CRANIOMANDIBULAR OSTEOPATHY IN ENGLISH BULLDOG CASE REPORT

OSTEOPATIA CRANIOMANDIBULAR EM BULLDOG INGLÊS
RELATO DE CASO

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SUMMARY

Craniomandibular osteopathy is a proliferative, non-neoplastic, degenerative bone disorder, which is uncommon in dogs. It affects, mainly, the skull bones, and possibly the long bones. This disease affects more immature dogs, from three to eight months old, prepubertal, of the West Highland and Scottish terrier breeds. It is a self-limiting disease with no sex predilection. The main clinical signs are basically drooling, enlarged and painful jaw, as well as intermittent fever. Diagnosis is based on clinical, radiographic and histopathological examination. The treatment is based on pain control.

KEY-WORDS: Bone Disease. Bone Growth. Dog. Self-limiting.

RESUMO

A osteopatia craniomandibular é uma afecção óssea degenerativa, proliferativa, não neoplásica, incomum em cães. Acomete, principalmente, os ossos do crânio. Os animais mais afligidos são cães imaturos, entre três a oito meses de idade, pré-púberes, das raças West Highland e Terrier Escocês. Trata-se de uma moléstia autolimitante e sem predileção sexual. Os principais sinais clínicos baseiam-se em dor na região mandibular, aumento da mandíbula, sialorréia, febre intermitente. O diagnóstico é fundamentado nos sinais clínicos, achados radiográficos e exame histopatológico. O tratamento baseia-se no controle da dor.

PALAVRAS-CHAVE: Afecção Óssea. Autolimitante. Cão. Proliferação óssea.

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INTRODUCTION

Craniomandibular Osteopathy is a rare, proliferative, degenerative bone disease (WATSON et al., 1995) and non-neoplastic as well, which affects primarily the bones of the skull, and occasionally the long bones (RISER et al., 1967). The bones commonly affected are the parietal and occipital, the tympanic sounds and the rami and the temporomandibular joint (TMJ) (ALEXANDER & KALLFELZ, 1975).

This disease affects mainly immature dogs of the West Highland and Scottish terrier breeds, but has also been reported in Boston terrier, Cairn terrier, Shetland sheepdog, Labrador retriever, Danish, English bulldog, Doberman pinscher, Irish setter and Boxer (MONTEGOMERY, 2007). The most affect age ranges from three to eight months old and there is no sexual predisposition (ALEXANDER & KALLFELZ, 1975). The bone growth stops when skeletal maturity occurs (THOMPSON et al., 2011).

The etiology of the disease remains unknown. It is inferred that there is an autosomal inheritance pattern in the West Highland white terrier breed (PADGETT & MOSTOSKY, 1986). For all other breeds, it is suggested the involvement of bacterial (*Escherichia coli*) or viral (canine distemper virus) infections (WATSON et al., 1995). The most common clinical signs include persistent or intermittent pain around the mouth, drooling, intermittent fever and mandibular thickening (RISER et al., 1967; ALEXANDER & KALLFELZ, 1975; WATSON et al., 1995). The diagnosis is based on clinical, radiographic and histological findings (WATSON et al., 1995).

The treatment aims to relieve discomfort with painkillers, by using primarily non-steroidal anti-inflammatories (ALEXANDER & KALLFELZ, 1975; WATSON et al., 1995). The objective of the present case report is to document the disease of the English bulldog treated at the Instituto Veterinário Dr. Daleck.

MATERIAL AND METHODS

The English bulldog, a female, eight months old, prepubertal with history of appetite loss and gradual swelling of the jaw for about a month, was admitted into the Instituto Veterinário Dr. Daleck, Ribeirão Preto, São Paulo. During physical examination, thickening of the right horizontal branch of the jaw was observed; its consistency was firm and sensitive to manipulation and palpation.

In this context, laboratory tests and imaging (x-rays) were requested for further evaluation of the patient. Thus, 5-mL blood samples were drawn in order to obtain a complete blood count, as well as renal (creatinine) and hepatic (ALT) biochemical serum profiles. Radiographs of the skull were performed in two projections, oblique and ventral-dorsal. The interpretation of these test results led us to perform an incisional biopsy of the right horizontal branch of the mandible. Three samples of bone fragments were harvested and stored in vials with 10% formalin. Subsequently, the fragments were processed for histopathological and immunohistochemical investigation.

Analgesic therapy was instituted to ease the discomfort of the animal. It was implemented orally, as follows: Meloxicam 0.1 mg/kg/SID/5 days, tramadol hydrochloride 4 mg/kg/TID/10 days and dipyrone 25mg/kg/TID/10 days.

After 14 days from the incisional biopsy, another 5-mL blood sample was drawn to obtain the serum and measure the concentration of sodium, potassium, calcium, ionized calcium and phosphorus. In addition, X-rays and blood counts were repeated after 30 days from the first visit to monitor the progress of the disease.

RESULTS AND DISCUSSION

The erythrogram performed upon patient admission showed a mild normocytic normochromic anemia. On the other hand, the White Blood Count (WBC) and renal and hepatic biochemical serum profile results were within the physiological range for the species (Table 1). While the radiographic images showed intense bone proliferation on the right horizontal branch (Figure 01 A), the histopathological report revealed fibrosarcoma.

The analgesic therapy instituted to minimize patient discomfort was satisfactory and resulted even in appetite improvement.

The control X-rays to monitor disease evolution after a month showed significant reduction of bone proliferation of the right horizontal branch of the mandible (Figure 02 B). Furthermore, the hematological profile (erythrocyte) was also normalized (Table 01).

The clinical evolution presented by the dog was incompatible with fibrosarcoma; therefore, we performed immunochemistry analysis of the bone fragment, which then detected the craniomandibular osteopathy (Figure 02).

This case report corroborates the descriptions documented in the literature, since the patient was young and presented bone proliferation of the horizontal branch of the mandible (PASTOR et al., 2000; LAFOND et al., 2002; MCCONNELL et al., 2006; THOMPSON et al., 2011). This is a painful condition that causes difficulty to grasp the food, facial swelling and drooling (WATSON et al.; 1995; RATTERREE et al.; 2011). Thus, as described in the study, the clinical signs were also in agreement with those presented by the scientific community, especially in regards to the swelling of the bone part affected by the disease and soreness as well.

Due to the proliferative radiographic standard, the differential diagnosis for osteomyelitis, traumatic periostitis, metabolic disorders and cancer becomes paramount (HUCHKOWSKY, 2002). Therefore, incisional biopsy of the lesion was performed in order to obtain a clear diagnosis. However, the

Table 1 - Results of laboratory tests during the first thirty days of monitoring the disease.

Date	Hematocrit (%)	Erythrocytes (mm^3)	Leucocytes (mm^3)	Creatinine (mg/dl)	ALT (U/l)	Na (mmol/L)	K (mmol/L)	total Ca (mg/dL)	ionized Ca (mg/dL)	P (mg/dL)
10/08/10	35	$5,41x10^3$	6550	0,5	X	X	X	X	X	X
26/08/10	X	X	X	X	X	148	4,4	10	4	7,2
08/09/10	48	$7,4x10^3$	9800	1,2	31,4	X	X	X	X	X

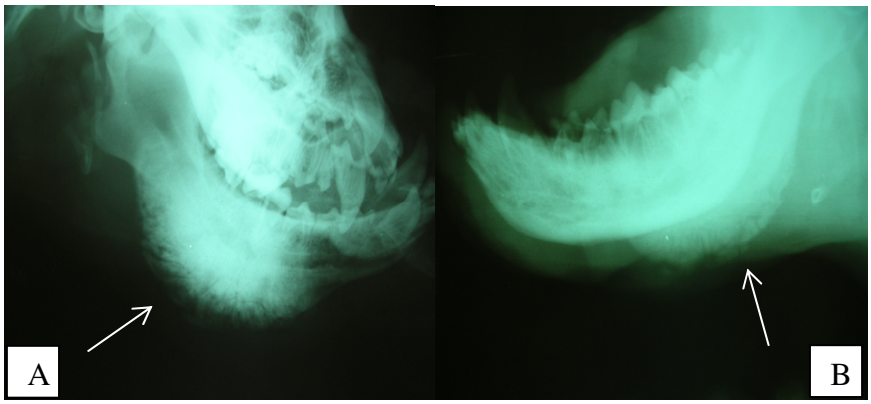

Figure 1- A: oblique radiograph of the English bulldog mandible with craniomandibular osteopathy illustrating the proliferation of bone and periosteal reaction (arrow) of the right horizontal branch of the mandible. **B:** right oblique radiograph (control) of the jaw of the English bulldog with craniomandibular osteopathy illustrating the reduction of bone formation (arrow) in the right horizontal branch of the mandible (30-day evaluation).

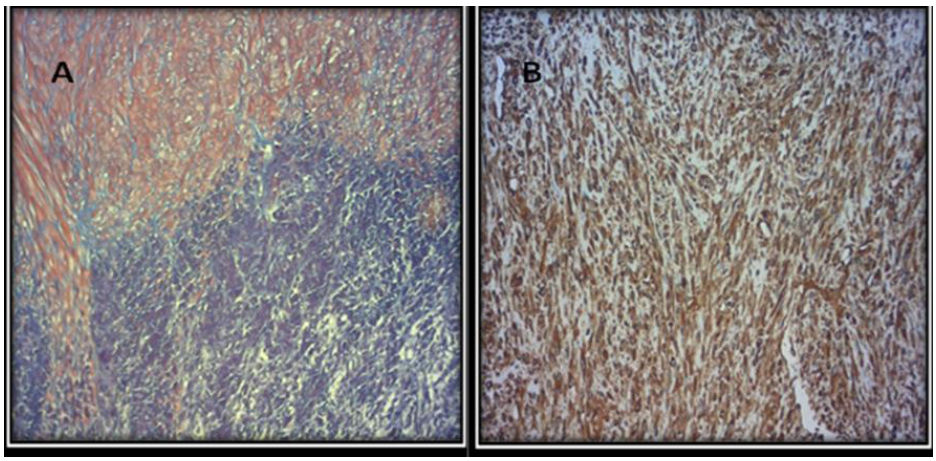

Figure 2- A: photomicrograph of fibrodystrophic lesion in the bulldog jaw showing large deposition of collagen fibers (blue) replacing normal bone tissue. Masson trichrome. Obj 10x. **B:** Immunohistochemistry of fibrodystrophic lesion in the bulldog jaw, showing elongated fibroblasts, forming irregular bundles. Vimentin. Obj 20x.

histopathological report was not elucidative since the lesion was assessed as malignant neoplasm.

In this case, the control X-rays of the bone region affected by the periosteal proliferation were relevant because they enabled us to determine the course of the disease. It was possible to observe the substantial regression of the lesion in the X-rays one month after the first visit, as well as the improvement of the patient condition with the analgesic therapy only. This evident improvement was thus incompatible with the fibrosarcoma diagnosis presented by histopathological analysis. Therefore, the precise diagnosis was given by the immunochemistry, which showed the intense presence of fibroblasts without neoplastic changes.

As for laboratory tests, the erythrogram changes seen in this case are not observed in craniomandibular osteopathy (HUCHKOWSKY, 2002); it was, therefore inferred that the mild anemia seen at the time of the first visit was resulting from the hyporexia developed by the patient for some time. This hypothesis was confirmed after white blood cell count was restored to physiological limits after the animal recovered. Nevertheless, serum hyperphosphatemia has been reported by Watson 1995, who attributed this increase to a normal finding during animal growth phase. There was also a mild increase of serum phosphorus levels (7.2 mg/dl).

The treatment is based on the analgesic therapy (HUCHKOWSKY, 2002). The use of non-steroidal anti-inflammatory drugs (NSAIDs) is enough to control the pain (HUCHKOWSKY, 2002). However, in this specific case, it was necessary to combine tramadol hydrochloride and dipyrone to potentiate the effect of the established protocol. Moreover, the resolution of the condition occurs when the animal reaches sexual maturity (WATSON et al., 1995; HUCHKOWSKY, 2002; THOMPSON et al., 2011).

CONCLUSION

The hypertrophic osteopathy is an uncommon condition in veterinary medicine that can be easily confused with other proliferative processes (osteomyelitis, traumatic periostitis, metabolic disorders and malignancies). Thus, a rigorous and detailed clinical evaluation is necessary, as well as imaging tests and biopsies with emphasis on immunochemistry to determine the diagnosis and establish the most adequate, efficient and accurate treatment.

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