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Case Report

Medical mimicry: abdominal tuberculosis presenting as surgical emergency

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ABSTRACT

Abdominal tuberculosis is a relatively uncommon but important differential diagnosis in patients presenting with abdominal symptoms, especially in regions with high TB prevalence. This case report describes an 11-years-old boy who presented with abdominal and scrotal swelling, along with intermittent fever, mimicking a surgical emergency. An initial clinical impression of ruptured appendicitis led to an exploratory laparotomy, which revealed copious serous fluid and widespread pale, firm seedlings throughout the peritoneal cavity. Histological examination of omental tissue showed chronic necrotizing granulomatous inflammation suggestive of tuberculosis. Despite inconclusive GeneXpert and microbiological findings, the clinical picture prompted a therapeutic trial of anti-TB medications. The patient responded remarkably, with complete resolution of symptoms and significant weight gain. This case underscores the diagnostic difficulty posed by abdominal TB and highlights the potential role of empirical anti-TB therapy in appropriate clinical contexts when diagnostic tools are limited or yield inconclusive results.

Keywords: Abdominal tuberculosis, TB, GeneXpert

INTRODUCTION

Tuberculosis (TB) is a contagious infection caused by Mycobacterium Tuberculosis, primarily affecting the lungs but capable of affecting other organs in 15% of cases.[1] Tuberculosis affects approximately 10 million people globally each year, resulting in 1.2 million deaths. Nigeria contributes significantly to this burden, with an estimated 590,000 new cases annually and a case fatality of about 245,000, representing roughly 10% of all deaths in the country.[1]

In Nigeria, abdominal tuberculosis accounts for approximately 1.5% of all TB cases, in contrast to pulmonary tuberculosis, which represents about 80% of the national TB burden.[2] Tuberculosis involving the abdomen may present as an isolated condition or as part of a disseminated systemic infection.[3] Abdominal tuberculosis presents with varied and often nonspecific symptoms that can mimic other serious abdominal conditions, leading to frequent misdiagnoses and delayed diagnosis. As reported in previous studies, it requires careful clinical evaluation and consideration as a differential diagnosis, given its potential to cause significant morbidity and mortality.[4-6]

Empirical tuberculosis treatment refers to initiating therapy without bacteriological confirmation, often guided by clinical suspicion and contextual factors. The decision depends on weighing the patient's risk of having

TB or experiencing adverse outcomes against a treatment threshold, which can differ among practitioners. Considerations include regional TB prevalence, characteristic clinical signs, underlying conditions such as HIV and supportive findings from other diagnostic tools.[7] Although clinical algorithms are effective in identifying many TB cases among patients with negative Xpert results, empirical treatment has not been shown to improve survival and may contribute to unnecessary treatment.[8] Moreover, it carries the risk of adverse effects, particularly drug-induced liver injury. Among first-line TB drugs, isoniazid, rifampicin and pyrazinamide are hepatotoxic, whereas ethambutol generally is not.[7] This case underscores the potential value of a therapeutic trial of anti-TB treatment in managing abdominal tuberculosis, particularly when conventional diagnostic methods fail to establish a definitive diagnosis.

CASE REPORT

An 11-years-old male presented to our facility with progressive abdominal and scrotal swelling accompanied by intermittent fever. On examination, he appeared ill, in mild painful distress and had a low-grade fever of 37.4°C. His weight at presentation was 30 kg. The abdomen was symmetrically distended, with tenderness noted in the periumbilical region and right iliac fossa. Bowel sounds were hypoactive. Scrotal examination confirmed swelling without overlying skin changes. Ultrasound of the abdomen and scrotum revealed moderate ascites and a right hydrocele. Routine laboratory tests, including full blood count and renal function, were within normal limits. An exploratory laparotomy was performed due to suspected acute abdomen. Intraoperative findings included copious serous peritoneal fluid and multiple pales, firm nodular lesions involving the peritoneal surfaces, omentum and solid organs, sparing the small bowel. Omental tissue biopsy was taken for histopathology.

Histological examination revealed chronic necrotizing granulomatous inflammation consistent with tuberculosis. Postoperatively, the patient was noted to have a pleural effusion, confirmed on chest imaging and managed with drainage. The scrotal swelling recurred. Further investigations including GeneXpert on sputum and ascitic fluid, ESR and sputum microscopy, culture and sensitivity (M/C/S) were carried out. GeneXpert results were negative, ESR was significantly elevated at 114 mm/hours, sputum M/C/S grew Klebsiella species resistant to all tested antibiotics.

In the absence of bacteriological confirmation but with strong clinical suspicion, a therapeutic trial of anti-tuberculosis therapy was initiated. The patient showed marked clinical improvement, with complete resolution of symptoms and significant weight gain from 30 kg to 62 kg by the end of follow-up.

DISCUSSION

Abdominal TB remains a diagnostic challenge due to its varied and nonspecific clinical presentation, often mimicking other intra-abdominal pathologies, especially in children.[9,10] In this case, the 11-years-old boy presented with symptoms resembling acute surgical abdomen, initially thought to be a ruptured appendicitis, a common differential in paediatric patients.[10] However, intraoperative findings and subsequent histology confirmed features suggestive of abdominal TB, despite negative GeneXpert and microbiological results. Abdominal TB, though rare compared to pulmonary TB, should be strongly considered in endemic regions such as Nigeria, where TB prevalence is high.[1] Its varied presentation ranging from vague abdominal pain, distension, ascites and masses frequently results in misdiagnosis or delayed diagnosis.[10]

The diagnosis of abdominal TB is often hindered by the limited sensitivity of available diagnostic tools. GeneXpert, although valuable for pulmonary TB, has reduced sensitivity in extrapulmonary forms, particularly in peritoneal and ascitic specimens.[11] In this case, despite a high ESR and histological findings suggestive of TB, the lack of microbiological confirmation necessitated empirical treatment. This approach is supported in literature where clinical algorithms have helped identify TB cases in Xpert-negative patients.[8] Empirical treatment, while potentially life-saving, is not without risks. The hepatotoxicity associated with first-line anti-TB drugs particularly isoniazid, rifampicin and pyrazinamide necessitate close monitoring.[7] However, when diagnostic uncertainty persists and clinical suspicion remains high, therapeutic trials may serve as both a diagnostic and therapeutic strategy. In our patient, the decision to initiate anti-TB therapy led to full recovery and significant weight gain, affirming the clinical diagnosis.

CONCLUSION

This case highlights the critical importance of maintaining a high index of suspicion for abdominal TB in endemic areas. It also emphasizes the utility of histopathological analysis and the need for a flexible diagnostic approach when faced with inconclusive laboratory results. Ultimately, timely empirical treatment, in the right clinical context, can significantly reduce morbidity and improve outcomes in abdominal TB.

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