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Case Report

Retropharyngeal abscess presenting as Multidrug-resistant tuberculosis (MDR-TB)

Syed Shabbir Hussain[1*], Ashfaq Hasan[2], Gopi Krishna Yedlapati[1]

[1]Dept. of Pulmonary Medicine, Yashoda Hospitals, Hitec City, Hyderabad, Telangana, India.
[1]Dept. of Pulmonary Medicine, Owaisi Hospital and Research Centre, Hyderabad, Telangana, India

Abstract

Tuberculosis-related Retropharyngeal abscess (RPA) is uncommon. To our knowledge no cases of multidrug resistance Tuberculosis (MDR-TB) in RPA with multiple skin abscesses have been reported. We report a case of pulmonary TB with multiple abscesses distributed over the extremities as well as RPA which yielded an MDR-TB in a 19-year-old male without overt immune-compromise. CT scan revealed a large RPA on left side extending from Oro-pharyngeal region that was aspirated. A molecular investigation maintained the TB diagnosis. GeneXpert MTB/ RIF performed on the pus, showed rifampicin resistance. Aspiration was used to drain the abscess, and long-term anti-TB treatment was prescribed to our patient.

Keywords: Extrapulmonary TB, Multidrug resistant tuberculosis, Immunocompetent host, Multiple abscesses.

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1. Introduction

India bears 24% of the global burden of Tuberculosis (TB) and is estimated to have 2 - 2.3 million new cases each year.[1] Of the 1.5 million cases reported to the Revised National Tuberculosis Control Programme (RNTCP), 10-15% are extrapulmonary tuberculosis (EPTB), mostly TB lymphadenitis and pleural effusion.[2,3] EPTB constitutes 15-20% of all cases of TB among immune-competent individuals and up to 50% in HIV-infected patients.[4] Depending on the disease site, specimens may be difficult to obtain and the lesions are usually paucibacillary; hence bacteriologic confirmation is the exception rather than the rule. In general, EPTB (TB lymph node, pleural effusion, abdominal TB, skin TB, *etc.*,) is treated with the same regimens that are used for pulmonary disease, with clinical trials confirming the efficacy of short-course regimens.[5] Exceptions are bone and joint TB and TB meningitis, for which there are inadequate data to support 6-month therapy; thus 9-12 months of treatment is recommended.[6]

There is limited information in the literature regarding prevalence of drug resistance in EPTB especially from high burden settings like India.[6] The reason for this is mainly the difficulty in obtaining diagnostic specimens and the frequently paucibacillary nature of extra-pulmonary disease. Thus, clinical symptoms frequently become the one of the main diagnostic indicators and drug resistance is suspected only after failure to first line therapy.

2. Case Report

A 19-year-old male patient presented to our OPD with a history of high-grade fever, weight loss and loss of appetite for 3½ months. Additionally, he reported a history of multiple swellings over his left calf, right thigh, buttocks, testicular region, right thigh, perianal region, right side of neck and both palms. Some of these swellings displayed purulent discharge oozing from sinus formation, while others showed ulceration and healing.

Prior visiting our hospital, he approached another hospital roughly 3 months ago complaining of a month-long cough and fever. Chest radiograph at that time had shown a

*Corresponding author: Syed Shabbir Hussain
Email: syedshabbir032@gmail.com

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retro-cardiac inhomogeneous opacity in the left lower zone. CT scan of the chest showed features of consolidation in the posterior segment of the left lower lobe. Sputum analysis could not be done as the patient was not expectorating. Broncho-alveolar lavage revealed presence of acid-fast organisms compatible with *Mycobacterium tuberculosis*. A diagnosis of tuberculosis was made and the patient started on standard first line anti-tuberculosis therapy (ATT) that included Isoniazid, Rifampicin, Pyrazinamide and Ethambutol as part of the intensive phase. He was switched to continuation phase after 2 months with Isoniazid, Rifampicin and Ethambutol.

After receiving regular ATT for 2½ months, patient's symptoms did not improve and he came to our hospital for a second opinion. Physical examination revealed a body temperature of 39.4 °C, a heart rate of 92 beats/min, and a blood pressure of 118/72 mmHg. Patient was malnourished and oropharyngeal examination showed a swelling on the left side of the posterior oropharynx. CBC showed haemoglobin 9.9 gm/l and rest was normal. Liver function test results were normal, ESR 80mm in 1st hr and CRP 39.4mg/dl. A contrast enhanced CT of chest showed few irregular band-like opacities in left lower lobe of lung, suggesting resolution of the consolidation. An RPA on left side measuring 20mm antero-posteriorly x 20mm transversely x 80mm craniocaudally (**Figure 1**a & b) was detected extending from oro-pharyngeal region superiorly to the thoracic inlet inferiorly.

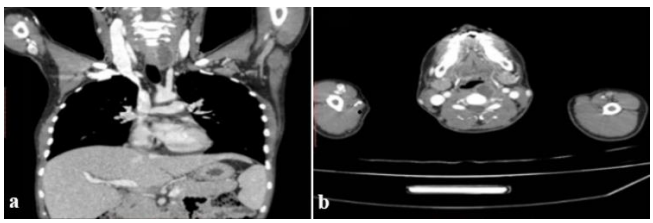

Figure 1: CECT chest (**a**) coronal plane and (**b**) transverse plane with RPA on left side

Ultrasonography (USG) of axilla was normal and abdomen showed no lymphadenopathy or hepato-splenomegaly. USG of scrotum showed bulky hypoechoic right epididymis with head measuring 27x18mm, body measuring 40x17mm and tail measuring 27x20mm with increased vascularity on colour doppler. Left epididymis showed small cyst measuring 4x2mm. Hypoechoic irregular lesion in right testis measuring 25x15mm with increased vascularity was also observed. Acquired immunodeficiency by ELISA for HIV was negative.

Aspiration from the gluteal abscess showed pus with numerous polymorphs and macrophages against a necrotic background. The RPA was also drained by a horizontal left paramedial incision and the pus sample obtained showed polymorphs consistent with an abscess. Results after 48 hrs of incubation showed no growth on aerobic culture. Fungal staining was negative whereas acid-fast bacilli were seen.

GeneXpert MTB/RIF (Cepheid, Sunnyvale, CA, USA) detected MTB with rifampicin resistance. The patient was started on WHO recommended MDR-TB regimen that includes Moxifloxacin, Clofazimine, Ethambutol, Pyrazinamide, Ethionamide, high dose Isoniazid and an injectable kanamycin. On follow-up, patient was clinically better.

2.1. Therapeutic intervention

Moxifloxacin (daily, oral 10 mg/kg), Clofazimine (daily, oral 2mg/kg), Ethambutol (daily, oral 15 mg/kg), Pyrazinamide (daily, oral 20mg/kg), Isoniazid (daily, oral 10mg/kg), Ethionamide (daily, oral 15 mg/kg), and an injectable kanamycin (daily, 15mg/kg).

3. Discussion

The retropharyngeal space extends from the base of the skull to the mediastinum and is located posterior to the posterior pharyngeal wall, between the middle and deep layers of the deep cervical fascia. It contains loose areolar tissue and a pair of lateral retropharyngeal glands.[7] The 2024 WHO Global TB Report emphasizes that tuberculosis (TB), which is caused by Mycobacterium tuberculosis, is making a comeback as the top infectious killer and is a significant threat to public health.[8]

Extra pulmonary TB, EPTB poses a significant clinical challenge in developing nations such as India. The diagnosis is frequently overlooked because of its diverse presentations, which can include atypical locations. There is an urgent need for standardized guidelines to ensure accurate diagnosis and treatment, thereby alleviating the strain on the current healthcare system.[9] India is facing a significant rate of TB, carries a substantial share of EPTB cases.[10] The guidelines outline recommendations focusing on three key areas for EPTB are, (i) the application of Xpert MTB/RIF for diagnosis, (ii) the incorporation of adjunct corticosteroids in treatment,(iii) length of treatment.[11]

RPA occur frequently in children because of the abundance of retropharyngeal lymph nodes. RPA are caused by pyogenic infection-induced suppuration of persistent retropharyngeal lymph nodes following trauma from an object or instrumentation (laryngoscopy, endotracheal intubation, feeding tube placement, etc.). They can also occur in the presence of associated diseases.[12] RPA in adults is also mostly pyogenic and usually secondary to pharyngeal or oesophageal perforation or sepsis in the throat or sinuses.[13] Abscesses occur mostly in immunocompromised patients and tubercular RPA are very rare.[14] Tubercular RPA is usually secondary to spinal TB and are seen mostly in children.[15]

Tuberculosis as an etiological agent of a RPA is rare, more so in an immunocompetent adult. It can present with variable manifestations, from subtle features such as odynophagia alone and neck pain due to early stage and less severity of the disease to catastrophic complications causing stridor and life-threatening respiratory obstruction as reported previously.[16] Our patient presented with only odynophagia and neck pain on the left side, the expected presentation in an adult, but features suggestive of spinal involvement by tuberculosis were lacking. On throat examination, the swelling due to a tubercular RPA was usually in the midline, in contrast to the acute pyogenic RPA, which was usually on one side of the midline. Ziehl-Neelsen stain was used to identify acid-fast bacilli in the abscess aspirate, which led to the initial diagnosis of tuberculosis (TB). Culture is still the gold standard method for confirming tuberculosis diagnoses.[17]

Tubercular RPA in adults is usually secondary to TB of cervical spine.[18] Prior reports showed simultaneous involvement of the spine and its draining lymphatic to be the likely route by which tuberculosis spread. In our case however, there was no evidence of spinal tuberculosis. In cases where spinal involvement is inapparent, such as in our patient, haematogenous spread from the pulmonary focus (or from an in obvious focus of tuberculosis in another location) could be the cause.[19]

Transoral drainage of RPA is a well-established treatment of RPA.[20] Although medical therapy is very important for cure and prevention of relapse, surgical drainage is crucial as it not only relieves compressive symptoms, but may forestall further complications such as mediastinitis and involvement of the great vessels.[21]

WHO suggests a brief 9–11-month regimen for MDR-TB in all its forms. This regimen consists of a 4–6 month loading phase that includes high doses of isoniazid, amikacin, moxifloxacin, ethionamide, pyrazinamide, ethambutol, and clofazimine. Patients are prescribed ethambutol, pyrazinamide, clofazimine, and moxifloxacin during the maintenance phase. With this regimen our patient demonstrated a notable improvement during follow-up appointments.

4. Conclusion

MDR TB, although commonly met with in its other protean presentations, can also present as RPA. Possibility this entity should be entertained even in the absence of obvious spinal involvement. A history of fever and weight loss coupled with dysphagia or odynophagia should prompt considering this diagnosis. Surgical intervention with ATT is crucial for a positive outcome.

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6. Ethical Approval

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7. Source of Funding

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8. Conflict of Interest

None declared.

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