

## Primary Tuberculous Retropharyngeal Abscess

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### Abstract

Tuberculosis is a public health concern and a major cause of morbidity and mortality. Isolated retropharyngeal tuberculosis presenting as a deep neck abscess without cervical and pulmonary involvement is a rare form of extrapulmonary tuberculosis. It is potentially deadly and constitutes a diagnostic dilemma. We present the case of an adult male who presented with neck pain and odynophagia. A diagnosis of tuberculous retropharyngeal abscess was made based on the history, physical examination, laboratory and computed tomography investigations. The patient made remarkable improvement following anti-tuberculosis therapy.

**Keywords:** Computed tomography; Retropharyngeal-abscess; Tuberculosis

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### Introduction

Tuberculosis (TB) is a public health concern and a major cause of morbidity and mortality globally. Worldwide, more than 1 in 3 individuals is infected with TB [1] and in 1993 WHO declared TB a global emergency. In 2014, WHO reported 6.1 million cases of TB out of which 5.7million cases were newly diagnosed and 0.4 million were previously diagnosed cases [2]. It has also been documented that approximately 9 million people contract TB and 2 million die of it annually [3]. In Nigeria, the TB prevalence rates in adults aged 15 years and above were estimated to be 318 per 100 000 population for smear-positive, and 524 for bacteriologically-confirmed cases [4]. However, only 20% of active TB cases are notified despite having the highest TB burden in Africa [4].

Isolated retropharyngeal tuberculosis presenting as a deep neck abscess without cervical and pulmonary involvement is a rare form of extrapulmonary tuberculosis (EPTB) and is potentially deadly. Globally, out of 5.7 million new cases of TB in 2014, 0.8 million patients had extrapulmonary TB [2] and up to 10% of cases have a presentation in head and neck region [5]. With exception of nail, hair and teeth, extrapulmonary tuberculosis can affect almost any part of the body. The frequency of occurrence of TB lesions in the nose, mouth and pharynx, were reported in an average of 0.66% of cases even at its peak in 1930 [6]. Nasopharyngeal location is extremely rare (0.12% of all TB) and often primary; pulmonary and systemic involvement is unusual in those cases (25% to 30%) [5]. Tuberculosis of the pharynx may

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be secondary to Pott's disease of the cervical spine especially in children [7] or pulmonary tuberculosis.

Retropharyngeal abscess is an infection of one of the deep spaces of the neck and its manifestation as pharyngeal tuberculosis is uncommon even in endemic areas. It is a potentially deadly infection, as deep cervical spaces often serves as a medium for spread of disease from the neck into the chest and may be associated with airway obstruction, mediastinitis, aspiration pneumonia, epidural abscess, jugular venous thrombosis, necrotizing fasciitis, sepsis, and erosion into the carotid artery [8].

Primary tuberculosis of the pharynx is a diagnostic dilemma and high index of clinical suspicion, patient's history and physical examinations as well as laboratory investigations are required to arrive at a definitive diagnosis. Radiological imaging with cross-sectional modalities like CT and MRI is important to identify the lesions and elucidate the extent of the disease and possible damage to important neck structures. We report a case of primary TB of the pharynx presenting as a retropharyngeal abscess in a male adult patient without associated cervical spine and pulmonary disease. To the best of our knowledge, this is the first case of tuberculous retropharyngeal abscess without cervical spine and/or pulmonary tuberculosis in our setting. A high index of suspicion should be maintained and tuberculosis should take proper place in the differential diagnosis of retropharyngeal abscesses especially in endemic region like ours.

## Case Report

A 40 years old male who was referred from family physician to the Ear, Nose and Throat (ENT) surgeon with a complaint of neck and throat pain of 4 and 3 months durations respectively. Patient was apparently well until 4 months prior to presentation when he started having neck pain associated with difficulty to turn the neck to the sides. Pain was said to be severe in the morning and on extension of the neck and relieved by analgesics.

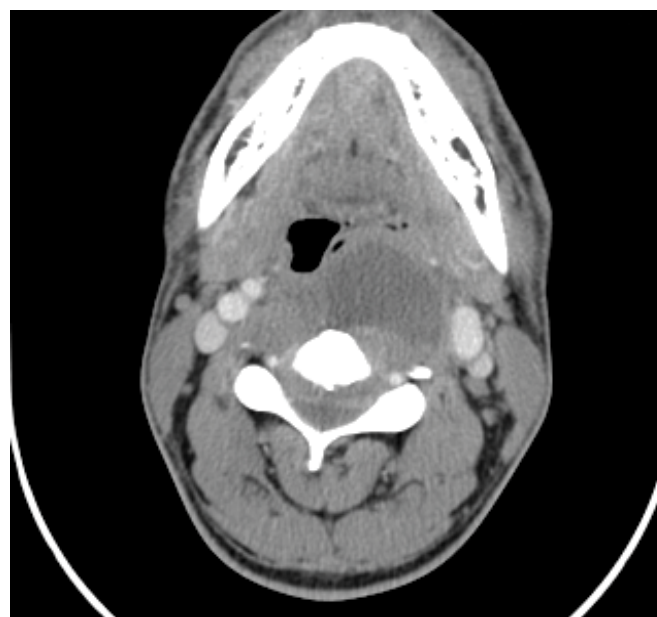
Patient subsequently developed odynophagia worse with solid food one month later. Patient had intermittent fever, for which he was treated for malaria. There was a history of weight loss but no history of chronic cough, night sweat, impaction of foreign bodies in the throat, infection in the ear, dental extraction, endoscopy or any other invasive procedure. Patient denied a history of blood transfusion. Vital signs were stable. However, Patient's condition gradually worsened, necessitating consultation with the doctor.

Physical examination revealed a young man with no obvious distress, afebrile, not pale and not jaundiced. No neck swelling, no palpable cervical lymphadenopathy. Ear Nose and Throat (ENT) examination revealed diffuse non ulcerated bulge in the posterior pharyngeal wall on the left side. Other areas of oropharynx were normal with no discrete neck lymph nodes (**Figure 1**). Findings by indirect laryngoscopy were unremarkable, consequently, a provisional diagnosis of Odynophagia? cause to exclude chronic retropharyngeal abscess was made.

On investigations, his full blood count and differentials were within normal ranges except for eosinophilia 13%(Normal=1-6%). Erythrocyte sedimentation rate (ESR) was elevated(105mm/hr), Mantoux test was positive 12 mm (Normal=8-10 mm) and retroviral screening was negative. Hepatic and renal function tests were within normal ranges. He could not produce sputum to examine for Acid Fast Bacilli (AFB) or geneXpert nucleic acid amplification test. Chest x-ray (posteroanterior view) and cervical spine X-ray (AP/LAT) were normal. Contrast-enhanced computed tomography (CECT) of the neck showed a left posterolateral pharyngeal hypodense lesion with peripheral enhancement causing narrowing of the left aspect of the hypopharynx in keeping with retropharyngeal abscess (**Figures 2-4**). CT scanogram of the



**Figure 1** Clinical appearance of the oropharynx (arrows).



**Figure 2** Contrast enhanced axial CT image showing prevertebral abscess displacing left carotid vessel laterally (arrow).

cervical spine was normal (**Figure 5**). Ultrasonography of the abdomen was normal. Based on the ENT, laboratory and CECT findings a diagnosis of retropharyngeal abscess secondary to Tuberculosis was made. Surgical drainage of the abscess was advised but patient declined.

Then patient was reviewed by the physician and there was no evidence of tuberculosis in any other site thus a diagnosis of retropharyngeal abscess secondary to EPTB was made. Patient also declined aspirations of the abscess for smear and culture examination. Consequently, patient commenced anti-tuberculosis therapy and he made remarkable improvement following the therapy. Patient has since completed the standard recommended 6 months regimen.

## Discussion

Tuberculosis is an antique disease, with traces of it found in Egyptian mummies and over the centuries, has been the most important of human diseases, meriting the name "the captain of all the men of death" [9]. It is one of the world's deadliest communicable diseases [2], which affect the lungs (pulmonary TB) and other extrapulmonary sites (extrapulmonary TB).



**Figure 3** Contrast enhanced sagittal CT image showing retropharyngeal abscess with extension to the retrolaryngeal region (arrow).



**Figure 5** Scanogram of CT scan of same patient showing intact cervical spine.

Extrapulmonary tuberculosis (TB) accounted for approximately 25% of the total tuberculous morbidity [10].

One of the clinical presentations of extrapulmonary tuberculosis is a retropharyngeal abscess and is a potentially life-threatening deep neck infection [11]. Retropharyngeal abscess is more common in males than in females, with generally reported male preponderance of 53–55% and may present with sore throat, fever, dysphagia, odynophagia, neck pain and dyspnoea in adult [12].

Tuberculous retropharyngeal abscess in adults is usually secondary to tuberculous involvement of cervical spine [13], but in rare cases, it occurs as a result of lymphatic spread to a persistent retropharyngeal lymph node. Occasionally the abscess may be due to hematogenous spread from pulmonary tuberculosis or tuberculosis elsewhere [14]. Retropharyngeal abscess can be the presenting feature of primary tuberculous infection without pulmonary and cervical spine involvement. The patient under review presented with neck pain and odynophagia. CT showed retropharyngeal abscess and further investigations and anti-Kock therapy confirmed tuberculosis as the culprit. In this patient, the probable route of tuberculous spread to the retropharyngeal space is via the lymphatics to a persistent retropharyngeal lymph nodes, which usually disappear after age 4 to 5 years as documented by Meher et al. [15] and Ohar et al. [16].

Primary pharyngeal tuberculosis is extremely rare even in endemic areas [17,18], but has been documented in the literature. Amin et al. [19] reported a case of tuberculous retropharyngeal abscess in a 38-year old male without cervical spine and pulmonary disease. Similarly, Singh et al. [7] reported another case of retropharyngeal abscess without Pott's disease of the cervical spine. In a related study, Lee et al. [20]



**Figure 4** Contrast enhanced coronal CT image showing prevertebral abscess displacing left carotid vessels laterally (arrow).

reported a case of primary pharyngeal tuberculosis without pulmonary and cervical spine involvement that was taken for submucosal tumour.

In contrast, Menon and Baruah [21] and Radi and Makki [22] reported cases of tuberculous retropharyngeal abscess that were secondary to Pott's disease of cervical vertebrae. Ekka and Sinha [23] also documented a case of retropharyngeal abscess that was the only manifestation of asymptomatic pulmonary disease. Retropharyngeal tuberculous abscess is a rare presentation of the disease even in the presence of extensive pulmonary tuberculosis [24]. In a parallel study, Ogah et al. [25] in Nigeria report a case of tuberculous retropharyngeal abscess with coexisting pulmonary tuberculosis and Pott's disease of the cervical spine.

The diagnosis of tuberculous retropharyngeal abscess is based on careful patient's history, physical examination and laboratory investigations along with a high index of clinical suspicion as well as response to anti-tuberculosis therapy. Cross-sectional radiological imaging modalities (CT and MRI) play great role in the identification of the lesions making it possible for the assessment of the extent of the disease and possible damage to important

neck structures including vascular complications. In our patient, CT revealed the abscess, thus necessitating further investigations to determine the offending organism.

Retropharyngeal abscesses require prompt diagnosis and early management to avert spread of infection and deadly consequences. Our patient was treated conservatively with anti-tuberculosis therapy without the need for surgical drainage and his improvement was remarkable. Similarly, Ekka and Sinha successfully managed their patient on anti-tuberculous therapy without resort to surgical drainage as the abscess was small.

## Conclusion

Retropharyngeal abscess in an adult is ominous and calls for proper investigation, as it can be a manifestation of isolated extrapulmonary tuberculosis. A high index of suspicion is required and tuberculosis should be considered in the differential diagnosis of retropharyngeal abscesses especially in an endemic region like ours. Timely initiation of treatment is required to prevent disastrous complications.

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