



## Costal Osteochondroma Presenting as Intercostal Neuralgia

### KEYWORDS

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**ABSTRACT** *Osteochondroma is a cartilage capped bony growth arising from the growing end of the bone. Osteochondromas are common amongst all benign bone tumours. In ribs, osteochondromas constitute 2.7-8.5% of primary rib tumours excluding myeloma [1]. Although asymptomatic, rib osteochondroma may be associated with complications like hemothorax and pericardial effusion [2-5]. We report a case of a large osteochondroma involving right 9<sup>th</sup> rib in a 9 year old boy, which was compressing over lung and liver and causing symptoms of intercostal nerve compression. It was excised to decompress the intercostal nerve and prevent disastrous complications.*

A 9 year old boy was being followed with a diagnosis of multiple hereditary exostoses (MHE). He was noticed to have rib bump on right side. He started to have pain and tingling in the distribution of intercostal nerve. CT scan was done for further evaluation.

CT scan revealed right 8<sup>th</sup> rib osteochondroma measuring 7 cm X 8 cm X 5 cm. Osteochondroma was found to compress on liver and lung.

He underwent thoracotomy and removal of right 8<sup>th</sup> rib exostosis and partial resection of the 9<sup>th</sup> rib. He had chest tube postoperatively.

Postoperatively patient made an uneventful recovery. His chest tube was removed on postoperative day 2 and patient was discharged home on 3<sup>rd</sup> post operative day. During follow up visit, symptoms of intercostal neuralgia were resolved completely.

### Figure 1

#### Discussion

Osteochondroma of rib is uncommon. It is found more commonly in multiple hereditary exostoses (MHE). The exact prevalence of rib exostosis is unknown. One series has reported 44% patients of MHE to have rib exostoses [6].

Multiple hereditary exostoses (MHE) is an autosomal dominant disorder. Its prevalence is 0.9 to 2 individuals per 100,000 [7]. Two genes which have been found to be associated with MHE are EXT1 on 8q21.1 and EXT2 on 11p13 [8]. Basic pathology is thought to be a defect in synthesis of heparin sulfate proteoglycans. This defect affects normal negative feedback loop regulating chondrocyte proliferation and maturation leading to premature differentiation and abnormal bone growth at the physis [9, 10]. Commonly cartilage capped exostoses are found at the end of fast growing bones. They are also found in medial border of scapula, iliac crest and ribs. They have also been reported in carpal, tarsal bones [7]. Usually MHE is diagnosed in first decade of life [6].

In rib, osteochondroma is located anteriorly at the costochondral junction. Exostoses tend to increase in size with growing growth plate. Number of lesions and its size is variable.

Rib osteochondroma may be asymptomatic and may be detected incidentally. Exostoses involving ribs can present as hemothorax, pericardial effusion [2-5], diaphragmatic rup-

ture, bowel obstruction, splenic rupture [11-12]. It can also present as acute or chronic pain. The causes for symptoms are formation of a bursa, repeated soft tissue trauma, direct pressure over neurovascular structures and fracture at base of pedunculated osteochondroma. However, there is no report on compression of intercostal nerve leading to intercostal neuralgia.

Typically, the diagnosis is made by radiograph or CT scan. The typical appearance is widening of the rib with calcification of the cartilaginous cap. CT allows better visualization and aids in assessing the exact extent of the osteochondroma. Various methods for treatment of rib exostoses have been described. These include observation [14, 15], thoracotomy [3, 4] and removal of exostoses or ribs, thoracoscopic excision [2]. There are no guidelines regarding indications for excision. In case reports reported so far, osteochondroma has been excised in symptomatic patients. It is not clear whether prophylactic excision offers any advantages.

In the current case, the osteochondroma was excised to relieve the pressure on the intercostal nerve and to prevent future complications. Early detection and timely management of rib osteochondroma in MHE is necessary to avoid the deleterious effects on nearby organs. Probably it is beneficial to excise larger Osteochondroma in asymptomatic patients. In order to achieve this screening for rib exostoses might be of help in patients of MHE.



FIGURE 1

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