

## Case Reports

# Variable Presentations of Tuberculosis during COVID-19 Pandemic- A Case Series

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### Abstract

Tuberculosis is an ancient infectious disease, which can involve almost any organ of the body and can have broad spectrum of presentations. The objective of this case series presentation is to highlight the importance of considering Tuberculosis as a diagnosis even in this COVID pandemic time. It presents with wide variety of clinical features involving different organs and often potentially fatal. Mortality from tuberculosis is most often due to delay in diagnosis & thus starting treatment. Thus, treatment should be initiated immediately based on strong clinical suspicion. Here we have presented six different cases of TB where each case presented differently in a tertiary care private hospital of Dhaka.

**Key words:** Tuberculosis, variable presentations, COVID pandemic



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### Introduction:

Geographically, most TB cases in 2018 were in the WHO regions of South-East Asia (44%), Africa (24%) and the Western Pacific (18%), with smaller percentages in the Eastern<sup>1</sup>. It is a major public health problem in Bangladesh since long. Although Pulmonary Tuberculosis is most common of all but extra pulmonary TB (TB other than lungs) is not a rarity. The disease may involve any organ of the body but abdomen is one of the commonest site of involvement after lungs<sup>2</sup>. The lymph nodes most commonly involved are the cervical nodes. There could be dissemination of TB bacilli through blood, called Miliary TB. Miliary TB results from a massive lympho hematogenous dissemination from a *Mycobacterium tuberculosis*-laden focus<sup>3</sup>. Diagnosis is usually based on chest x ray. Diagnosis

of extrapulmonary TB is sometimes difficult to diagnose. High index of clinical suspicion is most important. There are various ways it can be diagnosed such as smear and/or culture for AFB of body fluids, ascitic fluid, CSF and also histopathological examination, X-ray of joints, Molecular test. During this COVID pandemic, it has become increasingly difficult to diagnose and identify TB patients especially those with respiratory symptoms with fever. But it's a fact that no matter what comes us like COVID, TB will remain in the community like Dark horse. Here we have presented 6 different cases of TB where each case presented differently, creating dilemma in diagnosing & managing them in a tertiary care private hospital of Dhaka.

### Case 1: A young lady with recurrent abdominal pain

A 25- years- old lady got admitted with the complaints of right sided abdominal pain for 1 year. The pain was initially dull, mild in intensity, no aggravating or relieving factor and there was no radiation. With the complaints she consulted with a local doctor and she was quite alright after taking some drugs although could not mention the names. But roughly after a month, she again developed vomiting and abdominal pain in the same region but this time more marked on upper abdomen. She underwent Upper GI endoscopy which showed erosive gastritis for which she was given anti ulcerant . With that treatment she improved symptomatically.

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Four days before admission, she developed right sided abdominal pain again with vomiting. The pain was severe, colicky in nature, sudden in onset, without any radiation, pain aggravated on taking food, relieved mildly by seating & leaning forward. She stated that although she was passing flatus she failed to move her bowel which developed one day after admission. On query she stated that she had problems with constipation for past few months and there were episodes of loose stool in between. She also stated about anorexia for few months and weight loss of about six kg in the past one year. She gave no H/O fever, bloody diarrhea, skin rash, arthritis.

On examination, she was emaciated, moderately anemic, there was diffuse tenderness on abdomen.

Her CBC showed Hb Count 7.30 g/dl, ESR was 29, CRP 75 mg/dl. S.lipase, Creatinine, Plain X-ray abdomen & Sonographic findings were normal. CT scan of abdomen gave result of Focal mural thickening (thickness:11.3mm& length :41mm) at Proximal part of ascending colon & ileo-caecal junction , and Left para-aortic lymphadenopathy. Keeping the differential diagnosis of intestinal tuberculosis, lymphoma and Crohns disease the patient got ready for colonoscopy. Report (Figure:1) came as highly suggestive

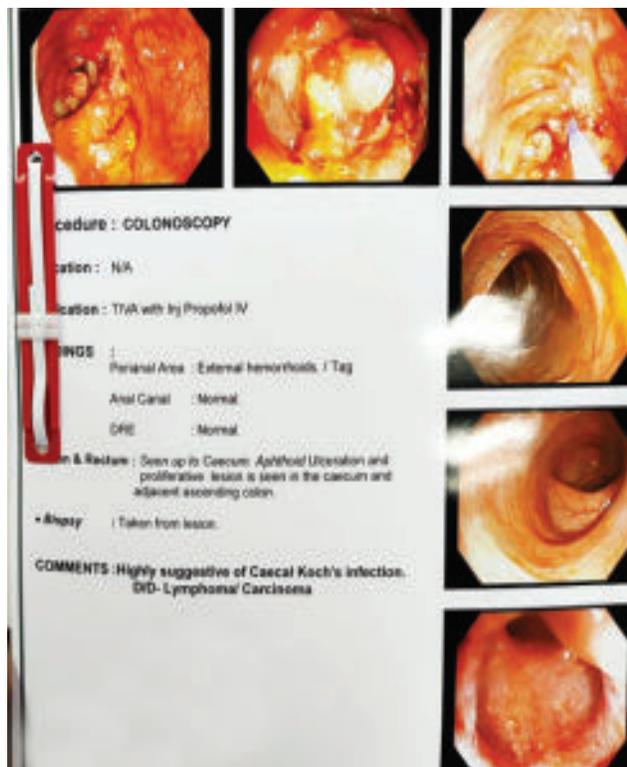


Figure 1: Colonoscopy report

of Caecal Koch's infection. The histopathological analysis came with chronic non specific ulcer.

The patient was then referred to surgery for exploratory laparotomy. After opening her abdomen four short encircling stricture were found in the ileum which completely occluded the lumen and also small growth in caecum was found. Histopathology of a part of Ileum and Caecum revealed granulomatous inflammation and diagnosis of Intestinal TB was confirmed and 6 month Anti Tb regimen started.

### Case 2: A young patient with fever and headache

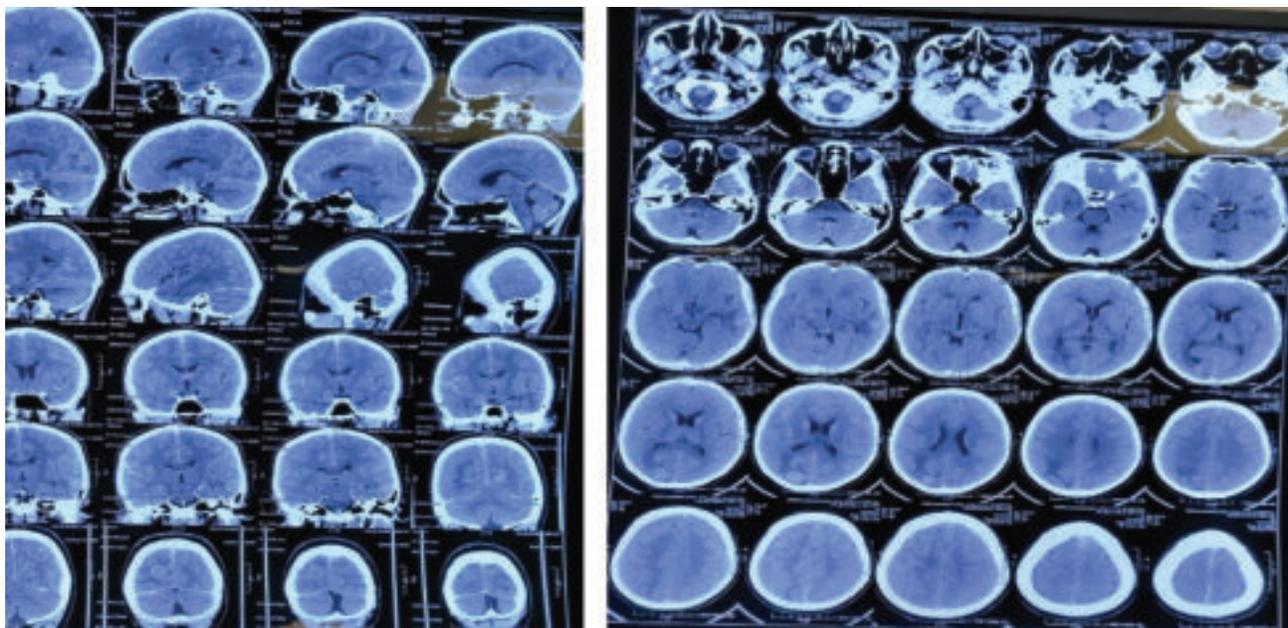
A 19 year old boy presented with low grade fever for 7 days and headache for same duration. Fever was intermittent in nature; highest recorded temperature was 100°F. He also mentioned about night sweats, evening rise of temperature, which lasted for 3hrs, reduced by taking paracetamol. Fever wasn't associated with chills & rigor. He also had severe headache which was severe last 7 days, it was intolerable, stabbing nature, not relieved by medication, more during episode of fever. On query He also mentioned that he had on and off headache for last 4 months, usually relieved by taking Paracetamol. During that time, headache was not associated with vomiting, aura, diplopia. But in the recent episodes he developed disorientation and vomiting. On query he stated about 8-10 kg weight loss in last 4 months.

On examination, he was disoriented, lean and thin, his temperature 100° F & pulse 100 bpm. His GCS was 10/15 (E3V3M4). Neck rigidity was present, Kernig's sign was positive, ophthalmoscopy revealed bilateral papilloedema, planter reflex was flexor. Other system examination revealed no abnormality. With this presentation primary diagnosis was pyogenic meningitis & managed accordingly.

Among positive reports he had WBC count  $21.72 \times 10^9/L$ , neutrophil- 93%, lymphocyte- 02%, ESR-45. Urinary pus cell 5-6/HPF. CSF protein-186.30 mg/dl, glucose 49.68 mg/dl, WBC-160/cumm, neutrophil-10%, lymphocyte-90%. Chest X ray (Figure:3) revealed pneumonitis with left sided mild pleural effusion. His CT scan of brain (Figure:2) revealed features suggestive of multiple cerebral and cerebellar tubercular lesions.

Diagnosis was CNS Tuberculosis and anti-Tubercular drug (1-year regimen) started with steroid.

### Case 3: A young girl presented with fever, coughs & altered speech



**Figure 2:** CT scan of brain showing multiple cerebral and cerebellar tubercular lesion

A 19 years old girl got admitted with the complaints of fever for 1 month. There was evening rise of temperature with night sweats & highest recorded temperature was 100°F. It was associated with dry cough which became productive for 2 weeks, sputum was yellowish color and not foul smelling. She also complained of sore throat and hoarseness of voice for 2 weeks which was increasing gradually. There was no history of hemoptysis, dyspnea, anosmia, contact with Covid or TB patient. She had anorexia, malaise & around 2 kg weight loss during her illness.

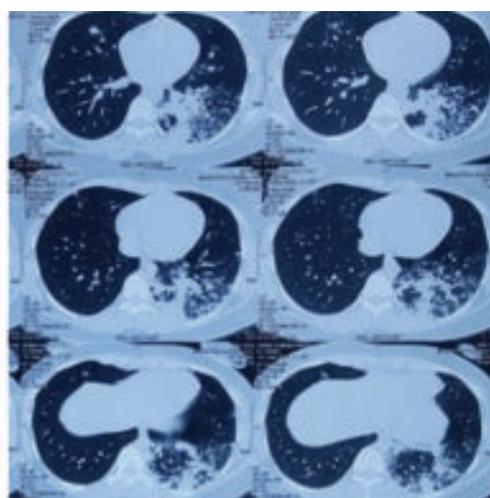
On examination she was lean and thin, her vitals were normal. She had muffled voice & was unable to talk. Respiratory system revealed crepitation in lower part of both lungs.

Among positive reports she had high ESR (63), high CRP (45.9 mg/l). Chest X ray (Figure:3) showed dense homogeneous opacities are noted in left lower & partly mid zone. Inhomogeneous opacity also noted in right mid & lower zone. HRCT (Figure:4) features were consistent with moderate pulmonary inflammation along with multifocal ground glass opacities with random distribution at lung fields especially at middle-lower lung fields & consolidations with Broncho alveolar infiltration at left middle-lower lung fields. Sputum for AFB was positive and also MTB-complex detected on Gene Xpert. RT-PCR for Covid 19 was negative.

As her hoarseness was not improving videopharyngolaryngoscopy (Figure:5) was done which commented TB laryngitis.



**Figure 3:** Chest X-ray



**Figure 4:** HRCT of chest

Diagnosis of sputum positive pulmonary Tuberculosis with Tubercular Laryngitis were made and anti TB (6-months regimen) started.



**Figure 5:** Video pharyngo laryngoscopy

**Case 4: A vegetarian middle aged man with fever for 2 months**

A 50 years old hypertensive, diabetic, vegetarian gentleman got admitted with the complaints of fever for 2 months. Fever was low grade, intermittent in nature, usually comes at evening and persist for 3-4 hour, subsided sometimes with anti-pyretic and sometimes spontaneously. He also complained about night sweats. Fever was not associated with any chills & rigors. He also complained about being weak gradually for 2 months with loss of appetite. He had asthma since her childhood. On query he mentioned about weight loss of about 6 kg in last 4-5 months. He denied any H/O cough, sputum production, anosmia or loss of taste sensation, headache & vomiting. On examination he was ill-looking, average body built, mildly anemic. His vitals were normal except Temperature:100°F. Systemic examinations revealed no abnormalities. Among positive reports he had ESR of 43, no growth on blood c/s and sputum for AFB was absent. Chest X-ray (Figure:6) showed Millitary shadows in all zone of both lung fields.

His Ultrasonography findings were consistent with cholelithiasis and the findings of MRI brain was non significant.



**Figure 5:** Chest X-Ray P/A view showing innumerable, small pulmonary nodules scattered throughout the lungs.

Diagnosis of Millitary Tuberculosis was made and anti tubercular drug started.

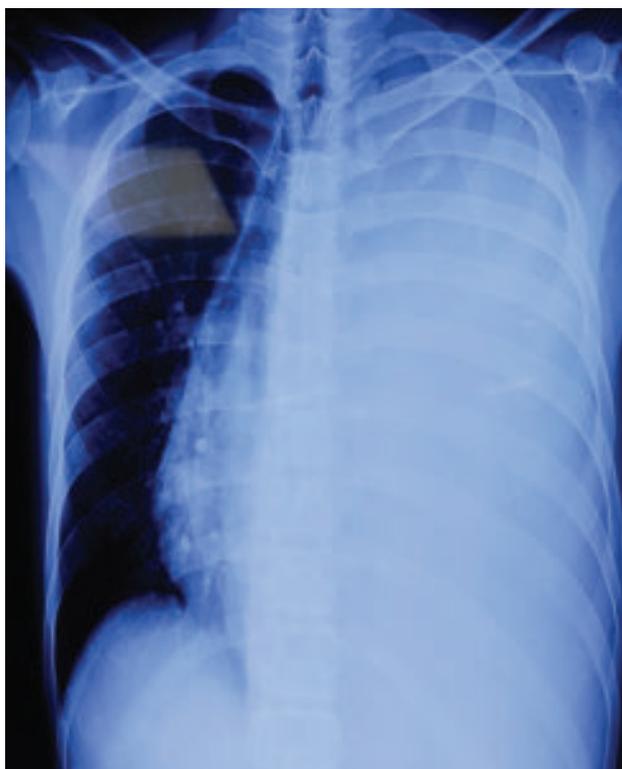
**Case 5: A young man with massive pleural effusion**

A 28yrs old man got admitted with the complaints of low grade fever, cough for 15 days. Fever was intermittent, highest recorded temperature was 101°F. On query he mentioned about night sweats, evening rise of temperature, which lasted for 3hrs, reduced by taking paracetamol. Fever wasn't associated with chills & rigor. He also had mild cough which was nonproductive. He also gave history of mild shortness of breath which aggravated on exertion or supine position but needed 2 liters of oxygen only for 1 day on admission. He felt relieved when he became in left lateral position. He also had left hypochondriac pain which was dull, continuous, there was neither radiation nor aggravating or relieving factor of pain. On query he stated about 10 kg weight loss in last 6 months.

On examination he was in left lateral position, ill-looking, lean & thin, temperature was 101°F. On respiratory system examination, respiratory rate was 34 breaths/min, chest movement was restricted on left side, trachea and apex beat shifted to right, vocal resonance and fremitus was decreased in left side, percussion note was stony dull in left side and breath sound was absent in left side. There was no added

sound. Other system examination revealed no abnormality. Among positive report he had ESR-56, CRP-116 mg/L, SGPT-261 U/L, ALP- 208 U/L, urine R/M/E-10-15 pus cells/HPF. chest X ray (Figure:7) was done which showed massive left sided pleural effusion pushing mediastinum to right side.

In pleural fluid study it was straw in color, total WBC count-150 /cu mm, lymphocyte-98%, glucose-68.40 mg/dl, protein-5.22 g/dl, ADA-60.46 U/L. Pleural biopsy histopathology



**Figure 7:** Chest X-Ray P/A view showing massive left sided pleural effusion

revealed tubercular granulomatous caseous necrosis. USG of abdomen revealed left sided pleural effusion with normal hepatobiliary system. Chest drain tube was inserted in the mid axillary line at left 5<sup>th</sup> intercostal space.

Diagnosis were left sided massive tubercular pleural effusion and anti-tubercular drugs started in a modified regime as SGPT was raised six fold. Initially anti-TB was given without Pyrazinamide. After spontaneous improvement of SGPT level, full course anti-TB with steroid was given.

#### **Case 6- A young boy with fever & abdominal pain**

A 17 years old boy got admitted with the complaints of fever for 1 month & abdominal pain for 7 days. Fever was low grade, intermittent in nature, highest recorded temperature was 100°F. On query he mentioned about night sweats, evening rise of temperature, which lasted for 3-4hrs, reduced

by taking paracetamol. Fever wasn't associated with chills & rigor but associated with headache and burning sensation of eye, anorexia and malaise. He also complained of abdominal pain for 7 days which was around the umbilicus, colicky in nature, insidious in onset, had no radiation. Pain was not associated with vomiting initially but later he developed abdominal distention and vomiting for 3 days. Vomitus contained food particles around 1 cup in each time, neither bile stained nor blood stained. On query he stated about loose stool which altered with constipation during his illness, bladder habit was normal. He had around 12 kg weight loss in last 1 month.

On examination he was ill-looking, body built average and mildly anemic, his temperature- 100°F. Abdomen was distended & there was diffuse tenderness. Percussion note was dull, shifting dullness was present. There was no lump or organomegaly.

Among positive reports he had Hb 9.7 g/dl, ESR 49, CRP 85mg/dl, Iron 11mcg/dl, plain X ray of abdomen(Figure:9) showed features of small obstruction. USG of W/A showed moderate ascites. In ascitic fluid study it was yellow in color, total WBC-500/cu mm, lymphocyte-90%, ADA-149.76 U/L, protein-7.04 g/dl. Colonoscopy was normal. Digital X-ray of Barium meal and follow through (Figure:10) done which reported narrowed terminal ileum may be due to Ileocecal TB.

#### **Narrowed terminal ileum**

Final diagnosis of Intestinal Tuberculosis was made and Anti Tubercular drug (6-months regimen) started & patient



**Figure 8:** Plain x-ray of abdomen abdominal showed intestinal obstruction



**Figure 9:** Barium follow through showed narrowed terminal ileum

improved.

### Discussion

Manifestations of gastrointestinal tuberculosis are variable. Symptoms are non-specific and include fever, night sweats, abdominal pain, weight loss and diarrhea. However, some of its complications can be a surgical issue. These complications are hemorrhage and obstruction, while fistulization and perforation also occur rarely. More specifically, the ileo-cecal area is reported to be the area most commonly involved in intestinal tuberculosis.<sup>4</sup> This is what actually happened in our 1<sup>st</sup> case. The young lady presented with sub acute obstruction and eventually surgery was needed. The incidence of Sub acute intestinal obstruction is not uncommon in ileocecal TB. In a study among 200 patients with acute abdomen, 32 (16%) had Intestinal Tuberculosis on the basis of operative findings and histopathological reports.<sup>5</sup> The disease can mimic various gastrointestinal disorders, particularly the inflammatory bowel disease, colonic malignancy, or other gastrointestinal infections.<sup>6</sup> For our 6<sup>th</sup> case surgery was not done but the patients also had features of intestinal obstruction due to intestinal Tuberculosis.

Laryngeal Tuberculosis (TB) is a rare granulomatous infection affecting the larynx usually secondary to pulmonary TB, but can also occur primarily without pulmonary involvement. It is a rare type of extrapulmonary tuberculosis (TB) seen in clinical practice. It constitutes less than 1% of

all TB cases.<sup>7</sup> Usually, it is seen as a complication of pulmonary tuberculosis, nevertheless, solitary laryngeal involvement is possible. Larynx may be affected by TB in three ways: 1. The patient has advanced pulmonary disease usually fibrocavitary with larynx being inoculated by the infected sputum; 2. Hematogenous spread; 3. Lymphatic drainage seeds the larynx. Primary TB of larynx is rare and is caused by direct invasion of inhaled bacilli.<sup>8</sup> The most common symptom is hoarseness, Other symptoms includes odynophagia, dysphagia, referred otalgia, cough, and rarely stridor.<sup>9</sup> Our case presented with high grade fever, cough and hoarseness of voice which was initially thought to be a case of COVID-19. Later patient was found to be sputum positive which suggested that in our case tb laryngitis occurred as complication of pulmonary tuberculosis.

Central nervous system tuberculosis (CNS-TB) comprises a variety of neurological syndromes with a relatively high mortality and morbidity. The most common presentation of CNS-TB is meningitis, followed by tuberculoma, tuberculous brain abscess<sup>10</sup>. It mainly takes two major forms: tuberculous meningitis and tuberculoma.<sup>11</sup> The clinical onset of TB meningitis can be rapid or gradual.<sup>12</sup> The disease progresses more quickly among infants and young children, who may have symptoms only for several days before the onset of hydrocephalus, seizures, or cerebral edema.<sup>13</sup>. Our patients of CNS TB has quite a long history for one year, which was ignored. As a result he needed admission in his worst condition. So early identification of this kind of infection is very much pivotal for the better treatment of the patients.

Milliary tuberculosis sometimes poses diagnostic difficulty. We diagnosed our case on the basis of Chest x ray. But similar kind of shadow maybe present in histoplasmosis, Sarcoidosis, Lymphangitis carcinomatosa.<sup>14</sup> The chest radiograph allowed identification of 59 to 69% of cases of milliary tuberculosis with a high specificity and good interobserver agreement<sup>15</sup>. The common clinical features in milliary TB could be fever, weakness, night sweats, anorexia/weight loss, hepatomegaly, splenomegaly, choroidal tubercles, neck stiffness, altered mental status, anemia, leukopenia, thrombocytopenia, lymphopenia, pancytopenia and hypertransaminasemia, lymphadenopathy.<sup>15</sup>

The diagnosis of Tubercular pleural effusion can be established in a majority of patients from the clinical features, pleural fluid examination, including cytology, biochemistry, and bacteriology, and pleural biopsy.<sup>16</sup> In a study it was showed that Pleural fluid adenosine deaminase was more than 36 IU/L (36 to 229.7 IU/L) in tubercular pleural effusion 34 patients<sup>17</sup>.

After confirmation of diagnosis & starting anti-tubercular treatment in correct regime, all six patients started improving. They gradually became afebrile, their appetite improved & we could discharge all of them.

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