Short communication

The hidden tumour: giant anterior mediastinal thymolipoma, an incidental finding

Banyameen Iqbal, Mangesh Machindra Londhe, Sushama Gurwale, Pragati Gupta

Dr. D.Y Patil Medical College, Hospital and Research Centre, Dr. D.Y Patil Vidyapeeth, Pune, Maharashtra, India

Thymolipoma is an uncommon, non-malignant mediastinal mass characterized by a mixture of mature fat and normal thymic tissue. It typically grows slowly and is often asymptomatic until it reaches a large size, causing compressive symptoms. We report on a 19-year-old woman who sought medical attention for chest pain, dyspnoea, and anterior chest swelling. Imaging revealed a well-defined anterior mediastinal mass, and surgical excision was performed. Histopathological examination showed a well-encapsulated lesion with mature adipose tissue admixed with normal thymic parenchyma containing Hassall's corpuscles, confirming the diagnosis of thymolipoma. Complete surgical resection is both diagnostic and curative, with an excellent prognosis and negligible recurrence risk. Our findings underscore the importance of recognizing thymolipoma as a potential cause of anterior mediastinal masses, thereby preventing unnecessary radical treatment.

Key words: thymolipoma, mediastinal mass, anterior mediastinum, incidental finding, rare tumour.

Introduction

Thymolipoma is an uncommon, benign tumour of the anterior mediastinum, histologically defined by the presence of mature adipose tissue admixed with normal thymic parenchyma, and Hassall's corpuscles, often without cytonuclear atypia [1]. These lesions account for approximately 2–9% of all thymic neoplasms and typically exhibit slow growth, which often delays detection until they reach substantial size [2]. Epidemiologically, thymolipoma shows no significant sex predilection and affects a broad age range; reported cases span from early childhood to the seventh decade, with a mean patient age of around the mid-20s [1]. Clinical presentation is frequently asymptomatic, and the tumour is often discovered unintentionally during radiologic evaluation for unrelated conditions. If symptoms occur, they are generally due to compression of mediastinal structures, producing symptoms like cough, chest pain, or dyspnoea [1]. Radiologically, thymolipomas exhibit characteristic features on cross-sectional imaging: on computed tomography (CT) scans, they appear as well-defined, predominantly fatty masses with streaks or nodules of soft-tissue attenuation corresponding to thymic tissue; on magnetic resonance imaging (MRI), they demonstrate high signal intensity on T1-weighted sequences, indicative of adipose content, alongside intermediate-signal regions representing thymic elements [1]. While the pathogenesis remains uncertain, diverging hypotheses include neoplastic proliferation of thymic fat intermingled with thymic components, thymic hamartomatous growth, or adipose replacement following thymic hyperplasia [1]. Excision remains the definitive treatment, as thymolipomas are benign and well-encapsulated, with no proven malignant transformation or recurrence documented after complete resection. There has been a growing preference for minimally invasive techniques like video-assisted thoracoscopic surgery

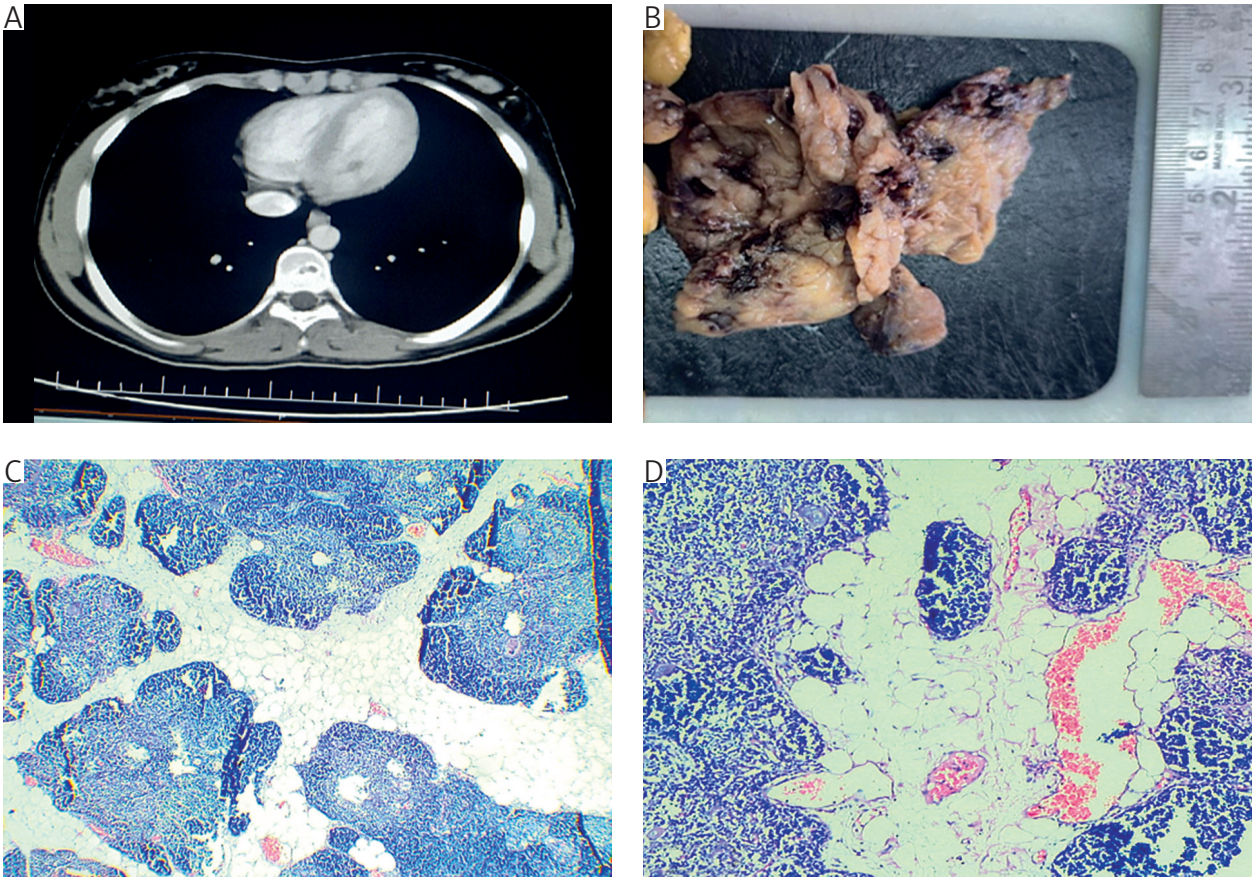

Figure 1. **A**) Contrast-enhanced computed tomography scan showing a soft-tissue lesion in the perivascular space of the retrosternal region, suggestive of thymic hyperplasia or thymoma. **B**) Cut section showing a solid, lobulated, greyish white mass with areas of hemorrhage. **C, D**) Photomicrograph showing hyperplastic thymic tissue interspersed with mature adipose tissue, with fatty elements surrounding and infiltrating the thymic parenchyma (HE 200×, 400×)

(VATS), particularly in the treatment of large or massive tumours [3]. In this report, we present the case of a young patient whose incidentally identified thymolipoma underscores the significance of awareness of this rare but distinctive tumour and highlights the diagnostic and surgical interventions involved in its management.

Case report

We encountered a 19-year-old woman who reported chest pain, breathlessness, and a feeling of heaviness for five days, along with a swelling in the midline of the chest. Local examination revealed a diffuse, ill-defined fullness over the upper anterior chest, more prominent in the midline, with normal overlying skin, no dilated veins, and no visible pulsations. Palpation revealed a firm, painless swelling that was adherent to the underlying structures and showed no cough impulse. Percussion demonstrated a dull note over the area with mild tracheal deviation to the opposite side, and auscultation revealed reduced breath sounds without added sounds or bruit. Contrast-enhanced CT scan showed a soft-tissue lesion in the perivascular space of the retrosternal region, suggestive of thymic hyperplasia or thymoma (Figure 1). The patient was subjected to surgical excision, and the specimen was sent for histopathological evaluation. Grossly, it was a solid, whitish, lobulated, encapsulated mass with small nodules attached by a fibrous band (Figure 1). Microscopically, the lesion was well-encapsulated and composed of mature adipose tissue admixed with islands and lobules of thymic tissue showing normal cortical and medullary architecture with Hassall's corpuscles. The adipose tissue appeared mature with no atypia, lipoblasts, capsular invasion, necrosis, or malignancy. These findings were consistent with a diagnosis of thymolipoma.

Discussion

Thymolipoma is classified in the current WHO classification as a mesenchymal tumour of the mediastinum [4]. It is a benign lesion composed of mature adipose tissue admixed with normal, non-neoplastic thymic tissue. Variants of thymolipoma have been reported, including thymofibrolipoma, which is characterized by extensive collagenous stroma inter-

spersed with islands of adipose and thymic tissue [5]. Only a few cases of thymofibrolipoma have been documented in the literature, the first being reported by Moran and Suster in 2001 [5]. Interestingly, some cases have demonstrated chromosomal abnormalities, such as monoallelic 13q14 deletion with corresponding loss of RB1 and FOXO1A expression, suggesting a possible neoplastic nature of the lesion [6]. This chromosomal aberration is also observed in other benign soft-tissue neoplasms such as spindle cell lipoma and cellular angiofibroma, supporting the theory that thymofibrolipoma may represent a true neoplastic variant of thymolipoma rather than a purely hamartomatous lesion [6].

Radiologically, thymolipomas often present as large, well-encapsulated, anterior mediastinal masses that can mimic cardiomegaly or pericardial effusion on chest radiographs. Computed tomography or MRI typically shows a heterogeneous fatty mass with interspersed soft-tissue strands representing thymic components [7]. Histologically, both thymolipoma and its fibrous variant are characterized by mature adipose tissue and normal thymic tissue, including epithelial cells and Hassall's corpuscles, without cytologic atypia or mitotic activity [8].

Complete surgical excision remains the treatment of choice for thymolipoma and is generally curative. Depending on the tumour's size and location, surgical approaches include median sternotomy, lateral thoracotomy, and increasingly, minimally invasive techniques such as VATS or robotic-assisted resection. Video-assisted thoracoscopic surgery has shown promising results even in paediatric cases with giant thymolipomas, offering an uneventful postoperative course and no recurrence at one-year follow-up [9]. Similarly, robotic-assisted resection in a paediatric patient provided excellent exposure, rapid recovery, and definitive treatment without the need for open sternotomy [10]. The prognosis after complete resection is excellent, with recurrence being exceedingly rare when negative margins are achieved.

Conclusions

Our report emphasizes the need to recognize thymolipoma as a potential cause of anterior mediastinal lesions, particularly in young patients presenting with nonspecific thoracic complaints. The well-encapsulated nature of the lesion, its composition of mature adipose tissue and normal thymic parenchyma with Hassall's corpuscles, and the absence of cytologic atypia or invasive features confirmed the diagnosis. Complete surgical excision remains both diagnostic and therapeutic, with an excellent prognosis and negligible risk of recurrence. Accurate histopathologic identification of thymolipoma is crucial to avoid overtreatment and guide optimal surgical management.

Disclosures

1. Institutional review board statement: Not applicable.
2. Assistance with the article: None.
3. Financial support and sponsorship: None.
4. Conflicts of interest: None.

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Address for correspondence

Pragati Gupta MBBS, MD
Dr. D.Y Patil Medical College
Hospital and Research Centre
Dr. D.Y Patil Vidyapeeth, Pune
Maharashtra, India
e-mail: pragatigupta895@gmail.com