



A Case of Chest Wall Chondrosarcoma : Surgical Resection and Reconstruction

Srinivasa Kumaran R

Department of Cardiothoracic surgery, Madras Medical College, Chennai.

Abstract

Malignant chest wall tumours are relatively rare, representing roughly 5 % of all thoracic neoplasms and 1 to 2 % of all primary tumours. Primary malignant tumours of the chest wall comprises of heterogeneous group of tumours developing from the bones, cartilages and the soft tissues. Wide surgical resection is the most effective treatment for the majority of chest wall tumours. Reconstruction of an oversized defect can be difficult, and sometimes needs the use of a synthetic prosthesis.

Keywords: Chest wall tumours, Chondrosarcoma, Prolene mesh reconstruction.

Case presentation

A 67-year-old man presented with complaints of pain and swelling in left chest wall for 3 months duration. Physical examination showed a large solid mass fixed to the left anterior chest wall measuring 10 * 6 cms. CT Chest demonstrated a well-defined heterogeneously enhancing lesion measuring 10 * 5 cms noted in the left anterolateral chest wall infiltrating underlying chest wall muscles and causing erosion of underlying ribs, with a provisional diagnosis of round cell tumour/chondrosarcoma. Core- needle biopsy was done which revealed chondrosarcoma. Skeletal survey, ultrasound abdomen and CT Brain were done to rule out distant metastasis.



Figure 1 Physical appearance of mass lesion

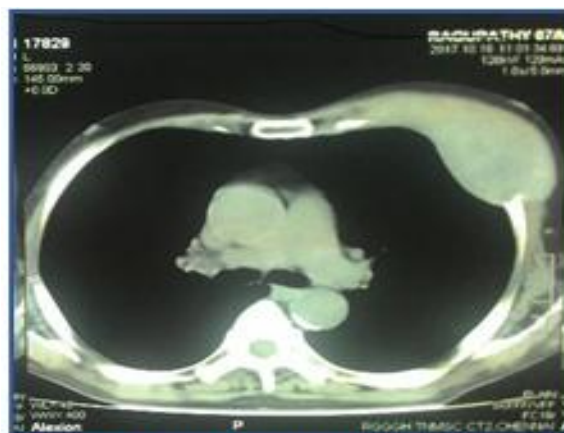


Figure 2 Ct Chest picture

Patient underwent an en-bloc resection of left anterior chest wall with complete resection of tumour and adjacent ribs (3rd to 5th ribs) with soft tissue clearance in all planes. In order to reconstruct and recuperate the stability of the thoracic wall, two Prolene meshes were placed to cover the defect and fixed to the edges of the remaining ribs. This protected the lung parenchyma and provided stability to the chest wall.

It was then covered with the pectoral muscle and the subcutaneous tissue. The postoperative course of this patient was uneventful, and the patient was discharged on the postoperative day 10, with mesh present in proper location on chest wall and normal chest wall motions.



**Figure 3 Fish mouth
Skin incision**



Figure 4 Resected specimen



Figure 5 Reconstruction with Prolene mesh

Discussion

Chest wall tumours are rare, comprises 0.5% to 1% of the primary bone tumours, with chondrosarcoma being the most common subtype. It mostly arises after the 6th decade of life, and has a slight male predominance. It is usually presented with a gradually growing, solid and fixed mass on the sternum, occasionally with concomitant chest pain.

Surgery is still accepted as the major treatment of primary malignant chest wall tumours, since they tend to be resistant to chemo or radiotherapy. The purpose of adequate radical surgery is removal of the tumour with a wide disease-free margin along with maintenance of chest wall stability. The optimal incision should be 2 to 6 cm from the margins of tumour, in order to minimize the risk of local recurrence. Inadequate tumour resection is associated with a high incidence of recurrence.

After wide resection of the chest wall, reconstruction plays a crucial role in determining postoperative morbidity and mortality. Defects smaller than 5 cm in size in any location and defects up to 10 cm in size located posteriorly do not generally require reconstruction, while larger defects and most defects in the anterior region do require reconstruction. The most commonly used materials for a non-rigid prosthetic are Prolene mesh, Marlex mesh, and PTFE. Stability and integrity are necessary after resection to prevent chest wall collapse, and various materials, including bone cement sandwich, silicone, Teflon, or acrylic materials have been used.

Polypropylene mesh is usually used for the reconstruction of large defects in the chest wall. It is relatively cheap and has a high affinity for tissue growth, but it lacks rigidity in patients with extensive defects. Improvements in reconstructive techniques and care of the perioperative patients have led to lesser morbidity and mortality rates for chest wall resection.

Conclusion

Hereby, we described a case of chest wall chondrosarcoma that had undergone chest wall resection and reconstruction. Key to successful management of these patients include accurate diagnosis, wide surgical resection, and appropriate reconstruction of large chest wall defects. Prolene meshes are cheap relative to other prosthesis used for chest wall reconstruction, and they are available in most hospitals. Using a prosthesis of double layered Prolene mesh if sutured under tension is an effective method of chest wall reconstruction.

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