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Olgu Sunumu

MALIGNANT OSTEOCLAST-LıKE GIANT CELL TUMOR OF THE UTERINE IN A DOG

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ABSTRACT

In this case report an unusual case of an osteoclast-like giant cell tumor of the uterine is reported in 10 year old, Setter, female dog. Macroscopically a tumoral mass that measured 27x24x11 cm was situated from the base of cervix. Histopathologically atypic spindle-spheroidal shaped cells with high mitotic rate admixed with scattared osteoclast-like multinucleated giant cells were observed. Tumor cells were stained positive with antibodies against both vimentin, CD 117, LCA. In contrast, the same cells were not stained with antibodies against cytokeratin, CD 34, S100 and SMA. In summary, although rare malignant osteoclast-like giant cell tumor of the uterine in first reported in a dog.

Key Words: Dog, osteoclast-like giant cell, tumor, uterine

BİR KÖPEĞİN UTERUSUNDA MALİGN OSTEOKLAST-BENZERİ DEV HÜCRELİ TÜMÖR

ÖZ

Bu vaka raporunda 10 yaşlı, dişi, Setter ırkı, bir köpekte uterusta nadir gözlenen osteoklast-benzeri dev hücreli tümör bildirilmiştir. Makroskobik olarak 27x24x11 cm ölçülen tümöral kitle serviks tabanında yer alıyordu. Histopatolojik olarak atipik iğ-küresel şekilli yüksek mitotik aktiviteye sahip hücreler ile dağınık halde osteoklast benzeri çok çekirdekli dev hücreler gözlendi. Tümör hücreleri vimentin, CD 117, LCA antikorları ile pozitif boyandı. Bunun tersine, aynı hücreler sitokeratin, CD 34, S100 ve SMA antikorları ile boyanmadı Bu bir köpeğin uterusunda ilk defa bildirilen malign osteoklast-benzeri dev hücreli tümördür.

Anahtar kelimeler: Köpek, osteoklast-benzeri dev hücre, tümör, uterus

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INTRODUCTION

Osteoclast-like giant cells (OLGCs) are multinucleated cells of histiocytic lineage and have been identified in a wide array of neoplasms (3, 7, 8). In humans and animals osteoclast-like giant cell tumor (OGCT) has been reported in a number of extraskeletal locations (2, 4, 10, 12). OGCT are resembled giant cell tumor of bone (6). Giant cell tumors that involving soft tissues such as subcutaneous fibrous tissue, fascia, tendon, tendon sheets, muscle have been reported in cat, dog and horses (4, 5, 15). Also addition on the this tissues Haziroglu et al (2005) (6) firstly reported OGCT arising from visceral organ in animals. In humans OGCT has been diagnosed in visceral organs including the uterus, kidney and pancreas (2, 8, 16, 17). In consequence the case reported here, which involves malignant osteoclast-like giant cell tumor of the uterine in a dog, is very unusal documentation.

MATERIALS AND METHODS

A 10-year-old, Setter, female dog was brought to clinical department with complaint lack of appetite. The dog was sterilized three years ago. Clinically a mass was palpated on abdominal examination.

The dog was euthanized and then the necropsy was done. The tissue samples initially were fixed in 10% buffered formalin for histological examination. Subsequently, sections were cut in 5 μm in thickness, one for routine haematoxylin and eosin (H&E) method, the others for adhesive slide for immunoperoxidase staining. The streptavidin biotin-peroxidase method was done. Initially; slides were put in 0.3% hydrogen peroxide in methanol for 20 minutes to blocked endogenous peroxidase activity and then incubated with normal goat serum for 20 min at 40°C. Afterwards sections were incubated for one hour at 40°C with each of the following monoclonal antibodies (all obtained from Dako/Denmark and all used at a 1:500 dilution) against vimentin: cytokeratin; Smooth Muscle Actin (SMA), CD 117, CD 34, S100, LCA (Leucocyte Common antigen, CD45). Sequential incubation with biotinylated goat anti-rabbit IgG and streptavidin-peroxidase reagent (Dako/Denmark) was done. 3-amino-9-ethyl-carbazole (AEC, Dako/Denmark) was used for colour labelling for five minutes at room temperature and then counterstain was done with haematoxylin. Following each incubation step, phosphate buffered saline (PBS) solution (except the step using normal goat sera) was used for washing of the sections. As a control step, sections were treated as above replacing the various primary antibodies with normal rabbit sera.

RESULTS

Macroscopically the tumoral mass was measured as 27x24x11 cm and it was situated from the debris of cervix. On the cut surface of it; well circumscribed, mostly soft, and yellowish with small hemorrhage areas were observed. The tumoral mass had any relationship with other structures. Microscopical examination of the tumor revealed sheets of atypic, pleomorphic, spindle-spheroidal shaped cells with hyperchromatic nuclei and with high mitotic activity. Admixed with

these atypic cells numerous osteoclast-like giant cells which contained large numbers of bland nuclei. Widespread haemorrgahic, oedomatous and necrotic areas were also observed (Figures 1a-c). No osteoid matrix, bone or cartilage was present. Tumor cells and osteoclast-like giant cells were stained positive with antibodies against both vimentin (Figure 2), CD 117 (Figure 3), LCA (Figure 4). In contrast, the same cells were not stained with antibodies against cytokeratin, CD 34 and S100. In additon to these results except for tumor surface area and vessels, tumor cells and osteoclast-like giant cells were not stained with antibody SMA (Figures 5a-b).

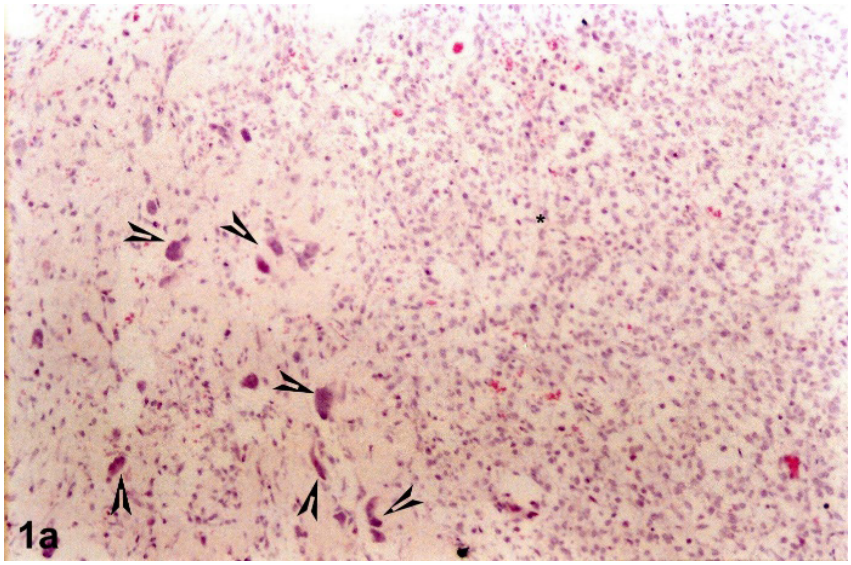

Figure 1a. Pleomorphic tumour cells (*) and osteoclast-like giant cells (arrow heads), H&EX20.
Resim 1a. Pleomorfik tümör hücreleri (*) ve osteoklast-benzeri dev hücreler (ok başları), H&EX20.

DISCUSSION

Ultrastuctural studies of multinucleated giant cells in the neoplasms presented revealed a marked resemblance to those described in giant cell tumors of bone in man (1, 8). Many investigators have appropriated a histiocyte/monocyte origin due in part to the frequent presence of OGCT in areas of haemorrhage or necrosis. The giant cell components can be diagnosed in tumors. They are quite similar to giant cell malignant fibrous histiocytomas (MFH) and extraskeletal osteosarcoma (5, 12). Expression of cytokeratins (CKs) is generally confined to epithelia and their neoplasms but they are not specific tumor markers. On the other hand it was reported that the highly diverse expression patterns of CKs have been correlated with different pathways of epithelial differentiation (10). Neoplastic, predominantly spindle-shaped cells and osteoclast-like giant cells were positive for mesenchymal markers Vimentin, CD117 and LCA. In contrast, osteoclast-like giant cells, but they were not stained with epithelial markers such as cytokeratin. Also tumor cells and CD 34, SMA and S100. These results showed the mesenchymal origin of cells. In addition to these the peritumoral and

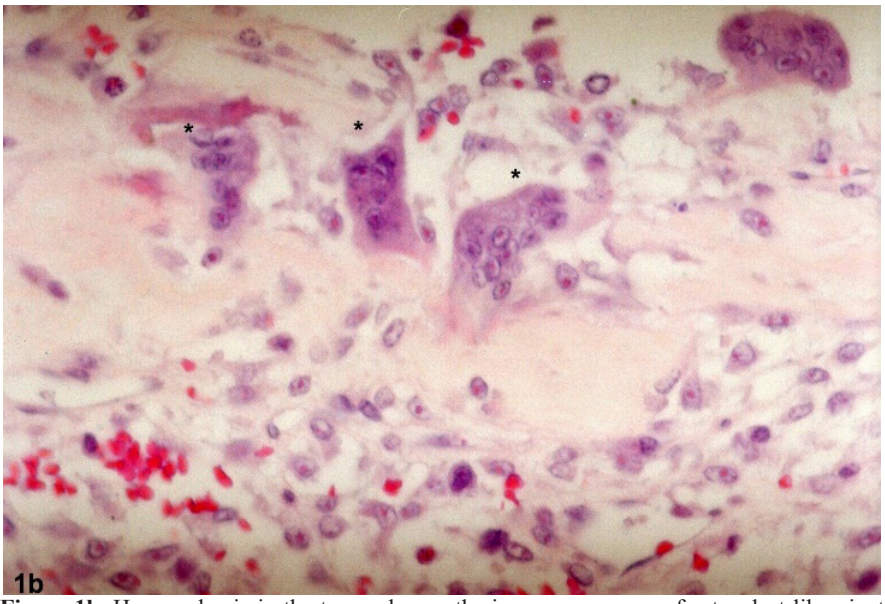

Figure 1b. Haemorrhagia in the tumoral area, the inner appearance of osteoclast-like giant cells (*) with atypic tumoral cells, H&EX40.

Resim 1b. Tümöral alanda kanama, osteoklast-benzeri dev hücreler (*) ile atipik tümör hücrelerinin yakından görünümü, H&EX40.

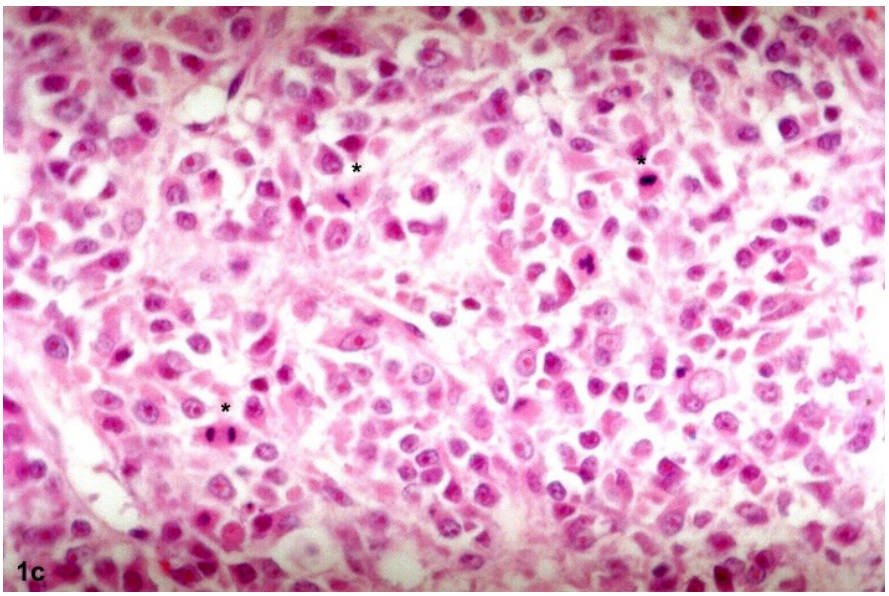

Figure 1c. Spindle-shaped, atypic, pleomorphic tumor cells with mitotic figures, H&EX40.

Resim 1c. Fuziform şekilli, atipik, pleomorfik tümör hücreleri ile, mitotik figürler, H&EX40.

perivascular staining with SMA suggested that these tumors originate from the cervix.

The giant cell variant could be confused with either fibrosarcoma with giant cells or osteosarcoma. In fibrosarcoma and osteosarcoma, the giant cell component is not the predominant cell type. Also any neoplastic osteoid or bone presence found in giant cell MFH.

Differentation of OGCT from an extraskeletal osteosarcoma may be difficult. Less obvious and more localised presence or complate absence of osteoid and boWne formation is important distinctive finding (3, 14). In the study, no osteoid matrix, bone or cartilage was present.

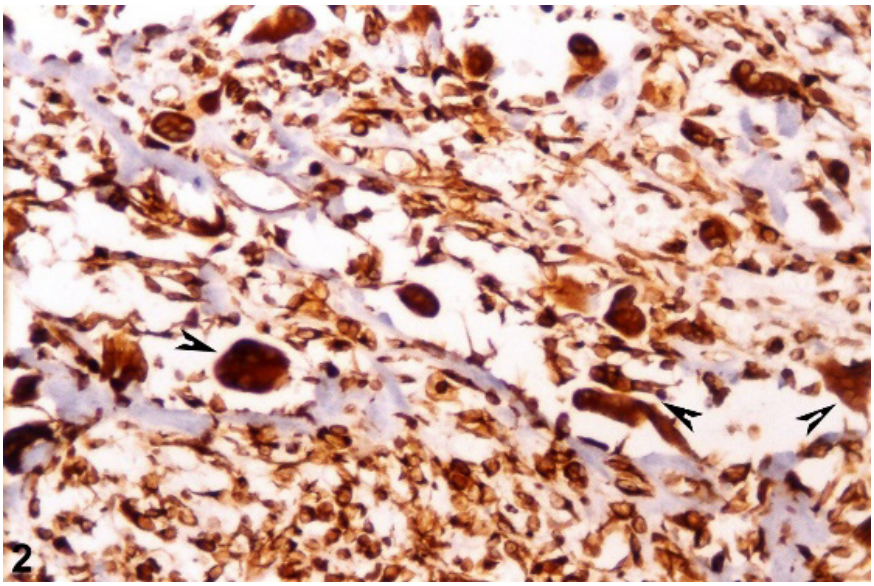

Figure 2. Vimentin positive tumor cells and osteoclast-like giant cells (arrow heads), IHCX40.
Resim 2. Vimentin pozitif tümör hücreleri ve osteoklast-benzeri dev hücreleri (ok başları), IHCX40.

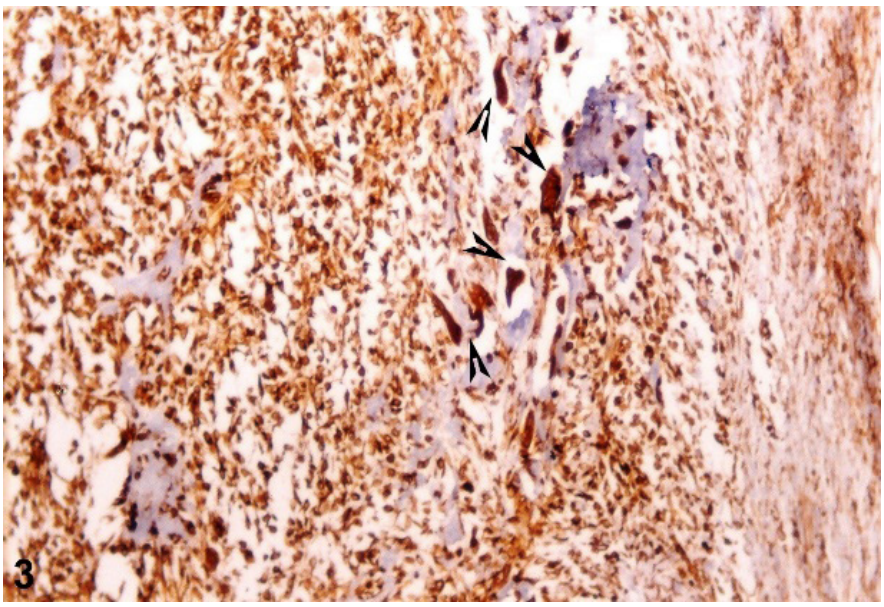

Figure 3. CD117 positive tumor cells and osteoclast-like giant cells (arrow heads), IHCX40.
Şekil 3. CD117 pozitif tümör hücreleri ve osteoklast-benzeri dev hücreleri (ok başları), IHCX40.

Our case OGCT contained a histologically malignant cell component and displayed agressive behavior. In humans similar cases have been reported by other authors previously (7, 11, 13, 14, 17) but the present report with the histopathological and immunohistochemical findings, is the first candidate case of malignant OGCT tumor of uterine in a dog.

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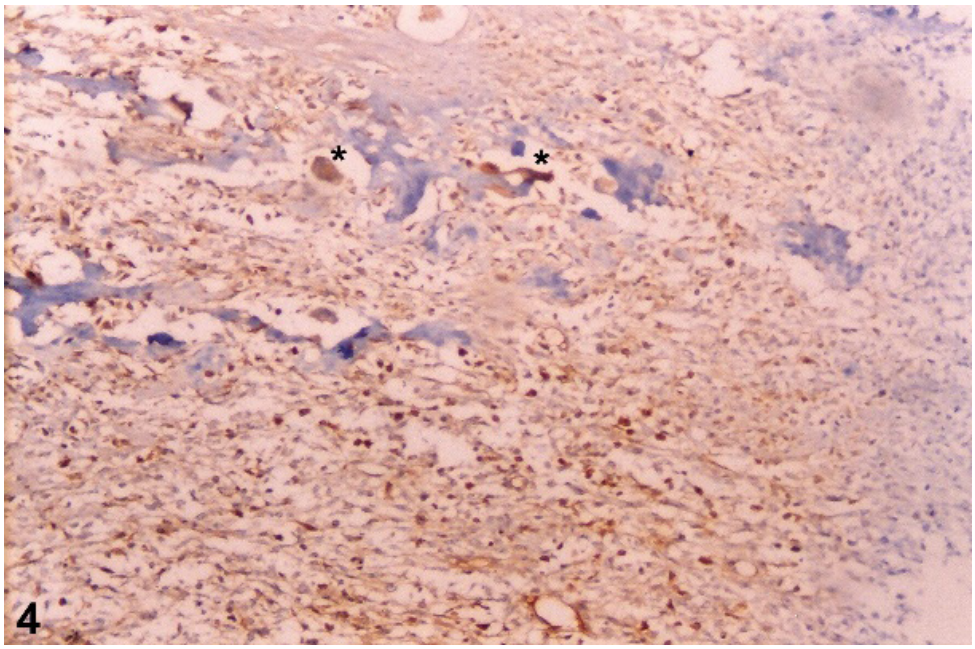

Figure 4. LCA positive tumor cells and osteoclast-like giant cells (*), IHCX40.
Resim 4. LCA pozitif tümör hücreleri ve osteoklast-benzeri dev hücreleri (*), IHCX40.

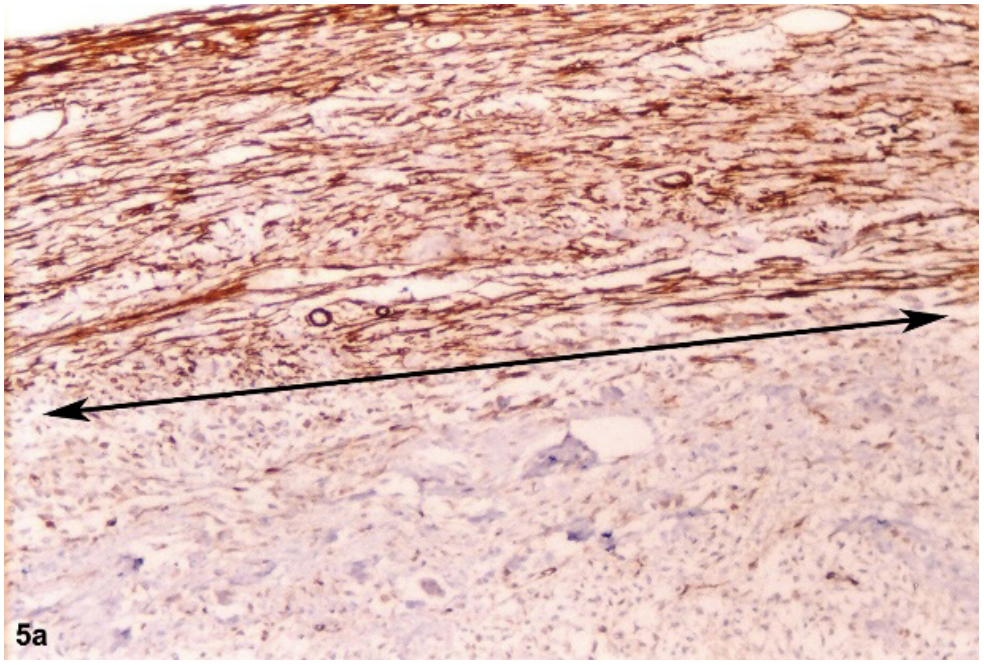

Figure 5a. Tumor surface area and vessels (‹—›) stained positive with SMA antibody but any staining observed at tumor cells and osteoclast-like giant cells, IHCX20.
Resim 5a. Tümör yüzey alanında ve damarlarda SMA pozitif boyanma mevcut (‹—›) ancak tümör hücreleri ve osteoklast-benzeri dev hücrelerinde antikora karşı boyanma gözlenmedi, IHCX20.

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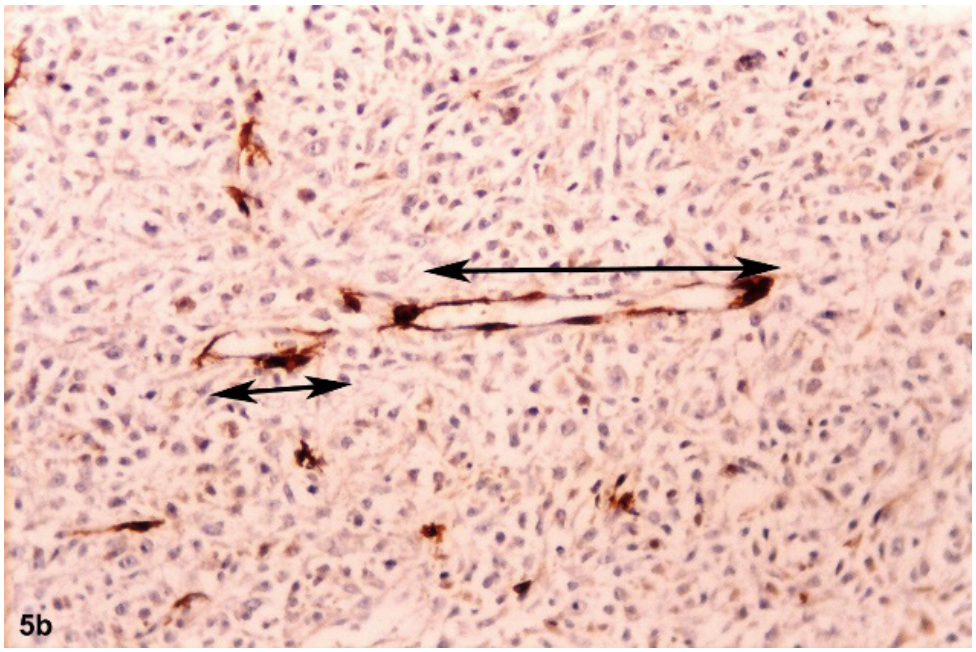

Figure 5b. SMA positive staining only observed at vessel walls (‹—›), not seen at tumor cells, IHCX40.

Resim 5b. SMA pozitif boyanma sadece damar duvarlarında gözlendi (‹—›), tümör hücrelerinde boyanma mevcut değil, IHCX40.

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