

Football Player with Shoulder Pain

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A 16-year-old male soccer player was admitted to the emergency department with right shoulder pain, limited movement, skin changes, and a palpable mass with deformity lasting four months (Fig. 1). Shoulder radiography showed a metaphyseal lesion extending into diaphysis and epiphysis with the destruction of the cortex with a periosteal reaction “sunburst”. There was a permeative destruction pattern and clouds of intraosseous and extraosseous mineralized osteoid (Fig. 2). These aspects were suggestive of neoplastic lesion, probably bone sarcoma. Some areas of hypodensity found in chest radiography were suspected of secondary lesions (Fig. 3).

Positron emission tomography (PET-CT) was performed and showed multiple lesions (Fig. 4), including lymph nodes, haunch muscle tissue and bones as well as D11 with extension to medullary canal. Diagnostic of multimetastatic osteosarcoma or osteosarcomatosis (multicentric osteosarcoma with multiple synchronous osteoblastic lesions) was confirmed with a histological study.

Chemotherapy was started with the Children’s Cancer Group 7921 adapted protocol. The patient survived for nine months, asymptomatic with good quality of life until close to his death.

Osteosarcomas are the most common primary malignant tumors of bone in adolescents and are characterized by the production of osteoid and immature bone.¹⁻⁵ Osteosarcomas usually cause local pain that can even awake the patient from sleep. The pain may suddenly become more severe and can be associated with localized swelling and limited motion. History of injuries in sport are common,²⁻⁴ and sometimes the only sign is a pathological fracture.^{3,4}

To diagnose this disease, image studies are required, including PET-CT to complete staging, and a confirmation with biopsy is needed.^{1,3}

Usually, treatment includes chemotherapy and surgery.¹⁻⁵ The presence of metastases is the most important prognostic factor.⁵

At diagnosis, 15%-20% of patients have an identified metastatic disease, the lung being the most common site, which confers an unfavorable prognosis.^{1,3,5} Microscopic lung metastases may be present in all patients.^{2,5} Patients with multifocal bone dissemination have the worst prognosis and bad outcomes.^{2,3,5}



Figure 1. Palpable mass, deformity, and cutaneous infiltration by osteosarcoma.

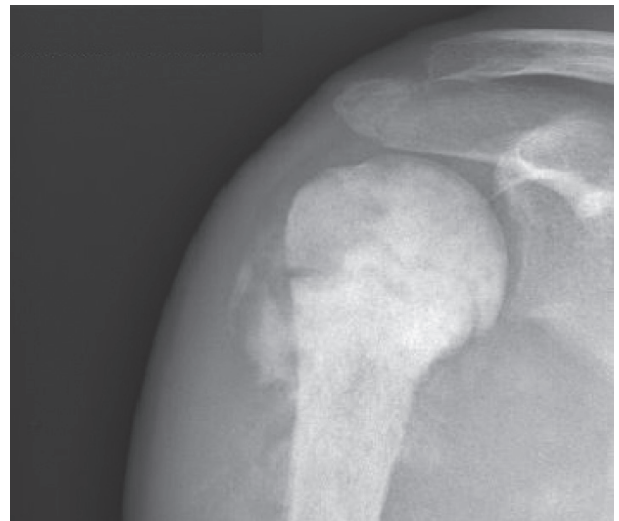


Figure 2. Radiograph showing a metaphyseal lesion with the destruction of the cortex with a periosteal reaction “sunburst”. Permeative destruction pattern and clouds mineralized osteoid.

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Figure 3. Chest radiography with suspected metastatic lesions.

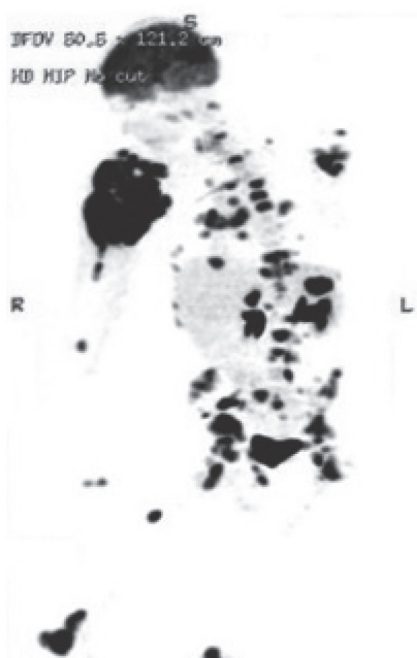


Figure 4. Positron emission tomography with fluorodeoxyglucose (¹⁸F-FDG) showing a large lesion in the right humerus with a high uptake and multiple lesions.

Keywords: Adolescent; Bone Neoplasms/diagnostic imaging; Osteosarcoma/diagnostic imaging; Pain/etiology; Shoulder

WHAT THIS REPORT ADDS

- Bone tumors are very aggressive and treacherous, and we must always be attentive and never devalue the symptoms, even in healthy athletes.
- The first examination to be performed should be a radiograph of the affected bone. In most cases, and when well interpreted, it can lead to early diagnosis of malignancy.
- Patients with bone sarcomas and multiple metastasis may correspond to cases of osteosarcomatosis.
- Osteosarcomas with multiosseous affection have the worst prognosis.
- In some cases of extensively metastatic bone sarcoma, it may be possible to achieve good pain control and quality of life.

Conflicts of Interest

The authors declare that there were no conflicts of interest in conducting this work.

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Confidentiality of data

The authors declare that they have followed the protocols of their work centre on the publication of patient data.

References

1. Lindsey BA, Markel JE, Kleinerman ES. Osteosarcoma overview. *Rheumatol Ther* 2017;4:25-43. doi: 10.1007/s40744-016-0050-2.
2. Taran SJ, Taran R, Malipatil NB. Pediatric osteosarcoma: An updated review. *Indian J Med Paediatr Oncol* 2017;38:33-43. doi: 10.4103/0971-5851.203513.
3. Wittig JC, Bickels J, Priebat D, Jelinek J, Kellar-Graney K,

- Shmookler B. Osteosarcoma: A multidisciplinary approach to diagnosis and treatment. *Am Fam Physician* 2002;65:1123-32.
4. Durfee RA, Mohammed M, Luu HH. Review of osteosarcoma and current management. *Rheumatol Ther* 2016;3:221-43. doi: 10.1007/s40744-016-0046-y.
5. Meazza C, Scanagatta P. Metastatic osteosarcoma: A challenging multidisciplinary treatment. *Expert Rev Anticancer Ther* 2016;16:543-56. doi: 10.1586/14737140.2016.1168697.