

Abdominal Tuberculosis in India: A Comprehensive Review Article

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Abstract: *Abdominal tuberculosis (TB) in India is a major public health problem, with the country being one of the highest burden countries for TB globally with an estimated 2.2 million cases reported every year [1]. Abdominal TB, also known as gastrointestinal TB. In India, the prevalence of abdominal TB is significant, with an estimated 1.5% to 3% of all TB cases being of this type [2]. This disease is more common in rural areas, where access to healthcare is limited and resources for proper diagnosis and treatment are scarce. The impact of abdominal TB in India goes beyond the physical suffering of patients, as it can lead to social and economic burdens for individuals and their families. In this analytical paper, we will explore the epidemiology, clinical features, diagnosis, and management of abdominal tuberculosis in India.*

Keywords: Abdominal tuberculosis, TB in India, public health problem, diagnosis and treatment, rural healthcare

1. Introduction

Abdominal tuberculosis is a common extrapulmonary manifestation of tuberculosis in India, caused by *Mycobacterium tuberculosis*, accounting for a significant proportion of cases in the country. The disease primarily affects the gastrointestinal tract, peritoneum, lymph nodes and solid organs in the abdomen, leading to a range of symptoms such as abdominal pain, weight loss, fever, and ascites. The diagnosis of abdominal tuberculosis can be challenging due to its nonspecific clinical presentation and the lack of sensitive and specific diagnostic tests.

Epidemiology of Abdominal Tuberculosis in India:

India has a high burden of tuberculosis, with an estimated 2.7 million cases in 2022, accounting for approximately 26% of the global burden of the disease [2]. Abdominal tuberculosis is a common extrapulmonary manifestation of tuberculosis in India, with studies reporting that it accounts for 11 - 16% of all cases of tuberculosis in the country [2]. This disease affects individuals of all age groups but is more common in young adults, with a slight female preponderance.

The main factors contributing to the high rates of abdominal TB in India are:

- poor sanitation and hygiene
- overcrowding
- malnutrition, and
- high prevalence of HIV/AIDS [3].

Moreover, the symptoms of this disease are often nonspecific, making it difficult to diagnose and treat. As a result, many cases go undetected and untreated, leading to a high mortality rate in India.

Clinical Features of Abdominal Tuberculosis:

Abdominal tuberculosis can present with a wide range of symptoms, which can vary depending on the site of involvement. Some symptoms can be non specific and mimic other gastrointestinal diseases, which are diagnostically challenging.

Common symptoms include:

- abdominal pain,
- weight loss,
- fever,
- night sweats, and
- fatigue.

Patients may also present with features of intestinal obstruction, such as:

- vomiting,
- constipation, and
- abdominal distension.

Ascites is a common finding in patients with peritoneal tuberculosis, while lymphadenopathy is a prominent feature in patients with lymph node involvement [3].

Diagnosis of Abdominal Tuberculosis:

The diagnosis of abdominal tuberculosis is challenging due to its nonspecific clinical presentation and the lack of sensitive and specific diagnostic tests.

Imaging studies:

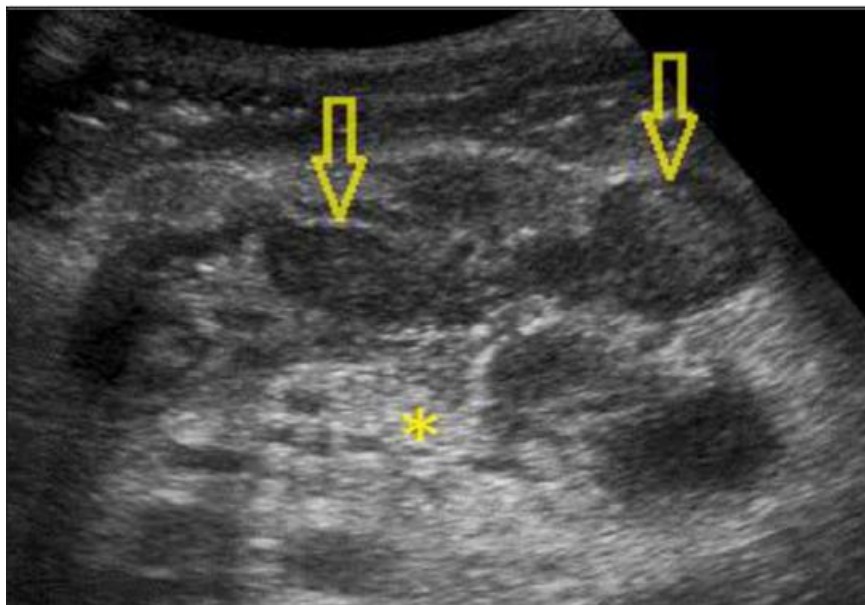
1) Ultrasound

Abdominal ultrasound has 63% sensitivity and 68% specificity in diagnosing abdominal tuberculosis when the patient has confirmed tuberculosis infection [4]. So, negative abdominal ultrasound findings cannot rule out abdominal tuberculosis. Ultrasound findings for abdominal tuberculosis are not specific.

These are 4 [5]:

- ascites
- multiple abdominal lymph nodes
- hepatic lesions
- splenic lesions

Abdominal ultrasound of a 41 year- old HIV positive man demonstrates multiple enlarged hypoechoic nodes (arrows) in a thickened hyperechoic mesentery [6].



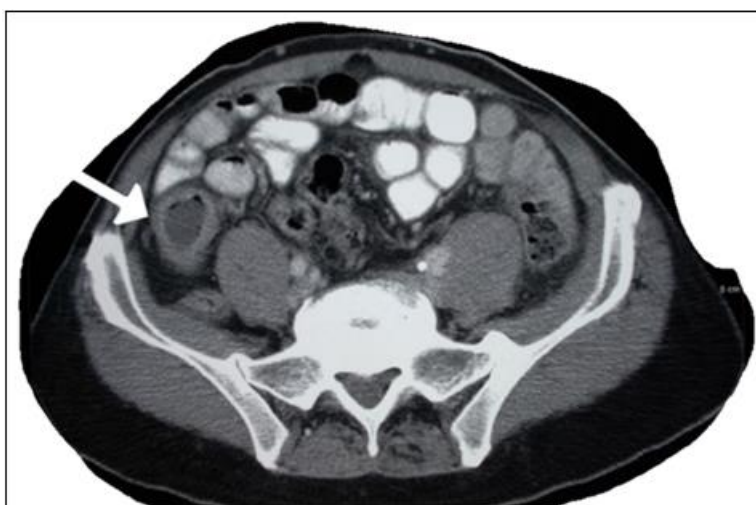
2) Computed tomography (CT)

CT findings of abdominal tuberculosis are not specific, including [7]:

- enlarged lymph nodes - mostly at mesenteric, coeliac, portal hepatic, and peripancreatic regions.
- peritoneal involvement leading to ascites and peritoneal thickening.
- intestinal involvement - bowel wall thickening, enlarged lymph nodes compressing on the bowel, commonly affecting terminal ileum and caecum in 90% of the cases.

- liver parenchyma, splenic and pancreatic involvements are rare
- involvement of suprarenal glands and genitourinary system can be present in some cases.

Abdominal CT demonstrating a stricture of intestinal tuberculosis at ileal region (arrow) [8].



However, these findings are not specific to abdominal tuberculosis and can be seen in other conditions such as malignancy and inflammatory bowel disease.

The gold standard method for the diagnosis of abdominal tuberculosis is the demonstration of *Mycobacterium tuberculosis* in the tissue or fluid samples. This can be achieved by the culture of *Mycobacterium tuberculosis* from biopsy specimens, ascitic fluid, or lymph node aspirates [9].

Moreover, culture of *Mycobacterium tuberculosis* can take several weeks to yield results, and the sensitivity of the test may be low, especially in paucibacillary cases.

Management of Abdominal Tuberculosis:

The management of abdominal tuberculosis in India is a combination of anti-tuberculosis drugs and supportive care along with symptomatic relief. The standard treatment regimen for abdominal tuberculosis consists of a combination of four first-line anti-tuberculosis drugs: •isoniazid

- rifampicin,
- pyrazinamide, and
- ethambutol for a minimum of six months.

In cases of drug resistance or severe disease, second-line anti-tuberculosis drugs may be required.

Surgical intervention may be necessary in patients with complications like as intestinal obstruction, intestinal perforation, or abscess formation. Surgery can also be considered in cases where there is diagnostic uncertainty or failure to respond to medical treatment.

The prognosis of abdominal tuberculosis in India is good with appropriate treatment, but delays in the diagnosis and treatment can lead to complications and poor prognosis.

2. Challenges and Future Directions

Several challenges exist in the diagnosis and management of abdominal TB in India, including limited access to diagnostic facilities, lack of advanced diagnostic facilities, lack of awareness among the front line healthcare providers, and the emergence of drug - resistant TB. In future there should be focus on improving diagnostic tools, optimizing treatment regimens, increasing awareness in both public and as well as healthcare providers and enhancing public health interventions to control the spread of abdominal TB in India.

In conclusion, abdominal tuberculosis is one of the most common extrapulmonary manifestation of tuberculosis in India, with a significant burden on the healthcare system. The diagnosis of abdominal tuberculosis is challenging due to its nonspecific clinical presentation and the lack of sensitive and specific diagnostic tests.

Early recognition and prompt treatment are essential to improve outcomes in patients with abdominal tuberculosis in India.

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