Brief Report

Thoracic Surgery

Turk J Thorac Cardiovasc Surg

Posterior mediastinal unicentric Castleman disease treated by video-assisted thoracoscopic surgery

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Abstract

Castleman disease (CD) represents an uncommon lymphoproliferative condition that can manifest as a mediastinal mass and resemble other thoracic pathologies. Establishing a definitive diagnosis before surgery is often difficult, making histopathological analysis crucial. We present the case of a 38-year-old man in whom a posterior mediastinal lesion was incidentally identified and initially interpreted as a neurogenic tumor on imaging. The mass was successfully removed via video-assisted thoracoscopic surgery (VATS). Subsequent pathological evaluation revealed hyaline-vascular unicentric CD. This case underscores the need to consider CD in the differential diagnosis of posterior mediastinal masses and further supports the role of VATS as a safe and effective minimally invasive approach.

Keywords: Castleman disease, unicentric, VATS, mediastinum.

Castleman disease (CD) is an uncommon lymphoproliferative entity initially reported in 1954.[1] It is broadly categorized into unicentric and multicentric subtypes, with the unicentric form typically confined to a single lymph node region and rarely associated with systemic inflammatory findings.[2] Although rare, interest in this disease has increased due to its relationship with viral infections, particularly human herpesvirus 8 and human immunodeficiency virus.[3]

In unicentric CD, involvement of the mediastinum is observed more commonly than other anatomical sites.[4] On imaging studies, these lesions are often hypervascular and can resemble other thoracic pathologies such as thymic, lymphoid, or neurogenic tumors, especially when located posteriorly.[4,5] As imaging findings are non-specific, definitive diagnosis depends on histopathological examination. Complete surgical removal remains the mainstay of treatment, and minimally invasive techniques, including video-assisted thoracoscopic surgery (VATS), have become widely adopted.[3]

Brief Report

A 38-year-old male presented with dysuria and intermittent back pain. Contrast-enhanced computed tomography (CT), performed for suspected urolithiasis, incidentally revealed a well-defined, hypervascular left paravertebral mass measuring 21×34 mm at the level of the ninth costovertebral junction (Figure 1). No spinal canal or vertebral involvement was observed. Given the absence of intraspinal extension

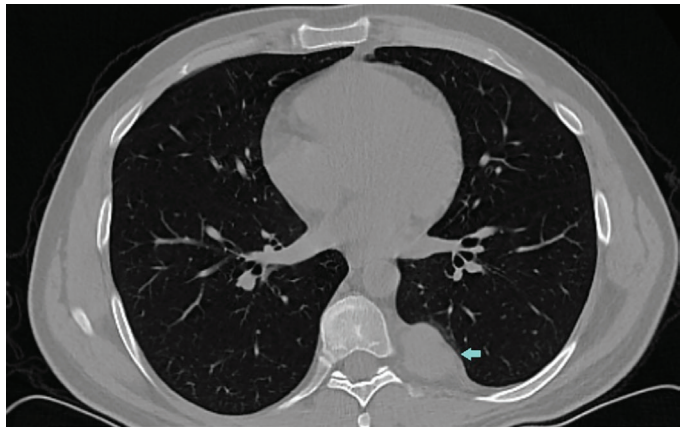


Figure 1. Chest CT showing a 21×34 mm left paravertebral mass at the 9th costovertebral junction (arrow).
CT: Computed tomography.

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and the well-circumscribed nature of the lesion, additional vascular imaging for the artery of Adamkiewicz was not considered necessary. The lesion was radiologically suggestive of a neurogenic tumor. Given the small size, well-circumscribed appearance, and absence of suspicious features, additional imaging such as positron emission tomography (PET)-CT was not performed.

The patient underwent VATS under general anesthesia with double-lumen endotracheal intubation. Three thoracoscopic ports were used. Intraoperatively, a hypervascular mass adherent to paravertebral tissues was identified and completely excised using careful blunt and sharp dissection. Estimated blood loss was less than 100 mL, and operative time was 90 minutes (Figure 2).

Histopathological examination demonstrated lymphoid follicles with hyalinized germinal centers, concentric mantle zones, and prominent interfollicular vascular proliferation, consistent with hyaline-vascular unicentric CD (Figure 3). Immunohistochemical analysis showed CD20-positive B-cell follicles and follicular dendritic cell networks highlighted by CD21/CD23, while S100 staining was negative, excluding a neurogenic tumor such as schwannoma.

The postoperative course was uneventful, and the patient was discharged on postoperative day 3. During a 12-month follow-up period with clinical and radiological evaluation, no recurrence was observed.

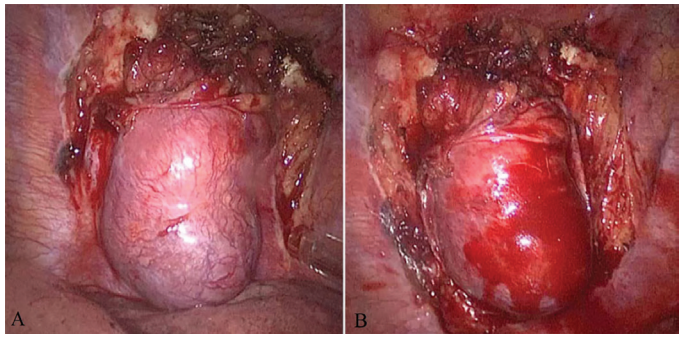


Figure 2. Intraoperative VATS view showing: A) Hypervascular mediastinal lesion. B) Dissection phase with controlled bleeding.
VATS: Video-assisted thoracoscopic surgery.

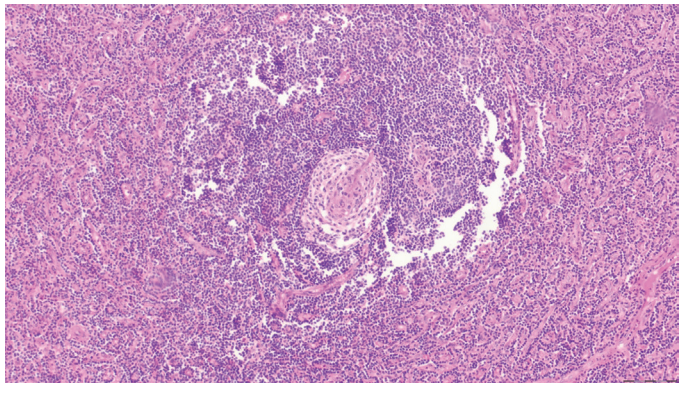


Figure 3. Histopathological examination (H&E staining) showing hyalinized germinal centers, concentric mantle zones, and increased interfollicular vascularity consistent with hyaline-vascular Castleman disease.
H&E: Hematoxylin and eosin.

Discussion

Unicentric CD represents a rare etiology of mediastinal masses and may create diagnostic uncertainty due to its imaging similarity to other thoracic neoplasms. Although the mediastinum is a common site of involvement, posterior mediastinal localization is less common, and such lesions may present as paravertebral masses that are prone to being misinterpreted as neurogenic tumors, as observed in the present case.[4,5] Radiological features are generally non-specific, and functional imaging modalities such as PET may not reliably differentiate benign from malignant conditions and may even lead to misleading interpretations in benign hypervascular lesions.[4]

The hyaline-vascular variant is the predominant subtype and is usually asymptomatic. Complete surgical resection offers definitive treatment with highly favorable long-term outcomes.[2,3] In contrast to multicentric disease, unicentric involvement is not associated with systemic inflammatory features and does not necessitate additional medical therapy after complete excision.[2] Reported outcomes indicate near-complete survival and minimal recurrence following adequate surgical management.[3] Minimally invasive approaches, including VATS, have been shown to be safe and effective even in hypervascular lesions, providing advantages such as reduced postoperative morbidity and shorter hospital stay.

This case contributes to the literature by highlighting the diagnostic challenge of posterior mediastinal CD mimicking a neurogenic tumor and demonstrating that hypervascular lesions in this location can be safely managed with a minimally invasive VATS approach without the need for preoperative embolization.

Ethics

Informed Consent: Informed consent was obtained from the patient for publication of this case report and images.

Footnotes

Authorship Contributions

Surgical and Medical Practices: E.V., İ.T., O.K.A.; Concept: E.V., M.S., O.K.A.; Design: E.V., M.S., O.K.A.; Data Collection or Processing: E.V., M.S.; Analysis or Interpretation: E.V., İ.T., M.S., N.A., O.K.A.; Literature Search: E.V., İ.T., N.A., O.K.A.; Writing: E.V., İ.T., M.S., N.A., O.K.A.

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