Case report:

Approach for paediatric cervical lymphadenopathy: Tuberculosis versus lymphoma

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Abstract

Constitutional symptoms are the most common clinical manifestation of the systemic disease. When there is the presence of cervical lymphadenopathy concurrently, systemic infection or malignancy has to be taken into consideration. At the paediatric or adolescent age group, tuberculosis and lymphoma are the common diseases that associated with these symptoms. We should consider patient's age group, risk factors and the disease presentation for the diagnosis. With the guidance of the imaging studies, laboratory and histopathological studies, the precise final diagnosis is made.

Keywords: Constitutional symptoms; paediatric; tuberculosis; lymphoma; cervical lymphadenopathy.

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Introduction

Pulmonary tuberculosis (PTB) and lymphoma are both pathologically different. However, both are life threatening if left untreated. The general symptoms of these diseases are fever, weight loss, chronic cough or night sweat. A positive chest x-ray (CXR) finding as well as cervical lymphadenopathy may mimic one another. Thus, steps to address these diseases are very important for the diagnosis. These involve a proper history taking which include the onset of the presenting illness, patient's age and risk factors and a thorough physical examination. In addition, imaging such as CT scans, laboratory investigation and tissue biopsy are also required to confirm the stage of the disease and for the initiation of proper treatment.

Case Report

A seventeen years old Malay girl presented with history of painless right lateral neck swelling for onemonth associated with chronic cough with whitish sputum. She also had significant weight loss where she lost six kilograms inthe past two month. In addition she had persistent night sweats and fever. The swelling increased in size, but she had no compression symptoms. She had no difficulty in breathing, no voice changes, no dysphagia or odynophagia. She denied any PTB contacts.

She was pale and cachexic, however, she was not in sepsis or distress. Neck examination revealed right level II, level Va and Vb matted neck mass (Fig. 1) which were rubbery, painless, mobile and not fixed to the skin. No underlying skin changes noted and the mass were non pulsatile. She also had other multiple small lymphnodes palpable at right level III and IV, and left level II to VI. The laryngeal framework is intact.Oral, nasal and ear examination findings were unremarkable. Rigid nasoendoscopy and 70 degree laryngoscopy findings were normal. Lungs were clear with equal air entry.

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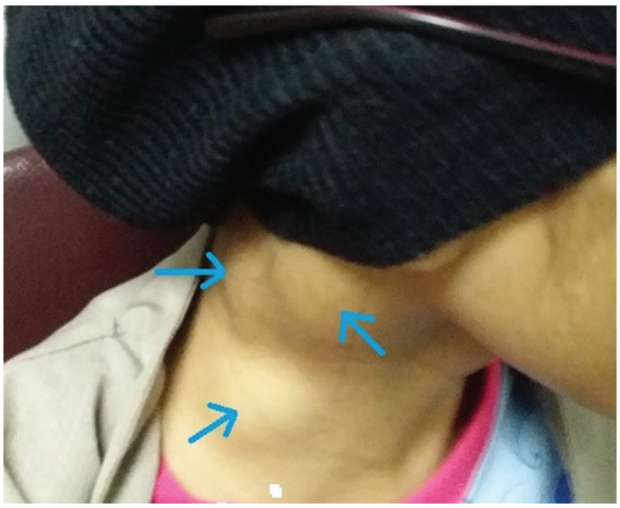


Figure.1: Right level II, level Va and Vb matted neck mass (blue arrows).

Her (PTB) screening; sputum for acid fast bacilli and Mantoux test was negative during the one month onset of the symptoms. However, chest radiography showed perihilar lymphodenopathy with widened mediastinum. A CT scan was performed and revealed multiple lungs nodules and multiple matted mediastinum lymph nodes (Fig. 2). She had a slight raised in ESR and marked raised in lactate dehydrogenase (LDH). Full blood picture showed anemia, neutrophilia and monocytosis with reactive lymphocytes. Based on these studies, PTB was deemed unlikely, thus an excision biopsy of the level Va cervical lymph node was performed instead of fine needle aspiration for cytology study. The histopathology study confirmed it was Hodgkin lymphoma.

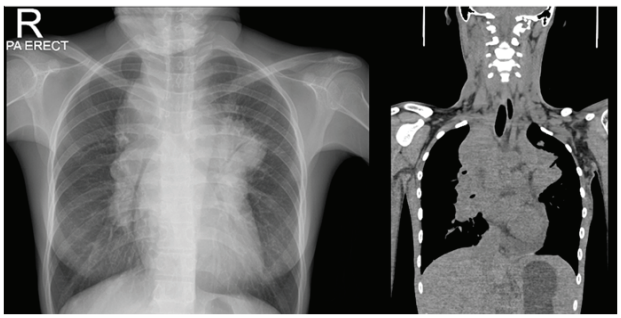
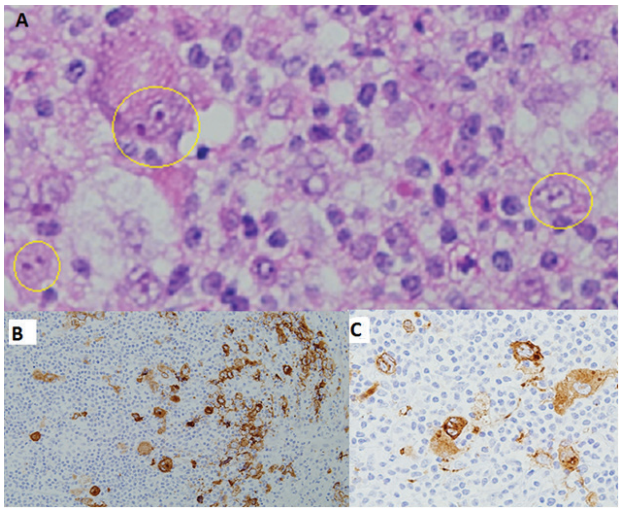


Figure.2: CXR (right) & CT thorax (left), showed perihilarlymphodenopathy with widen mediastinum.

Figure 3: A; Scattered Reed Sternberg cells (yellow circles) can be seen in the rich mixed inflammatory background (H&E: x400.). B; the tumour cells are immunoreactive for CD 15 (IHC: x200). C; the tumour cells are immunoreactive for CD30 (IHC: x400. CD30 and CD15 are expressed on classical Hodgkin Lymphoma Reed-Sternberg cells.[1]



Ethical clearance: This case study was approved by the Ethics Committee of School of Health Sciences, Universiti Sains Malaysia Health Campus, 16150 Kota Bharu, Kelantan, Malaysia.

Discussion

It is imperative to evaluate any patients who present with neck mass comprehensively in order to come to the correct final diagnosis. This normally entails a complete history taking and a proper clinical examination as well as laboratory and radiology investigations. For any neck mass the differential could be benign or malignant lesions depending on the patient factors, characteristic of the neck mass and other investigations results like blood parameters, sputum culture and the tissue histology. The differential of this lesion could be lymphadenitis, brancial cyst, tuberculous lymph nodes and malignancy such as lymphoma or metastatic lesion.

Constitutional symptoms for examples weight loss, fevers, fatigue, night sweats, and decreased appetite are the most common presentation for patient with chronic diseases. The patients with Hodgkin's lymphoma may present with B symptoms,fever greater than 38 °C (Pel-Ebstein fever), night sweats and unintentional weight loss of >10% of normal body. Similar systemic symptoms are presented in non-cancerous states such as tuberculosis and various inflammatory conditions as well. This certainly makes it difficult to come to the final correct diagnosis.

The patient's age is an important aspect in evaluating the true pathological disease that was experienced by the patient. Hodgkin lymphoma affects two common age groups of patients: ages 15 to 40 and after age 55. It was reported from the age of 13, Hodgkin's disease is the leading cause of malignancy of neck masses.[2] It is vital to get accurate final diagnosis earlier as the majority of patient with Hodgkin's

lymphoma can be cured if proper treatment instituted. Most of the patients with Hodgkin's lymphoma are chemosensitive and they can be cured with chemotherapy if they are treated at earlier stages.

In the presence of cervical lymphadenopathy with coexisting constitutional symptoms, malignancy or chronic infectious disease such as tuberculosis should be ruled out.The region of cervical lymphadenopathy may indicate the affected sites of the disease, for example, in our patient, she had painless jugular as well as posterior cervical nodes enlargement. Thus, it narrowed the possible diagnosis of tuberculosis or lymphoma[3], as the presentation of lymphadenopathy in these diseases localized to posterior cervical with matted and rubbery in the consistency.[4] The duration of the onset of swellings, size and consistency of the neck node also assists in identifying the possible causes the disease, whether it is a viral or bacterial infection and metabolic causes. In general, the criteria that consistent with malignancy are the neck nodes are over 2.5 cm in size (in all neck levels except for jugulodigastric region is 1.5cm), firm or hard consistency, and they present in the supraclavicular or the axillary region or at the posterior edge of the sternocleidomastoid muscle. They can be painful or painless, less mobile, and had progressive course.[3] Whereas, the benign neck nodes are under 1.5 cm in size, soft consistency, fluctuates, mobile and sometimes coexist with signs of inflammation.[3]

Chest radiography is an important study in case of highly suspicious of pulmonary tuberculosis. Any lesion from the lungs field may indicate an area of inflammation, the tumour formation, or other cellular changes. In pulmonary tuberculosis there will be milliary changes where there is widespread lung parenchyma disease. In addition, if there is presence of enlarged mediastinal or perihilar nodes, it is more suggestive oflymphoma or malignancy. It has been documented that 45% of the patients with lymphoma have enlarged mediastinal lymph nodes.[5] CT scan is required for further assessment of an enlarged mediastinal or perihilar nodes. Besides, in the case of lymphoma, CT scan isused for staging and subsequently aid in designing the next treatment plan.

Laboratory investigation is also important in narrow down the differential diagnosis. In general, full blood count (FBC) and erythrocyte sedimentation rate (ESR) serve as a marker of inflammation. Besides, low hemoglobin count in FBC may indicated anemia in chronic disease and may be true for both diseases. ESR which can be raised in both PTB and lymphoma, also serve as the prognostic factor for lymphoma.[6-8] As for the diagnosis of PTB, sputum culture and Mantoux test may yield positive results. A non-specifictumour marker namely lactate dehydrogenase (LDH) would also raise in the case of lymphoma.[9]

Histological study is essential for the diagnosis of malignancy. As a general rule, when a patient presented with neck lymphadenopathy, head and neck cancer should be ruled out. Thus, a fine-needle aspiration is usually performed as the initial diagnostic measure. In the case of lymphoma, an excisional lymph node biopsy is conducted to assess the lymph node architecture which is important for histologic classification. Bone marrow biopsies might be indicated in some cases of lymphoma to further subtyping the disease as the treatment may be differed.

Summary

Tuberculosis and lymphoma may mimicry as the patient may present with same cervical lymphadenopathy, constitutional symptoms, and a vague chest radiography findings. A comprehensive history, clinical examination, radiology as well as laboratory investigations are prudent in order to come to the accurate final diagnosis as both diseases have different treatments that are curative. Though there were few reported cases of concomitant lymphoma and tuberculosis, managing such cases from the first patient presentation to the commencement of treatment remains a challenge.

Conflict of interest: None declared

Authors' Contributions:

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Writing and submitting manuscript: Chew Shiun Chuen, Norhafiza Mat Lazim, Hilma Hazmi

Editing and approval of final draft: Chew Shiun Chuen, Norhafiza Mat Lazim, Lim Eng Haw

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