Cartilaginous Tumor: Case Report

https://doi.org/10.32635/2176-9745.RBC.2024v70n4.4847

Tumor Cartilaginoso: Relato de Caso

Tumor Cartilaginoso: Informe de Caso

Carlos Hespanha Marinho Junior[1]; Marina Renata Foggiatto[2]

ABSTRACT

Introduction: Chondrosarcomas are chest wall tumors of cartilaginous tissue, often indolent. Benign and malignant forms can only be differentiated through complementary exams, mainly histopathological ones. The investigation initially relies on imaging exams and subsequently on histology, which is mandatory for lesions larger than 2 cm. Surgical treatment is the most common approach and shows the best results. **Case report:** A 22-year-old patient with Down syndrome presented with symptoms of chest pain during a primary healthcare consultation. For investigation, imaging exams (chest X-ray and computed tomography) were performed. Based on the presence of tumoral characteristics in the exams, combined with a suggestive clinical examination, an excisional biopsy was chosen. The first surgery yielded a good result, but reoperation was necessary to ensure clear margins. After this process, the patient achieved complete tumor resection. **Conclusion:** The reported case and the reviewed publications highlight the importance of correct identification and treatment of this type of chest wall neoplasia.

Key words: Chondrosarcoma/surgery; Thoracic Wall/surgery; Ribs.

RESUMO

Introdução: Os condrossarcomas são tumores de parede torácica com origem cartilaginosa, na maioria das vezes indolentes. As formas benignas e malignas só podem ser diferenciadas a partir de exames complementares, principalmente histopatológicos. A investigação baseia-se inicialmente em exames de imagem e posteriormente na histologia, que se faz obrigatória em lesões acima de 2 cm. O tratamento cirúrgico é o mais utilizado e apresenta melhores resultados. **Relato do caso:** Paciente de 22 anosportador de síndrome de Down apresentou sintomas de dor torácica em consulta na atenção primária de saúde. Para a investigação, foram realizados exames de imagem da região torácica (radiografia e tomografia axial computadorizada). A partir da apresentação de características tumorais nos exames, somadas a um exame clínico sugestivo, optou-se pela biópsia excisional. Já na primeira cirurgia, houve um bom resultado, porém foi necessária uma reabordagem para a garantia de margens livres. Após esse processo, o paciente obteve ressecção completa do tumor. **Conclusão:** O caso relatado e as publicações levantadas demonstram a importância da identificação e tratamento corretos desse tipo de neoplasia de parede torácica.

Palavras-chave: Condrossarcoma/cirurgia; Parede Torácica/cirurgia; Costelas.

RESUMEN

Introducción: Los condrosarcomas son tumores de la pared torácica de origen cartilaginoso, que en su mayoría son indoloros. Las formas benignas y malignas solo pueden diferenciarse mediante exámenes complementarios, principalmente histopatológicos. La investigación se basa inicialmente en estudios de imagen y posteriormente en histología, la cual se vuelve obligatoria para lesiones superiores a 2 cm. El tratamiento quirúrgico es el más utilizado y presenta los mejores resultados. **Informe del caso:** Paciente de 22 años con síndrome de Down presentó síntomas de dolor torácico durante una consulta en atención primaria. Se realizaron exámenes de imagen (radiografía y tomografía axial computarizada de tórax) para la investigación. Dada la presentación de características tumorales en los estudios de imagen, junto con un examen clínico sugestivo, se optó por una biopsia escisional. La primera cirugía tuvo un buen resultado, pero fue necesaria una reintervención para asegurar márgenes libres. Tras este proceso, el paciente logró una resección completa del tumor. **Conclusión:** El caso reportado y la literatura revisada destacan la importancia de la identificación y tratamiento adecuados de este tipo de neoplasia de pared torácica.

Palabras clave: Condrosarcoma/cirugía; Pared Torácica/cirugía; Costillas.

[1]Universidade Positivo. Faculdade Evangélica Mackenzie do Paraná, Hospital Universitário Evangélico Mackenzie. Curitiba (PR), Brasil. E-mail: drhespanha@yahoo.com.br. Orcid iD: https://orcid.org/0000-0001-8486-9202

[2]Universidade Positivo. Curitiba (PR), Brasil. E-mail: marinarfoggiatto@gmail.com. Orcid iD: https://orcid.org/0009-0001-0654-5736

Corresponding author: Marina Renata Foggiatto. Avenida das Torres, 3520 – Centro. São José dos Pinhais (PR), Brasil. CEP 83005-450. E-mail: marinarfoggiatto@gmail.com

INTRODUCTION

Tumors in the chest wall may originate from muscles, nerves, bones, cartilages, and connective tissues, being categorized as bone and soft tissue[1] tumors. This proliferation may be primary, metastatic, or arise from wall invader tumors. Chondrosarcomas are a group of cartilaginous lesions. According to the 2020 World Health Organization (WHO) Soft Tissue and Bone Tumors Classification[2], these tumors are classified in different types. First, there are atypical cartilaginous tumors (ACT), that are histologically equal to grade 1 chondrosarcoma (CS1), however, the latter is classified as malignant. In addition, there are grades 2 and 3 central chondrosarcoma and periosteal chondrosarcoma[3]. It is worth mentioning that each one of those classifications is further divided into specific subtypes.

Generally, primary soft tissue tumors are palpable and indolent in the chest wall. Moreover, malignant cases may present pain and rapid growth, but clinical exam alone cannot distinguish a malignant neoplasm from a benign one.

Chest radiographies are the initial imaging method for locating and assessing the lesions' size and rough aspects. However, computerized axial tomography (CAT) of the chest region is more sensitive and specific, mainly associated to contrast, assessing the tumor's extension and involving adjacent structures, vascularization and density of the cancerous lesion[4].

In most cases, after image exams, histological confirmation is needed for the final diagnosis. Usually, in lesions greater than 2 cm, a preoperative[1] diagnosis confirmation is preferred, with the collection of pathological tissue samples through fine needle aspiration, incisional biopsy, or excisional biopsy.

Surgical resection is the best and most used treatment technique. The lesion's block excision should ensure disease-free margins to avoid site recurrence and increase survival. Resections usually do not require chest wall reconstruction, but this procedure can be needed in some cases to repair defects, reduce instability, breathing difficulties and infectious diseases.

The objective of this report is to present and discuss the case of a Down syndrome patient who developed an atypical central cartilaginous tumor in the chest wall and underwent surgical tumoral mass removal. The diagnosis, prognosis and treatment methods for this type of tumor are highlighted.

CASE REPORT

Male patient, 22 years-old, first arrived at the Basic Health Unit (UBS) reporting localized chest pain. Exams were prescribed, in which a rib cage lesion was identified. The image was observed on the initial chest radiography as an oval, radiopaque, circumscribed nodule located in the lower third of the left hemithorax measuring 33 mm (Figure 1). Then, a chest CAT showed infiltrative lesion measuring 3.7 cm on the 6th left rib, with no mediastinal or hilar lymphadenopathy, and preserved lung parenchyma.

Upon oncological investigation, a physical exam was performed by exposing the patient's chest for inspection, palpation and auscultation. This evaluation revealed a hardened palpable lesion in the chest wall. Moreover, weight loss was reported by the patient's mother. Since chondrosarcomas are usually small, painless and hard[5], the diagnostic hypothesis of this type of chest wall tumor was raised. Laboratory preoperative exams were prescribed, which did not show alterations, followed by a surgical excision biopsy in December 2022.

The material was sent for an anatomopathological examination. The procedure was conducted with general anesthesia and the patient remained hospitalized for two days, with good postoperative evolution. On the same day of the surgery, a chest X-ray was performed for postoperative assessment. In January 2023, upon excisional biopsy, macroscopic description of the material detailed a whitish-brown coloration, with hard consistency and lobulated aspect on the cuts, affecting the spinal cord and causing cortical erosion. The diagnosis was an atypical central cartilaginous tumor, and it was determined that one of the bone margins presented microscopic involvement, without specifying whether it was the anterior or posterior one. Figure 2 shows the resected surgical piece of the 6th rib, with evident tumoral invasion areas, covered by hemorrhagic soft tissue.

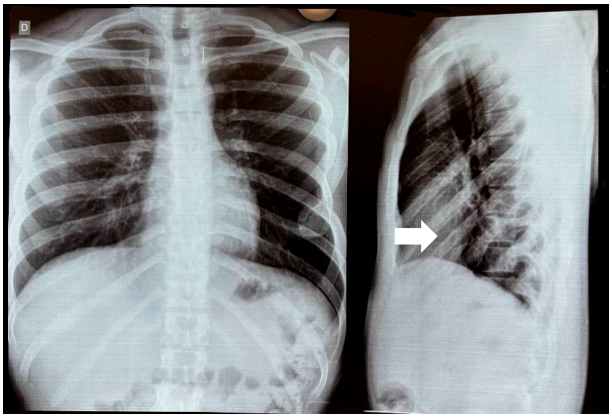

Figure 1. Circumscribed, oval, radiopaque nodular lesion measuring 33 mm

New preoperative assessments were conducted with chest imaging and laboratory exams. In the new chest tomography, only laminar atelectasis was described in the lower left lung field, without other osteocartilaginous changes visible to the method (Figure 3).

Finally, in February 2023, the patient was submitted to a second left thoracotomy to enlarge anterior and posterior surgical margins. Two incisions were performed, and the retrieved material sent to a new anatomopathological exam. Figure 4 shows an intraoperative radiography with the surgical demarcation made by a metallic clip, used to precisely identify the site of resection as an extension of the initial surgery. After the new surgery, the patient underwent another chest CAT for follow-up (Figure 5). The new anatomopathological exam report indicated clear surgical margins and absence of neoplasm.

The patient had a good evolution after full tumor resection and was discharged on the day after the surgery, showing no complications. Despite that, he now presents a more fragile region on the chest wall without the protection of the 6th rib, which can increase the risks of chest trauma and interfere with some daily life activities. Therefore, later, if the patient wishes and there are medical indications, a reconstruction of the chest wall can be performed. Until this moment,

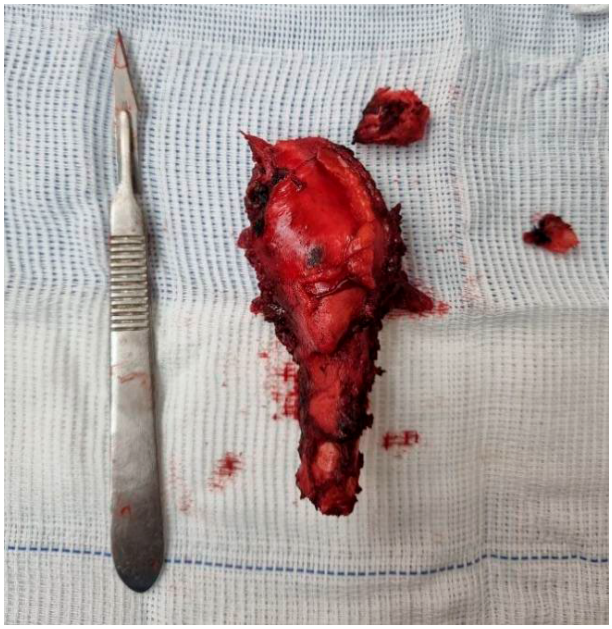

Figure 2. Surgical piece of the resected 6th rib on the first surgery

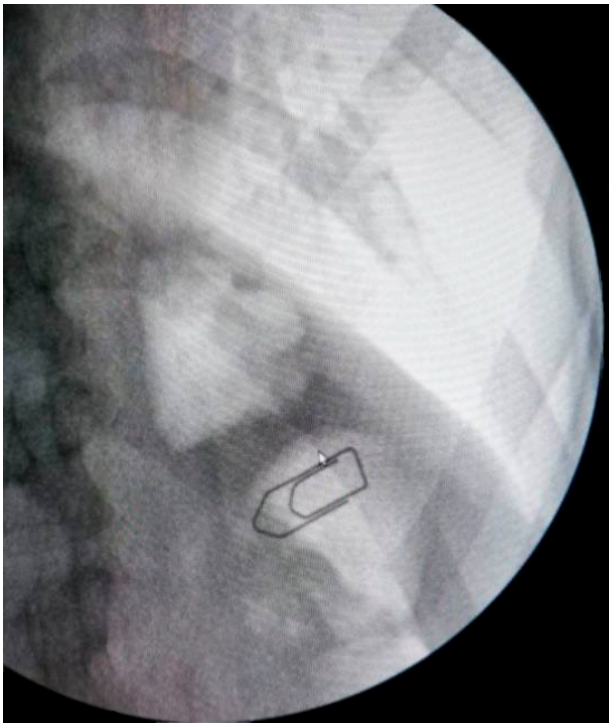

Figure 4. Intraoperative surgical demarcation upon second surgery for widening the margins.

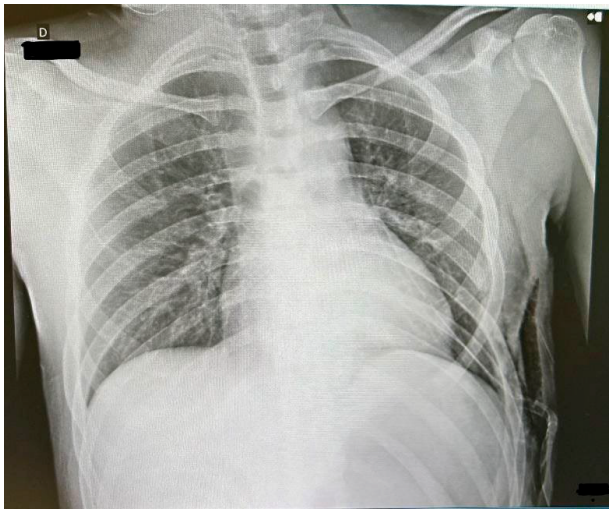

Figure 3. Tumor post-excisional image

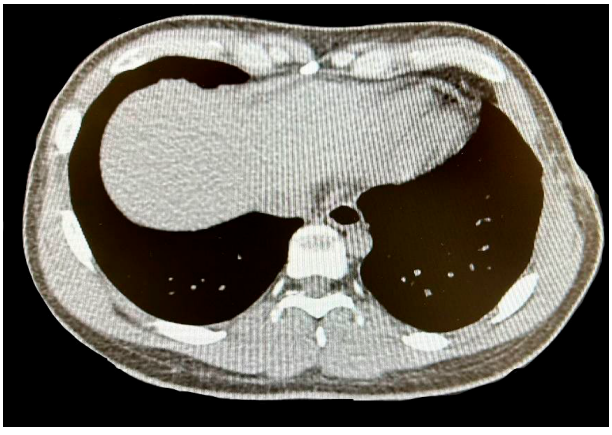

Figure 5. Image showing absence of part of the 6th rib

the patient did not present tumor recurrence and has already resumed his daily life and physical activities, maintaining periodic outpatient monitoring, with chest tomography scans.

The information contained in this work was obtained through medical records review, interview with the patient and photographic records of diagnosis methods to which the patient was submitted. This work was approved by the Research Ethics Committee (CEP), represented by CAAE (submission for ethical review): 79984224.2.0000.0103, approval report number 6.973.021. In compliance with Resolution number 4666, of December 12th, 2012, of the National Health Council.

DISCUSSION

Chondrosarcoma appears 15% of the time located in the chest wall[7] and represents 20% of all neoplasms in this anatomy[8]. This tumor usually grows slowly and painless[3], leading to late diagnosis and investigation. Moreover, rarity, incorrect interpretation of radiographies and the lack of specialized surgical experience may contribute to delayed treatment, resulting in inoperability, use of inadequate therapeutic methods and lower survival rate[7].

Due to its slow growth, great amount of extracellular matrix, and low vascularization, radiotherapy and chemotherapy are not recommended to treat this neoplasm. Surgical resection with microscopically negative margins is the default treatment, regardless of the tumor grade[4].

Reconstruction of the chest wall is recommended for total thickness defects greater than 5 cm, or resection involving more than three ribs[4]. The objective of this procedure is to recover structural stability, close the remaining dead space and protect intrathoracic structures to avoid complications, such as hernias, infections, breathing issues, among others. This procedure can be done with tissue from the patient of prosthetic material[1].

The reported patient had surgical treatment conducted in two approaches due to the identification of micro-lesions in one of the margins observed on the anatomopathological exam after the first resection. Thus, upon the second surgery, the margins were widened to ensure adequate tumor treatment and reduce recurrence, increasing the chances of curing the patient. Until now, there were no reasons that justified reconstruction of the chest wall in this case.

CONCLUSION

The reported case shows that the main methods used in the identification of this type of tumor are chest radiography and tomography associated with a biopsy for diagnostic confirmation. The report also addresses the most used therapeutic approach in the chest wall atypical central cartilaginous tumor, which is surgical resection with clear margins, as is done in most chondrosarcomas. Finally, this case report highlights the importance of study, knowledge and abilities of the oncological and chest surgery teams in identifying and treating the illness, considering that most cases appear as indolent.

CONTRIBUTIONS

Marina Renata Foggiatto has substantially contributed to the study design, acquisition, wording and critical review, Carlos Hespanha Marinho Junior has substantially contributed to data acquisition, analysis and interpretation. All the authors approved the final version for publication.

DECLARATION OF CONFLICT OF INTERESTS

There is no conflict of interest to declare.

FUNDING SOURCES

None.

REFERENCES

1. Gonfiotti A. Chest-wall tumors and surgical techniques: state-of-the-art and our institutional experience. J Clin Med. 2022;11(19):5516. doi: https://www.doi.org/10.3390/jcm11195516
2. WHO Classification of Tumours Editorial Board. Soft tissue and bone tumours. 5. ed. Lyon: International Agency for Research on Cancer; 2020. 3 vol.
3. Kim JH. Classification of chondrosarcoma: from characteristic to challenging imaging findings. Cancers (Basel). 2023;15(6):1703. doi: https://www.doi.org/10.3390/cancers15061703
4. Klein D. Chondrosarcoma of the rib: atypical presentation and management. J West Afr Coll Surg. 2022;11(2):25-7. doi: https://www.doi.org/10.4103/jwas.jwas_12_21
5. Rosemberg N. Osteocondroma: relato clínico. J Pneumol. 2002;28(2):107-8. doi: https://www.doi.org/10.1590/S0102-35862002000200009
6. Conselho Nacional de Saúde (BR). Resolução nº 466, de 12 de dezembro de 2012. Aprova as diretrizes e normas regulamentadoras de pesquisas envolvendo seres humanos. Diário Oficial da União, Brasília, DF. 2013 jun 13; Seção I:59.

7. Ramsingh K. Case report on the approach to surgical management for a large chest wall chondrosarcoma. Int J Surg Case Rep. 2022;94:107047. doi: https://www.doi.org/10.1016/j.ijscr.2022.107047
8. Lenze U. Chondrosarcoma of the chest wall: a review of 53 cases from two institutions. Anticancer Res. 2020;40(3):1519-26. doi: https://www.doi.org/10.21873/anticanres.14097

Recebido em 11/8/2024
Aprovado em 30/9/2024

Scientific-Editor: Anke Bergmann. Orcid iD: https://orcid.org/0000-0002-1972-8777