

Retropharyngeal Abscess as A Complication of Cervical Spine Tuberculosis: Clinician's Challenge; A Rare Case Report

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ABSTRACT

Introduction: Tuberculosis of cervical spine is a very rare entity. It can present with myriad of unrelated symptoms and can be a diagnostic dilemma for the treating clinician. Due to the important neurovascular and respiratory symptoms associated with the cervical tuberculosis, the accurate diagnosis and prompt management of these cases becomes a clinical necessity for best patient outcomes.

Case Report: A young female presented with pain in neck and upper limbs with associated dysphagia and voice changes. A bulge was appreciated in posterior pharyngeal wall, which on aspiration tested positive for TB. Patient was managed with ATT regime and therapeutic aspirations of pus which resulted in complete recovery. No orthopaedic intervention was required.

Discussion: Since cervical spine TB is a rare entity and it behaves very differently from bacterial osteomyelitis, a conservative approach with ATT & therapeutic aspirations can be recommended as standard of care in most cases. Surgical debridement/tracheostomy can be reserved for very selective cases. A high index of clinical suspicion and prompt approach can save morbidity & mortality.

Keywords: Tuberculosis; Cervical spine; Dysphagia, ATT

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INTRODUCTION

Tuberculosis of spine is a rare complication seen in less than 1% of patients infected with Mycobacterium tuberculosis. Amongst those with TB spine around 3-7% present with involvement of cervical vertebrae.[1] In world literature, only 22 cases of cervical spine TB presenting as retropharyngeal abscess have been described.[2] Due to the rarity of the disease and non-classical symptoms of presentation in these cases a high index of suspicion is necessary to accurately diagnose it. Progression of disease can result in neurological and aerodigestive tract compression symptoms [3], which if not treated promptly and adequately can result in significant morbidities to the patient.

The retropharyngeal space is a closed space bound anteriorly by the pharyngeal constrictors and posteriorly by the alar fascia. It extends from the skull base down till the tracheal bifurcation and is divided in midline by a fibrous raphe into two lateral spaces of Gillete. Retropharyngeal abscess can be acute or chronic, with acute variant being common in children below 5 years of age or adults with traumatic injury to aerodigestive tract. The chronic variant is seen in setting of tuberculosis of spine either spreading from nodes of head and neck region or from thoracic spine via hematogenous spread through Bateson's plexus.

Case Report

In contrast to this the prevertebral space residing posteriorly, extends inferiorly till the coccyx and is usually infected in the chronic setting such as TB spine. The bulge seen in abscesses of prevertebral space is typically midline. Sandwiched between these two spaces is the alar space or the danger space which extends till the diaphragm.

Regardless of these anatomic distinctions the abscess of one space eventually involves deeper tissue and vice versa if left untreated for long. It can result in complications such as mediastinitis, compression of great vessels, compression on roots of peripheral nerves or spinal cord, rupture of abscess, laryngeal oedema and stridor, etc. In this article we present a case of retropharyngeal tuberculous abscess with early neurologic and aerodigestive tract symptoms, where early intervention drastically changed clinical course of the disease and relieved the symptoms.

CASE REPORT

An 11 year old female child presented with complaints of pain in neck and intermittent fever since past 3 months. The pain was persistent in nature and aggravated with neck movements (more with flexion). It was not associated with any clinically appreciable cervical lymphadenopathy. Child also suffered episodic low grade fever & subsequently developed dull pain in both her upper limbs without any history of trauma. Patient suffered further clinical deterioration and perceived dysphagia and change in voice.

Clinical examination of oropharynx revealed a posterior pharyngeal wall bulge (Figure 1:(A)Oropharynx of the patient showing bulge in the posterior pharyngeal wall, (B) after clinical resolution). Rest of the oral cavity revealed no abnormality. On endoscopic laryngeal examination, the laryngeal framework appeared normal with only abnormality being the bulge present in the posterior pharyngeal wall pushing on the arytenoids and narrowing the laryngeal inlet. A lateral radiograph of neck suggested soft tissue accentuation in prevertebral region (Figure 2: Lateral radiograph of neck showing prevertebral soft tissue shadow pre-treatment (A), after resolution (B)).

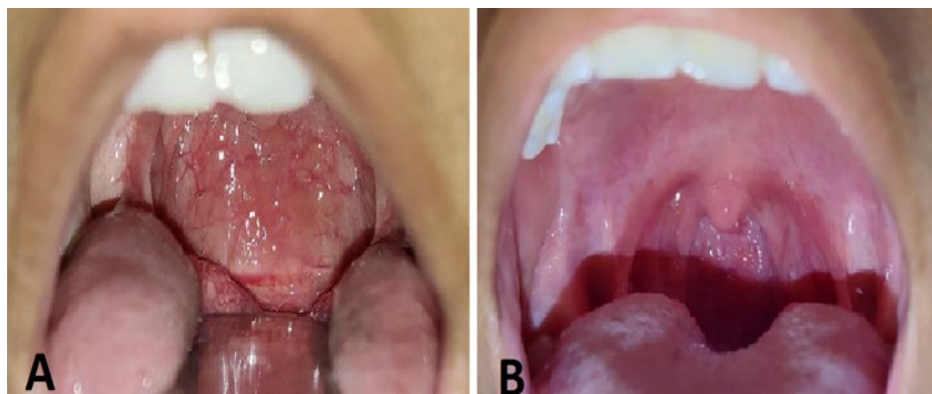


Figure 1: (A) Oropharynx of the patient showing bulge in the posterior pharyngeal wall, (B) after clinical resolution.

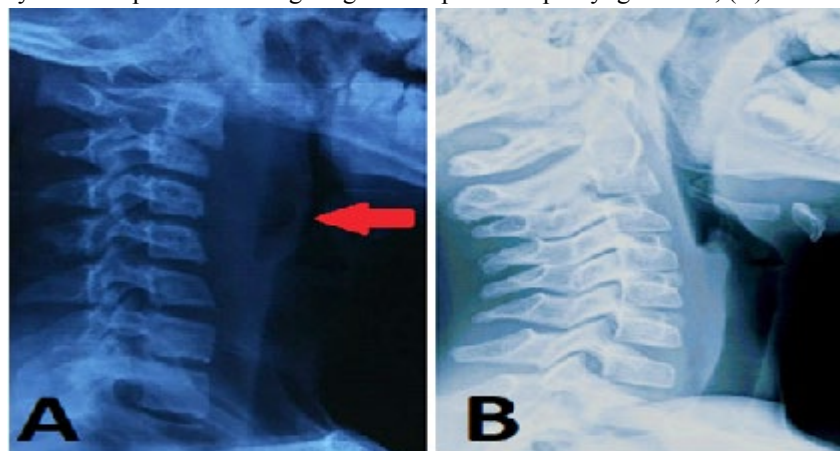


Figure 2: Lateral radiograph of neck showing prevertebral soft tissue shadow pre-treatment (A), after resolution (B)

A contrast enhanced computerised tomographic scan showed collection involving retropharyngeal, alar and prevertebral spaces. There was also destruction of C3 vertebra body, anterior margin of right transverse process and epidural extension of collection from skull base to T4 vertebra body having 1.3cm maximum antero-posterior diameter.(Figure 3:Parasagittal CT cuts showing collection in prevertebral space and retropharyngeal spaces with destruction of body of C3 vertebra).



Figure 3: Parasagittal CT cuts showing collection in prevertebral space and retropharyngeal spaces with destruction of body of C3 vertebra.

Patient was started on broad spectrum IV antibiotics empirically after collecting diagnostic aspirate (which yielded pus) from the Posterior pharyngeal wall bulge, however no response to treatment was appreciable. Therapeutic aspiration from posterior pharyngeal wall was done using wide bore needle after local anaesthesia with 10% lignocaine spray. Around 15 ml of pus was aspirated and sent for culture sensitivity, which failed to show growth of micro-organisms. However, there was recollection of pus with ongoing antibiotics which raised the suspicion of tuberculous infection.

A complete blood count showed raised lymphocyte percentage (40%) and ESR (33) in an otherwise normal total leucocyte count (5500/mm³). Patient also did not have history of any immune-compromising state or illness. The re-aspirated pus sample was tested negative for AFB staining and positive on CB-NAAT for Mycobacterium tuberculosis without any rifampicin resistance. Following this the patient was started on standard ATT for EPTB (extra-pulmonary tuberculosis). Within 2 weeks of ATT regime and with repeated therapeutic aspirations patient showed improvement in dysphagia and voice symptoms. Patient was also advised only conservative measures by orthopaedic consultant and with ongoing treatment patient's pain symptoms in upper limbs also improved. Patient recovered completely with resolution of symptoms, satisfactory weight gain and improved oral intake for the past 6 months with ATT.

DISCUSSION

Spinal TB typical involves lower thoracic and lumbar vertebrae in adults and upper thoracic vertebra in children. [4] Also due to increased content of red marrow in children there is increased propensity of contiguous vertebral spread and extensive destruction of vertebral bodies in children. Tian et al presented a case of a 24-month old child presenting with progressive neurologic deficit and painful neck movements. [5] Cervical spine vertebrae C5 and C6 were involved in this child with decrease in muscle power (4/5) and subsequent management of TB yielded satisfactory results. They described the morbidity of the disease and its impact on paediatric age group and pointed the incidence of TB, particularly in Southeast Asian populations. Acute presentation of spinal tuberculosis is less common. In chronic cases clinical presentation varies and sometimes atypical presentation such as obstructive sleep apnoea may be the only presenting complaint [6].

Owing to the variable presentation and paucity of organisms in diagnostic materials, it poses a diagnostic challenge to the

clinicians. Histopathologic assessment is seen superior in such cases often revealing a caseating granuloma. However complete otolaryngologic clinical evaluation and keeping high index of suspicion for TB as one of the differential diagnoses helps in clinching the diagnosis in such cases. Contrast enhanced computerised tomography scan is usually the investigation [4] of choice in evaluating such cases by showing sclerotic bone destruction, sequestrum formation, decreased intervertebral space and involvement of the centrum of vertebra. Magnetic resonance imaging is superior in cases of dural involvement or involvement of central nervous system.

Existing literature suggests that spinal TB behaves differently than bacterial osteomyelitis and recommends chemotherapy as the primary treatment, surgical intervention should be used in advanced disease or risk of complications. [7] Regarding neurologic complications the traditional view that conservative management often led to near complete recovery and surgery is recommended only in highly selective cases holds true till date.

Diagnosis in our case was established on high index of suspicion due to chronicity of the course of disease, non-response to standard antibiotic therapy and cachexia. However, reliance on traditional methods of diagnosis such as chest Xray, Mantoux test and pus for AFB stain might not always be confirmatory as seen in our case. Recent advances in diagnostic approach like CBNAAT [8] and TB PCR have shown greater sensitivity and specificity in detecting these cases and should now be the first line of investigation as rightly perceived by various national TB control programs.

There are 3 broad approaches in management of spinal TB - chemotherapy, chemotherapy along with debridement and radical debridement. [9] The middle path regime which consists of chemotherapy as a primary modality with surgery reserved for: lack of response to chemotherapy, severe weakness at presentation, worsening neural deficit even after initiating chemotherapy, instability, incapacitating pain, and deformities. [10] Abscess drainage and subsequent antitubercular therapy remains the most favoured and mainstay of treatment in spinal cases [6]. Various studies concluded better outcomes with non-surgical management in case of TB spine & recommend reserving surgical management only for complications like dyspnea or dysphagia, neurological deficit and progressive deformity while on treatment. [11] Adequate aspiration under local anaesthesia has also been described as an effective method to aspirate sufficient amount of pus to relieve patient's symptoms of dysphagia and change in voice. [12] Role of prior tracheostomy have also been recommended in few selected cases in management along with drainage under general anaesthesia. [13] However, in our case as the patient didn't have stridor or any other compelling indication for surgery at any point in her clinical course of disease so it was unnecessary to subject her to any significant surgical intervention. We could manage this case satisfactorily with serial therapeutic aspiration under cover of local anaesthesia and early initiation of antitubercular therapy.

With review of existing literature and our experience with this case, we recommend that in absence of progressive neurologic deficit and stridor therapeutic aspiration together with appropriate antitubercular therapy can be recommended as the standard of care in these cases.

DECLARATION

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