

CASE REPORT

UNUSUAL PRESENTATION OF A RARE CHEST WALL TUMOR: GIANT CELL TUMOR OF BONE

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ABSTRACT



Introduction: Giant cell tumours account 5% of all bone tumours. However, the anterior chest wall is rarely involved .

Clinical case: This is a 68-year-old housewife who has been thyroidectomized, for 11 years and is under hormone replacement therapy, and hysterectomized for 6 years after a uterine tumor. She is present for the onset of a 5 month old hard submammary mass on the left associated with left anterior chest pain under mammals. The clinical examination had found an irregular hard mass under left mammary which is fixed to the anterior arch of the 4th left rib. A thoracic x-ray showed a limited left hila-axillary with an homogenously dense opacity. The thoracic CT scan showed the presence of a thoracic parietal mass of osteolytic tissue density centered on the anterior arch of the 4th left rib; without contrast agent, the surgical exploration through thoracotomy revealed a thoracic parietal tumoral process at the expense of the anterior arch of the 4th limb pushing the corresponding lung inwards. Surgical excision allowed ablation of the whole tumor in monobloc towards a healthy zone. The anatomopathological study of the operative specimen showed a morphological and histopathological aspect compatible with a costal tumor with giant cells. The postoperative recovery was marked by a good clinical and radiological improvement. The last check up after the surgery revealed that the patient was still asymptomatic. Good clinical, biological and radiological improvement was noted with a decline of 8 months.

Conclusion: Giant cell tumors are aggressive bone tumors, yet histologically benign. The chosen examination is a thoracic CT scan with surgical treatment. A clinical and radiological monitoring is necessary. The recurrence is rare, but it usually necessitates a second surgery. The objective of this clinical observation is to highlight the possibility, although rare, of a giant cell tumor in case of the swelling of the soft parts, and a lytic lesion of the anterior part of a rib. Therefore, this tumor must be added to the list of diagnoses to be mentioned in this situation.

KEYWORDS: Chest wall- costal tumor -CT scan – thoracotomy.

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INTRODUCTION

Giant cell tumors account for 5% of all bone tumors [1]. They are usually on the long bones, in the epiphyseal way for the adult and metaphyseal before the end of growth [1]. The lower end of the femur is the favoured location. The costal involvement represents less than 1% of the cases [1,2] and most often occurs at the epiphysis of the head and tubercle [3]. The anterior chest wall is rarely involved [4].

OBSERVATION

This is a 68-year-old housewife who has been thyroidectomized, for 11 years under hormone replacement therapy and hysterectomized for 6 years, for uterine tumor. She is present for the onset of a 5 month old hard sub-mammary mass on the left associated with left anterior chest pain under mammals. The clinical examination found an irregular hard mass under left mammary which is fixed to the anterior arch of the 4th left

rib. A thoracic x-ray showed a limited left hila-axillary with a homogenously dense opacity[fig1]. The thoracic CT scan showed the presence of a thoracic parietal mass of osteolytic tissue density centered on the anterior arch of the 4th left rib[fig2,3]; without contrast agent, the surgical exploration through a thoracotomy revealed a thoracic parietal tumoral process at the expense of the anterior arch of the 4th limb pushing the corresponding lung inwards. Surgical excision allowed ablation of the whole tumor in monobloc towards a healthy zone[fig4,5]. The anatomopathological study of the operative specimen showed a morphological and histopathological aspect compatible with a costal tumor with giant cells[fig6]. The postoperative recovery was marked by a good clinical and radiological improvement[fig7]. The last check up after the surgery revealed that the patient was still asymptomatic. Good clinical, biological and radiological improvement was noted with a decline of 8 months.



Fig 1: A thoracic x-ray showed a limited left hila-axillary with a homogenously dense opacity.

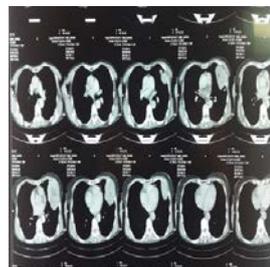


Fig 2: The thoracic CT scan showed the presence of a thoracic parietal mass of osteolytic tissue density centered on the anterior arch of the 4th left rib.

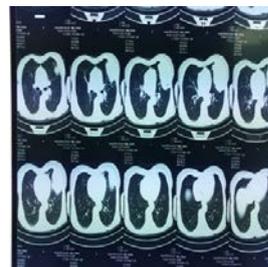


Fig 3: The thoracic CT scan showed the presence of a thoracic parietal mass of osteolytic tissue density centered on the anterior arch of the 4th left rib.



Fig 4: Intraoperative picture after extraction of the parietal tumor.



Fig 5: intraoperative picture after reconstruction of the parietal defect.



Fig 6: Picture of the parietal tumor.



Fig 7: Postoperative thoracic x ray

DISCUSSION

Giant cell tumors are aggressive bone tumors, yet histologically benign. The tumor, which is well vascularized, is composed of round, spindle-shaped or ovoid cells, among which are multinucleate giant cells that are uniformly dispersed [2]. The preferred seat for the adults is epiphysis (20-40 years) and metaphysis for the children [1]. The knee region is involved in 60% of cases [2]. More rarely, the tumor may settle at the lower end of the fibula, at the patella, in a vertebra, in the craniofacial skeleton, or in the sacrum. Costal involvement accounts

for only 1% of all giant cell tumors [2]. Primary bone and cartilage tumors of the chest wall are rare: they only represent 4.5 to 8% of bone tumors. Giant cell tumors of the chest wall are most often located at the posterior end of a rib, at the head and tubercle, which are structures epiphyseal [3]. Huvos observed four cases of costal affection among 265 patients seen for giant cell tumor [1]. Dahlin and al. found two cases among 195 patients [4]. Therefore, the involvement of the anterior chest wall is exceptional, and has only been the subject of rare publications (Table 1).

Table 1: Seven observations of giant-cell bone tumors of the anterior chest cavity reported in the literature.

Authors	Clinical Chart	Treatment
Iida, 1996 [5]	Tumor of the chest wall	Resection and reconstruction by mesh in Marlex
Brenner, 1997[6]	Breast swelling	Resection and reconstruction by dermal graft
Gupta, 2000 [7]	Tumor of the chest wall	-
Higashi, 2001 [8]	Tumor of the chest wall	Resection and reconstruction by mesh in Marlex
Shin, 2002 [9]	Tumor of the chest wall	Resection and reconstruction by polyester mesh
Reddy, 2003 [10]	Tumor of the chest wall	Resection and reconstruction by polyester mesh
Ashok 2007[11]	Tumor of the chest wall	Resection and reconstruction by polyester mesh

Our patient presented a clinical picture of a sub-mammary mass. Brenner and al. [6] described a case of mammary swelling initially taken for carcinoma. The biopsy showed a giant cell tumor of costal origin, which excision was followed by reconstruction by dermal graft [6]. In our patient's case, the chest x-ray and computed tomography performed in our department were in favour of a benign costal tumor. The possibility of pyogenic or Koch's bacillus osteomyelitis was, however, kept in mind until surgery. A complete excision was obtained. The clinical, radiological and histological features confirmed the diagnosis of giant cell tumor. The objective of this clinical observation is to highlight the possibility, although rare, of a giant cell tumor in case of swelling of the soft parts and lytic lesion of the anterior part of a rib. Therefore, this tumor must be added to the list of diagnoses mentioned in this situation. The list should also include frequent costal tumors (Ewing's sarcoma, chondrosarcoma and fibrous

bone dysplasia) [4] and osteomyelitis with common germs or with bacillus of Koch. Complete excision is the chosen surgical treatment since it allows healing, avoiding the risk of recurrence and malignant transformation (10% of costal infection cases) [3] that exists in case of treatment by curettage and bone graft.

CONCLUSION

Giant cell tumors are aggressive bone tumors, yet histologically benign. The chosen examination is a thoracic CT scan with a surgical treatment. A clinical and radiological monitoring is necessary. Recurrence is rare, but it usually necessitates a second surgery. The objective of this clinical observation is to highlight the possibility, although rare, of a giant cell tumor in case of swelling of the soft parts and lytic lesion of the anterior part of a rib. Therefore, this tumor must be added to the list of diagnoses to be mentioned in this situation.

AUTHORS' CONTRIBUTIONS

The participation of each author corresponds to the criteria of authorship and contributorship emphasized in the [Recommendations for the Conduct, Reporting, Editing, and Publication of Scholarly work in Medical Journals](#) of

the [International Committee of Medical Journal Editors](#). Indeed, all the authors have actively participated in the redaction, the revision of the manuscript and provided approval for this final revised version.

PATIENT CONSENT

Written informed consent was obtained from the patient for publication of this case report.

COMPETING INTERESTS

The authors declare no competing interests.

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