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Research Article

INCIDENCE AND DIAGNOSTIC SIGNIFICANCE OF POLYPOIDAL LESIONS IN COLONIC TUBERCULOSIS: A PROSPECTIVE STUDY FROM A TERTIARY CARE CENTRE

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Abstract: ***Introduction:*** Patients with colonic tuberculosis typically present with vague signs and symptoms making it difficult to diagnose this particular condition of the colon. Colonic tuberculosis colonoscopic appearance is also not specific and can resemble other, more prevalent illnesses including Crohn's disease and Colon cancer. In this particular study we are focusing on the prevalence of one particular colonoscopic feature i.e, polypoidal lesions in colonic tuberculosis. Aims and **objective:** To prospectively evaluate the incidence of polypoidal lesions in patients with colonic tuberculosis and assess their diagnostic significance in a tertiary care center. **Material and Methods:** A prospective study was conducted over 18 months where 50 patients with chronic abdominal pain along with altered bowel habits, fatigue, loss of weight were included in the study. They were all subjected to the procedure of colonoscopy after routine investigations. Colonoscopic findings, along with ulcerative and nodular lesions, were polypoidal lesions (in 32 patients). These lesions were biopsied and examination showed mucosal granulomas with caseating necrosis in 28 patients. These patients were started on Anti Tuberculous Treatment and were assessed based on their symptomatic relief. **Results:** It was seen in the study that 28 out of 50 patients were diagnosed with colonic Tuberculosis and when started on Anti Tuberculous Treatment showed great symptomatic relief. Conclusion: Polypoidal lesions on colonoscopy may serve as an important diagnostic clue in colonic tuberculosis. Routine biopsy of such lesions is essential for early diagnosis and initiation of ATT.

Keywords: Tuberculosis, colon, colonoscopy & screening

INTRODUCTION

Tuberculosis (TB) remains one of the top ten leading causes of death worldwide and is the most frequent infectious disease globally. In 2019, approximately 1.4 million people lost their lives to tuberculosis [1]. Although pulmonary involvement is the most common presentation, Mycobacterium tuberculosis can infect almost any organ system, including the gastrointestinal (GI) tract. GI tuberculosis most frequently involves the terminal ileum, ileocecal region, and colon[4]. Globally, gastrointestinal TB is the sixth most common site of extrapulmonary tuberculosis. Before the advent of anti-tubercular medications, autopsy studies revealed GI tract involvement in more than 90% of patients who died with disseminated TB [1]. In recent decades, the incidence of extrapulmonary tuberculosis has been rising, possibly due to increased life expectancy, a higher proportion of females in the population, declining BCG vaccine use, and the growing prevalence of immunosuppressive conditions, including HIV infection and biologic therapy for autoimmune diseases [2, 4, 5]. Co-infection with HIV and TB has been reported in up to 73% of cases in certain cohorts [3].

The terminal ileum and ileocecal region are the most frequently affected sites in colonic TB, owing to the abundance of lymphoid tissue that allows prolonged contact and mucosal embedding of M. tuberculosis bacilli. The ascending, transverse, descending, and sigmoid colons are involved in decreasing order of frequency [4]. Patients with colonic tuberculosis typically present with vague, nonspecific symptoms such as chronic abdominal pain, altered bowel habits (diarrhea or constipation), fatigue, anorexia, weight loss, low-grade fever, and night sweats [6,7]. Consequently, the diagnosis is often delayed, and colonic TB can mimic more common colonic diseases, including Crohn's disease and colorectal malignancy [8,9].

Colonoscopy is a key diagnostic tool, but its findings are not specific. Common endoscopic features include ulcerations (often transverse or stellate), nodularities, strictures, and, less frequently, polypoidal lesions [8,9]. Polypoidal lesions in colonic TB are often underrecognized; they may be solitary or multiple and can resemble adenomatous polyps or submucosal tumors [9]. Because of this nonspecific appearance, many patients are misdiagnosed or undergo unnecessary surgical resections before tuberculosis is confirmed. Histopathological examination of biopsied lesions remains the cornerstone of diagnosis. The presence of caseating epithelioid granulomas with Langhans giant cells is highly specific for tuberculosis [10]. However,

acid-fast bacilli (AFB) staining has variable sensitivity; in many cases, AFB may be negative, and a positive stain is not mandatory for diagnosis. Therefore, routine biopsy of all polypoidal lesions, even in the absence of classic ulcerative or stricturing features, is essential to avoid missing subtle cases of colonic TB.

Early diagnosis and medical therapy are critical, as colonic TB responds well to standard anti-tuberculous treatment (ATT), and surgery is reserved only for complications such as intestinal obstruction, perforation, or fistula formation. The recommended regimen typically includes an intensive 2-month phase of isoniazid, rifampicin, pyrazinamide, and ethambutol, followed by a 4-month continuation phase with isoniazid and rifampicin. Some patients may require up to 7–12 months of therapy [11]. Given that the incidence of colonic TB may be underestimated and that polypoidal lesions can be the only colonoscopic abnormality, this prospective study was designed to assess the incidence of polyps in colonic TB and to highlight the diagnostic value of biopsying all polypoidal lesions in patients presenting with vague abdominal symptoms.

Aim:

To prospectively evaluate the incidence of polypoidal lesions in patients with colonic tuberculosis and assess their diagnostic significance in a tertiary care center.

Objectives:

- To identify the prevalence of polypoidal lesions on colonoscopy in suspected colonic TB patients.
- To confirm the diagnosis through histopathological examination (caseating necrosis, granulomas, Langhans cells).
- To assess symptomatic response following anti-tuberculous treatment (ATT).

MATERIALS AND METHODS

A prospective study conducted among 50 patients who presented to the surgical OPD with chronic abdominal pain along with altered bowel habits has been discussed below. The study was conducted in Tertiary Care Center from May 2024 to November 2025. The patients were provisionally diagnosed as Inflammatory Bowel Disease, and all necessary and routine investigations were done. The patients were then subjected to colonoscopy based on their fitness to undergo the same. Colonoscopy was performed in all 50 patients and according to the results the patients were categorised and treated.

Sample size calculation

The reported prevalence of colonic tuberculosis among patients undergoing colonoscopy for non-specific abdominal symptoms ranges from 10% to 30% in endemic regions like India [Reference: Mukewar S, *et al* [4]. Clin Transl Gastroenterol. 2012;3:24]. Assuming an expected prevalence of approximately 25%, a sample size of 50 patients allows for a reasonable estimation of the proportion with a margin of error of ±12% at a 95% confidence interval.

Inclusion criteria:

All patients who present to the OPD with abdominal symptoms (Abdominal pain, Altered bowel habits, fatigue, loss of appetite), Age Group: 25 - 50 years and Previously diagnosed Inflammatory Bowel disease with acute exacerbation.

Exclusion criteria:

Patients who are not compliant, diabetic patients, immunocompromised patients carrying blood borne viruses (HIV, Hepatitis B virus and Hepatitis C virus), Undergone previous abdominal surgery (open laparotomies) and Recurrence or relapse of Abdominal TB.

Methodology:

Patients who came to the surgical OPD with abdominal complaints (mainly abdominal pain, altered bowel habits, fatigue, and loss of appetite) were included into the study. All necessary investigations were done and then after preliminary assessment the patients were planned for colonoscopy. Patients were in detail explained about the procedure and after informed consent the patients underwent colonoscopy. The patients were requested to get admitted the day before the procedure and then were given soap water enema once the night before the procedure and once on the morning of the procedure. The patients were also maintained in nil per oral from the night previous to the procedure. The patients were subjected to colonoscopy and the findings are as follows

COLONOSCOPIC FINDINGS:

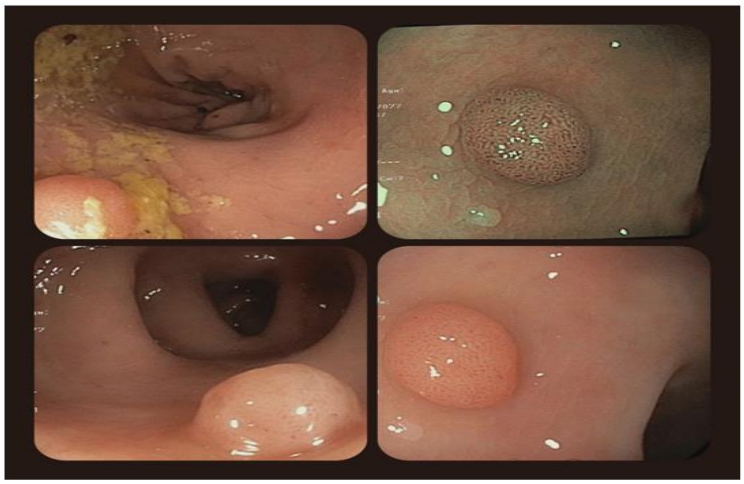


FIGURE 1: PICTURES DEPICTING SOLITARY POLYP SEEN IN THE COLON IN OUR STUDY POPULATION

During the colonoscopy, the polyps were sent for biopsy, and the histopathological examination results are as follows.

HISTOPATHOLOGICAL EXAMINATION

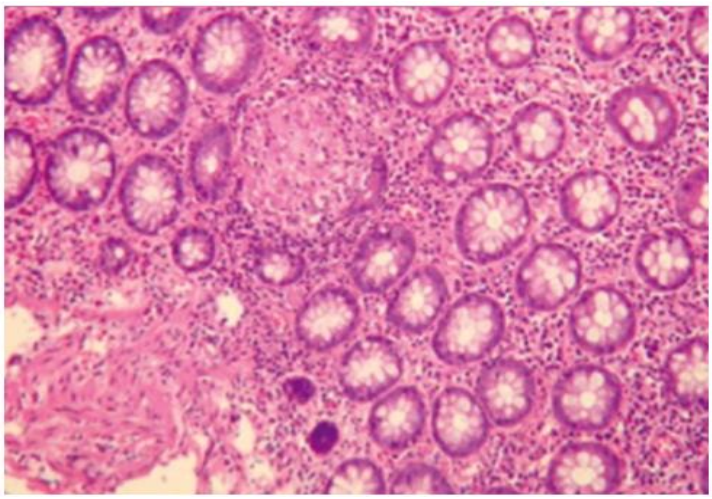


FIGURE 2: Multiple Granuloma seen around the pericryptal area of colon mucosa.

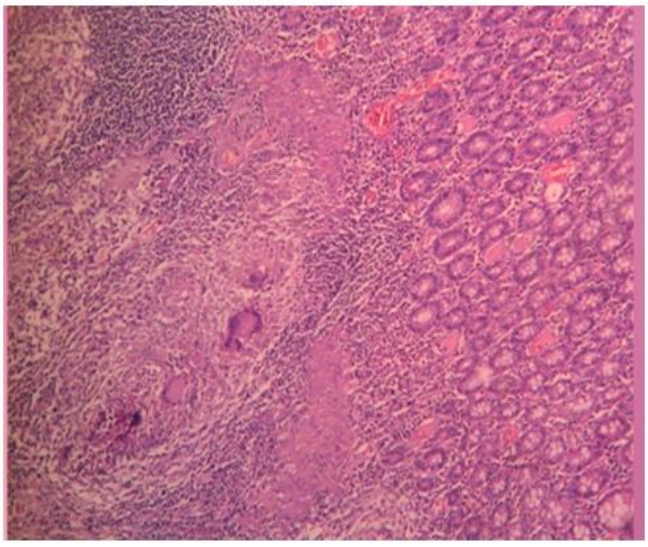
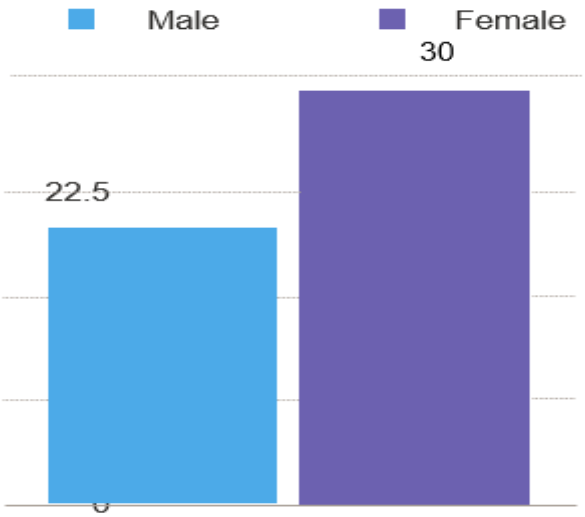


FIGURE 3: Submucosa showing caseating necrosis with Langhans cells.

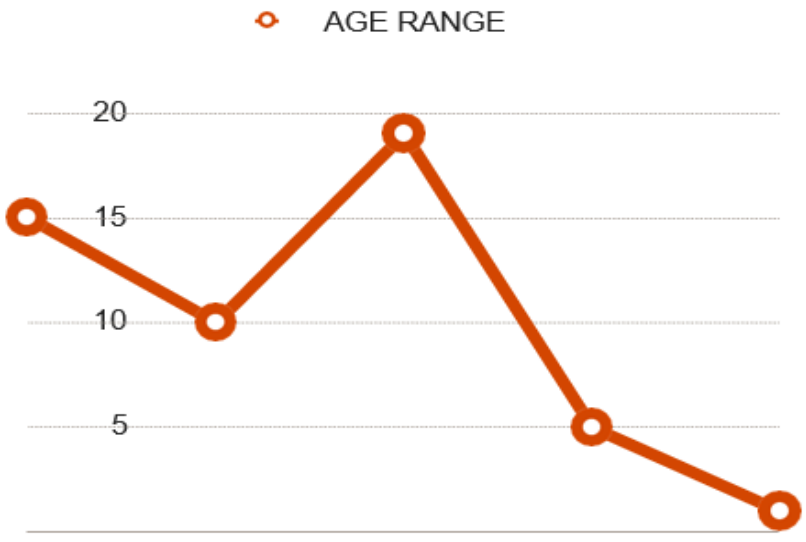
The 28 patients with HPE consistent with that of colonic tuberculosis were started on Anti Tuberculous treatment and then monitored every 2 weeks once and assessed based on their relief from all symptoms

RESULTS



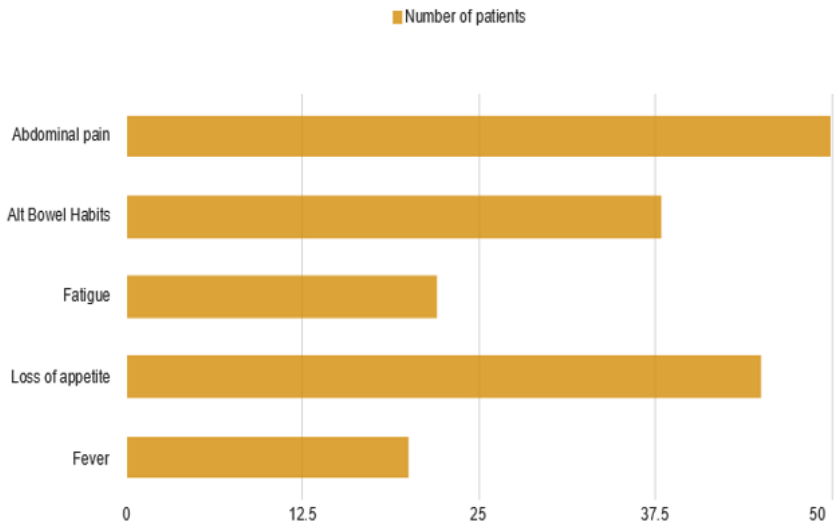
GRAPH 1: SEX DISTRIBUTION AMONG STUDY PARTICIPANTS

It was seen in the study that out of 50 patients, 20 were male and 30 were female. Out of 28 patients who were diagnosed to have Colonic Tuberculosis, it was seen that 7 were female and 21 were men. Colonic TB is seen predominantly in male patients.



GRAPH 2: AGE DISTRIBUTION AMONG STUDY PARTICIPANTS

It was seen in the study that out of 50 patients, the symptoms were predominantly seen in the age group of 25 to 40 years of age. Out of 28 patients who were diagnosed to have Colonic Tuberculosis it was seen that most of the patients were amongst the age group of 30 to 45 years.



GRAPH 3: GRAPH SHOWING SYMPTOM PREDOMINANCE IN OUR STUDY POPULATION

The most common symptoms seen in 50 patients under the study are:

- Abdominal Pain
- Altered bowel habits
- Fatigue
- Loss of appetite
- Fever
- Bleeding per rectum : < 1 %

It can be said the Colonic Tuberculosis has a vicious tendency to mask itself under vague abdominal symptoms stated above.

Occurrence of polyps

In 50 patients who underwent colonoscopy, solitary polyp lesions were noted in 32 patients. On histopathological examination it was found that 28 patients with polyp had caseating necrosis with no other remarkable findings on colonoscopy. This solitary diagnostic tool helped us start patients on Anti Tuberculous treatment and on consistent follow up the patients showed marked decrease and relief from all symptoms.

Period of treatment

Out of 28 patients who were diagnosed as Colonic Tuberculosis, 25 patients had to take ATT for 6 months. Out of 3 patients, 2 patients took ATT for 7 months to attain complete symptomatic relief and 1 patient relapsed.

The 6 month drug regimen included:

2 months: Isoniazid + Rifampicin + Pyrazinamide + Ethambutol (Intensive phase)
4 months: Isoniazid + Rifampicin
Histopathological examination

It is seen that out of 50 patients 28 patients had features of caseating necrosis out of which only 3 patients also had a histological finding of epithelioid granuloma and 4 patients showed features of Langenhans cells. Only 4 patient's biopsy feature all three histological finding.

AFB Staining

Out of 50 patients, 28 patients were diagnosed to have colonic tuberculosis. Out of 28, 16 patients were positive for acid fast (Ziehl-Neelsen) staining whereas the rest were negative for Ziehl-Neelsen staining. It can be understood that, a positive AFB stain is always not mandatory for diagnosis of Tuberculosis.

DISCUSSION

Gastrointestinal Tuberculosis is rare but serious, gastrointestinal tuberculosis affects mostly immunocompromised people and those who were born in endemic regions. While the prevalence of pulmonary tuberculosis is declining, the prevalence of extra-pulmonary tuberculosis is rising, which may be related to higher life expectancy, the proportion of females in the population, and a global decline in the use of the BCG vaccine.[1] The incidence of gastrointestinal tuberculosis, especially colonic TB, has been rising over the past 20 years, which is thought to be related to the rise in HIV

infections and the use of immunosuppressive medications[2] .According to one study, co-infection with HIV and TB can occur up to 73 percent of the time[3] .Patients taking biological treatments for auto-immune diseases should be on the lookout for TB as well.[4][5] Because of the abundance in density of lymphoid tissue, there is more time for the M. tuberculosis bacilli to embed into the mucosa, hence making the terminal ileum the most frequent area of manifestation of Gastrointestinal Tuberculosis. The ileocecal valve is most frequently affected by colonic TB, then the ascending, transverse, descending, and sigmoid colons. [4]

Abdominal pain, weight loss, loss of appetite, low grade fever, night sweats, diarrhoea, and vomiting are common non-specific symptoms of colonic TB. Abdominal distention, maybe associated with a palpable mass, fluid collection in the peritoneum: ascites, liver enlargement, palpable lymph nodes, and splenomegaly are the most frequent physical examination findings[6][7] The duration of time it necessitates to diagnose and treat this vague presentation is hence prolonged.

Colonoscopy combined with a histopathologic and microbiological investigation may be utilized to diagnose colonic TB. Conspicuous ulcerations, nodularities, strictures, and, less frequently, polyps can all be discovered during a colonoscopy. [8][9] Colonic TB is of-ten confused with other colonic illnesses like Crohn's disease and malignancy because to these undescript endoscopic symptoms, which causes considerable delays in diagnosis and care as well as needless surgical operations. In most cases, caseating epithelioid granulomas, which are highly specific for TB, are found during the histopathologic examination.

Since GI TB often responds well to medicinal therapy, early identification and treatment can help avoid needless surgical procedures. [10] Patients with colonic tuberculosis should start antitubercular medication at least 6 months before extending it to 9 or 12 months. Surgery is typically only necessary in situations where there has been serious intestinal obstruction, perforation, infection, or fistula. Medical treatment typically results in improvement, even in cases when strictures have formed.[11] After completing medical treatment, some reported studies advise scheduling a follow-up colonoscopy in two to three months.[6]

On the other hand, several studies state that repeat colonoscopy is not required if the patient is asymptomatic considering the percentage of colonic TB cases that respond with medical treatment. Due to the patient's nine month antitubercular medication and positive clinical response, a repeat colonoscopy was forgone.

CONCLUSION

Polypoidal lesions on colonoscopy may serve as an important diagnostic clue in colonic tuberculosis. Colonic tuberculosis often presents with vague abdominal symptoms, mimicking other colonic disorders. The presence of polyps in patients with abdominal pain and altered bowel habits should raise clinical suspicion. Routine biopsy of all polypoidal lesions is essential to uncover subtle cases of tuberculosis. Histopathological examination can reveal granulomatous inflammation, aiding early diagnosis. Timely identification allows prompt initiation of anti-tubercular therapy (ATT), improving patient outcomes.

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Conflict of interest: None

Ethical Approval: Ethical Approval obtained from the Institutional Ethical Committee

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