Solitary Osteochondroma Of Rib: A Case Report

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CASE REPORT: - A seventeen-year-old boy presented with a hard painless, swelling on right chest wall which was slowly growing in size. Chest radiograph (right oblique) revealed bony outgrowth from anterior right sixth rib most likely an osteochondroma. CT scan was performed which confirmed it to be osteocartilagenous exostosis. No other lesion was seen in this patient.

INTRODUCTION: - Neoplasms of anterior and posterior chest wall present diagnostic and therapeutic problems, which are often unique to the region of body. Of all intrinsic bone tumors Primary neoplasms of the bony chest are 5-10%, neoplasm of ribs being far more common than those of sternum. Malignant neoplasms in form of metastatic carcinoma are more common than benign lesions. Benign cartilagenous tumors found in thorax include osteochondroma, chondroma, chondromyxoid fibroma and chondroblastomas. Osteochondromas are neoplasms of young adults. Males are affected approximately 1.5 times as frequently as females. [1] It develops during the period of most active enchondral bone growth and is most often detected during second decade of life. [2]

Osteochondromas actually represent a developmental physical growth defect. The defect occurs in circumferential ring of fibrous tissue (Perichondrium), the ring of Ranvier covering the epiphyseal plate. Result of such a defect is lateral growth of epiphyseal cartilage plate instead of normal downward growth towards the metaphysis; this abnormal growth gives rise to a lateral cartilage protuberance. Whether a stalk or sessile all

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osteochondromas have a direct communication with the
cortex and marrow cavity of underlying bone [3] They are
also reported as a result of radiation therapy in children
[4]. The osteochondromas stop growing at the time the
nearest epiphyseal plate fuses. [4,5]

**DISCUSSION:** - These are benign bone tumors
categorized by cartilage capped bony outgrowths that
project from the surface of the affected bone. They may
be found in any bone that is performed in cartilage but
are seen mostly in metaphyseal portions of long bones.
When the lesion is seen only in a single bone it is called
solitary osteocartilaginous exostosis or
osteochondromas. When two or three exostosis are
encountered and there is no history of familial or hereditary
background they are referred to as multiple exostosis or
osteochondromas. When the tumors are distributed over
the skeleton there is usually a familial history and they
are designated as hereditary multiple exostosis. The
individual lesions of solitary and multiple exostosis are
basically identical roentgenologically and pathologically.
In solitary form however the tumor tends to be less
extensive and in long bones it is limited to one portion of
circumference of the shaft. [6] Microscopically the bony
component of tumor is similar to underlying cancellous
bone. At chondro-osseous junction endochondral
ossification takes place. The cartilagenous cap often has
a relatively acellular appearance. However especially in
those tumors of children focal areas of increased cellularity
may be present.[1]. The radiologic appearance is that of
a pedunculated or sessile bony excrescence with a
sharply defined margin. Mottled calcification is commonly
evident within cartilagenous cap[7]. They are
predominantly anterior.[4,6]. Plain films are usually
sufficient to diagnose the condition. Sessile lesions cover
a wider area and cause metaphyseal widening.CT is
useful in determining the marrow and cortices of the lesion
which are continuous with bone. The thickness of cartilage
cap can be delineated on MR. The cartilage cap ranges
from 1-6 m.m. in thickness.Over 2 cms.of cartilage or
renewed growth is a sign of possible malignant
transformation.[4]The radiologists contribution lies chiefly
in recognizing signs suggestive of malignant
transformation. These include irregularity of cartilagenous
cap,a soft tissue mass projecting beyond expected
confines of the lesion ,flecks of calcification in the soft
tissue beyond the lesion and rapid growth of the lesion
revealed on serial films.[2]Osteochondromas in areas other
than knee are more likely to undergo malignant
transformation.Secondary chondrosarcoma occurs in .5-

1 % of patients with a solitary
osteochondroma.Chondrosarcoma transformation is more
common in hereditary form. Dynamic gadolinium enhanced
MR can be useful to differentiate benign from low grade
malignant cartilagenous tumor. Both early and exponential
enhancement being predictors of malignancy. Gadolinium
enhanced MR can further help in tumor mapping in case
a biopsy is indicated.[4]D/D of rib lesions include
enchondroma,osteoblastoma,osteoid
osteoma,chondroblastoma and hemangioma.
Spontaneous hemothorax and pneumothorax and
fractures are also reported in rib lesions.[4]Those rib
exostosis that project externally are palpable on the chest
wall.Internal exostosis is asymptomatic.[8]These lesions
are benign lesions and can be staged under the
musculoskeletal tumor society staging for benign lesions
as follows.

Stage I:-Inactive or static lesions.
Stage II: - Actively growing lesions.
Stage III: - Actively growing lesions that are locally
destructive/aggressive.[9]

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