Case Report

Primary extranodal classical Hodgkin lymphoma presenting as a chest wall mass mimicking tuberculosis: A rare case report with long-term follow-up

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ABSTRACT

Classical Hodgkin lymphoma (CHL) is usually nodal, with primary extranodal disease being rare. Thoracic involvement without nodal disease is particularly unusual and may mimic tuberculosis (TB). We report the case of a 61-year-old male initially diagnosed with tubercular pleural effusion and treated with anti-tubercular therapy. Six months into treatment, he developed an intrathoracic mass. Imaging revealed extrapleural lesions involving the anterior chest wall muscle. Histopathology and immunohistochemistry confirmed CHL. He was staged IIAx and received 2 cycles adriamycin, bleomycin, vinblastine, dacarbazine, followed by 4 cycles adriamycin, etoposide, vinblastine, dacarbazine to avoid bleomycin toxicity, plus involved-field radiotherapy. He achieved a complete metabolic response and remains disease-free without long-term complications for 9 years. This case underscores the diagnostic challenges of primary extranodal CHL and the importance of thorough evaluation of atypical chest lesions, especially in TB -endemic regions.

Key words: Combined modality therapy, Extra-nodal Hodgkin's lymphoma, Hodgkin's lymphoma, Tuberculosis

Hodgkin's lymphoma is an uncommon lymphoid malignancy that primarily affects the lymph nodes and the lymphatic system, defined by the presence of characteristic Reed–Sternberg (RS) cells within a background of mixed inflammatory cells. These RS cells typically express the surface antigens CD30 and CD15. Extranodal involvement in Hodgkin lymphoma is rare, occurring in about 5% of cases, and normally affects the spleen, liver, lungs, bones, or bone marrow, often mimicking infectious or malignant conditions. In contrast, extranodal disease is seen in up to 30% of non-Hodgkin lymphomas [1,2]. Hodgkin lymphoma involving the chest wall is sporadic and may closely mimic tuberculosis (TB), both clinically and radiologically, often leading to diagnostic delays or misdiagnosis. Differentiating Hodgkin lymphoma from TB poses a significant diagnostic challenge due to the considerable overlap in systemic manifestations, including fever, night sweats, weight loss, and lymphadenopathy [3]. Early identification is crucial to avoid delays in appropriate oncologic management. This case is reported due to its rarity and atypical clinical presentation. The availability of long-term follow-up further strengthens its significance by providing valuable information on disease progression, management outcomes, and prognosis.

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CASE PRESENTATION

A 61-year-old male presented with a 2-week history of low-grade fever and cough without any expectoration and right lower chest pain. Clinical and radiologic evaluation revealed a right-sided pleural effusion. Pleural fluid analysis did not show malignant cells, but an elevated adenosine deaminase (ADA) level (pleural fluid - lactate dehydrogenase - 5940; ADA-141 U/L). In view of clinical suspicion for TB, the patient was started on first-line anti-tubercular therapy. The patient had marginal symptomatic improvement, but 6 months into treatment, the patient continued to experience a persistent non-productive cough and low-grade fever. At this point, the patient presented to our institute. The patient's general examination and vitals revealed a pulse rate of 102 beats/min, temperature of 99.8°F, respiratory rate of 29 breaths/min and a blood pressure of 130/80 mmHg. General examination revealed a few linear scratch marks suggestive of generalized pruritus, and there was no palpable lymphadenopathy. However, on auscultation of the chest, reduced air entry was noted on the right side.

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In view of persistent symptoms and auscultation findings, contrast-enhanced computed tomography (CT) scan of the thorax was done in October 2014, which revealed a 53 × 52 × 40 mm intrathoracic but extrapleural lesion with peripheral enhancement, central necrosis, bony erosions, and extrathoracic extension. A second, smaller lesion was noted in the paracardiac region. Fine needle aspiration biopsy (FNAB) initially suggested an inflammatory pseudotumor. The patient was continued on AKT. However, he presented with worsening of the above-mentioned symptoms, prompting further investigations. A review of FNAB reported atypical large cells expressing CD30, CD15, and weak Pax5, suspicious for Hodgkin lymphoma. Repeat CT-guided biopsy done in May 2016 confirmed classical Hodgkin lymphoma (CHL) with RS cells positive for CD30 and Pax5, but negative for CD15, LCA, CD20, and CD3. A staging fluorodeoxyglucose - positron emission tomography (PET) scan (Fig. 1) showed metabolically active mass and low-grade activity in mediastinal/hilar nodes. No systemic disease was noted. The disease was staged as Stage IIAx based on the Ann Arbor staging system with Cotswolds' modification by PET-CT.

The patient began standard doxorubicin, bleomycin, vinblastine, and dacarbazine (ABVD) chemotherapy. After 2 cycles, interim PET-CT (Fig. 2) showed a significant response (SUV max 3.98 from initial 17.23). Bleomycin was replaced with etoposide after two cycles due to the risk of enhanced pulmonary toxicity from the combined effects of bleomycin and anticipated use of radiotherapy. The patient subsequently received four additional cycles of adriamycin, etoposide, vinblastine, and dacarbazine. Post-treatment PET showed further response (Deauville score 2). Due to baseline bulky disease and extranodal involvement, involved-field radiation therapy was administered (27 Gy in 15 fractions). Follow-up PET-CT (Fig. 3) after completion of chemoradiotherapy showed a complete metabolic response (Deauville score 1). The patient has been on regular follow-up for the past 8 years without relapse or late therapy-related side effects.

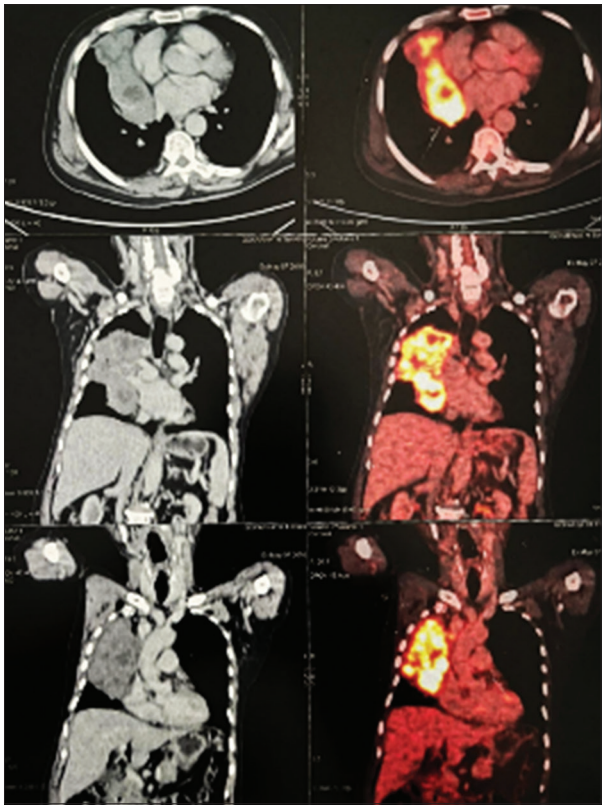

Figure 1: Baseline positron emission tomography-computed tomography shows metabolically active mass (10 × 8 × 13 cm; SUV-17.23) and low-grade activity in mediastinal/hilar nodes (largest 1.8 cm SUV_{max}-3.65)

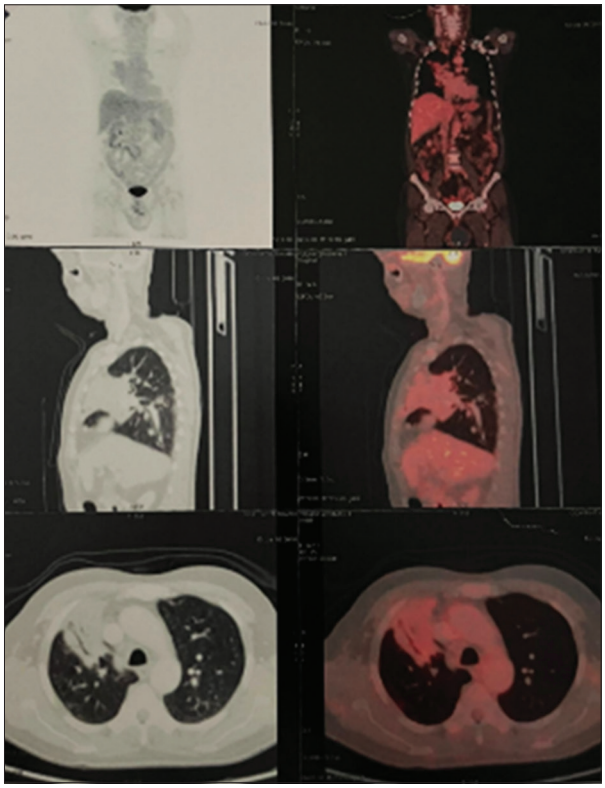

Figure 2: Post 2# Interim positron emission tomography-computed tomography - shows significant response (SUV_{max} 3.98 from initial 17.23). Non-fluorodeoxyglucose avid pretracheal and subcarinal nodes, the largest measuring 1.2 cm

DISCUSSION

This case highlights a rare and diagnostically challenging presentation of CHL, initially involving the chest wall with subsequent progression to the lung parenchyma. The condition was initially misdiagnosed as TB due to overlapping clinical features and supportive pleural fluid findings. It emphasizes the importance of considering CHL in non-resolving thoracic infections, especially in TB-endemic regions. Failure to respond to ATT or antibiotics should prompt early biopsy and immunohistochemistry to avoid diagnostic delay.

Our patient initially presented with fever and pleuritic chest pain and was treated for presumed tuberculous pleuritis based on pleural fluid findings. The subsequent development of a chest wall mass despite ATT raised suspicion for an alternative diagnosis, ultimately confirmed as classical HL through immunohistochemistry. The clinical course in our case is

Table 1: Misdiagnosis of Hodgkin lymphoma as tuberculosis or chest infections: Case reports summary

S. No	Author (Year), title/summary	Initial misdiagnosis	Final diagnosis and outcome
1.	Fratoni *et al*. (2013) PPHL Simulating a Mediastinal tumour [4]	Mediastinal tumor	cHL. Treated with 6×ABVD; pulmonary mass resolved. Remission at 1, 2, and 5 years
2.	Radin (1990), Primary pulmonary HL [5]	Eosinophilic pneumonitis/TB suspected	PPHL. Treated with MOPP chemo; 4.5 years remission
3.	Cooksley *et al*. (2014), PPHL and a review of the literature [6]	Langerhans cell histiocytosis, TB	PPHL, nodular sclerosis type. Treated with modified BEACOPP; rapid early regression
4.	Garg *et al*. (2019) HL with cavitating lung lesion mimicking tuberculosis [7]	Pulmonary TB	Nodal HL with lung involvement, 6 cycles ABVD- complete remission at 2 years follow-up

ABVD: Adriamycin, bleomycin, vinblastine, dacarbazine, BEACOPP: Bleomycin, etoposide, adriamycin (doxorubicin), cyclophosphamide, oncovin (vincristine), procarbazine, prednisone, MOPP: Mechlorethamine, oncovin (vincristine), procarbazine, prednisone, HL: Hodgkin's lymphoma, TB: Tuberculosis, PPHL: Primary pulmonary Hodgkin lymphoma

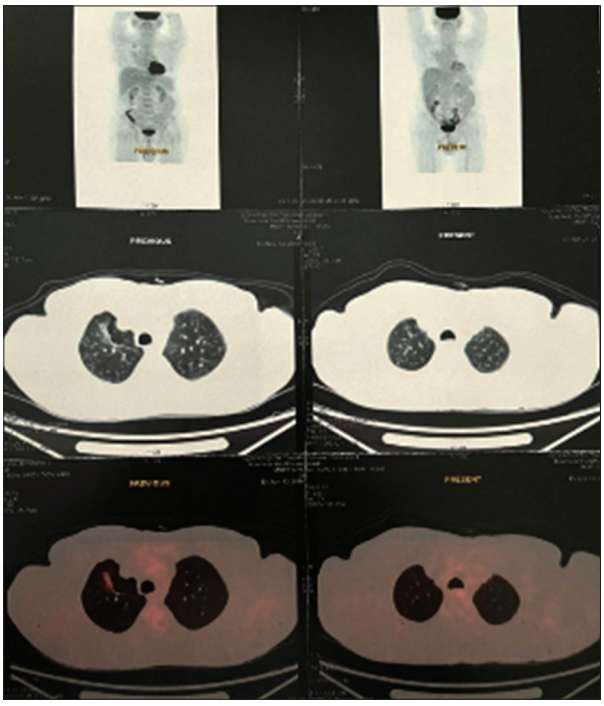

Figure 3: End of Treatment positron emission tomography-computed tomography - shows complete metabolic response (Deauville score 1)

comparable to previously reported cases where Hodgkin lymphoma was initially mistaken for TB or other chest infections. Table 1 summarizes these reports and their diagnostic findings [4-7].

Given the rarity of this presentation and the lack of evidence-based guidelines, there is currently no consensus on the optimal management of extranodal Hodgkin lymphoma. Although guidelines for Hodgkin lymphoma treatment are increasingly available, individualized treatment approaches remain essential to address the unique clinical scenarios presented by such uncommon cases.

Our patient was initially started on the standard ABVD chemotherapy regimen, which includes bleomycin. Due to the well-established risk of pulmonary toxicity associated with both bleomycin and thoracic radiation therapy [8,9], the regimen was modified after two cycles to reduce the risk of cumulative pulmonary injury. Bleomycin was replaced with etoposide since it is a known active agent against Hodgkin's Lymphoma [10].

In a study published by Nnawuba *et al*. utilizing the SEER database from the National Cancer Institute, it was noted that chemotherapy with adjuvant radiotherapy provides excellent control in Primary Pulmonary Hodgkin lymphoma, with combined modality therapy achieving remission and reducing recurrence, which is in accordance with the treatment we provided to our patient [11]. He continues to follow-up without any residual toxicity and is disease-free at 8 years after initial diagnosis.

CONCLUSION

Primary extra-nodal CHL of the chest wall is extremely rare and can mimic TB, leading to diagnostic delays, especially in endemic areas. This case highlights the importance of early biopsy and immunohistochemistry in non-resolving thoracic lesions. The patient's durable 9-year remission following combined modality therapy demonstrates that timely diagnosis and individualized treatment can achieve excellent long-term outcomes.

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