INTRATHORACIC UPPER CHEST WALL TUMOUR SIMULATING THORACIC OUTLET SYNDROME: A CASE REPORT

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ABSTRACT

Background: Chest wall tumours are relatively common. Most occur externally where as a visible mass it may or may not cause pain. Very few occur intrathoracically where detection is late except incidentally discovered during routine Chest x-ray investigation.

Objective: This is to report a very rare type of intrathoracic upper chest wall tumour, simulating thoracic outlet syndrome.

Patient and Method: An 18-year old Secondary school(SS3) student presented with right sided chest pain. Chest x-ray revealed intrathoracic upper chest wall mass. He was offered surgery which encompassed wide excision and chest wall reconstruction.

Result: Patient did well postoperatively but histology showed the tumour to be osteosarcoma. He received only chemotherapy but no radiotherapy due to non-availability in the country at that period in time. After a year, there was recurrence with explosive growth. Patient died from florid pulmonary metastasis 2 months later.

Conclusion: Chest wall tumours are generally considered malignant until otherwise proven. Surgery is the best form of treatment. Prognosis however, depends on the histologic type, type of surgery and the degree of sensitivity to chemoradiation.

INTRODUCTION

Chest is that part of the body between the thoracic inlet and the diaphragm. It is composed of a wall and cavity which in turn contains vital structures like the heart, lungs, oesophagus, descending thoracic aorta among others. The chest wall is comprised of heterogeneous groups of tissues ranging from bones (vertebrae, ribs, cartilage, manubriosternum and xiphisternum) and soft tissues ranging from muscles, nerves, blood vessels, fibrous tissues to fascia, skin and subcutaneous tissues. Chest wall tumours (CWT) or neoplasms comprise a group of diseases differing widely in their cause and biology and may affect any of the constituents of the chest wall either from within or outside The diagnosis of CWT especially the one occurring outside the chest cavity is relatively easy but the treatment often taxes the ingenuity of the most experienced thoracic and or plastic surgeons[1]. These tumours are relatively rare accounting for about 1-2% of the population[2]. Of all the thoracic neoplasms they account for about 5%[3]. Classification is based on the tissue of origin. However, other types of classification include benign or malignant and whether it is primary or secondary. Secondary CWT biologically involve direct invasion or metastases from adjacent or even distant structures.

Case summary

Patient is an 18-year old male who presented to our service, with 2 weeks prior, history of left sided chest pain which was dull in character, continuous but radiating to the left upper limb with associated paraesthesia and occasional weakness in that limb. There was no known aggravating factor but analgesics provided intermittent relief. There was no associated cough, dyspnoea or orthopnoea. There was also no history of fever and no contact with persons with chronic cough. There was no history of trauma preceding the

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onset of chest pain. There was no history of intake of tobacco in any form and no prior exposure to related occupational hazard like asbestos, rubber or agricultural chemicals. His only medications prior to presentation was paracetamol, an over the counter drug, bought from a chemist shop.

Clinical examination revealed normal vital signs. Systemic examination was uneventful. However, a chest x-ray revealed a huge hemispherical intrathoracic radiopaque mass in the upper third of the left hemithorax. The mass measured 3.5 x 4.8 cm. His haematological profile, electrolyte, urea and creatinine including blood sugar and retroviral screening status were reviewed and they all appeared normal.

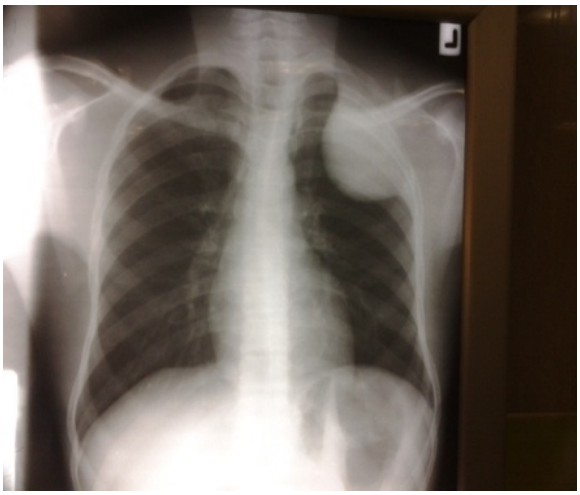

Figure 1: preoperative chest x-ray

He was offered thoracotomy. In the theatre, he was offered general anaesthesia with cuffed endotraheal tube. Position was right lateral decubitus. Chest was entered through 4th LICS.

Incision was extended both anteriorly and posteriorly. Tumour was exposed abutting on the upper lobe and adherent on the posteriolateral chest wall (1st to 4th ribs) and extending to the transverse process of the affected ribs. The tumour was easily separated from the upper lobe. Enbloc resection was subsequently done removing the affected ribs and the transverse processes. However, due to the nonavailability of frozen section, complete resection could not be ascertained. The lung was inflated, haemostasis achieved and the chest wall defect was reconstructed with cut-to-size titanium mesh. Two indwelling chest tube drainage (CTTD) were left in situ, with another one serving as wound drain. Chest was closed and the tubes connected to underwater seal system. Immediate postoperative chest x-ray was uneventful. On the 5th postoperative day, the upper CTTD and wound drain were removed and the lower CTTD was removed on the 7th day postop. Postextuation C x R was also uneventful. See Figure 4.

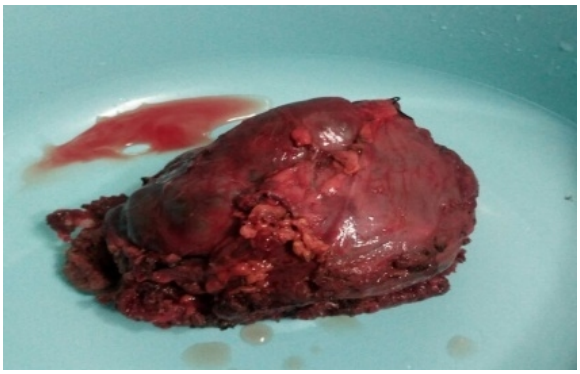

Figure 2: Specimen

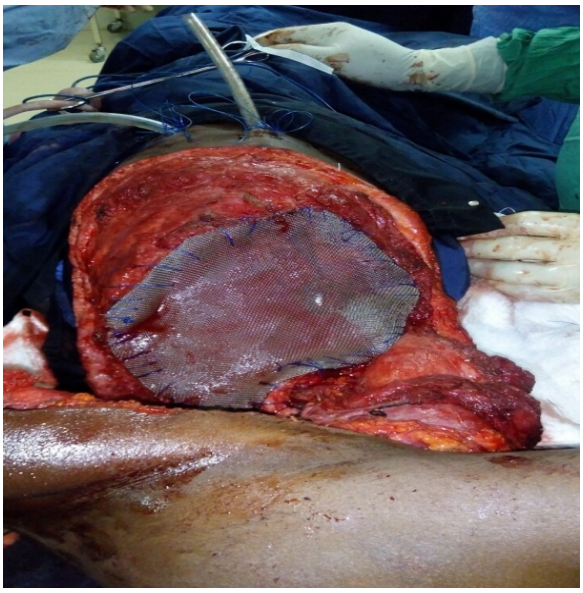

Figure 3: chest wall defect reconstructed with titanium mesh

Figures 2 and 3 showing the chronology of the intraoperative and postoperative events of the patients

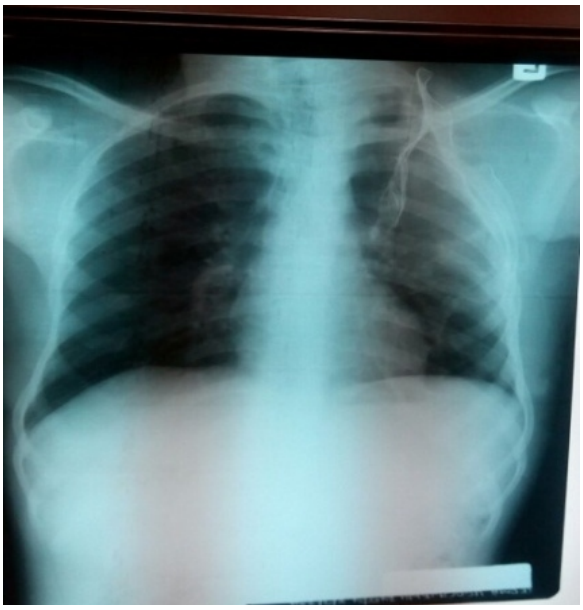

Figure 4: Immediate postoperative chest x-ray (PA-view)

The histology result of the resected specimen turned out to be osteosarcoma. Patient had full course of chemotherapy but could not get radiotherapy due to its nonavailability in the whole country. After a year, there was recurrence with florid metastasis to both lungs. Subsequently, patient demised 28 months after initial evaluation and treatment.

DISCUSSION

Chest wall tumours account for 5% of all thoracic malignancy and vary widely in pathology[3]. This is because they arise from a range of cell types which include soft tissue, bone and cartilage as well as metastatic disease, each with different growth potentials, presentations, diagnostic properties and prognosis.[4-9]

The index patient presented with left sided chest pains without any external chest wall mass. The pain radiated to the left upper limb with the associated paraesthesia and occasional weakness in that limb. This clinical evaluation needed differentiation from thoracic outlet syndrome.[10,11] It was the chest X-ray that identified upper lateral left sided chest wall mass. This finding is in agreement with other studies which showed that chest wall tumours especially the malignant ones present with chest pains and or mass, cough, dyspnoea including neurologic symptoms like features of brachial plexopathy.[12] This symptom was about 2 weeks prior his clinical evaluation. In another related study, it was found that benign lesions were asymptomatic while malignant ones were all symptomatic.[13]

Malignant chest wall tumours are commonly seen in patients in the 6th to 7th decade of life.[14] The finding of osteosarcoma in this 16 year old patient is at variation with other studies but certainly not out of place in the process of tumour biogenesis. It is generally regarded that chest wall tumours are regarded as malignant until otherwise proven.[15] In this understanding, patient was offered surgery which included wide resection with tumour free margins. The resultant defect was closed with titanium mesh, a prosthesis available to us at that point in time. The index patient had 6 courses of adjuvant chemoptherapy which included CEOP (cyclophosphamide, epirubicin, Vincristine and Prednisone). All efforts to get radiotherapy treatment in any of the 6-geopolitical zones of Nigeria proved abortive. Patient was financially handicapped to source for this treatment abroad. Many authors have used surgical resection and chemoradiation successfully in patients with chest wall tumours, even in some that have had recurrence and had repeated surgical excisions.[16,17]

Patient became symptom free for a year even with 4-monthly follow up. When the tumour recurred, growth was rapid, and by the time he was evaluated, with chest-ray and abdominal ultrasound, metastasis had occurred both in the liver and the lungs. Patient demised within 2 weeks of his last evaluation despite palliative treatment instituted.

In other related series of the study of chest wall tumours, many patients did succumb to the disease previously[18] but with adjuvant chemoradiation, a new treatment protocol, there has been improved survival.[19]

CONCLUSION

Treatment of malignant chest wall tumours is

based on the tripod of surgery, chemotherapy and radiotherapy, especially, when the tumour is both chemo and radiosensitive. When treatment is done in that way, recurrence rate is usually low and cure can be possible.

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