

CASE REPORT

Posterior mediastinal Castleman's disease with vascular malformation

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Abstract

Castleman's disease (CD) is a rare lymphoproliferative disorder of unknown aetiology, with the unicentric form usually involving the chest. Posterior mediastinal involvement is uncommon, exceedingly so when associated with vascular malformation. We report the case of a young female patient who presented with 9 months of left-sided, dull chest and flank pain associated with weight loss and a subjective tingling sensation. Imaging revealed a well-circumscribed hyper-enhancing posterior mediastinal para-oesophageal mass. She underwent a right posterolateral thoracotomy, mass excision. Histopathologic examination confirmed Castleman's disease (CD) with arteriovenous malformation.

CD with vascular malformation is a very rare condition that can only be diagnosed histopathologically. Surgical resection is effective and has a good prognosis.

Keywords: Castleman's disease, AV malformation, posterior mediastinum

Introduction

Castleman's Disease (CD) is a rare benign lymphoproliferative disorder involving hyperplasia of lymph tissue in 2 distinct disease patterns—unicentric or multicentric. Histologically, 3 variants are described: hyaline vascular, plasmacytic, or with mixed cellularity.¹ Unicentric disease commonly presents as an asymptomatic mass in proximity to the tracheobronchial tree or hilum. Posterior mediastinal involvement is exceedingly rare,² as is CD complicated by vascular malformation. We present a case of CD with vascular malformation in the posterior mediastinum of a 26-year-old symptomatic female.

Case presentation

A 26-year-old female with a small goitre was referred to our hospital for evaluation after experiencing 9 months of a dull aching pain in her left chest and flank associated with tingling in the same areas and weight loss. She denied any history of treatment for tuberculosis. The physical exam was unremarkable apart from the 2 × 2 cm benign goitre. Chest x-ray revealed a posterior mediastinal opacity. Computerized tomography (CT) of the thorax demonstrated a 10 × 6 cm, well-defined, hyperenhancing posterior mediastinal mass (Figure 1). A preliminary radiographic diagnosis of posterior mediastinal neurogenic tumour was made. Abdominal ultrasound and CT of the abdomen revealed no pertinent findings.

The patient underwent a right posterolateral thoracotomy. Intraoperatively, a highly vascular posterior para-oesophageal mediastinal mass was encountered. The mass was covered by mediastinal pleura, which was excised separately. The mass was not adherent to any mediastinal structure,

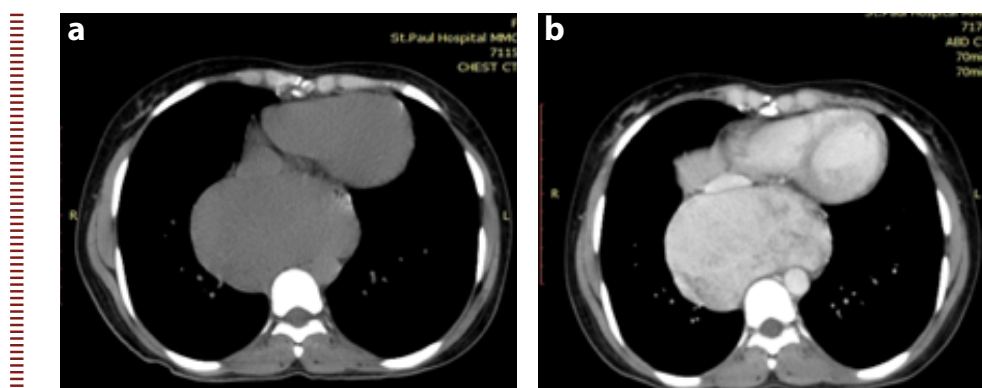


Figure 1. CT thorax before (a) and after (b) administering of contrast medium demonstrating a well-defined 10x6 cm hyper enhancing para-oesophageal mass.

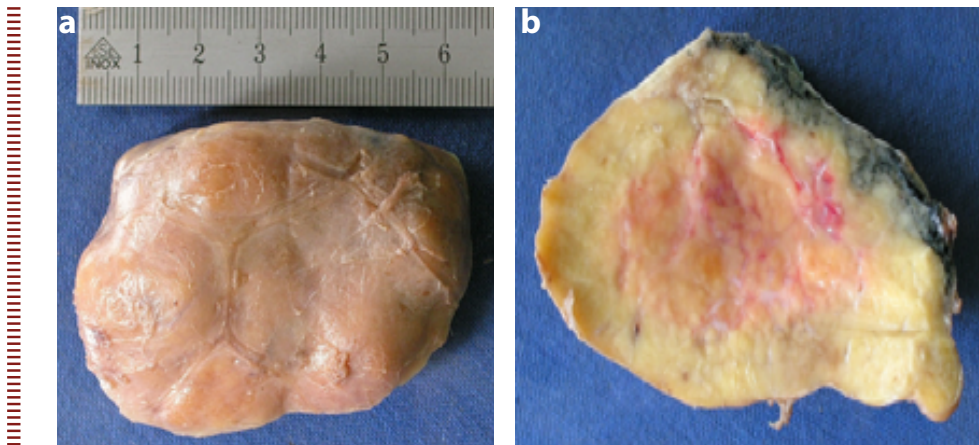


Figure 2. Gross appearance of the tumor, (a) lobular well circumscribed mass, (b) with central hemorrhage

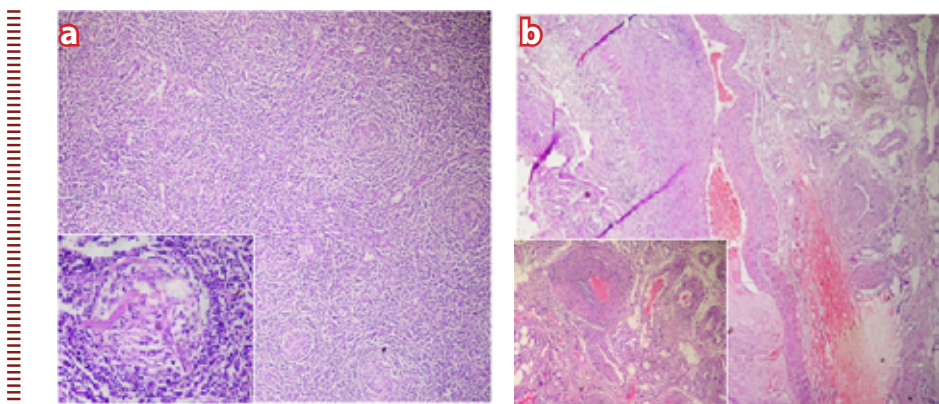


Figure 3. Angiofollicular hyperplasia (Castleman's Disease) of para-oesophageal lymph node (a) associated with a hamartomatous vascular lesion (AV malformation) (b)

and it was enucleated, appearing smaller than the radiographic evidence suggested. Gross pathologic examination of the tumour revealed a tan-coloured, lobular, well-circumscribed mass (Figure 2). Thin sections under microscopy demonstrated hypervascular follicular hyperplasia (Figure 3a) and a hamartomatous vascular lesion with features of an arteriovenous (AV) malformation.

Discussion

CD was originally described by Benjamin Castleman in a 1954 case report³ and a 1956 case series.⁴ CD is a benign disease of the lymph nodes with characteristic nonclonal hyperplasia of the follicles. The condition is also referred to as benign giant lymphoma, angiofollicular lymph node hyperplasia, follicular lymphoreticuloma, lymphoid hamartoma, and giant cell lymph node hyperplasia. The rarity of the condition makes understanding of its epidemiology and precise aetiology difficult with all available information coming from case reports, case series, and expert opinions.

The incidence of CD is unknown, but there were more than 400 cases reported in the international literature as of 2001.⁵ CD affects males and females equally, and it is most commonly seen in the third decade of life; the plasmacytic type usually affects people in their sixth decade.

The majority of unicentric CD is located in the mediastinum (70%) with posterior mediastinal CD being extremely rare.⁶⁻⁸ Review of the available literature revealed 10 cases of CD, primarily arising from the posterior mediastinum, that were diagnosed as neurogenic tumours, much like our case. The presentation of our patient with pain and tingling increased our pre-operative suspicion of a tumour of neurogenic origin.

To date, only 1 case series and 1 case report of CD discuss a vascular neoplasm complicating the disease. Gerald et al. reported the development of vascular neoplasia in 7 cases of CD in 1990, with 1 being mediastinal. The authors postulated that angiogenic factor produced by the activated lymphoid tissue might contribute to the development of the vascular neoplasia.⁹ The case report by Chan et al. in 1994 discussed a case with a follicular dendritic cell tumour and vascular

neoplasm complicating intra-abdominal (mesocolon) CD.¹⁰ Hence, our case marks the ninth case of CD complicated by vascular neoplasm and only the second of mediastinal CD with vascular neoplasia.

There has been only 1 reported case of posterior mediastinal CD with a hypervascular tumour, which presented as a hypervascular lipomatous posterior mediastinal mass. The authors postulated the hypervascularity to be reactive in nature, with pathology demonstrating the typical hyaline vascular type of CD with no associated vascular lesion.¹¹ Unique to our case, there was a component of hamartomatous vascular neoplasia (AV malformation) identified in addition to the hyaline vascular type of CD found on histology.

Clinically, CD is classified into 2 major types. The more common unicentric CD (two-thirds of cases) usually involves single lymph node stations of the mediastinum, abdomen, neck, or axilla. Multicentric CD involves multiple lymph nodes and other lymphoid structures, carrying a poorer overall prognosis than unicentric CD. The precise cause of CD is unknown; however, the multicentric disease is associated with human herpesvirus 8 (Kaposi's sarcoma-associated herpes virus), found most commonly in HIV-infected individuals.¹² Interleukin-6 (IL-6) is also described as

an important factor in the pathogenesis of this disease.¹³⁻¹⁶ Multicentric disease has been associated with POEMS (polyneuropathy, organomegaly, endocrinopathy, monoclonal gammopathy, and skin changes) syndrome.

Histologically, CD is classified into 3 variants: hyaline vascular, plasmacytic, and mixed cellularity.¹ The hyaline vascular variety is the predominant type identified in unicentric CD, and the plasmacytic histology is found in most cases of multicentric CD.¹

The clinical manifestations are protean. CD has great variation in presenting signs and symptoms, determined by the extent of the disease, type of pathology, HIV status, extent of IL-6 secretion, associated autoimmune phenomena, and overlap with POEMS syndrome.¹³ Unicentric disease can present incidentally or as a mass with local symptoms due to mass effect. Multicentric CD can present with enlargement of multiple lymph nodes throughout the body, hepatosplenomegaly, and systemic symptoms like fever, night sweats, weight loss and anorexia. Such cases can have derangements in a wide range of biochemical studies, including anaemia, elevated erythrocyte sedimentation rate, C-reactive protein, and organ function tests.

Diagnosis requires a tissue sample, often obtained via excisional biopsy, as small samples of isolated cells from a fine-needle aspiration may lead to diagnosis failure.¹

There are no published randomized clinical trials that address CD management. Most of the literature is confined to small series or case reports, and it is difficult to make firm recommendations.¹⁷ Clinical staging guides treatment decisions and prognosis. The goals of the staging and pretreatment evaluation are to (a) determine whether the patient has unicentric or multicentric disease, (b) identify patients with systemic inflammatory manifestations of the disease, and (c) assess for the presence of HIV, as well as associated conditions and malignancies.

Complete surgical resection is 95% curative with unicentric CD and affords resolution of constitutional symptoms,

if present. Whenever surgical resection is not feasible, radiation therapy is an acceptable alternative.^{7,13,17,18} Recurrences can occur in cases treated with incomplete resection for unicentric CD as late as 11 years later; therefore, long-term follow-up is warranted.^{7,19} Most of the publications regarding unicentric CD treated with complete surgical resection reported no recurrence. In our case, given the complete enucleation of the tumour and the histopathology findings lacking any adverse prognostic factors, we are fairly certain that our patient has an excellent prognosis with long-term follow-up.²⁰

Treatment of multicentric CD is more complicated, ranging from multimodal approaches involving surgery and chemotherapy to targeted administration of monoclonal antibodies and steroids. Without any randomized studies, these treatment recommendations are based on limited case studies and case series.

Conclusions

CD is a rare benign lymphoproliferative condition and should be considered as a diagnosis for patients with benign lymphadenopathies. We have presented here a very rare disease in an unusual location, which mimicked a neurogenic tumour and was further complicated by a vascular malformation. Management relies up on determining the histologic and anatomic types of the disease and identification of associated pathologies, such as HIV. Unicentric CD has an excellent prognosis with complete excision, which was achieved in our patient.

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Competing interests

The author declares that he has no competing interests related to this work.

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