International Journal of Science and Research (IJSR)
ISSN: 2319-7064
SJIF (2022): 7.942

A Case Report of Unusual Anterior Chest Wall Schwannoma

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Abstract: ***A chest wall schwannoma originates from the Schwann cells of the intercostal nerves within the peripheral nerve sheath. Here, we delineate the presentation and imaging observations of a 65-year-old female patient displaying symptoms of cough, fever, and left-sided chest pain. Initial examination via plain chest radiograph revealed certain findings, prompting further investigation with a contrast-enhanced chest computed tomography (CECT) scan. This imaging modality uncovered a large well-defined, heterogenous, soft-tissue mass located in the upper part of the left hemithorax. Subsequent histopathological and immunohistochemical analyses of tissue biopsies from the lesion confirmed the diagnosis of schwannoma.***

Keywords: Anterior chest wall tumor, Schwannoma, Neurogenic tumor, Posterior mediastinal mass.

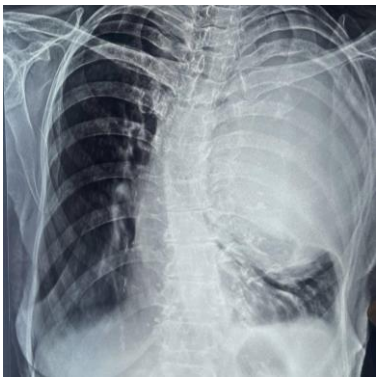
1. Introduction

A schwannoma is a benign, encapsulated neurogenic tumor that originates from the Schwann cells within the nerve sheath. They can be found throughout the body with a predilection for head, neck and flexor sides of extremities. They are also called as neurilemmoma or neuroma. Within the thorax, neurogenic tumors predominantly occur in the posterior mediastinum, constituting approximately 75% of all neoplasms in this region. Among adults, the prevailing neurogenic tumors arising from the nerve sheath are schwannomas and neurofibromas.

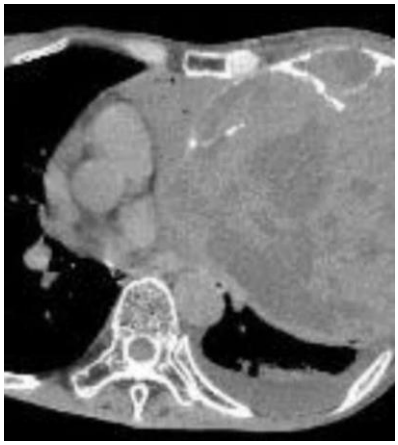
2. Case Report

A 65 yr old female presented to our outpatient department with a 2-month history of cough with minimal amount of non-bloody expectoration, occasional left-sided non-radiating chest pain. The patient experienced intermittent fever. She is a non-smoker with no previous history of pulmonary tuberculosis or use of anti-tuberculosis medications. There are no significant past medical or family history findings. Physical examination yielded cachexic patient with decreased breath sounds on left side during auscultation. Routine blood tests, including a complete blood count, renal function test, and serum electrolytes, revealed normal results. Additionally, two sputum samples were subjected to Gene/Xpert MTB Rif testing, both yielding negative results. A standard posteroanterior chest X-ray showed atelectatic left lung.

A respiratory function test revealed a significant restrictive disorder pattern, with a %vital capacity (%VC) of 53.3% and a forced expiratory volume in 1.0 second (FEV 1%) of 71.3%.

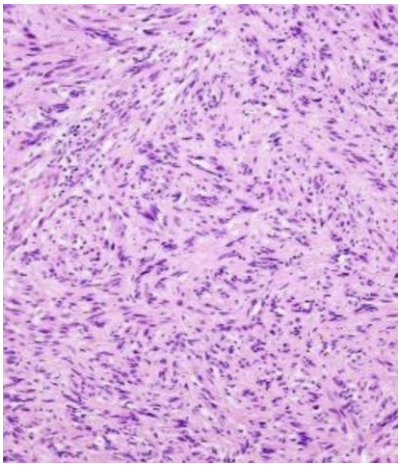


CECT Chest:
Evidence of large well defined heterogeneously iso to hypodense lesion of approximate size measuring 182x102x174 mm (APxTSxCC) is seen upper part of left hemithorax with adjacent minimal pleural effusion, the lesion appears to be arising from the chest wall compressing and displacing the left upper lobe and lingular segment with atelectatic bands.



Microscopic examination: Multiple linear core tissue bits reveals tumor tissue with dense cellular consisting of spindle to elongated with wavy and tapered ends with interseptal varying amounts of collagen fibers.Some cells appear to be palisading, ill defined cytoplasm and dense chromatin, Focal loose aggregates of plump cells have epithelial cells seen . Few fibers are hypo cellular with myxoid areas.No Atypia.

Impression: HISTO MORPHOLOGICALLY SUGGESTIVE OF NEUROGENIC TUMOR -FAVOURS - SCHWANNOMA- BENIGN



MANAGEMENT: Our plan involved conducting a tumor resection encompassing the 2nd, 3rd, and 4th ribs, followed by chest wall reconstruction. This was preceded by intercostal artery embolization performed the day prior.

3. Discussion

Chest wall tumors are mostly metastatic and primary chest wall tumors being exceedingly rare, accounting for only 1–2% of cases. Among these, primary pleural schwannoma represents approximately 5–10%. A chest wall schwannoma, originating from Schwann cells within the peripheral nerve sheath of the intercostal space, is notably uncommon. Typically, these neurogenic tumors are predominantly situated in the posterior mediastinum; however, our case presented with a lesion in the anterior chest wall, an exceptionally rare occurrence. Schwannomas typically manifest as benign, slow-growing, and often asymptomatic masses. They affect men and women equally during their third and fourth decades of life. Although many cases remain asymptomatic, common complaints may include invasion of the intercostal nerve, bone, and chest wall, or symptoms such as cough and dyspnea due to compression of the tracheobronchial tree.

Resection of giant tumors is challenging because of their enormous size and serious adhesion to surrounding. In cases where tissue adherence is significant, a combined resection may be required. Managing bleeding poses a primary challenge in such scenarios. When dealing with large tumors and anticipating poor surgical exposure, piecemeal removal becomes the only viable option as en-bloc resection is unattainable. Preoperative embolization is a recognized strategy to mitigate bleeding, a measure we used in this case as well. Presently, there exists no effective drug therapy for schwannomas.

4. Conclusion

Anterior chest wall schwannoma presents as a rare clinical entity with diverse manifestations. In summary, schwannomas are typically benign and may remain asymptomatic, leading to a tendency to overlook them. Nevertheless, in certain instances, these tumors progressively enlarge and exert significant compression on adjacent mediastinal organs, potentially resulting in fatal consequences.

While typically benign, documented cases of malignant transformations emphasize the necessity of conducting tissue biopsy alongside appropriate histopathologic and immunohistochemical analyses to definitively establish the diagnosis. If surgical intervention is not feasible upon initial diagnosis, regular follow-up is essential to avoid missing the optimal timing for surgery.

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