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# Haemorrhagic Ascites Secondary to Peritoneal Tuberculosis Presenting as Generalised Peritonitis – A Case Report

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## Abstract

**Background:** Peritoneal Tuberculosis (TB) is a rare and challenging pathology that can present with ascites but seldom with hemorrhagic ascites. Diagnosis can be challenging owing to nonspecific symptoms and variable result imaging techniques.

TB could occur primarily or extrapulmonary with intraabdominal TB accounting for one of the rare forms of extra-pulmonary TB. Abdominal TB can affect any part of the gastrointestinal system with the ileum being the commonest, however, affection of the peritoneum is rare coupled with the fact that hemorrhagic effusion is also a rare presentation; this has resulted in a diagnostic challenge even to the astute surgeon.

**Aim and Objective:** We reported this to highlight the need for vigilance and a high index of suspicion in TB Endemic areas for prompt diagnosis of Intraabdominal TB to prevent Morbidity and mortality.

**Case Summary:** A 31year Hausa Muslim Man, who presented to the Emergency unit with the complaint of a 6months history of recurrent abdominal pain, that is vague with no known aggravating or relieving factors with associated low-grade fever, progressive weight loss, generalized body weakness and anorexia. Three weeks before presentation symptoms worsen with associated progressive abdominal distention, constipation and vomiting of several bouts per day non bilious, non-projectile containing recently ingested feeds. Abdominal Examination findings revealed ascites with features of peritonitis.

He was resuscitated and had laparotomy with intraoperative findings of haemorrhagic ascites of 3 litres, and extensive miliary deposits on all the abdominal viscera, abdominal wall, and omentum.

No mesenteric lymph nodes. He had an uneventful post-operative recovery. Histology report and ascitic fluid cytology showed chronic granulomatous inflammation and inflammation respectively. He was commenced on intensive phase of anti TB medication with clinical improvement.

**Conclusion:** Hemorrhagic ascites from peritoneal TB could portend a grave sign, but prompt diagnosis and treatment could have a rewarding outcome.

**Keywords:** Tuberculosis, Hemorrhage, Ascites, Peritonitis, rare

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## Introduction

Tuberculosis is a multisystemic disease with an estimated global total of 10.6 million people, 6.3% were among people living with HIV. According to WHO Global TB Report 2023 Total cases: 10.6 million (2022), Deaths: 1.3 million (2022), MDR/RR-TB: 450,000 cases. South-East Asia has 46% of global burden India has 28% of global cases while Indonesia: 9.2% of global cases (WHO, 2023). Africa has 23% of global burden with TB/HIV co-infection accounting for 71% of cases. Western Pacific has 18% of global burden with China having 7.4% of global cases. The Global Prevalence of extra pulmonary TB: 15-20% of all TB cases, Higher in immunocompromised with Variability by region and population. Abdominal TB account for 3-5% of all TB cases with Ascites in 30-60% of abdominal TB and Haemorrhagic presentation: 15-25%. The risk factors associated with Pulmonary and Extra Pulmonary TB are Age Distribution Peak: 25-44 years, Second peak: >65 years, Paediatric cases: 11%. Gender Distribution: Male: Female ratio = 2:1, Socioeconomic Factors: Poverty association, Urban concentration and Healthcare access impact (1,2,12).

Nigeria is among the 30 high-burden countries for TB, the estimated incidence is 452,000 cases, out of which 138,591 were diagnosed and notified leaving a gap in identification as a major concern for the national TB programme. Among the notified cases 36% were women, 57% were men and 7% were children (1,2).

The Overall worldwide incidence of all ascites cases is 5-10%, Regional variations: Asia: 8-15% of ascites cases (Wang et al., 2022) Africa: 12-20% of ascites cases (Okonkwo et al., 2023) Western countries: 3-7% of ascites cases. The aetiologic distribution of ascites

Malignancy: 40-50% of haemorrhagic ascites cases (Ovarian cancer: 15-20%, Hepatocellular carcinoma: 10-15% and, other malignancies: 15%), Tuberculosis: 15-30% of cases (Higher in endemic regions 30-45%, Lower in developed countries 5-10%). Other causes: 20-35% (Pancreatitis: 5-8%, Trauma: 3-5% and Miscellaneous: 12-22%) (12).

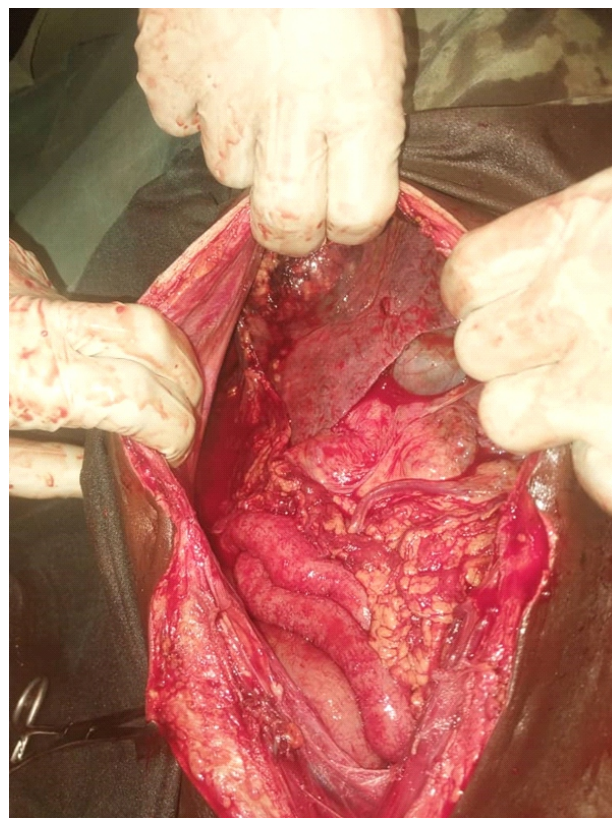
Gastrointestinal TB accounts for 1-3% of all TB cases worldwide it can co-exist with pulmonary TB or occur primarily. GI TB is a great mimicker of cancer or inflammatory GI conditions such as appendicitis or colitis as is the case with our index patient who presented with clinical features of generalized peritonitis. Esophageal and gastroduodenal TB are rare, the commonest intestinal part affected is the Ileum because of the abundance of Peyer's patches at the terminal, however, ascites is a rare presentation, and more intriguing is hemorrhagic ascites. Intra-abdominal TB could present with varying complications like adhesion, stricture, intestinal obstruction, ascites, and intestinal perforation which is rare. The presentation of intra-abdominal / intestinal TB could present with vague symptoms making preoperative diagnosis difficult most especially in the setting of generalized peritonitis (3,4).

### Case Summary

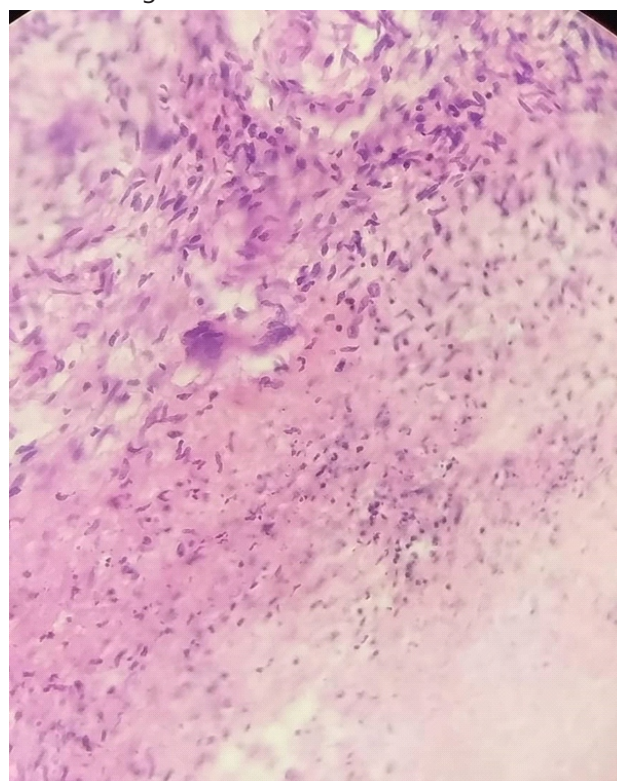
A 31-year-old Hausa Muslim Man, presented to the Emergency unit with the complaint of a 6 months history of recurrent right-sided lower abdominal pain, that is vague with no known aggravating or relieving factors with associated low-grade fever, progressive weight loss, generalized body weakness and anorexia. Three weeks before presentation symptoms worsen with associated progressive abdominal distention, constipation and vomiting of several bouts per day non bilious, non-projectile containing recently ingested feeds. Abdominal Examination findings revealed ascites with features of peritonitis.

He was resuscitated and had laparotomy with intraoperative findings of haemorrhagic ascites of 3 litres, and extensive miliary deposits on all the abdominal viscera, abdominal wall, and omentum.

No mesenteric lymph nodes. He had an uneventful post-operative recovery. Histology report and ascitic fluid cytology showed chronic granulomatous inflammation and inflammation respectively.



**Figure 1:** Intraoperative Image – Showing Haemorrhagic Ascites



**Figure 2:** Histology Images – showing a large central area of coagulative necrosis surrounded by epithelioid histiocytes and multinucleated giant cells.



## Discussion

The clinical features of intestinal TB include – general symptoms of low-grade intermittent fever, night sweats, weight loss, fever, anorexia, and fatigue. The gastrointestinal symptoms include- abdominal pains (Most Common), diarrhea, and diarrhea alternating with constipation and vomiting our patient presented with some of the above symptoms. Furthermore, our patient presented with some of the extraintestinal manifestations/complications of peritonitis which this patient presented with, others include anal fistula/perianal abscess, and lymphadenopathy. Less common complications of GI TB include GI bleeding, anemia, protein-losing enteropathy, malabsorption, hypoalbuminemia, and protein-losing enteropathy (5,6).

The pathophysiology of GI TB is as thus: the route of infection could be via the ingestion of sputum, hematogenous spread, direct spread from adjacent organs and ingestion of contaminated food. The initial inflammation begins with the infiltration of the mucosa by the bacilli in areas of physiological stasis majorly at the terminal ileum and ileocecal valve, this is followed by the immune response with cell mediated. T lymphocytes and macrophages as key players this led to granuloma formation with caseating granules, central necrosis surrounded by epithelioid cells, langhens giant cells and lymphocytes. The mucosal changes could be ulceration, submucosal oedema, fibrosis, and scarring. Without intervention, this could lead to the spread of lymphatics, transverse ulcers, circumferential involvement leading to strictures, and fistula formation. The systemic manifestation of GI TB could include the following malabsorption, protein-losing enteropathy and systemic inflammatory response().

The investigative modalities for GI TB could be laboratory which include CB/FBC which revealed low HB and elevated lymphocytes in our patient, other investigations are ESR, C reactive protein, LFT which revealed low albumin and proteins and HIV testing which was negative. Microbiology tests include stool culture, PCR, acid-fast bacilli, immunologic tests like Mantoux and interferon-gamma release. Radiologic investigations chest X-ray for pulmonary TB, Abdominal Ultrasound for obstruction/ perforation, and barium studies others are CT/MRI enterography. Endoscopy services include Upper GI endoscopy, colonoscopy, capsule endoscopy, enteroscopy, and endoscopic Ultrasound which can be employed in

diagnosis and biopsy for intestinal TB. Molecular techniques like gene Xpert and linear probe assay have high sensitivity and specificity in the diagnosis of TB. However, Histology is the gold standard of the diagnosis, which our patient had as described above (8-10).

Haemorrhagic ascites is defined as ascitic fluid with >10,000 red blood cells/ul is associated with poor outcomes in cirrhotic patients compared to non – haemorrhagic ascites. It is linked to higher rates of SBP, acute kidney injury and increased mortality. While haemorrhagic ascites is commonly associated with cirrhosis and Hepatocellular carcinoma it also occurs in rare cases of peritoneal TB. Distinguishing between TB and carcinomatosis ascites can be challenging but test for anti TB antibodies and adenosine deaminase ADA in ascitic fluid can be valuable diagnostic tool (11,12,13).

The treatment options for complicated intra-abdominal/ intestinal TB follow the following pattern resuscitation which our patient had then conservative or operative treatment, our patient had repair of sigmoid colon perforation, biopsy and diverting divided ileostomy with lavage. Other treatment options depend on the complications of the fistula in addition to the appropriate choice of surgery the patient will be placed on anti-TB medication, for bleeding initial conservative/endoscopic measures, Angio embolization then Surgery, for adhesion – conservative measures or adhesiolysis, for cold abscess – drainage, for stricture – endoscopic dilatation, strictureplasty or resection and anastomosis (4,9,11).

The complications of GI/Intestinal TB could be intestinal (Obstruction, perforation, bleeding, fistula formation and Stricture), Peritoneal (Ascites, adhesion, abscess, sclerosing peritonitis) systemic (Malnutrition, anaemia, hypoalbuminemia, electrolyte imbalance) post-surgical complications (wound infection, anastomotic leaks, adhesive small bowel obstruction, short bowel syndrome) complications related to anti-TB medications (drug-induced hepatitis, drug resistance)().

The prognosis is good generally. The long-term surgical outcome of morbidity of 20-30% with 25% mortality. The prognostic factors are timely diagnosis and initiation of treatment, adherence to anti-TB medication, severity of complications, HIV co-infection, Nutritional status, and Drug resistance (4,8).

## Conclusion

Hemorrhagic ascites from peritoneal TB could portend a grave sign, but prompt diagnosis and treatment could have a rewarding outcome.

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