

# A Closed Chest Trauma Revealing Primary Pleomorphic Sarcoma of the Chest Wall

Belliraj L<sup>1\*</sup>, Lakranbi M<sup>1,2</sup>, Janati IK<sup>3</sup>, Rabiou S<sup>1</sup>, Issoufou I<sup>1</sup>, Ammor FZ<sup>1</sup>, Harmouchi H<sup>1</sup>, Ouadnoui Y<sup>1,2</sup> and Smahi M<sup>1,2</sup>

<sup>1</sup>Department of Thoracic Surgery, University Hospital Hassan II, Fes, Morocco

<sup>2</sup>Faculty of Medicine and Pharmacy, University Sidi Mohamed Ben Abdellah, Fes, Morocco

<sup>3</sup>Department of Radiology, University Hospital Hassan II, Fes, Morocco

\*Corresponding author: Belliraj L, Department of Thoracic Surgery, University Hospital Hassan II, Fes, Morocco, Tel: +00212670197069, E-mail: lbelliraj@yahoo.fr

**Citation:** Belliraj L, Lakranbi M, Janati IK, Rabiou S, Issoufou I, et al. (2018) A Closed Chest Trauma Revealing Primary Pleomorphic Sarcoma of The Chest Wall. SAJ Case Rep 5: 305

**Article history:** Received: 25 July 2018, Accepted: 20 August 2018, Published: 21 August 2018

## Abstract

Sarcomas are a heterogeneous group of uncommon tumors that originate from mesenchyme cells, representing less than 1% of adult malignancies and about 0.1-0.15% of all soft tissue malignant tumors of the chest wall in adults. Pleomorphic sarcoma is a rare entity that usually occurs in the lower limbs, more rarely in the abdomen or thorax. We report the case of a young patient who consulted for chest mass appearing after a closed chest trauma. The biopsy showed a pleomorphic sarcoma.

**Keywords:** Sarcoma; Soft Tissue; Chest Wall; Surgery

## Introduction

Primary sarcomas of the chest wall are a rare pathological entity. They account for less than 5% of all thoracic neoplasia [1,2]. Pleomorphic sarcoma accounts for 5-10% of adult sarcomas [3]. We report the case of a young patient in whom primary pleomorphic sarcoma of the chest wall was discovered after a closed chest trauma.

## Observation

This is a 30-year-old male patient, who suffered from a chest trauma twice in December 2015 and in February 2016, responsible for a fracture of the anterior arch of the 5<sup>th</sup> and 6<sup>th</sup> left rib with a hematoma treated symptomatically (NSAID) in another regional hospital.

Two months later, on April 2016, the patient consulted at the emergencies for a chest mass on the same site of the initial trauma. At the clinical examination, the patient was hemodynamically stable with a mass of 6 cm of diameter, on the left parasternal axis about the 5<sup>th</sup>/6<sup>th</sup> left intercostal space, fixed to the 2 plans (deep and superficial) with presence of inflammatory signs on the skin. The biological assessment was normal. Ultrasound showed an abscessed wall mass, and according to the radiologist, CT scan was not indicated.

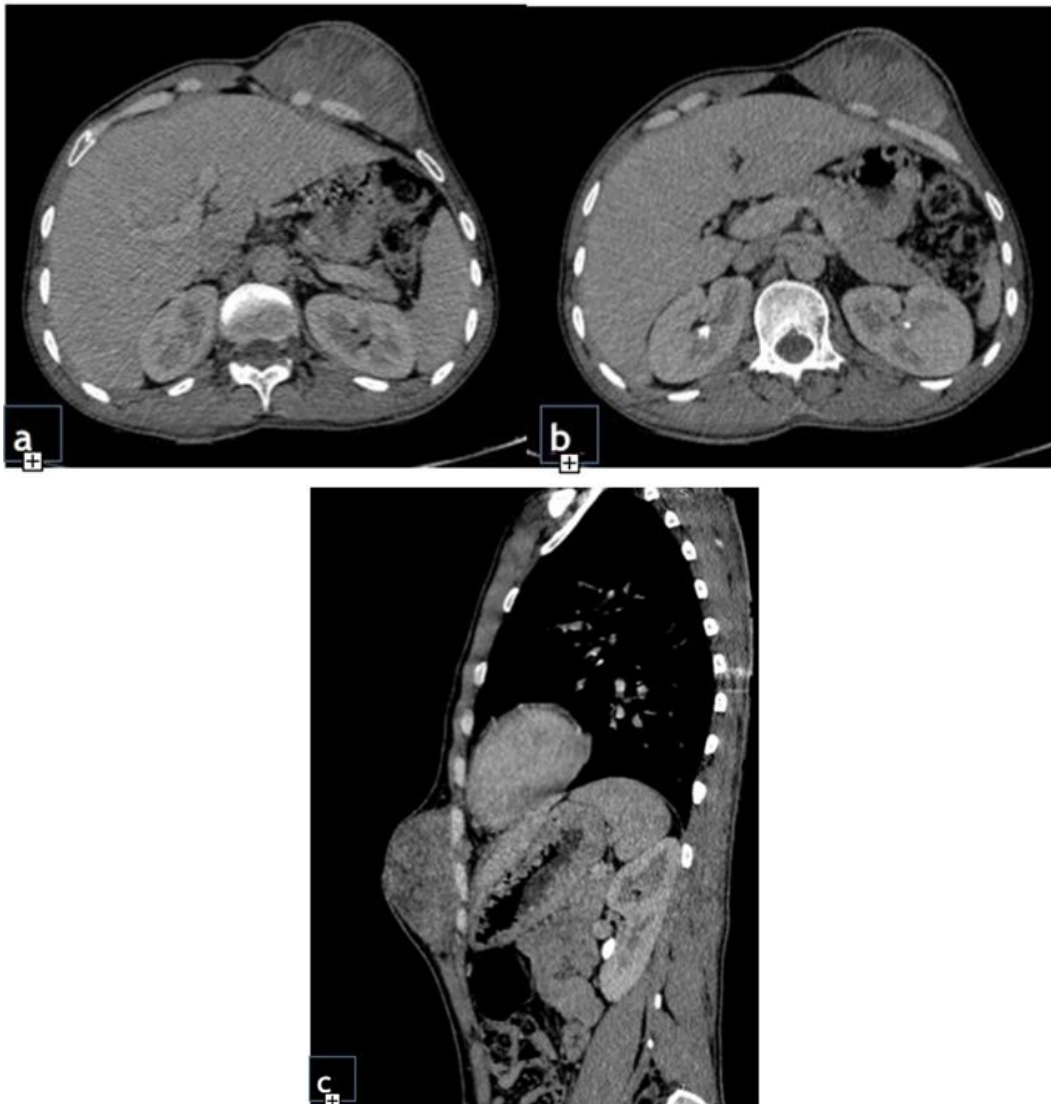
A flattening of the abscess was decided. After incision, it turned out that it is a fleshy mass tissue and not an abscess. A surgical biopsy was performed, without drainage, and the pathological result was in favor of a pleomorphic sarcoma.

A chest-abdomen -pelvic CT scan showed a left thoracic basal tissular mass at the level of the 6-7<sup>th</sup> and 8<sup>th</sup> intercostal space, moderately and heterogeneously enhanced after contrast injection, delineating well-defined liquefaction zones of regular contours, measuring 99 x 48 x 100 mm, without distant lesions (Figure1).

At the end of local and distant extension assessment, the tumor was resectable, non metastatic in an operable patient, therefore the surgery was decided without discussion at the tumor board. The patient had a total surgical resection of the tumor made of parietectomy carrying the anterior arch of the 5<sup>th</sup>, 6<sup>th</sup> and 7<sup>th</sup> ribs with parietal reconstruction by polypropylene plate and myocutaneous flap of the left latissimus dorsi.

The pathological study after immuno-histo-chemistry reports a pleomorphic sarcoma measuring 10x7x4 cm. The resection margins were negative.

After discussion in a multidisciplinary meeting, the patient was referred to radiation oncology department for adjuvant radiotherapy. The radiotherapy was delivered after an interval of 8 weeks, time necessary for a good scar healing. He received 50 Gy in 25 fractions. Radiation therapy was well tolerated, with good evolution, and a follow up of 30 months, without local recurrence or distant metastasis.



**Figure 1:** Axial (a; b) and coronal (c) CT slides : Presence of a tissular mass of the left anterior thoracic soft tissues, is enhanced heterogeneously after contrast delineating areas of necrosis without bone lysis

## Discussion

The primary pleomorphic sarcoma localization of the chest wall is unusual in clinical practice. Even studies report only small series of sarcomas from all sources which explain the delay in diagnosis and treatment [4]. The clinical presentation is variable. It is usually a palpable mass, increasing in size and painful in case of associated bone involvement [5]. It develops in young adults, with a first peak of 20 to 30 years and a second peak between 50 and 60 years without gender predilection [2-5]. There is no link between the trauma and increased risk of sarcoma, however, in our patient sarcoma was diagnosed following an closed chest trauma [6]. In this case, the history of trauma deviated the diagnosis. Therefore, every asymptomatic soft- tissue mass > 5 cm or deep has to be considered being a STS until diagnosed otherwise.

In imaging, the MRI is the most useful examination because of its ability to demonstrate subtle changes in soft tissues making it a choice in the evaluation of primary soft tissue sarcomas. It should be performed prior to biopsy to avoid misinterpretation of biopsy-related signal changes in surrounding tissue, which may impair its value in staging of thoracic sarcoma. CT is also an excellent modality for detecting soft tissue mass. It is particularly important tools in the staging process in assessment for the presence or absence of metastatic disease. Some teams use PET scan, but in daily practice it is not routinely performed [4,5].

Although imaging features may suggest the diagnosis, a surgical or non-surgical biopsy remains mandatory for a diagnosis of certitude. Surgical resection is the treatment of choice. It represents a challenge to the surgeon because of the involvement of vital structures [1]. The treatment consists of an en bloc large excision carrying the Biopsy scar and the tumor with a circumferential margin of non-tumoral tissue of 2 cm or an anatomical barrier (resection R0). If the margins are invaded, a surgical re-excision must be made. [7]. Neoadjuvant / adjuvant therapies are used in specific cases [1]. Adjuvant radiotherapy is reserved for tumors larger than 5 cm, deep or high grade. Lesions 5 cm or less, superficial and low grade will not require radiotherapy after surgical excision in negative margins [7]. Neoadjuvant radiotherapy can be used in patients with large tumors, but is associated with high rates of wound complications [4]. In our patient despite the large size of the tumor, neoadjuvant radiotherapy was not performed, as a parietal reconstruction after extensive surgery was planned.

There is no consensus for chemotherapy if the target is localized. If there is a high risk of recurrence, especially when the tumor is of high grade, deep or exceeds 5 cm, adjuvant or Neoadjuvant chemotherapy can be administered to reduce the risk of recurrence [6]. Prognostic factors are inconsistent in the literature series; however, adequate surgical resection is still considered to be the most important factor in achieving a survival advantage. Other prognostic factor is the grade of the tumor, a high grade tumor status conferring a worse prognosis [4]. Patients should have routine follow-up with a physical examination and be counseled on self-examination for detection of recurrence. In addition, patients must have a CT scan to monitor their tumor. Our patient is regularly followed in consultation, with the realization of control scanners [1,8]. Median overall survival reported in the literature for similar cases varies between 12 and 19 months [7].

## Conclusion

The primitive pleomorphic sarcoma of the thoracic wall is rare. Management requires a multidisciplinary approach including thoracic surgery, plastic surgery, medical oncology and radiation oncology for optimal management from the initial stage of diagnosis.

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