



Peritoneal Tuberculosis in a Middle-Aged Male

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Introduction

Pulmonary tuberculosis (TB) makes up most United States (U.S.) tuberculosis cases; infrequently manifestation can occur as peritoneal TB (pTB). Higher incidence of TB in the U.S. is seen in HIV patients and the African American community. The nonspecific symptoms of pTB can be similar to carcinomatosis, making pTB challenging to diagnose [1].

Case Presentation

We report a 31-year-old African American male who presented to the emergency department (ED) with nausea, vomiting, and severe abdominal pain after a motor vehicle collision (MVC). He reports the abdominal pain as constant and 10/10 intensity. On physical exam, there was diffuse tenderness to abdominal palpation. CT imaging showed diffusely increased density throughout the mesentery, ascites, and concern of possible small bowel injury (Fig. 1a, b). The patient was taken for exploratory laparotomy. Numerous dense white tubercles were visualized, and the patient's peritoneum was adhering to the underlying viscera with a thick covering resulting in a frozen abdomen (Fig. 2a, b).

Postoperatively, he reported two months of mild abdominal pain, increased fatigue, and weight loss. Past social history was significant for incarceration last year with a positive PPD test.

Peritoneum tubercles biopsy demonstrated necrotizing granulomatous inflammation and two acid fast bacilli (AFB) identified in giant cells. Tissue culture suggested presumptive mycobacterium while broad-spectrum polymerase chain reaction (PCR) was negative. Adenosine deaminase (ADA) ascitic level was 61.7 unit/L (normal range: <7.6 unit/L). Post-operative the patient was started on standard TB therapy and discharged home.

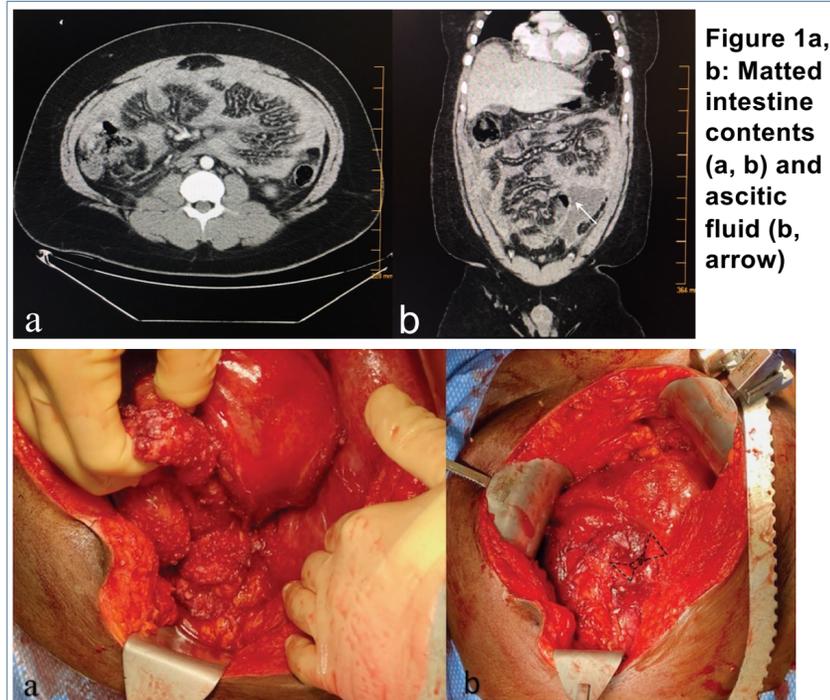


Figure 1a, b: Matted intestine contents (a, b) and ascitic fluid (b, arrow)
Figure 2a, b: White tubercles (a) & frozen abdomen and serosal tear (b, dashed lines)

Discussion

The most common symptoms of pTB are abdominal swelling, abdominal pain, fever, and weight loss [1]. These symptoms will typically persist for several weeks to months. The most predominant clinical finding is ascites which occurs in 73% of patients [4]. Numerous studies state tuberculosis must be a differential when ascites is found especially in the absence of liver disease.

The workup of pTB with the common presenting symptom of abdominal pain is as follows. Initial abdominal imaging is performed with CT. CT can demonstrate ascites, hypodense center lymph nodes, thickening of the mesentery and omentum, thickening of the peritoneum, and agglutination of the intestinal loops [3]. An ascitic patient observed on CT will typically undergo paracentesis for peritoneal fluid analysis. The fluid of pTB will typically have lymphocytosis and elevated ADA levels, with a cut-off of >30 U/L, with a sensitivity and specificity of over 90% in many studies [3,4].

If the ADA value is < 30 this is suggestive of peritoneal carcinomatosis [4]. Also, histopathology of the ascitic fluid with the presence of caseating granulomas with or without AFB can highly suggest a diagnosis of pTB. If ascites is absent or if the ascitic fluid analysis is equivocal then peritoneal biopsy is suggested [4]. Peritoneal tissue biopsy can be performed laparoscopically or with a Cope's needle. Laparoscopic is preferred because it enables gross inspection, tissue specimen histology and culture analysis. Gross visualized findings can show thickened peritoneum with miliary yellow-white tubercles with or without adhesions or fibroadhesive pattern [2]. Laparoscopy yields a specificity and sensitivity of 93% and 98% [4]. Even in the absence of bacteriological confirmation, the gold standard, the characteristic gross appearance itself can be sufficient to diagnose pTB [4]. pTB diagnosis cannot be made with a single diagnostic study, but multiple diagnostic studies are essential to yield a definitive diagnosis. Nonetheless, prompt initiation of antituberculosis therapy is vital to reduce the risk of mortality in patients.

Conclusion

pTB accounts for a small portion of tuberculosis cases, but it has seen a rise in cases throughout the world including in developed countries secondary to the rise in HIV cases. As more cases are documented physicians should be more aware of the presentation and increase their index of suspicion of the nonspecific signs and symptoms of pTB.

References

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