-dogs 5 years of age.

The surgical technique consisted of nasal cavities oral approach and cutting a bone fragment located in the bony floor of the left nasal cavity, which allowed wide access to the cavity.

CASE DESCRIPTION

ANAMNESIS

The dog presented a supurative bloody secretion to the left nostril.

MEDICAL HISTORY

Following this clinical presentation, the dog owner consulted a veterinarian and treated with 250 Ronaxan® for a infectious rhinitis, 1.5 cp / day / for 7 days. Treatment allowed for the regression of symptoms but recurrences are recorded in the coming months. Antibiotic therapy improves the patient's condition but does not cure the patient therefore an intranasal foreign body is suspected and a nasal lavage, is performed under general anesthesia followed by treatment with Antirobe® 150 (2 capsules / day/8 days). A serological examination is conducted towards aspergillosis but this is considered indecisive as far as only one positive arc was quantified.

A new recurrence is indicated with sero-suppurative secretion and treatment is initiated based on Augmentin® and treatment for a suspected aspergillosis with Enilconazole as intranasal baths (Caulkett et al., 1997) and (Mathews et al., 1998). A rhinoscopy to achieve a biopsy is performed but did not bring

additional information. A new treatment is tested based on Megasolone® (1 cp / day / 20 days) and Augmentin® (1 cp / evening - morning and 20 days) (Barret et al., 1977).
The patient was presented in the emergency room and is operated by a splenic tortion. Histological analysis did not reveal anything abnormal. On this occasion a fistulous abscess was detected in the left upper canine tooth and removed. Suppurative discharge recurrences occurred upon stopping treatment. Last treatment before being consulted in the surgery clinic was established and was the administration of Megasolone 20® (1cp / day) and Bactrium® 160 (1cp / morning and evening).
The reason for consultation was the unilateral suppurative discharge relapse with signs of obstruction of the left nostril, which causes shortness of breath.

CLINICAL EXAMINATION
Good general condition (good maintenance condition, appetite preserved) mucous pink color, TRC <2 sec, left submandibular lymph node is hypertrophied. The general examination revealed nothing abnormal except mucopurulent secretion and signs of respiratory obstruction of the left nostril with dyspnea.

ADDITIONAL TESTS: Blood count (table 1), the examination of hemostasis (table 2) have been performed before referral for surgical consultation.
Haematological examination revealed a minimum anemia.
The conclusion of examination of hemostasis: Outside anticoagulation treatment TCK ratio P/T below 1.20 is considered normal.

Table 1. The blood count of the dog

Erythrocytes	6.100.000/mm3	
Hemoglobin	14.3 g/100ml	
Hematocrit	41.3 %	
V.G.M.	68 µ3	
T.C.M.H.	23 gama	
C.C.M.H.	35 %	
Leucocytes	9.600/mm3	
Neutrophils	71%	Or 6816/mm3
Eosinophils	5%	480/mm3
Basophils	0/%	0/mm
Lymphocytes	19%	1.824/mm3
Monocytes	5%	480/mm3

Table 2. The examination of hemostasis

Quick time		***Cefaline activate time***	
TQ Control	8.0 sec	TCA Control	33 sec
TQ	8.0 sec	TCA Patient	22 sec
The ratio TCK P/T = **0,67**			

MICROBIOLOGICAL EXAMINATION:
Cyto-bacteriological examination of a sample collected from the nasal cavities and cultivated on a specific medium revealed numerous colonies of *Pasteurella multocida*. For *Aspergillus*, the result was negative. Serological examination for Aspergillosis was weakly positive in an arc, which is considered insignificant.

HISTHOPATOLOGYCAL EXAMINATION concluded that it is a chronic rhinitis presenting moderate inflammatory lesions due to a less specific pathogen in the nasal mucosa revealed as representative in the sample collected**.**

RHINOSCOPY: A rhinoscopy through posterior approach (pharynx) was carried out but could not reveal any lesions. Instead using an anterior approach rynoscopy (nasal) a signficant-sized formation located in the anterior part of the left nasal cavity. This formation could not be mobilized by our attempts to pressure lavage.

RADIOGRAPHIC EXAMINATION of the skull in dorso-ventral incidence allowed the viewing of an area of increased density in the left nostril (Gibbs et al., 1979) (Figure 1).

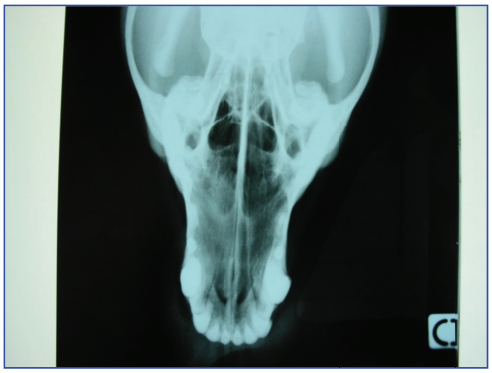

Figure. 1. Increased radiodensity in the left nasal cavity compared to the right side

SUMMARY OF CLINICAL SIGNS:

- mucous suppurative secretion located just in the left nostril
- stenosis of left nostril accompanied by noise
- submandibular left lymph node hypertrophy
- left eye epiphora

CLINICAL DIAGNOSIS

Recidivating chronic rhinitis, accompanied by a mucous-suppurative secretion, unilaterally and signs of left nostril stenosis.

ETIOLOGICAL HYPOTESES (Hamilos and Lund, 2004):

1. Etiology of inflammatory type
   - rhinitis given by a foreign body
   - rhinitis of traumatic origin
   - rhinitis associated with dental disease
2. Etiology of infectious (bacterial, fungal) and parasitic nature
   - tumors of the nasal cavities
   - sinus disease.

SURGICAL TECHNIQUES:

Rhynotomy with oral performed: Following clinical, radiological and rhynoscopical examinations the decision to proceed to the surgical act was made immediately for: diagnosis (biopsy, excision), prognosis (nature of tumor, extension, degree of differentiation) and treatment (in some cases of benign or inflammatory etiology).

The principle of the technique is based on cutting a bone fragment located in bony roof of the mouth, near the left nasal cavity and allowed wide access to the nasal cavity.

General anesthesia, the type of narco-neuroleptic-analgesia, was use, as tge the dog is intubated endotracheal, so as to avoid possible aspiration of blood resulted from the surgical technique.

Maintenance of anesthesia for a sufficient period of a particularly laborious surgical intervention was performed with isoflurane.

The dog was lying on its back and using restraining techniques of the nasal cavities floor was put in a comfortable position parallel to the operating table during the surgery.

The incision of the oral mucosa covers a longitudinal line of the left nasal cavity and then it was carefully removed.

The periosteum is lifted off with a periosteum in order to achieve a significant bone piece in terms of size. Bone resection is carried out using an orthopedic cutters, operated by an electric engine similar to that used in dentistry.

Exploring the nasal cavity is almost impossible because of the hemorrhage resulted from bone resection and injury of nasal concha cavity hiding the content.

The bleeding was controlled by conventional means including intermittent pressure compresses of the cavity by means of simple or soaked absorbable with trombase.

A surgical aspirator was used to enhance visibility (Fig. 2, 3).

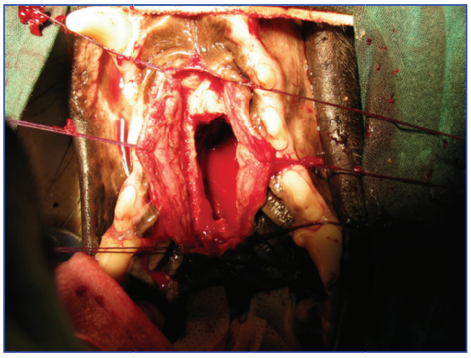

Figure 2. Cropping bone fragment on the roof of the mouth and nasal cavity to create free access using wire tractors which remove the buccal mucosa

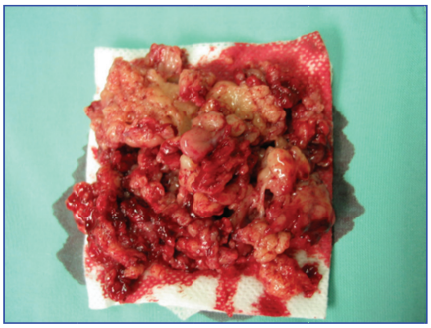

Figure 3. Fragments of the nasal cavity tumor, after extirpation

Figure 4. The patient was under medication and observation after surgery

After the bleeding was stopped, nasal tumor mass excision was carried out. The last step consists in suturing the nasal mucosa, the periosteum and buccal mucosa. It was opted for total removal of the bone fragment because the oral mucosa has a hard consistency which can substitute the necessary hardness of the oral cavity ceiling. Of course the next 3 weeks the feed was of pasty consistency.

Postoperatory, an antibiotic therapy was established based on the administration of an intravenous route of Rilexine®, Vitamin K therapy and antihemorrhagics.

The analgesic was not neglected, namely morphine administered subcutaneosuly.

A possible postoperative inflammatory edema was combated with a solution of Solu-Medrole®. The dog was under medication and observation after surgery (fig. 4).

RESULTS AND DISCUSSIONS

The conclusion of histopathological examination is that of less differentiated sarcoma. The tumor is developed in the epithelium of the nasal mucosa and upon contact with the deep bone tissue. Prognosis is reserved because there is an increased risk of recurrence. It is imperative that regular checks on the patient are performed

Their harmful action resulting from local invasion and bone destruction rather than in their metastasis. At the same time, a study conducted on a total of 504 cases of malignant intranasal tumors showed the appearance of metastases in 51 cases with frequent localizations: lymphatic system, brain and lungs. Intranasal tumors occur most likely in older dogs. The mean age for dogs affected by such tumors is about 9 years (Tabel 3, Norris, 1985).

Table 3. The frequency of cases of tumors of the nasal cavity in dogs according to age (Norris, 1985)

Age (years)	FREQUENCY
5	***0***
5-6	6
7-8	8
9-10	8
11-12	8
13-14	3
15	1
Males	16
Females	18

Regarding the histological nature of nasal cavities tumours, we distinguish epithelial tumors and tumors of mesenchymal origin (Norris and Laing, 1985).

Tumors of epithelial origin are called squamous cell or carcinomas are the most common and with a percentage of 60-75%. Adenocarcinomas are by far my most frequently encountered epithelial tumors. They come from sinus epithelium, nasal, olfactory mucosa or mucous glands of the nasal cavities.

Tumors of mesenchymal origin are more frequently fibrosarcomas followed by condrosarcomas, osteosarcomas and melanomas (Tabel 4, after Norris and Laing, 1985).

Table 4. Classification of nasal tumors in 34 dogs from the Ontario Veterinary College (after Norris, 1985)

	Norris (1985)	Mac Ewen (1980)	Morgan (1982)	Madewell (1979)	Bradley (1978)	TOTAL
EPITHELIUMA ORIGIN	23	30	35	27	13	133
Adenocarcinomas	9	19	13	10	12	63
Carcinomas	12	8	9	12	6	47
Carcinoamas with squamous cells	2	3	7	4	-	16
Undifferentiated carcinomas	-	-	4	1	-	5
Others	-	-	2	-	-	2
MESENCHYMAL ORIGIN	11	13	30	22	3	79
Fibrosarcomas	-	6	14	6	-	26
Condrosarcomas	5	3	6	8	-	22
Osteosarcomas	4	-	4	2	-	10
SARCOM	**-**	**2**	**2**	**1**	**3**	**8**
Reticulosarcomas	-	-	4	4	-	8
Hemangiosarcomas	1	1	-	1	-	3
Lymph sarcomas	1	1	-	-	-	2

From our observations, the most common clinical signs in dogs with nasal tumors are epistaxis, sneezing, muco-purulent discharge, cough, dyspnea, respiratory noises stenosis, chemozis, epiphora, maxillofacial deformity of the skull, tonsillitis. Regarding treatment undertaken in the Department of Pathology and Surgical Clinic of École Nationale Vétérinaire, Agroalimentaire et de l'Alimentation Nantes Atlantique, it aims to improve the prognosis, to prolong the patient's life by reducing clinical signs and improve comfort. When a tumor is suspected localized to the nasal cavities, suspicion reinforced by radiological examination and examination rhinoscopy, we propose a rhynotomy (exploratory and curative) be undertaken. Only surgical curettage alone is not fully effective.

Surgical curettage and complementary treatment consisting of radiotherapy and chemotherapy must be associated to prevent local recurrences.

Surgery is possible to obtain a diagnosis of certainty by excision of the tumor mass stenosis and improve patient quality of life. After bibliographical studies, radiation therapy consists in destruction of histologocally modified tissue using ionizing radiation which causes chromosome breaks, disturbing the normal mechanisms of cell division. The total dose of radiation is 3000 to 4000 rad distributed in 3-4 fractions. The period between two treatment sessions is 10-14 days. This treatment interval allows for the repair of tissues. Among the substances used as anticancer chemotherapeutic drugs one can distinguish: Vincristine, Vinblastine, Bleomycin, Adriblastina (Norris and Laing, 1985).

CONCLUSIONS

Rhinotomy with an oral approach proved to be a very good technique in addressing the nasal tumor, facilitating wide access by removing a piece of bone from the roof of the mouth and tumor curettage.

We must recall that tumors located in the nasal cavities are mostly malignant. Their location makes complete surgical treatment, impossible. It is therefore necessary to undertake other therapeutic methods such as radiotherapy and chemotherapy.

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