

# Mysterious Mediastinum - Fever Difficult to Diagnose with Dysphagia

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**Abstract** Tuberculosis is a common etiological factor for fever of unknown origin in developing countries even today. Tuberculous mediastinal lymphadenitis is a disease of children as a part of primary tuberculosis. Mediastinal lymphadenitis without a parenchymal disease is unusual in an adult. Mediastinal tuberculous lymphadenitis presenting as fever of unknown origin could be mysterious when chest x ray was normal. Modern techniques like Computerised Tomography of chest and Endobronchial Ultrasound and Transbronchial Needle Aspiration (EBUS & TBNA) made it possible to make an early diagnosis in such clinical situations. We present a case of an adult with mediastinal tuberculous lymphadenitis with esophageal compression symptoms who presented with fever difficult to diagnose. And also we depict how modern techniques helped us to make an early and accurate diagnosis.

**Keywords:** *dysphasia, mediastinal lymphadenopathy, endobronchial ultrasound, transbronchial needle aspiration*

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## 1. Introduction

Fever of unknown origin is a common clinical problem encountered by medical professionals. The difficulty in making a correct diagnosis is perpetual in the developing countries due to paucity of modern investigatory facilities. Even in this modern era tuberculosis remains the commonest cause of an undisclosed illness. Mediastinal tuberculosis is common in children as a primary disease along with peripheral lymph nodal involvement or in isolation. Mediastinal involvement in an adult is usually as a part of parenchymal lung lesion [1]. Clinical presentation of mediastinal tuberculosis with normal chest skiagram can be mysterious. Mediastinal lymphadenopathy compressing esophagus extrinsically and presenting as dysphagia though not rare but uncommon. In the past it was a difficult task to get a biopsy of the obscure mediastinal node. With the availability of endobronchial ultrasound and transbronchial needle aspiration techniques we are able to make a rapid etiopathological diagnosis of these obscure lesions.

## 2. Case Report

A seventeen year old girl was admitted with a history of prolonged fever of two months duration. Complaints started as fever, headache, nausea and occasional vomitings on 15th June 2015. She had intermittent fever with chills for a week and has consulted a general practitioner and

she took symptomatic treatment without much benefit. The temperature recorded at that time was 101°F. She continued to have intermittent fever, headache, heaviness of chest and weakness.

On 9th July, 2015 she was admitted to another hospital. At that time her blood tests showed Hemoglobin 10.6 grams, Total White blood cell count 2700, Erythrocyte sedimentation rate 75mm/hour and Platelets 2,40,000. Blood sugar, Creatinine and Liver function tests were in normal limits. Malarial parasite was not detected by smear and Quantitative Buffy Coat examination. Serology for Human immunodeficiency virus, Hepatitis B and C viruses were negative. Blood and Urine for culture and sensitivity no growth was seen. She was given intravenous ceftriaxone, azithromycin and dexamethasone on clinical suspicion of typhoid. The fever subsided and discharged to home on 13th July, 2015.

Five days later the fever relapsed and she was given empirical antimalarial treatment. Fever subsided for the last two days preceding her admission to our hospital. But had persisting headache predominantly in the occipital and the nuchal area. Magnetic Resonance Imaging of the brain was taken which did not reveal any abnormality. She was admitted for cerebrospinal fluid (CSF) examination on suspicion of meningitis. CSF examination was normal. Serological tests Dengue, Scrub typhus and Leptospira were negative. Other investigations Complete blood picture, Anti-nuclear factor, Peripheral smear, Liver function tests Echocardiography, Electrocardiography, Ultrasound examination and Chest X-ray were normal. (Figure 1). Her ESR was elevated at 85 mm/hour and Mantoux reported positive at 18mm / 48 hours. In the

view of prolonged illness, high ESR and positive Mantoux it was planned to start empirical anti tuberculosis therapy.

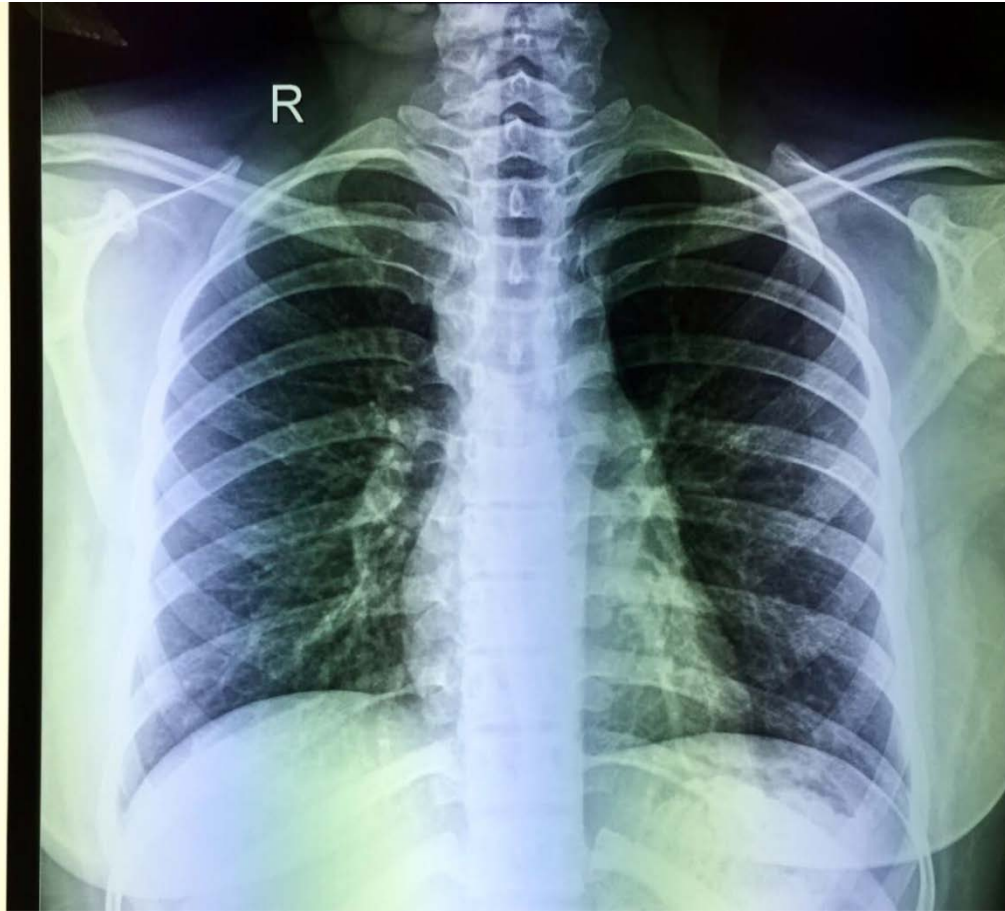


Figure 1. Normal chest X-ray

She started complaining of chest pain and dysphagia. In view of severe dysphagia, upper GI endoscopy was done which revealed extrinsic compression of the esophagus at 20cm (Figure 2).



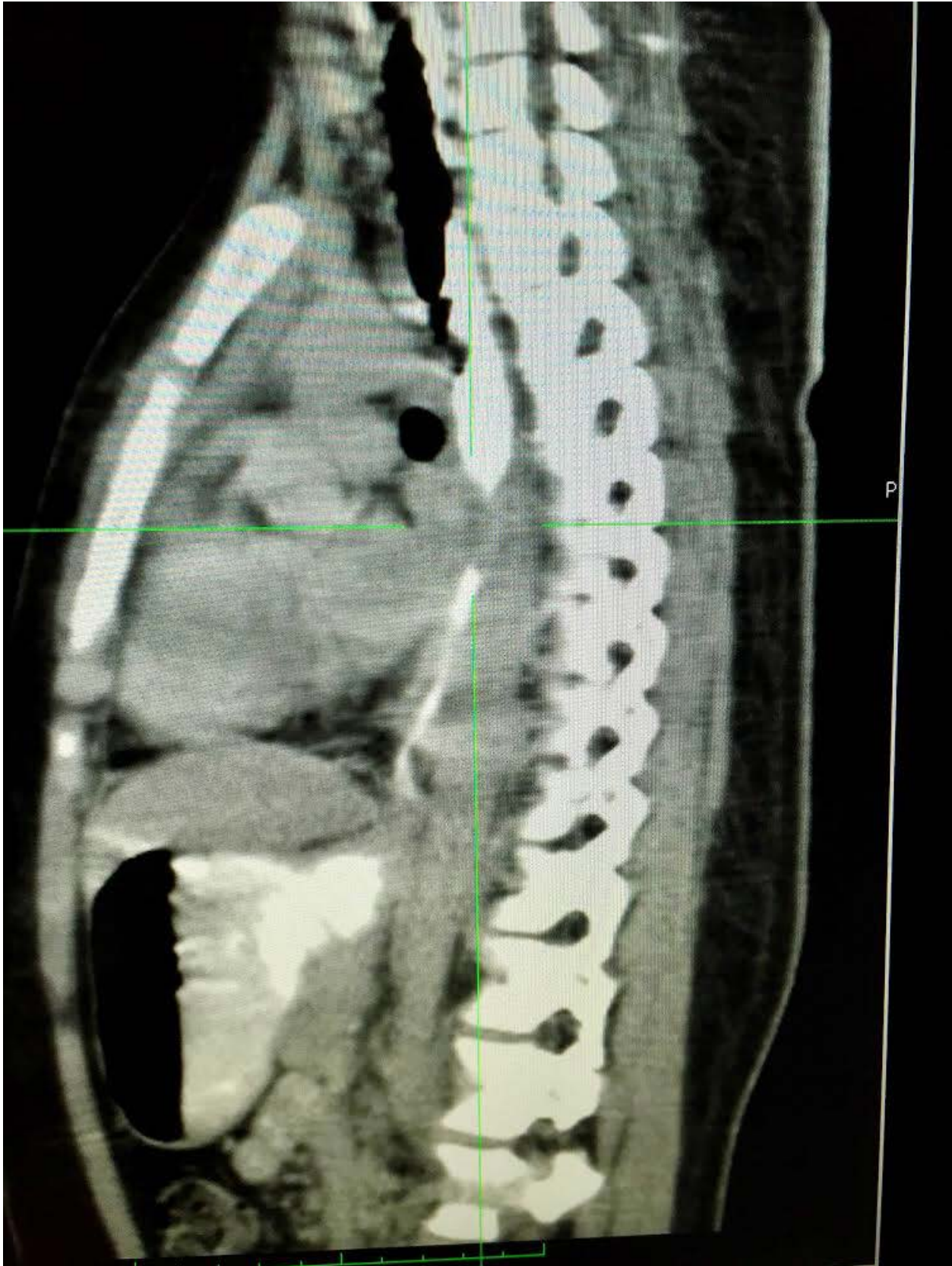
Figure 2. Upper GI Endoscopy demonstrating extrinsic compression at 20 cm



To determine the cause for extrinsic compression Contrast Enhanced Computed Tomography

Scan was done, which reported multiple confluent peripherally enhancing lymph nodes with central hypodensity

suggestive of necrosis in mediastinal, right paratracheal, subcarinal, bilateral peribronchial and paraesophageal regions. Mid thoracic esophageal lumen demonstrated extrinsic compression.



**Figure 3.** CT Scan Chest illustrating esophageal luminal narrowing

For confirmation of etiology, endobronchial ultrasound (EBUS) and transbronchial needle aspiration (TBNA) were done (Figure 4).

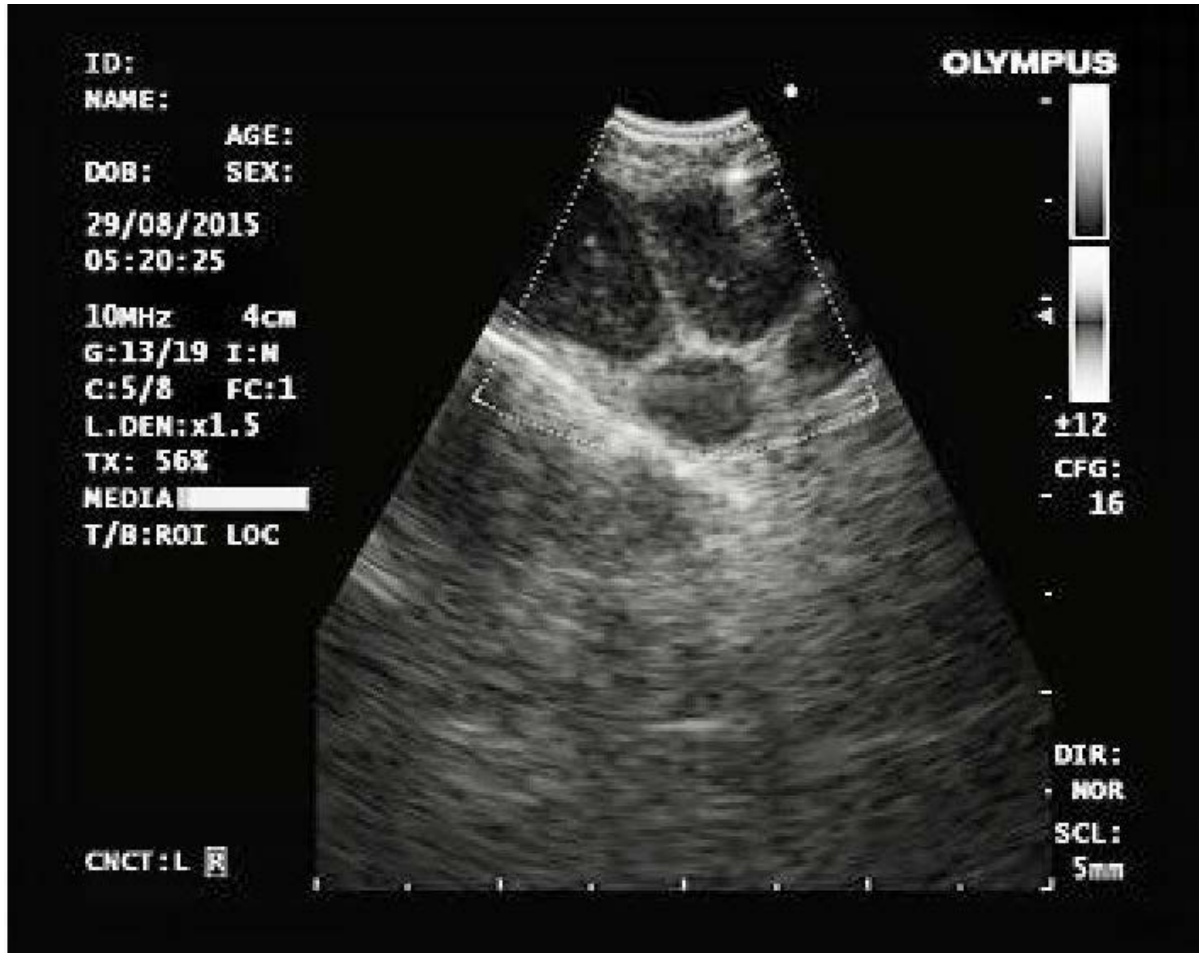


Figure 4. Endobronchial ultrasound demonstrating multiple paratracheal lymph nodes

Rapid on site slide evaluation (RUSE) was suggestive of tuberculosis (Figure 5).

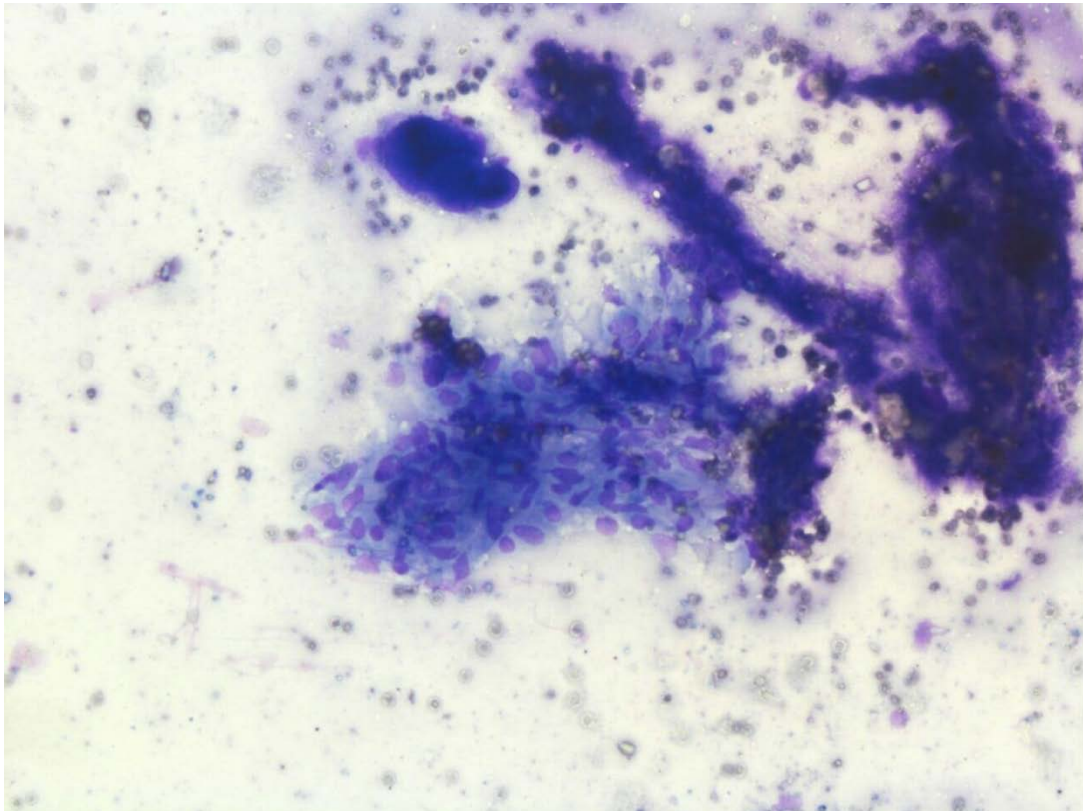


Figure 5. Transbronchial aspirate, positive for tuberculous granuloma on rapid on site slide evaluation



She was started on anti tuberculosis treatment. Real time PCR detection using Taqman assay was positive for *Mycobacterium Tuberculosis* and shown cytological features of caseating tuberculous lymphadenitis from the lymph gland aspiration through EBUS guided Fine Needle Aspiration. (Aspirate from subcarinal lymph node was culture-positive for mycobacterial species after 6 weeks of incubation. Patient advised for antituberculous treatment for 12 months with Rifampicin 450 mg,

Isoniazid 300 mg, Ethambutol 800 mg, Pyrazinamide 1500 mg and Vitamin B6 20 mg per day. She was given Deflazacort 30 mg twice a day for two weeks to reduce her dysphagia. She responded well to the treatment.

Mediastinal lymphadenopathy regressed and esophagus was normal on barium esophagogram. (Figure 6). Fever subsided within three weeks and able to eat normally. She resumed her school.



**Figure 6.** Normal Barium esophagogram after completion of the treatment

### 3. Discussion

Fever of unknown origin (FUO) is defined as fever of three weeks duration, higher than 38.3°C on several occasions and uncertain diagnosis after one week of hospitalization [2]. Three general categories of diseases account for the majority of FUO include infections, malignancies and connective tissue disorders. The youngest age group is likely to have viral syndromes and elderly population likely to have multi systemic diseases [3,4]. Advances in medical sciences, reduced the percentage of FUO over a period of time. Extra pulmonary tuberculosis, abdominal abscesses and solid tumors are more likely to be diagnosed early with the discovery of computerized tomography (CT) and endoscopic ultrasonography. Our patient presented as prolonged undiagnosed fever and a development of dysphagia gave a clue for diagnosis. An endoscopy revealed extramural compression of esophagus and CT Scan pointed out Mediastinal adenopathy though Chest X ray was normal. Endobronchial ultrasound with transbronchial needle aspiration (EBUS-TBNA) gave us histopathological diagnosis and microbiological confirmation.

EBUS-TBNA is a minimally invasive procedure to diagnose the cause of mediastinal and hilar adenopathy. It became an alternative to surgical biopsy of mediastinal and hilar nodes. Cell blocks obtained by EBUS-TBNA can be used for advanced investigations like immunohistochemistry and Fluorescence in situ hybridization in addition to pathological diagnosis [5]. This technique greatly helped us in making histopathological and microbiological diagnosis of our case.

Tuberculous lymphadenopathy of the mediastinum can give varied symptoms due to compression of normal mediastinal structures. These can include cough, stridor, dysphagia, shortness of breath, hoarseness, pain, superior vena cava syndrome and Horner syndrome. Our patient presented with dysphagia, PUO and normal chest skiagram. Dysphagia due to tuberculosis is rare in both developing countries with high prevalence of tuberculosis and western populations where HIV related tuberculosis is

common [6]. Retrospective review of experience with cases of tuberculosis presenting with dysphagia encountered between 1996 and 2003 was reported in the European journal of Cardiothoracic surgery in December 2006 [7].

### 4. Conclusions

Fever of unknown origin is a common clinical problem and tuberculosis remains a frequent etiological factor. Adults may present with mediastinal tuberculosis without parenchymal lesions. Dysphagia can be a presenting feature in mediastinal tuberculosis. Anti Tuberculosis therapy completely resolves dysphagia and esophageal compression.

### Competing Interests

The authors have no competing interests.

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