

**Concurrent soft tissue chondroma and periosteal chondroma of chest wall:
A rare presentation**

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ABSTRACT

Introduction: Concurrent occurrence of soft tissue chondromas and periosteal chondromas is a rare but with same basic pathology as the enchondroma except their location. **Case Report:** A 52 years male came with chest pain and difficulty in breathing in the department of medicine. He was diagnosed as a case of chronic obstructive lung disease with cardiomegaly. After the external chest wall swelling appeared patient was investigated and diagnosed as having periosteal chondroma arising from the 9th rib. Thoracotomy was performed by giving incision along 8th rib and the mass was resected en masse along with small portions of the eight, nine and tenth rib. Histopathological examination confirmed the lesion to be a concurrent soft tissue chondroma and periosteal chondroma of rib. On follow-up at six months, the patient's was asymptomatic. **Conclusion:** Periosteal chondroma growing inward could be a life-threatening situation and should be resected. In all cases of cardiomegaly intrathoracic tumors should be kept in mind.

Key words: Cardiomegaly, En bloc excision, Periosteal chondroma, Thoracotomy

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INTRODUCTION

The concurrent occurrence of soft tissue chondromas and periosteal chondromas is a rare benign entity. Both have the same basic pathology as the enchondroma except their location [1]. Periosteal chondromas usually arise from the periosteal surface of long or short tubular bones. Soft tissue chondromas mostly originate from tenosynovial sheaths or the soft tissue adjacent to tendons in the hands and feet, not related to the underlying bone. We present a case of concurrent soft tissue chondroma and

periosteal chondroma in the chest wall, which initially presented with recurrent chest pain during exertion and difficulty in breathing.

CASE REPORT

A 52 years old male came with recurrent chest pain during exertion and difficulty in breathing. There was no history of cough, malaise or fever. Patient initially consulted a physician when there was no external swelling. Chest radiography revealed cardiomegaly (Figure 1).



Figure 1: Chest radiograph showing cardiomegaly

The electrocardiogram revealed right ventricular hypertrophy. Patient was evaluated in the line of cardiomegaly. As the patient was smoker, hypertensive and had breathlessness he was being treated as a case of chronic obstructive pulmonary disease. Gradually the chest wall swelling increased and a swelling appeared externally in the right 8th intercostal space 2 cm lateral from midline. Patient was

referred to the Department of Orthopaedics for the chest wall swelling. On examination, there was slight fullness in the 8th intercostal space. Chest radiograph revealed the eight, nine and tenth rib thickened and crowded. Computed tomography showed a lobulated thoracic mass continuous with the 9th rib and growing inwards in the anteroposterior and mediolateral direction (Figure 2).

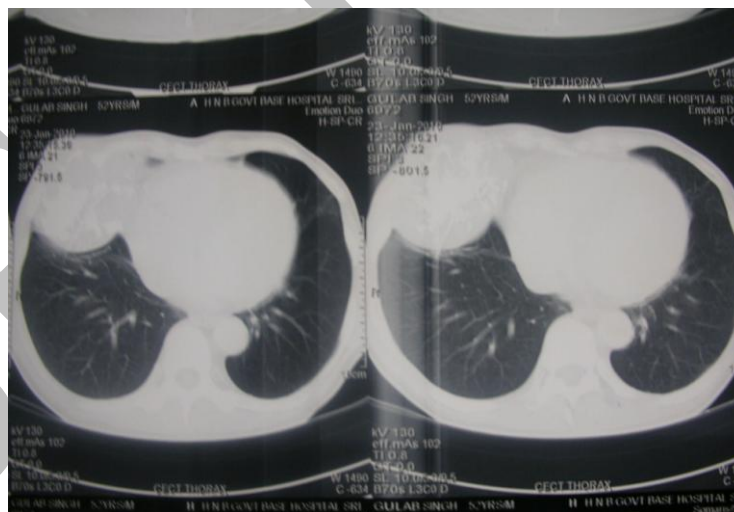


Figure 2: CT scan chest showing lobulated tumor

The mass lesion was causing localised atelectasis in the right lung. A provisional diagnosis of periosteal

chondroma was made. Patient had no other lesion in his body. A preoperative fine needle aspiration cytology suggested

periosteal chondroma. Thoracotomy was performed by giving incision along 8th rib and the mass was resected en masse along with small portions of the eight, nine and tenth rib. The dimensions of the swelling were 10cm × 5 cm × 7 cm. Excision involved removal of the tumor including

periosteum, underlying parietal pleura and adjacent intercostal structures. Moreover eighth, ninth and tenth rib with a part of sternum had to be removed with the tumor. Macroscopically the tumor was multilobulated, encapsulated and hard in consistency (Figure 3).



Figure 3: En bloc excision of chest wall Tumor

Histopathological examination confirmed the lesion to be a periosteal chondroma and soft tissue chondroma. The microscopic visualisation of a periosteal chondroma revealed lacunae of chondrocytes and mature hyaline cartilage with prominent cellularity in the periphery of the lesion. The central part of the lesion was hypocellular. Reconstruction of the chest wall defect was done using a

polyester mesh. Post-operative recovery was uneventful. On follow-up at six months, the patient's complaints had been completely resolved.

DISCUSSION

The chondromas are categorized as enchondroma, periosteal chondroma, and the rare extraskeletal soft tissue chondroma. There is marked similarity in terms of cytogenetic or molecular

parameters among various types of chondroma^[1]. Periosteal chondromas also develop on the surfaces of bones like osteochondroma but are not related to the physal plates like osteochondroma. Periosteal chondroma usually develops through subperiosteal cartilage formation and continues to grow beyond second decade unlike osteochondroma which stops with growth cessation.

The main distinctive feature of periosteal chondromas and chondrosarcomas is their size. The periosteal chondromas are smaller than periosteal chondrosarcomas^[2]. The primary tumors of the chest wall constitute of 5-8% of primary bone tumors and rib periosteal chondromas are very rare. Incidence of chondroma is 15 - 20 % of benign chest wall tumors. It usually occurs at costochondral junction anteriorly. It is usually symptomatic and slow growing tumor. It is divided into 2 types enchondroma which arises from medulla and chondroma which arises from periosteum.

Periosteal chondroma or juxtacortical chondromas are benign lesions of hyaline cartilage which arise from the surface of bone. These tumors are

rarely present in the ribs^[3]. They present as external chest wall swelling when they project outside while they are symptomless when the growth is inward and it's an incidental finding on chest radiographs. When the size of tumor is large, they present with complications like acute chest pain, hemothorax, hemopneumothorax, pericardial effusion, pleural effusion, diaphragmatic rupture^[4-6]. The cause of recurrent chest pain during exertion in our patient may be due to shearing of the adjacent lung tissue and pleura, as the lung capacity increases during activity. Some authors have suggested that trauma, including that of surgery, may induce chondroma formation as reported in a case of thoracotomy^[7]. Early and wide excision is the treatment of choice. To prevent postoperative recurrences, marginal excision of the tumors and curettage of the underlying cortical bone has been suggested^[8]. Excisional biopsy is always recommended.

CONCLUSION

The occurrence of concurrent soft tissue chondroma and periosteal chondroma in the chest wall is a rare entity. The periosteal chondroma penetrating an intrathoracic structure could

be a life-threatening situation and hence it needs to be resected. In cases presenting with cardiomegaly, workup for intrathoracic tumors should be done.

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