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Article · October 2015

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Free Perforation of Ileal Tubercular Ulcer- A Case Report and Literature Review

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Rec date: Oct 14, 2014; Acc date: Jan 05, 2015; Pub date: Jan 10, 2015

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Abstract

Primary intestinal tuberculosis is unusual in North American, European and Caribbean countries. Its diagnosis is often surprising and differentiation from inflammatory bowel diseases is difficult. Intestinal perforation is an uncommon but potentially fatal complication of intestinal tuberculosis. There is no reported case of ileal tubercular ulcer perforation from the Caribbean. We present a 59 year old HIV negative patient presented with peritonitis with solitary perforation of terminal ileum. Histology revealed presence of Langerhan's cell with caseating granulomatous inflammation and culture grew acid fast bacilli. A subsequent Manteaux test was strongly positive. There was no radiological evidence of pulmonary tuberculosis. Patient was started on anti-tubercular therapy and it is now over one year, the symptoms have not recurs back again.

Keywords: Intestinal tuberculosis; Perforation

Case Report

A 59 year old known diabetic, hypertensive male presented with 2/7 history of sudden peri-umbilical pain and vomiting. History revealed that the pain was of sudden onset, peri-umbilical, and aggravated by movement and relieved by lying flat. He had no fever, shortness of breath or night sweats. He denied any history of recent travel or contact with anyone infected with tuberculosis. On examination, he was ill looking, moderately dehydrated, tachycardic (pulse of 120 beat per minute) but his blood pressure and body temperature were within normal range. His abdomen was grossly distended with mild diffuse tenderness, mild guarding but no rebound tenderness. There were sluggish bowel sounds. Digital rectal examination was normal. The white blood cell count was elevated (15.5×10^3 /ul) and all other labs within normal limit. Erect chest X- ray revealed no free air however, a CT scan of abdomen and pelvis with intra-venous contrast revealed free air and free fluid in abdomen. After resuscitation patient was prepared for exploratory laparotomy which revealed a solitary 0.5 to 0.8 cm transverse perforation in the anti-mesenteric border of terminal ileum (Figure 1). There was no evidence malignancy or inflammatory bowel diseases (IBD). There was 200 mls of pus-like fluid in peritoneal cavity with inter-loop abscesses with pus flakes and exudates throughout. Segmental resection and primary anastomosis was performed. Patient had a good post op recovery. His ELISA Test for HIV was negative and serum ESR level was elevated. The chest x-ray showed no radiological evidence of pulmonary tuberculosis. The tuberculin skin test (Manteaux) was done on post-op day #5. It was strongly positive. Microscopic examination of the ileum revealed trans-mural perforation with presence of Langerhan's cell with caseating granulomatous inflammation consistent with small bowel tuberculosis. Acid fast bacilli stain confirmed the presence of Mycobacterium. The patient was started on anti-tubercular therapy (isoniazid, ethambutol, rifampicin). At one year follow up, he remains symptom free (Figure 2a and 2b).



Figure 1: Intra-op picture showing solitary ulcer in terminal ileum

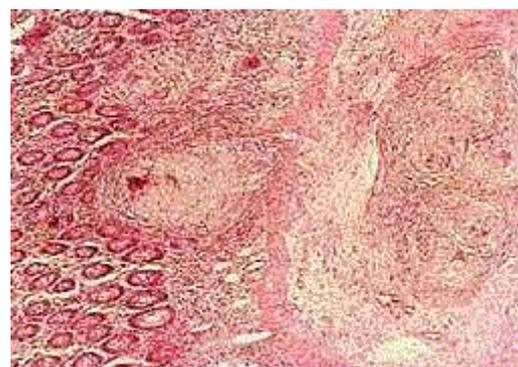


Figure 2a: Showing granulomatous lesion in mucosa and sub-mucosa.

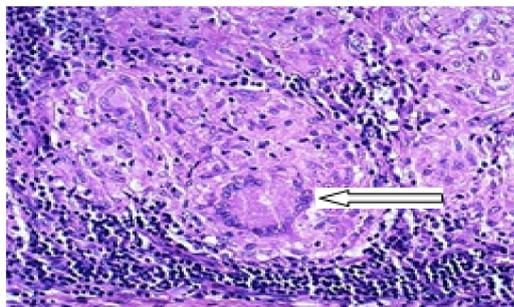


Figure 2b: Langerhan's cell.

Discussion

The incidence of intestinal tuberculosis (TB) in western countries has increased along with an overall resurgence of TB [1]. This resurgence is related to an increasing incidence of human immunodeficiency virus (HIV) infection, an ageing population, increased use of immuno-suppressive drugs, and the emergence of multi-resistant strains of *Mycobacterium tuberculosis* [1]. Similarly, the incidence of tuberculosis (per 100,000 people) in Trinidad and Tobago is also on the rise (World Bank development indicator 2013 and WHO, Global Tuberculosis indicator 2011 report). The incidence estimated in Trinidad and Tobago rose from 12.3% in 1990 to 21% in 2011. The co-infection rate was found to be 23.6% in Trinidad and Tobago [2].

Small bowel perforations account for 2-36% GIT tract perforations [3-5] but there seems to be a wide geographical variation in the incidence and frequency of small bowel perforations. A few authors have reported this to be the most common cause of peritonitis in their series [6-10], whereas the incidence in China and Thailand is quite low [11,12]. Typhoid fever and tuberculosis are the common causes of small bowel perforation in the developing countries, while in western countries non-infectious pathologies such as Crohn's disease and malignancy are predominant [13-15]. Rare cases of non-traumatic perforation of small intestine due to opportunistic infections were also reported. The clinical presentation in non-traumatic perforation of small intestine is non-specific [16,17].

There is no reported case of small bowel perforation due to tuberculosis from the Caribbean. Involvement of mesenteric vasculature by granulomatous inflammation was commonly associated with ulceration and perforation, suggesting that ischemia caused by vascular thrombosis is potentially responsible for tissue breakdown. This implies that vasculitis plays an important role in the natural history of abdominal tuberculosis. Acid fast bacilli were demonstrated in the tissue sections of 37.5% of the patients. AFB positivity was higher in caseating granulomas [18].

Gastrointestinal tuberculosis display a variety of microscopic features and it is often difficult to distinguish GITB from other inflammatory lesions of the intestine. Prachi B Tripathi [19] on gross analysis of 110 GITB patients noted a free intestinal perforation (32.6%) and ischemia (7.3%), in addition to the typical findings of transverse ulcers, strictures, hyperplastic lesions and serosal tubercles. He also noted a varied morphological form of caseating, non-caseating, confluent, discrete and even suppurative granulomas on

histopathology. An important finding was the co-existence of different types of granulomas within the same case. In a significant number of cases (44.5%) granulomas were seen in a sub-mucosal location. The predominant type of inflammation seen in the lamina propria was lympho-plasmacytic in 85.5% cases. The author concluded that pathologists should be aware of the entire spectrum of gross and histopathological features of GITB, so as to avoid misdiagnosis [19]. Our patient had a transverse ulcer on gross examination with trans-mural perforation with caseating granulomatous and Langerhan's cell on microscopy.

The complications of intestinal tuberculosis are bowel obstruction (31.7%), intestinal perforation (4.9%), entero-cutaneous fistula (2.4%) and small bowel volvulus due to mesenteric lymphadenitis (2.4%) [20]. Intestinal perforations are the most feared one and are associated with high mortality. Free tubercular perforation is very rare account for only 1-10% of abdominal tuberculosis. It has a poor prognosis with mortality rate higher than 30% [21,22]. Free perforation in intestinal tuberculosis usually occurs in the terminal ileum like our patient [23] and it can occur even in patients during anti tuberculosis therapy [24]. In 90% of the cases, perforation is solitary, but multiple perforations occur in 10-40% of patients and are associated with a poor prognosis, therefore immediate operative intervention is indicated [25].

Specific diagnostic investigations are not available and no single investigation had a high diagnostic accuracy. Plain X-ray has shown free air in only 25-50%. Fifty per cent of the extra pulmonary tuberculosis patients have normal chest radiography [26-28,15]. In our patient, erect chest X-ray was normal. In patients with intestinal tuberculosis who presented with generalized peritonitis should have exploratory laparotomy. In equivocal cases computed tomography helps to identify the perforation. Makanguola has shown that computed tomography can provide a diagnosis of intestinal tuberculosis in 81% of the cases [27,28]. In our patient diagnosis of perforation was made on CT scan. In a series of 79 patients, Wani et al have found that only 29% of patients with non-traumatic perforation of terminal ileum have leucocytosis [17]. Our patient had an elevated white blood cell count and C reactive protein level.

The general condition of the patient, the number of perforations, the condition of the intestine, and surgeon's experience define the operative procedure, prognosis and outcome [24-26]. Single perforation can be treated by excision and simple closure [24,29]. However, resection of the affected small bowel segment and end to end anastomosis proved to be the best method of treatment [26]. Simple repair of the perforation is not recommended because of the high incidence of leak and fistula formation [29]. High mortality and morbidity reported more than (29.3%) but lower mortality is seen in patients operated within 36 hours of perforation [26]. After surgery these patient should be treated with anti-tubercular therapy. They also need to be followed up in Chest as well as GI clinic to monitor any future recurrence.

Conclusion

Free perforation of primary intestinal tuberculosis is rare. Diagnosis of this acute perforation is often very difficult. In endemic areas, clinicians should stay vigilant of this condition as a possible differential in patients presenting with acute or chronic abdominal pain. Prompt diagnosis with urgent surgical intervention and continuing medical treatment can decrease the morbidity and mortality.

Acknowledgement

Informed consent was obtained from patient to publish this case.

Disclosure

The authors have nothing to disclose.

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