CASE REPORT

CHEST WALL TUMOR;
OSTEOCHONDROMA ARISING FROM THE SPINOUS PROCESS OF SCAPULA

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ABSTRACT:

The scapula is a rare site of occurrence of osteochondroma, which is the most common benign tumor of the bone. A 20 year old female presented to us with a 4 month history of right upper back pain. Physical exam failed to reveal any physical deformity of the scapula and there was complete range of movement in all quadrants except on abduction in right arm which caused pain. CT scan showed a mass arising from the spinous process of scapula. After surgical excision of the mass, histopathology confirmed the diagnosis of osteochondroma.

KEY WORDS: chest wall tumor, osteochondroma, spinous process of scapula, pseudo-winging of scapula.

INTRODUCTION:

Osteochondroma is a benign, surface neoplasm of the bone and cartilage with an etiology that remains elusive despite several plausible theories. It comprises 15% of all bone tumors and 45% of benign bone tumors\(^1\). The most common site of origin is the metaphysis of long bones, with the distal femur, proximal tibia and proximal humerus constituting 90% of the occurrences. Flat bones are a relatively rare site for osteochondroma with a 3-4.5% involvement of the scapula\(^2\). We report the case of a 20 year old female who presented with right upper back pain radiating to neck.

CASE REPORT:

A 20 year female patient presented with right upper back pain and SOB since four months. The pain started as she woke up every morning, was aggravated by deep breathing and resolved on its own without intervention. On examination she was a healthy girl of average height and built. Vitals were noted to be within normal limits. There was no obvious deformity of the scapula and she demonstrated full range of motion of the arms except abduction of the right arm which caused pain. Examination of the chest revealed no positive findings. There was no visible or palpable mass. Rest of the systemic examination was normal.

Chest X-ray showed bony mass arising from the scapula with deformity of the 3\(^{rd}\) and 4\(^{th}\) ribs. CT scan showed evidence of a lucent expansile lesion measuring 4.4 x 2.7 cm, arising from the spine of the right scapula, extending horizontally with intra-thoracic extension posteriorly at the level of 2\(^{nd}\) and 3\(^{rd}\) ribs, causing them to splay with widening of ICS. The 3\(^{rd}\) rib was displaced downward, closely abutting the 4\(^{th}\) rib and causing compression of the adjacent lung parenchyma. A provisional diagnosis of fibro dysplasia vs. osteochondroma was made.
After pre-anesthesia work up, right sided thoracotomy for excision of scapular mass with resection of deformed third rib was performed. Post operatively the patient’s recovery was smooth. Histopathology of the mass revealed bony trabeculae covered by a cap of cartilage which was lined by fibro collagenous membrane giving rise to enchondral ossification. A final diagnosis of osteochondroma arising from the spinous process of the scapula was made.

**DISCUSSION:**
Osteochondroma of the scapula is a rare tumor of the thorax. It constitutes 14.4% of all tumors of the scapula with the ventral surface being the most common site. The spinous process present on the dorsal surface of the scapula may have never been reported as a potential site for origin of osteochondroma from our review of literature, which was the case in our patient. Despite its unknown etiology, a peripheral portion of the physis is thought to herniate from the growth plate. This metaplastic cartilage grows to form the exostosis, which is connected to the bone by a thin stalk. Osteochondroma commonly occurs at an age of less than 30 years, with a male to female ratio of >1.5:1. However, our patient was a female of 20 yrs. A painless bony mass is most commonly found on presentation. Pain, if present, is mostly due to the mass effect of tumor on the surrounding tissue. A wide range of other presentations include decrease range of motion, nerve impingement, underlying bursitis, fracture of the stalk.
of the tumor and “pseudo-winging” of the scapula. Snapping scapula syndrome, which is a syndrome of painful, audible and/or palpable abnormal scapula thoracic motion, can develop when the osteochondroma is present on the anterior surface of the scapula, especially in adolescence or early adulthood. Solitary tumors have a 3% chance of converting into an osteosarcoma. This was one of the reasons why she was operated and the tumor excised. This risk increases to 10% for patients with hereditary multiple exostosis. Malignant transformation is characterized by a sudden increase in the size of the tumor accompanied by pain.

Diagnosis can be made by clinical examination and imaging studies with confirmation requiring histopathology. X-ray allows for characterization of lesion, where a CT scan helps in localizing the lesion when planning treatment, as was utilized in our case. MRI is usually reserved for cases in which malignancy is suspected. Histopathology of osteochondroma shows enchondral or lamellar bone connected to normal bone by a thin stalk in continuity with the medullary canal of the native bone. Thickness of the cartilaginous cap seen in the biopsy specimen also is one of the predicting factors for malignant transformation. A cartilaginous cap thickness of less than 1 cm indicates a benign condition where as a cap, thicker than 2 cm should raise concern for malignant transformation.

Osteochondromas usually stop growing at the time of closure of the physis, and growth into adulthood should also raise suspicion for possible malignancy. The treatment of choice for scapular osteochondroma is open surgery with resection of tumor and its stalk. Endoscopic resection is gaining popularity due to claims of earlier functional recovery, better results in terms of pain relief, post-operative performance and cosmetic outcome due to a smaller incision. The overall prognosis is good with relapse being very rare, usually occurring when tumor margins are not cleared completely and residual fragments of cartilage cap or periosteum remain following excision. Incomplete excisions lead to a 2% recurrence risk.