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Case Report

Chondrosarcoma of the foot: Case report

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Abstract: Chondrosarcomas are rare malignant tumors of the bone that are uncommonly found in the foot. A 38-year-old female patient visited our clinic with the complaints of swelling and pain in his left foot. On plain radiographs, there were lytic areas in metatarsi. Computerized tomography revealed that there were mass lesions in the middle and the forfoot, causing a destructive, aggressive and osteolytic appearance, with invasion of the surrounding soft tissues and the presence of points of calcification in the tumor formation. Histopathological diagnosis was reported as low-grade chondrosarcoma. We applied lisfranc amputation to the patient under general anaesthesia. In a 4-year follow-up, no local or distal recurrence was observed. Distinguishing a chondrosarcoma of the foot from an enchondroma is very difficult and sometimes controversial.
Keywords: chondrosarcoma, foot, tumor, bone.

INTRODUCTION

Chondrosarcoma is a malignant bone tumour containing tumour cells that produce cartilage, rarely seen in the foot. It commonly occurs in the pelvis, proximal femur, and shoulder girdle. Chondrosarcoma of the foot accounts for 0.5% to 2.97% of all chondrosarcomas and May occurs primarily or secondarily, as malignant transformation of a pre-existing benign condition or cartilage lesion such as the enchondroma or osteochondroma. [3.12.16]

The purpose of this paper is to report the difficulty of Distinguishing low grade chondrosarcoma of the foot from enchondroma.

CASE REPORT

A 38-year-old woman admitted with a seven-month history of soft tissue swelling in the left foot. She initially noticed a small swelling on the third metatarsi which quickly increased in size.

On review of symptoms, the patient reported severe pain enough to disturb sleep and to hinder physical activities. She denied any trauma, fever, chills or weight loss. No other acute symptoms were reported by the patient.

The physical examination of the left foot revealed 8 cm × 4 cm painful and firm mass in left forefoot and midfoot. (Figure 1)

The patient had no warmth, erythema or effusion. The mobility of the toes was impossible.

Laboratory tests revealed normal white blood cell counts 7100/mm and a slight increase of erythrocyte sedimentation rates 28mm/h.

Plain x-ray images of the left foot showed large bone destruction, and important osteolysis with imprecise limits that compromised the forefoot and midfoot expect the first toe. (Figure 2)

The lesion presented a destructive, aggressive and osteolytic appearance, with invasion of the soft tissues. The Lisfranc joint was intact.

Computed tomography (CT) of the foot confirmed cortical destruction, with invasion of the surrounding soft tissues and presence of points of calcification in the tumor formation. (Figure 3)

A metastatic work-up, including a whole-body bone scan, didn't show any secondary locations. Biopsy was performed and histological examination showed a cartilaginous neoplastic process, that, when correlated with aggressive-appearing on radiographic features, was consistent with a diagnosis of chondrosarcoma grade I O' NEAL ACKERMAN.

We applied a LISFRANC resection of her left foot (Figure 4). Histological examination of the tumoral

structure confirmed the presence of low-grade chondrosarcoma of the forefoot with soft-tissue extension and negative surgical margins (Figure 5). No adjunct radiation therapy or chemotherapy was given. After 4 years of active follow up the patient is free of local or distant recurrence.

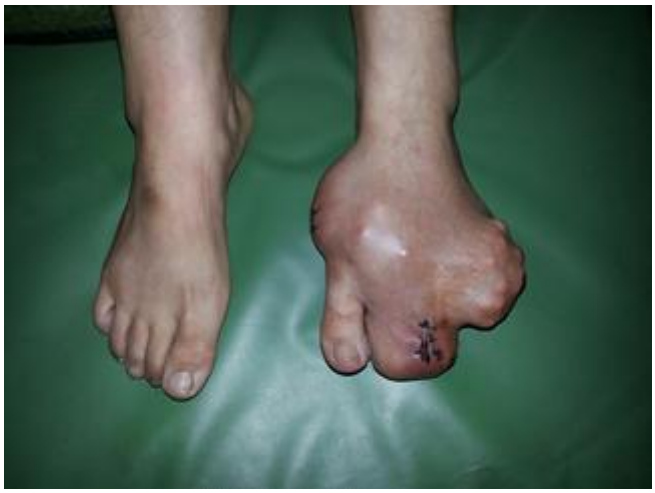
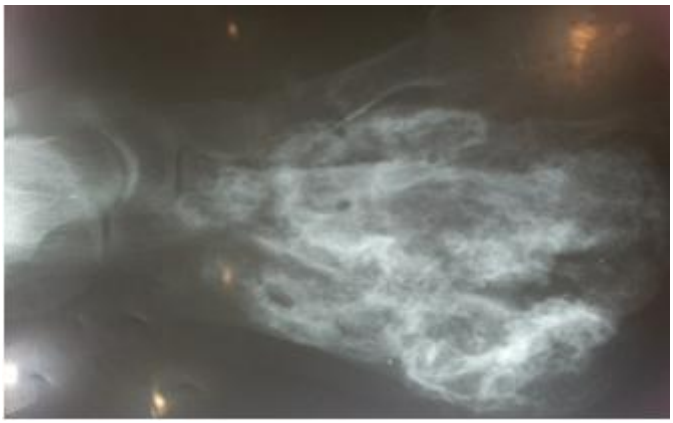
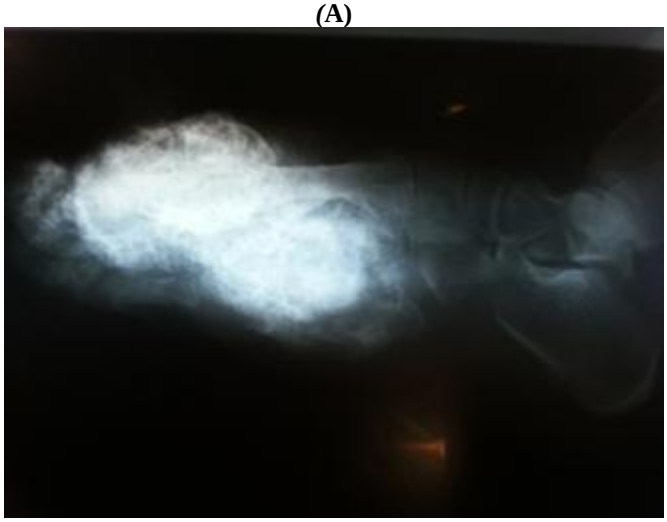


Fig-1: Masse on the left forefoot and midfoot



***(*A)**



(B)

Fig-2: Radiographs of the left foot in anteroposterior view (A) and lateral view (B), showing lesion destructive, aggressive and osteolytic appearance, with invasion of the surrounding soft tissues and the presence of points of calcification in the tumor formation

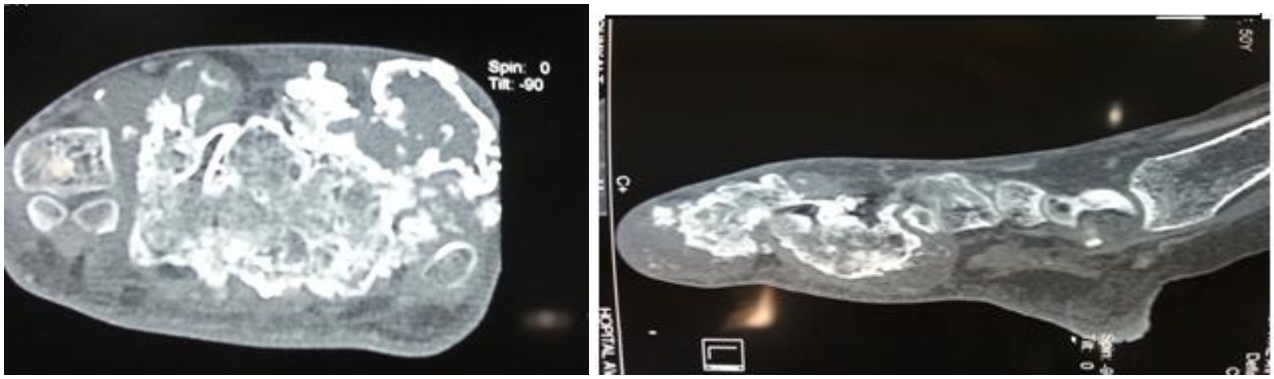


Fig-3: Computed tomography (CT) of foot shows cortical destruction, with invasion of the surrounding soft tissues and presence of points of calcification

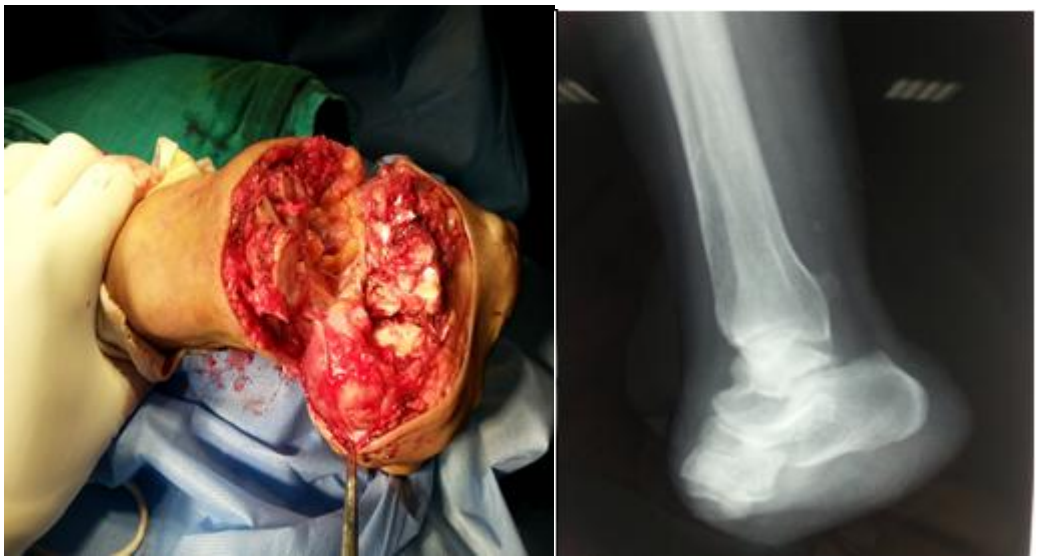


Fig-4: lisfranc resection of the left foot

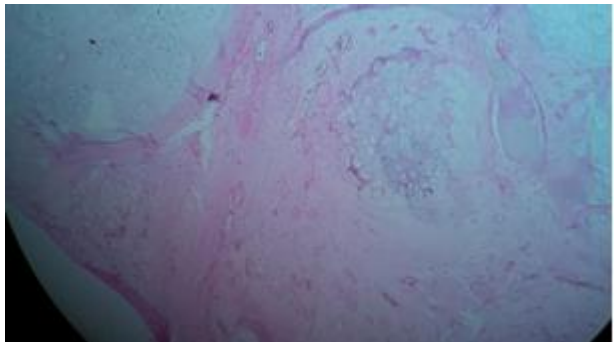


Fig-5: Low-grade histology of the tumor

DISCUSSION

Chondrosarcoma is a malignant bone tumour containing tumour cells that produce cartilage. It constitutes about 9% of primary malignancies of bone. Chondrosarcoma occurs most frequently in the pelvis and long bones in up to 65% of cases, the hand and feet being rarer sites (1 - 4% of all cases) [3.12].

It is more common in males (male to female ratio, approximately 2:1), and occurs over a broad age range with peak between 40-60 years. [1.9.16]

The main clinical symptom is pain. Commonly, patients also report an extended period of Symptoms. Rarely chondrosarcoma develops in patients with a previous enchondroma of the foot. [12.7]

In addition to pain they may have swelling; decreased range of motion of the nearby joints [2].

Distinguishing chondrosarcoma of the foot from enchondroma is difficult, because similar pathologic appearance of both tumours in foot.

Histologically, the chondrosarcoma may be heterogeneous. The biopsy should use only to confirm a cartilage phenotype and not to determine the tumor grade.

The differentiation between low-grade chondrosarcoma and benign enchondroma may be also difficult. Therefore clinical and imaging parameters must be involved in diagnosis.

The invasion of surrounding soft tissues and the aggressive osteolytic appearance on plain x-ray images are more reliable indicators of aggressiveness than histology [11, 6].

The volume of the tumor can also help to differentiate between an enchondroma and a chondrosarcoma (mean size of enchondroma: 2.7 cm2. mean size of chondrosarcoma: 5.1cm2) [12,16].

The typical radiological findings of the chondrosarcoma of the foot on plain film included cortical destruction (90%), endosteal erosion (90%), matrix calcification (72%), bony expansion (72%), joint extension (27%), and pathologic fracture (9%) [12, 1].

Computed tomography scan gives better delineation of the tumor while bone scan shows increased uptake by the tumor and Magnetic resonance imaging helps by detecting the extent of the soft tissue [6].

Surgery is the corner stone of treatment, radiotherapy and chemotherapy has not proven their effectiveness, Wide oncological excision is the treatment of choice [1, 8,16]

As the tumor may metastasize, computerized tomography of the chest, along with other base line investigations, is recommended [16, 3].

5-year follow-up survival rates for chondrosarcoma are 90 - 94% (grade 1), 61 - 81% (grade 2), and 43 - 44% (grade 3) [12].

CONCLUSION

The foot is an uncommon location for chondrosarcoma. The early diagnosis of a low-grade chondrosarcoma of the foot can be a difficult task.

Clinical, radiographic and pathological data must be considered together to reach certain diagnosis.

REFERENCES

1. Patil S, de Silva MC, Crossan J, Reid R. Chondrosarcoma of the bones of the feet. The Journal of foot and ankle surgery. 2003 Oct 31;42(5):290-5.
2. Masuda T, Otuka T, Yonezawa M, Kamiyama F, Shibata Y, Tada T, Matsui N. Chondrosarcoma of the distal phalanx of the second toe: a case report. The Journal of foot and ankle surgery. 2004 Apr 30;43(2):110-2.
3. Amalia DeComas, MD, Douglas Lurie, MD, and Mark Meyer, MD Trans-articular chondrosarcoma grade 2 of proximal phalanx resulting in its fracture along with destruction of middle phalanx of 2nd toe right foot: a case report and review of the literature
4. Ogose A, Unni KK, Swee RG, May GK, Rowland CM, Sim FH. Chondrosarcoma of small bones of the hands and feet. Cancer. 1997 Jul 1;80(1):50-9.
5. J5. Nigrisoli M, Ferraro A, De Cristofaro R, Picci P. Chondrosarcoma of the hand and foot. La Chirurgia degli organi di movimento. 1989 Dec;75(4):315-23.
6. Weber KL, Raymond AK. Low-grade/dedifferentiated/high-grade chondrosarcoma: a case of histological and biological progression. The Iowa orthopaedic journal. 2002;22:75.
7. Murari TM, Callaghan JJ, Berrey Jr BH, Sweet DE. Primary benign and malignant osseous neoplasms of the foot. Foot & ankle. 1989 Oct;10(2):68-80.
8. Lo EP, Pollak R, Harvey CK. Chondrosarcoma of the foot. Journal of the American Podiatric Medical Association. 2000 Apr;90(4):203-7.
9. Landry MM, Sarma DP. In-situ chondrosarcoma of the foot arising in a solitary enchondroma. The Journal of foot surgery. 1989 Dec;29(4):324-6.
10. Unni KK. Cartilaginous lesions of bone. Journal of orthopaedic science. 2001 Sep 1;6(5):457-72.
11. Bettaieb I, Zermani R, Karray M, Bouzidi R, Farah F, Rammeh S, Kourda N, Zlitni M, Ben JS. Low-grade central chondrosarcoma: difficult diagnosis in an adolescent girl. Revue de chirurgie orthopedique et reparatrice de l'appareil moteur. 2006 Feb;92(1):68-72.
12. Bovée JV, van der Heul RO, Taminiau AH, Hogendoorn PC. Chondrosarcoma of the Phalanx: A Locally Aggressive.
13. Gajewski DA, Burnette JB, Murphey MD, Temple HT. Differentiating clinical and radiographic features of enchondroma and secondary chondrosarcoma in the foot. Foot & ankle international. 2006 Apr;27(4):240-4.
14. Wagner A, Venbrocks RA, Fuhrmann RA. Chondrosarcoma of the calcaneus: amputation or resection with limb preservation: a case report. Foot & ankle international. 2007 Oct 1;28(10):1090-4.
15. Hottya GA, Steinbach LS, Johnston JO, van Kuijk C, Genant HK. Chondrosarcoma of the foot: imaging, surgical and pathological correlation of three new cases. Skeletal radiology. 1999 Mar 16;28(3):153-8.
16. Rizzo M, Ghert MA, Harrelson JM, Scully SP. Chondrosarcoma of bone: analysis of 108 cases and evaluation for predictors of outcome. Clinical orthopaedics and related research. 2001 Oct 1;391:224-33.