



Femoral Chondroblastic Osteosarcoma in a Kitten: A case report

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Abstract

Feline bone tumors are not as common as in dogs, and osteosarcomas are more common among bone tumors. Osteosarcomas in cats are not metastatic as in dogs. In this report, we aimed to present a case of femoral chondroblastic osteosarcoma with histopathological and clinical results in a kitten. Based on clinical and radiological examination, in a 4 month-old male kitten it was detected fracture of the left collum femoris, left sacroiliac separation and pubic fracture. Excision arthroplasty was performed and the caput and collum femoris were evaluated histopathologically. Following the identification of the sample as chondroblastic osteosarcoma, the related limb was amputated. As a result, a case of chondroblastic osteosarcoma in a kitten was found worthy to be survived.

Key Words: Femoral chondroblastic osteosarcoma, kitten, leg amputation

Yavru Bir Kedide Femoral Kondroblastik Osteosarkom: Olgu sunumu

Öz

Kedilerde kemik tümörleri köpeklerdeki kadar yaygın olmamasına rağmen osteosarkom kemik tümörleri içerisinde daha sık görülmektedir. Ancak bu osteosarkomlar kedilerde köpeklerdeki kadar metastazik değildir. Bu raporda, yavru bir kedide karşılaşılan femoral kondroblastik osteosarkom olgusunun histopatolojik ve klinik sonuçlarıyla birlikte sunulması amaçlandı. 4 aylık erkek yavru bir kedide klinik ve radyolojik muayeneye ile sol kollum femoriste kırık, sol sakroiliak ayrılma ve pubis kırığı belirlendi. Eksizyon artroplastisi ile alınan kaput ve kollum femoris histopatolojik incelemeye tabi tutuldu ve kondroblastik osteosarkom olarak tanımlanmasını takiben ilgili ekstremitte ampute edildi. Sonuç olarak yavru bir kedide kondroblastik osteosarkom olgusu kedinin sağ kalmış olması bakımından sunulmaya değer bulundu.

Anahtar Kelimeler: Femoral kondroblastik osteosarkom, yavru kedi, amputasyon

INTRODUCTION

Bone tumors are not common in cats. They mostly occur at ages of 7-8 years and were reported to occur at a rate of 3.4% in a study scanning 100000 cases (1). Osteosarcoma (OS) is known to be the most common bone tumor with a incidence rate of 70-80% in cats. OS is usually defined as tumors consisted of malignant mesenchymal spindle cells producing bone or osteoid extracellular matrix (1).

Feline OSs can be seen throughout the skeletal system, and can also be seen in mammary gland, eye, and subcutaneous extraskelatal OS at a rate of 40% incidence (2).

Feline OSs compared to canine counterparts differ in behaviour. Metastasis in dogs was 81-90%, whereas in cats this was reported to be much lower (5-10%) (1-4). Therefore, treatment options in cats are controversial due to low metastasis rate. Generally wide surgical excision or ampu-

tation is recommended. In addition, radiotherapy and/or chemotherapy may prolong lifespan (1,5,6).

In this case report, we aimed to present a case of femoral chondroblastic osteosarcoma in a kitten with histopathological features and clinical results.

CASE HISTORY

A 4 month-old male kitten was brought to Veterinary Faculty Animal Hospital Surgery Clinics of the Kafkas University with a complaint of severe tenderness and lameness in his left hind leg. In clinical examination, a palpable swelling and hypersensitivity were detected in the femoral region. Radiological evaluation revealed fracture of the left collum femoris, left sacroiliac separation and pubic fracture. In addition, proliferations were found to be remarkable in both collum and distal diaphyseal region of femur in radiogram (Figure 1A).

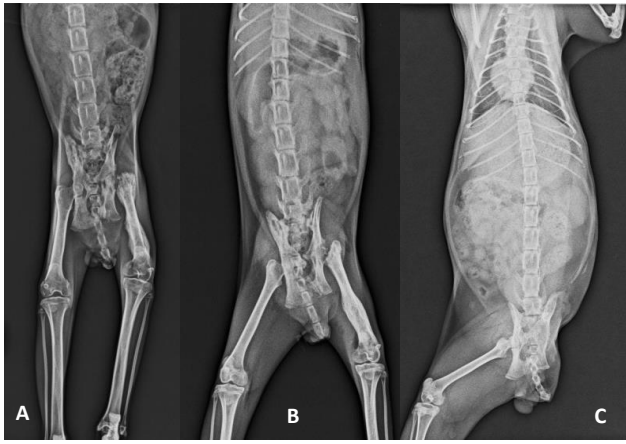


Figure 1. Radiograms of the case: A. Preoperative radiogram; proliferative osteolytic areas in the distal diaphysis and collum femoris of the left femur with collum fracture, B. Excision arthroplasty was performed, C. The left hind limb was amputated

Excision arthroplasty was performed for the fracture of the collum femoris (Figure 1B) and the caput femoris. The resected collum femoris were histopathologically evaluated. Cage rest was recommended without any intervention for sacroiliac separation and pubis fracture. Postoperative analgesics (subcutaneous ketoprofen 2 mg / kg, Ketopet®, Teknovet, Istanbul, Turkey) and antibiotherapy (intramuscular cefazolin 20 mg / kg, Cefozin®, Bilimilaç, Istanbul, Turkey) were performed.

HISTOPATHOLOGICAL EVALUATION

Biopsy specimen resected from collum femoris was decalcified and routinely processed for hematoxylin and eosin staining and observed under a light microscope for evaluation of histopathological changes. In histopathological examination of the mass, large trabecular structures and malignant cartilage tissue formation were found in these structures. In addition to these, swirl-like structures formed by fibrosit and fibroblasts were detected (Figure 2A-B). Polygonal shaped pleomorphic tumor cells with anisocytosis and anisonucleosis were observed. Mitotic figures and giant cells were not found in the tumoral area. In the area surrounding the mass, haemorrhage and severe cellular infiltration were observed (Figure 2C). Localized calcifications were among other prominent histopathological findings (Figure 2D). In the light of these findings, the mass taken from the collum femur was named as chondroblastic osteosarcoma due to the presence of irregular bone trabeculae in the middle of irregular atypical chondroblastic cell proliferation.

The left hind leg of the kitten was amputated 10 days after excision arthroplasty operation (Figure 1, C), upon diagnosis of chondroblastic osteosarcoma based on histopathological findings. Postoperative analgesic and antibiotherapy were repeated.

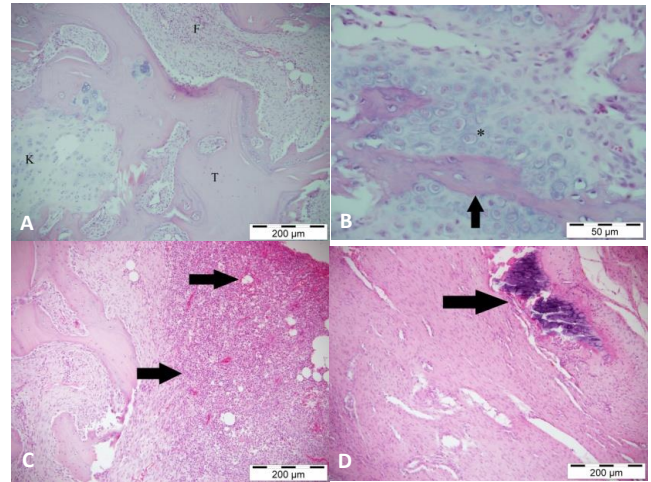


Figure 2. Cat, femur, chondroblastic osteosarcoma: A. Trabecular structures (T), chondroid tissue (K), swirl-like structures composed of fibrosit and fibroblasts (F), H&E, 200 µm. B. Trabecular structure of amorphous matrix and osteoblasts (T), malignant cartilage tissue around the trabeculae(*), H&E, 50 µm. C. Outer surface of the mass, Hemorrhages and inflammatory cell infiltration (arrows), H&E, 200 µm. D. Calcification (arrow), H&E, 200 µm.

It was observed that the cat's condition improved in two months postoperatively and the kitten continued his life without any problem (Figure 3). In addition, there was no clinical and radiographic finding of metastasis, including the lungs.



Figure 3. Postoperative 2nd month view

DISCUSSION AND CONCLUSION

Osteosarcomas in cats have been reported to have less metastatic character than those of seen in dogs (1,7). On the other hand, cats with osteosarcoma are usually 10-12 years of age and many of them die or they are given euthanasia decision at the request of the owner (6). In this report, chondroblastic osteosarcoma was diagnosed and found to be interesting in terms of survival of the kitten that was very young being at 4 months of age.

In terms of histopathological evaluation, same types of tumors between cats and dogs may differ in their prognosis (1). Osteosarcomas may be classified as morphological subtypes such as osteoblastic, fibroblastic, chondroblastic, teleangiectatic, giant cell and mixed types depending on the appearance of their matrix. There is a significant relationship between the subtypes of tumors and survival rate.

However, no statistical data for both humans and cats or dogs has been reported for osteosarcomas. In addition, there is limited data on histological classification or classification system for osteosarcomas in cats unlike in dogs (1). Also, there is a significant relationship between the mitotic index and survival (8-11), however, we did not find any mitotic figures in the tumoral mass in our study. In addition to mitotic figures, the presence of multicore bizarre giant cells was not found as described in previous studies (8,9,12). Similar to the literature data (13,14), the trabecular structures in the middle of irregular atypical chondroblastic cell proliferation and the presence of inflammatory infiltration were identified and therefore the mass from the collum femoris was classified as chondroblastic osteosarcoma.

Among the localization of feline osteosarcomas, many bones such as maxilla, mandible, skull, scapula, rib, vertebrae, pelvis, nasal cavity and tail vertebrae have been reported. In addition, proximal femur, proximal tibia, radius, humerus and metatarsal/carpal bones were reported to be affected (1). In this case, the left femur was affected along the long axis, and there was a fracture at the collum level.

A wide excision or amputation of the affected area is recommended by different authors (1,2,15) for feline osteosarcomas. In this case, in which excision arthroplasty was performed, the left hind limb was amputated upon the diagnosis of osteosarcoma. Kirpensteijn et al. (2002) reported that chondroblastic osteosarcomas did not show metastasis in dogs. We haven't found enough data in cats. In our case, no clinical and radiological findings related to metastasis were found. During the postoperative 2 months follow-up period, the physical development of the cat continued smoothly.

In conclusion, femoral chondroblastic osteosarcoma encountered in a very young cat is remarkable as he continues to live after the related leg is amputated. Therefore, we believe that this case report will contribute to the practice and literature.

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