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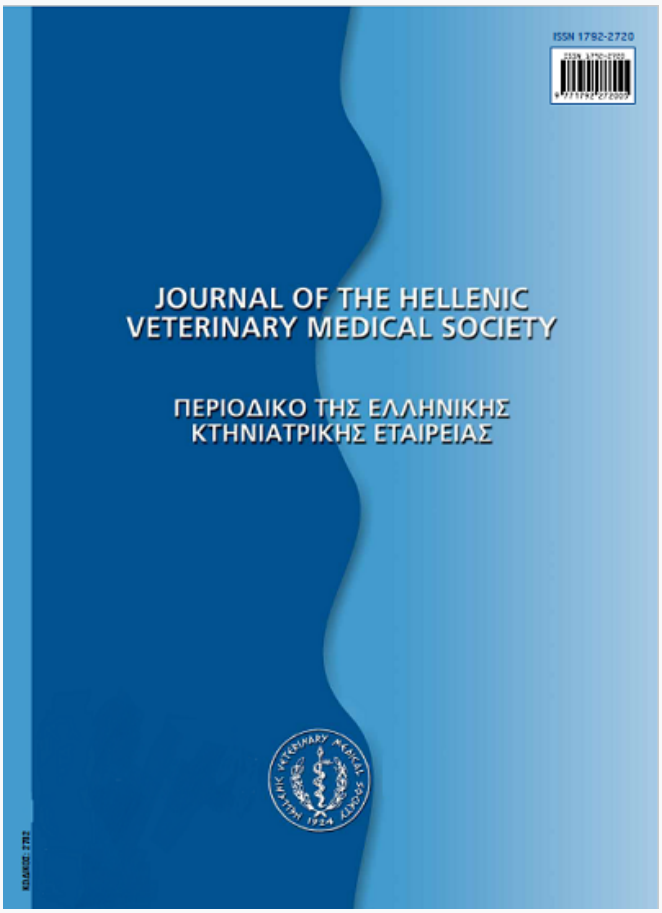

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Case report
Κλινικό περιστατικό

A case of osteofibroma on the symphysis mandible in a cow

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ABSTRACT. Osteofibroma or ossifying fibroma both in human and animals is a rarely seen benign neoplasia. It usually locates on the mandible. Although it is commonly seen in young horses no case reports were described in cattle. In this case report, an osteofibroma located at the symphysis mandible in a cow was described. The tumor mass was reported to grow over in a two-month period to the size of soccer ball. The mass was totally extirpated and histopathological examination was performed. The mass was diagnosed as osteofibroma in microscopic examination.

Keywords: Osteofibroma, symphysis mandible, cow

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INTRODUCTION

Ossifying fibromas are fibro-osseous neoplasms characterized by the replacement of normal bone by a fibrous cellular stroma containing foci of mineralized bone trabeculae and cementum-like material (Barnes et al., 2005).

Ossifying fibroma most frequently affects the mandible of human and animals causing distortion of the normal bone contour, displacement or loss of teeth, and difficulty with swallowing or eating (Morse et al., 1988; Whitten et al., 2006). It can also cause difficulty in breathing when present on the nasal cavity causing obstruction. Although osssifying fibromas are rare in animals, they are more frequently reported in young horses, and categorized as "equine juvenile ossifying fibroma"(Morse et al., 1988). While these neoplasias have also been reported in cats (Turrel and Pool 1982; Quigley and Leedale 1983), dogs (Miller et al., 2008), lama (McCauley et al., 2007), sheep (Rogers and Gould 1998), and goats (Pritchard 1984) we have not come across any data on cows.

Although it constitutes a significant group of fibro-osseous lesions combining characteristic clinical and microscopic features, the etiology of ossifying fibroma is not entirely understood. However, some authors associate it with neoplastic and metabolic imbalance (Bahl et al., 2012).

Here, we report a case of osteofibroma located in the mandibular symphysis of a 5-year-old pregnant Simmental cow.

CASE HISTORY

A 5-year-old Simmental cow in the sixth month of pregnancy was brought to Kafkas University, Faculty of Veterinary Medicine Clinics. The anamnesis revealed that a walnut-sized mass was identified in the mandibular symphysis, and it grew to the size of a soccer ball in 2 months (Figure 1, Figure 2).

The mass significantly interfered with the animal's feeding ability. On clinical examination, the mass was firm in consistency and firmly attached to the mandible, making difficult for the animal to open its mouth. Incisor teeth were pushed towards the inside of the mouth. We decided to perform a surgical operation to relieve the animal's feeding difficulty.

After the routine preparations for the surgery, ring-shaped local infiltration anesthesia (40 ml, 2% lidocaine HCl, Adokain®, Sanovel) was performed on the root of the mass with sedation (0.2 mg/kg intravenous, xylazine HCl, Rompun®, Bayer), and mental nerve block (7 ml, 2% lidocaine HCl, Adokain®, Sanovel) was performed. Then the mass was totally extirpated (Figure 3, Figure 4). After the mass was removed, one incisor tooth spontaneously fell out. The bleeding caused in the cavity formed after the removal of the mass was controlled using electrocautery. The cavity was then filled with an absorbable hemostatic agent (SURGICEL® Original Absorbable Hemostat, Ethicon), and the incision line was closed with simple separate stitches using polyglactin 910 sutures (No 2, Vicryl®, Ethicon).

In addition to postoperative use of an antiseptic mouthwash (Ülkem® Glycerin Iodine, Ülkem İlaç), wound care and parenteral antibiotic therapy (20,000 IU procaine benzylpenicillin, 20 mg dihydrostreptomycin sulfate/ kg/live weight, Reptopen S, CEVA-DIF) were administered for one week.

In the postoperative period following the removal

Fig 1: Preoperative view of the case

Fig 2: View of the mass

Fig 3: Postoperative view

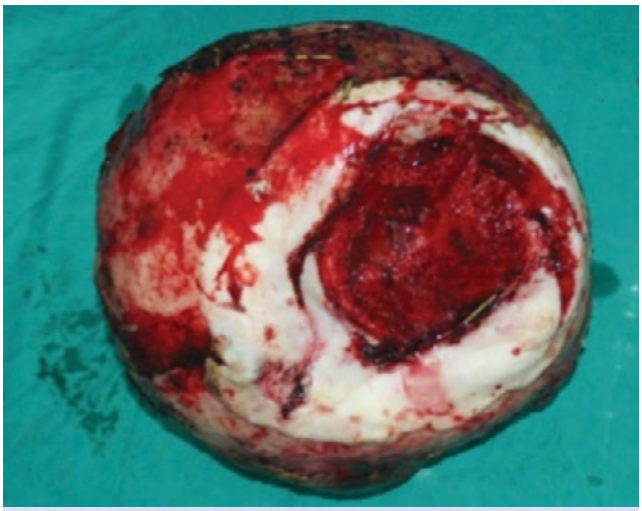

Fig 4: Extirpated mass

Fig 5: The view of area in postoperative 2-month

Fig 6: 2th month postoperative view

of the mass, a significant relief was observed in jaw movements, and the animal was able to eat and drink water more comfortably. The stitches in the surgical wound were removed on the 10th postoperative day, and no complication was seen in the region where the mass was located or in the general condition or pregnancy of the animal during the 2-month follow-up period (Figure 5, Figure 6).

The samples obtained from the extirpated mass were fixed in a 10% buffered formaldehyde solution for histopathological examination. Cross-sections prepared following routine procedures were stained with hematoxylin-eosine, and examined under a light microscopy.

RESULTS AND DISCUSSION

Ossifying fibroma, which is particularly specific to the mandible and described as benign progressive proliferation of the fibro-osseous tissue, is most frequently reported in very young horses or various domestic animal species such as cats, dogs, lama, sheep and goats (McCauley et al., 2007; Miller et al., 2008; Morse et al., 1988; Quigley and Leedale 1983; Pritchard 1984; Rogers and Gould 1998; Turrel and Pool 1982; Whitten et al., 2006). However, we have not come across any previous case report on its incidence in cows. In this case presentation, histopathologic features and the surgical manipulations and the follow ups of the mass located in the mandibular symphysis of a 5-year-old Simmental cow, which was 6 month-pregnant, was described. The mass was reported to grow significantly over a 2-month period and negatively affected the animal's jaw movements and feeding ability. After the histopathological examinatios the mass was named as osteofibroma. Due to the absence of previous reports on osteofibroma in cattle, the current case was considered to worth presenting.

Histologically, osteofibromas are characterized by dense fibroblastic stroma resembling disordered granulation tissue with isomorphic fibroblasts transforming into osteoblasts. Relatively regular spicules and trabeculae of bone rimmed by osteoblasts may be formed in a moderately vascularized fibro-osseous stroma (Carvalho et al., 2012; Morse et al., 1988). Osteofibroma can be histopathologically distinguished from fibrous dysplasia, osteoma and osteosarcoma (Kodaira et al., 2010; Morse et al., 1988). Generally, it is more like fibrous dysplasia. Fibrous dysplasia is the proliferation of bone trabeculae in benign dense fibrous stroma. However, bone trabeculae are not rimmed by osteoblasts in fibrous dysplasia as they are in ossifying fibroma. The connective tissue cells of ossifying fibroma lack pleomorphism and do not have the high mitotic index of osteosarcoma (Kodaira et al., 2010). In the present case, the tissue in the center of the mass was a

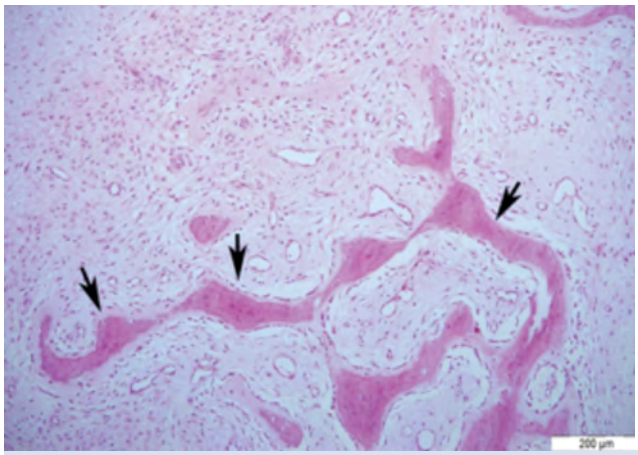

Fig 7: Thin bone trabeculae (arrows) and well vascularized loose connective tissue among them, hematoxylin eosin

loose connective tissue composed of newly formed thin bone trabeculae, and well-vascularized fusiform cells and fibrils between these trabeculae. The peripheral regions of the mass were fibrotic with no trabeculae. The skin covering the mass was hyperplastic. The diagnosis of osteofibroma was made based on the histopathological findings (Figure 7). In our case no mitotic figures were seen and the microscopic morphology was consistent with osteofibroma; therefore it is presented as a case of osteomafibroma.

Successful treatment of ossifying fibroma requires curettage of the affected tissue or complete removal of the tumor. It was reported that if these surgical manipulations were performed well relapses do not occur (Bertrand et al., 1993; Richardson et al., 1991; Suarez-Soto et al., 2013). However, a relapse rate of 35% has been reported for humans since removal of the affected bone with surgical operations such as mandibulectomy or hemimaxillectomy is not always possible (Richardson et al., 1991; Suarez-Soto et al., 2013). In the present case, we did not perform mandibulectomy for total extirpation of the mass, but used electrocautery to control the bleeding during the removal of the mass, and to cauterize the tumor base. No relapse or complication was seen during the postoperative 2-month routine control period, and none was reported on follow-up telephone calls for one year.

While osteofibroma is mostly reported in the mandible, maxilla, or skull of humans or animals such as lamas or rabbit (McCauley et al., 2007; Miller et al., 2008; Morse et al., 1988; Quigley and Leedale 1983; Pritchard 1984; Rogers and Gould 1998; Turrel and Pool 1982; Whitten et al., 2006), it is reported to be located in the rostral mandible in a majority of the cases of osteofibroma in horses (Richardson et al., 1991). Current case resembles to the clinical cases of horses with osteofibromas because of the rostral localization of the mass.

In conclusion, osteofibroma is rare in cows and of vital importance due to its location. Our case may be viewed as a contribution to the literature and veterinary practice.

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