CASE REPORT

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Tuberculous Adenitis with Concurrent Hodgkin Lymphoma: A Case Report

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ABSTRACT

The concomitant occurrence of tuberculous adenitis and Hodgkin lymphoma is rare, posing a diagnostic dilemma since both have similar symptoms, such as lymphadenopathy, weight loss, fever, and night sweats. We reported such a case in a 15-year-old girl who presented with fever and neck swelling and was found to have lymphadenopathy. A biopsy of the right supraclavicular lymph node showed Reed-Sternberg cells and stained positive for acid-fast bacilli and tuberculosis culture. The patient was diagnosed with tuberculous adenitis with concurrent Hodgkin lymphoma in the same lymph node. She was started on anti-tubercular medications and chemotherapy and showed clinical improvement. This case highlights the need for suspicion in order to identify these two disorders in the same patient, since missing one of them is possible and may lead to fatal complications.

Tuberculous adenitis, the most common form of tuberculosis (TB), is one of the most frequently occurring infectious diseases worldwide. It accounts for between 2% and 5% of all TB cases and is more common among children and immunosuppressed patients, especially those with HIV.[1,2] It comprises 43.5% of extrapulmonary TB cases in Qatar.[3] Lymphomas may occasionally mask TB adenitis, particularly in patients with predominant systemic symptoms such as fever, night sweats, and weight loss. However, the concomitant occurrence of TB adenitis and Hodgkin lymphoma (HL) is rare, as evidenced by the scarcity of cases reported in the literature.

We report this case intending to increase physicians' awareness of the simultaneous occurrence of these two conditions particularly when they encounter initial therapeutic failure during the treatment of HL or tuberculous adenitis.

CASE REPORT

A 15-year-old girl, previously healthy, presented to our hospital with a three-month-history of progressive and painless right neck swelling. She also reported having low-grade fever, weight loss of 6 kg, generalized fatigue, and dry cough for the same period. Her medical history was unremarkable, and there was no history of contact with any sick person. Physical examination was only remarkable for a 5 × 5 cm, hard, non-tender, and matted right supraclavicular lymphadenopathy. Her laboratory workup were only significant for elevated lactic acid dehydrogenase (LDH = 347 U/L) and mild microcytic anemia (hemoglobin = 10.4 gm/dL). Chest X-ray showed a right para-tracheal circumscribed mass [Figure 1a]. Contrast-enhanced computer tomography (CT) of the neck showed an amalgamated mass lesion in the supraclavicular regions bilaterally (more on the right and in the superior mediastinum), while contrast-enhanced CT of the chest and abdomen showed multiple enlarged lymph nodes in the base of the neck, mediastinum, and retroperitoneum regions [Figure 2 and 3]. Purified protein derivative testing was positive (16 mm after 24 hours).

Fine needle aspiration (FNA) from the right supraclavicular lymph node revealed occasional large lymphoid-like cells, approximately 10-times larger than normal lymphocytes, and occasionally bi-lobed forms, suspicious for lymphoma. Samples of FNA also were sent for acid-fast bacilli (AFB) smear, TB-polymerase chain reaction (TB-PCR), and mycobacterial culture. As the FNA was suspicious for lymphoma, an excisional biopsy was performed on the same lymph node, and histopathological examination revealed small lymphocytes admixed

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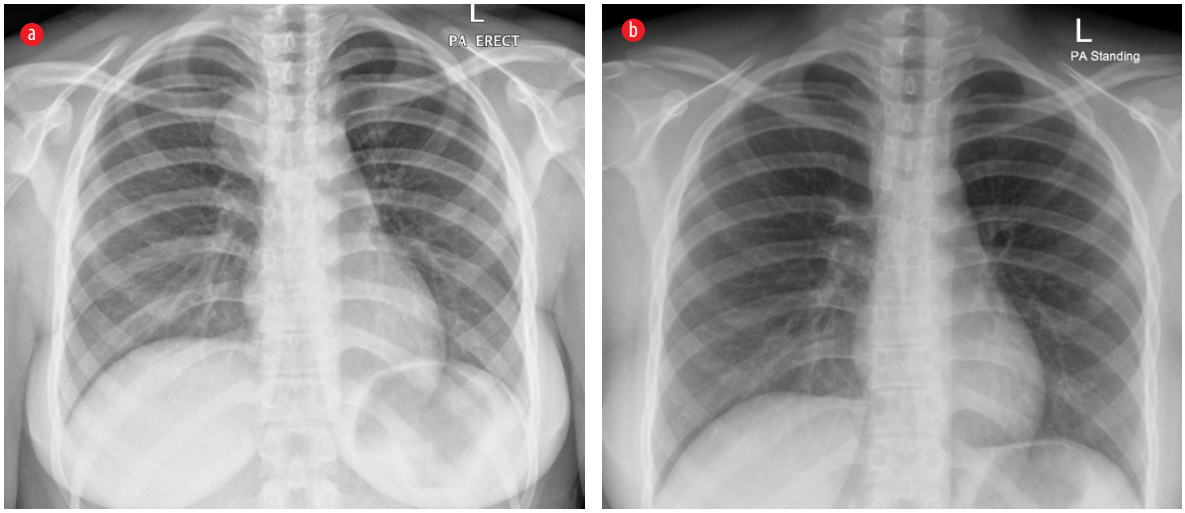

Figure 1: (a) Presence of a right para-tracheal circumscribed mass. **(b)** The mass was absent after treatment completion.

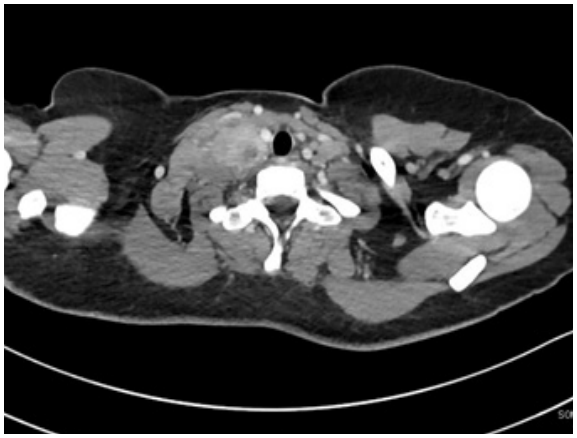

Figure 2: Contrast-enhanced CT of the neck showed an amalgamated mass lesion in the supraclavicular regions bilaterally.

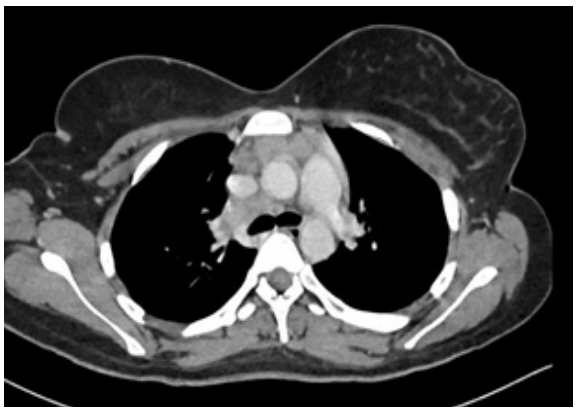

Figure 3: Contrast-enhanced CT of the thorax and abdomen showed multiple enlarged lymph nodes in the base of the neck, mediastinum, and retroperitoneum region.

with large atypical cells, including Reed-Sternberg cells and other Hodgkin cells, consistent with classical HL of lymphocyte-rich subtype [Figure 4].

Immunohistochemistry showed strong reaction to CD15 and CD30, and was negative for CD45. Alongside, the FNA samples showed positive results for PCR and AFB and later confirmed by cultures as *Mycobacterium tuberculosis*.

The patient was diagnosed with HL and tuberculous adenitis and was started on anti-tubercular drugs as well as on chemotherapy. She received four-drug anti-tuberculous therapy (isoniazid, rifampicin, pyrazinamide, and ethambutol) for six months. In addition, she received two cycles of OEPA (vincristine, etoposide,

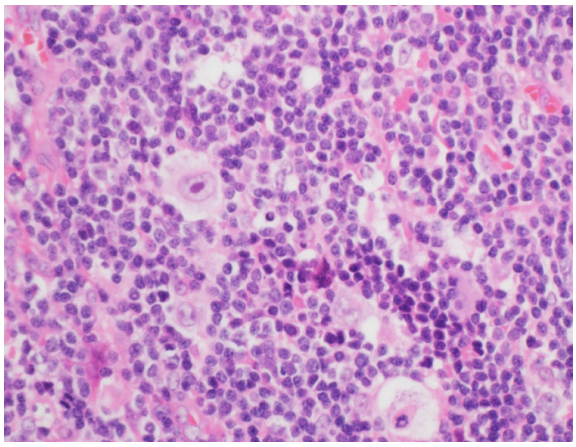

Figure 4: Lymph node biopsy revealing the presence of Reed-Sternberg cells. Hematoxylin and eosin staining, magnification = 200 ×.

Table 1: Clinical characteristics of the reported cases of concurrent tuberculous adenitis and HL.

Case number	Reference number	Age/ Sex	Clinical presentation	Initial diagnosis	Reason for re-investigation	Site	HL subtype	Outcome
1	Bonadonna,[4]	40/M	Fever and LAD	Tuberculous adenitis	LN size unchanged	Axillary and mediastinum	Nodular sclerosis	Cured
		49/F	Anorexia, weight loss, fever, HSM, LAD	Tuberculous adenitis	Relapse of fever	Same inguinal LN	Nodular sclerosis	Cured
2	Costa et al,[5]	29/F	Cough, hemoptysis, SOB, chest pain, LAD	Tuberculous adenitis	LN size increased	Cervical and mediastinum	Nodular sclerosis	Cured
3	Reddy et al,[6]	18/M	Anorexia, fever, HSM, LAD	HL and tuberculous adenitis	Incidental finding	Same cervical LN	Mixed cellularity	Cured
4	Mahajan et al,[7]	71/F	Fatigue and LAD	Tuberculous adenitis	LN size increased	Same axillary LN	Lymphocytic predominant	Cured
5	Ban et al,[8]	52/M	Fatigue, SOB, cough, weight loss, night sweats, fever, LAD	HL and tuberculous adenitis	Incidental finding	Same cervical LN	Lymphocytic predominant	Unknown
6	Present case	15/F	LAD, fever, weight loss, fatigue	HL and tuberculous adenitis	Incidental finding	Same supraclavicular LN	Lymphocytic predominant	Cured

LN: lymph node; HL: Hodgkin lymphoma; F: female; M: male; HSM: hepatosplenomegaly; LAD: lymphadenopathy; SOB: shortness of breath.

prednisone, and doxorubicin), followed by four cycles of COPDAC (cyclophosphamide, vincristine, prednisone, and dacarbazine) as HL treatment. The patient showed good tolerance to chemotherapy and anti-tubercular drugs. The fever subsided after two weeks, and the neck lymph nodes became unpalpable after three cycles of chemotherapy. Upon completion of therapy, follow-up chest X-ray revealed the absence of right para-tracheal circumscribed mass [Figure 1b] and the whole-body fluorodeoxyglucose-positron emission tomography scan showed no obvious uptake in previously affected lymph nodes and bone involvements indicating complete remission of the disease.

DISCUSSION

The association between tuberculous adenitis and HL has been discussed since the diagnosis of Hodgkin disease. The essence of this discussion was whether or not HL is a form of TB. Finally, it was concluded that HL is an independent entity, but sometimes associated with TB.[4] This association is rare, and only six reported cases were found.[5–9] To the best of our knowledge, this is the first case reported in Qatar. Table 1 describes the clinical aspects of the six reported cases as well as ours.

As shown in Table 1, tuberculous adenitis and HL can co-occur at any age and in both sexes, with fever being the most common symptom. The diagnosis of HL was delayed in cases 1, 2, 3, and 5 as the initial diagnosis was tuberculosis adenitis, and the patients were started on anti-TB medications, but did not improve. The reasons for re-investigating these cases are mentioned in Table 1, which showed that the simultaneous occurrence of these entities was missed and only noticed when there was relapse or failure in treatment of one of them.

If the diagnosis of one of these conditions is missed initially, this may affect the outcome. As noted in case 2, the initial response to anti-TB therapy masked and delayed the diagnosis, which may affect the stage and, therefore, the prognosis of HL, but the patient was lucky because this was not the case. In cases 3 and 5, the increase in lymph nodes size may be considered by some physicians as a paradoxical reaction during TB treatment, and they may attempt a short course of steroids that will increasingly mask the HL and may lead to serious complications. The other scenario that fortunately did not happen, what would happen if HL is diagnosed and TB is missed? The initiation of chemotherapy could cause life-threatening dissemination of TB.

Concurrent occurrence of HL and tuberculous adenitis poses a unique challenge for clinicians in terms of management and prognosis since, apart from scarce case reports, no large therapeutic studies have been conducted. However, the response to treatment and the prognosis seems to be good considering six patients were cured [Table 1].

Two theories have been proposed to explain the concomitant occurrence of TB lymphadenitis and HL. The first stated that having a malignancy like HL can suppress the cell-mediated immunity, which in turn can lead to activation of TB.[10] The second proposed that mycobacterium TB infection can cause direct DNA damage and apoptosis inhibition, which can lead to mutations and predispose to malignancies such as lymphoma.[11,12]

CONCLUSION

The concomitant onset of tuberculous adenitis and HL is rare, and a high index of clinical suspicion is needed to avoid missing the diagnosis. Hence, physicians' should consider the occurrence of both conditions simultaneously when they encounter initial therapeutic failure during the treatment of HL or tuberculous adenitis.

Disclosure

The authors declared no conflicts of interest.

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