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THORACIC PARIETAL OSTEOSARCOMA: THE CONTRIBUTION OF IMAGING – A CASE REPORT

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AUTHOR AND AFFILIATION

Salma Malak Ridah, Ismail Neftah, Zakaria Essouni, Ola Messaoud, Omar El Aoufir, Laila Jroundi

Radiology , emergency Department , CHU Ibn Sina

Corresponding author: Salma Malak Ridah

ABSTRACT

Osteosarcoma is the most common primary malignant bone tumor, but it usually occurs in long bones. Its location in the ribs is exceptional and represents a diagnostic challenge. We report the case of a young patient with osteosarcoma of the right 9th rib, emphasizing the contribution of imaging to the positive diagnosis, staging, and treatment planning

KEYWORDS

Osteosarcoma, chest wall, imaging, CT scan, X-ray.

MAIN ARTICLE

Introduction

Osteosarcoma is a malignant primary bone tumor characterized by the production of tumor osteoid. It occurs predominantly in adolescents and young adults, with a predilection for the metaphyses of long bones. Rib involvement is rare, accounting for less than 2% of cases [1]. Imaging plays a central role in diagnosis: it allows the identification of suggestive features (bone lysis, periosteal reaction, tumor ossification) and assessment of locoregional extension, which is essential for treatment planning.

Results

We report the case of a 20-year-old patient presenting with a painful right parietal mass. Chest X-ray showed multiple parietal opacities with corresponding rib lysis, the largest of which was centered on the posterior arch of the 9th right rib. Computed tomography revealed an endo- and exothoracic tissue mass centered on the lateral arch of the 9th rib, associated with a “grass fire” periosteal reaction and more marked ossification in the center. MRI confirmed parietal extension without pleural or medullary invasion. Biopsy revealed osteoblastic osteosarcoma.

Discussion

Costal osteosarcoma is a rare condition that mainly affects young adults. Its radiological presentation typically combines:

-A destructive bone lesion (lysis or mixed condensation);

-A large tissue mass developed at the expense of the rib;

-An often aggressive periosteal reaction: “grass fire” or “sunburst” appearance;

-More pronounced tumor ossification in the center.

These elements are suggestive but not specific: the differential diagnosis includes other rib tumors (chondrosarcoma, Ewing's sarcoma, metastases) and certain chronic infections (osteomyelitis) [2].

CT is the key examination for analyzing the bone component and tumor ossification. MRI complements the study of the extent to the soft tissues and adjacent structures. Imaging is therefore essential for guiding the diagnosis, guiding the biopsy, and planning surgery.

Treatment is based on a multimodal approach: chemotherapy + wide surgical resection with parietal reconstruction. The prognosis depends on the quality of the margins and the response to chemotherapy[3].

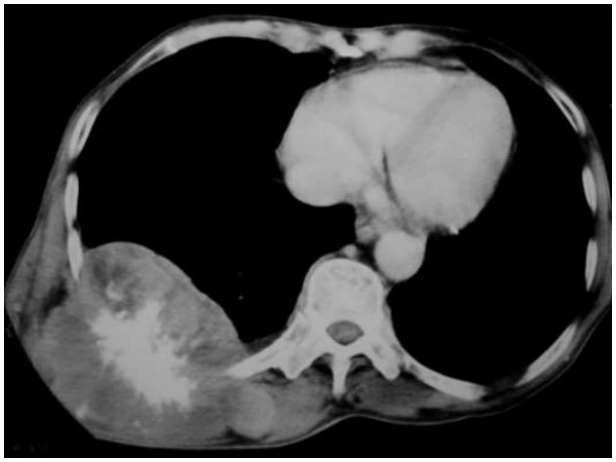
Conclusion

Osteosarcoma of the chest wall is an exceptional location. Imaging, particularly X-ray and CT, plays a major role in positive and differential diagnosis, highlighting the parietal mass, costal lysis, periosteal reaction, and tumor ossification. MRI is essential for assessing local and regional spread[4].The radiologist therefore plays a key role in diagnostic guidance and therapeutic management.

FIGURES:

Figure 1: Chest X-ray: Multiple parietal opacities with corresponding rib lysis, the largest of which is centered on the posterior arch of the 9th right rib.

Figure 2: CT scan: tissue mass developing endo- and exothoracically, centered on the lateral arch of the rib with a “grass fire” periosteal reaction, with more significant ossification in the center.



REFERENCES

1. Mirabello L, Troisi RJ, Savage SA. International osteosarcoma incidence patterns in children, adolescents, and young adults. Int J Cancer. 2009;125(1):229-34. https://doi.org/10.1002/ijc.24320

2. Wurtz LD, Peabody TD, Simon MA. Chest wall resection and reconstruction: experience with 100 consecutive patients. Ann Surg Oncol. 2001;8(4):353-60.

3. Yarmish G, Klein MJ, Landa J, Lefkowitz RA, Hwang S. Imaging characteristics of primary osteosarcoma: nonconventional subtypes. Radiographics. 2010;30(6):1653-72. https://doi.org/10.1148/rg.306105524

4. Bacci G, Longhi A, Fagioli F, et al. Osteosarcoma in pediatric age: prognostic factors. Tumori. 2003;89(5):525-31. https://doi.org/10.1177/030089160308900526