CASE REPORT

Abdominal tuberculosis: an old disease surprising young doctors

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SUMMARY

Tuberculosis remains a worldwide public health concern. Atypical extrapulmonary presentations may delay the diagnosis and treatment. We present the case of an adult woman admitted to the emergency department with bowel obstruction. The putative intraoperative diagnostic hypothesis was ovarian cancer with peritoneal dissemination. Histopathological analysis showed a chronic granulomatous inflammatory disease with acid-fast bacilli. The patient was started on an alternative parenteral antituberculosis drug combination until oral feeding was available. Currently, 5 months after surgery, she is asymptomatic. Abdominal tuberculosis is the most frequent extrapulmonary site with a wide range of clinical presentations. Emergency laparotomy may be necessary in patients who present with acute abdomen. Bowel obstruction due to adhesions and strictures is not infrequent. However, tuberculous abdominal cocoon presentation as in our patient is rare. Treatment with parenteral alternative drug regimens for tuberculosis is mandatory until the oral route is available.

BACKGROUND

Tuberculosis (TB) is an infectious disease caused by *Mycobacterium tuberculosis*, known since ancient times. Despite the current availability of better diagnostic tools and effective treatments, tuberculosis is still a worldwide public health concern, accounting for 9.6 million cases worldwide and 1.5 million deaths reported.¹ In Portugal, 2264 cases were reported in 2014.²

Mycobacterium can spread to any organ, making the clinical manifestations very heterogeneous. Extrapulmonary presentations are the most difficult to diagnose since they can mimic many other infectious and non-infectious diseases. Pleural and nodal diseases are the most common extrapulmonary presentations in the Portuguese cohort, with abdominal and peritoneal forms accounting for 3.5% of total TB cases.² There are few reports in the literature showing that abdominal TB can cause bowel obstruction, mainly due to multiple bowel strictures and adhesions.^{3–5}

We here report a case of abdominal TB admitted in the hospital with bowel obstruction, a life-threatening complication that imposed emergent surgery. This is a rare and complex case, in which clinical findings and imaging did not suggest TB in the first place. With this report we want to show the importance of differential diagnosis with TB. Untreated abdominal TB carries a mortality rate of up to 60% whereas in treated disease it goes down to 15%. Intestinal forms can present with

perforation, increasing mortality to 30%. Other factors associated with mortality include multiple perforations, increased time between symptoms and perforation, comorbidities, delayed surgery and concomitant use of corticosteroids.⁶

CASE PRESENTATION

A 37-year-old woman with African ancestry but born and living in Portugal was admitted to emergency room reporting of weight loss (10 kg) and nocturnal sweating during the past month. Three days before admission she reported of vomiting, abdominal distension, abdominal colic pain and constipation. She had no relevant medical history, no recent travelling or previous abdominal surgery. She looked emaciated and pale. Her abdomen was distended with tympanic sound at percussion and high-pitched bowel sounds at auscultation. Palpation showed tenderness in the right lower quadrant with an abdominal mass. 500 mL enteric fluid was drained after gastric intubation.

INVESTIGATIONS

Laboratory evaluation revealed an elevated white cell count and elevated C reactive protein (12.900 µL and 5.9 mg/dL, respectively). Plain abdominal X-ray (figure 1) revealed small bowel air-fluid levels without pneumoperitoneum. Urgent abdominal and pelvic CT scan revealed distended jejunal and ileal loops, with collapsed right colon; the superior mesenteric artery was in a right paramedian position suggesting an internal hernia (figure 2A). Also, the CT scan showed a mass suggestive of right ovarian complex cystic mass 45 mm in size (figure 2B).

DIFFERENTIAL DIAGNOSIS

Internal hernia with bowel obstruction was the diagnosis considered and urgent laparotomy was proposed. Intraoperative findings showed an impenetrable frozen abdomen with multiple small white deposits in the great omentum and a complex right iliac fossa mass. No ischaemic bowel loops were found. Multiple peritoneal biopsies were obtained.

TREATMENT

Gastric decompression, intravenous fluid and total parenteral nutrition were initiated.

Histological analysis showed a peritoneal chronic granulomatous inflammatory process with necrosis and giant Langhans multinucleated cells with acid-fast bacilli (figure 3A, B).

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Figure 1 Abdominal X-ray.

After urgent infectious diseases consultation, the patient was admitted to the infectious diseases department. Given the TB diagnosis in a patient who required exclusive parenteral administration route for both nutrition and medication, and because of limited availability of parenteral pyrazinamide and ethambutol, an alternative anti-TB drug combination was started. The drug combination was intramuscular isoniazid and intravenous rifampicin, ampicillin and levofloxacin. This therapeutic regime was necessary for 10 days. With re-establishment of intestinal transit and oral ingestion, it was progressively switched to classic oral first line antituberculosis treatment with isoniazid, rifampicin, ethambutol and pyrazinamide, supplemented with vitamin B6. No adverse events occurred.

Additional evaluation included a thorax CT scan that showed a right and left inferior lung lobes consolidation with air bronchogram and left pleural effusion (figure 4). Fiberoptic bronchoscopy was unremarkable and fluid collected did not reveal micobacteria (direct and cultural examinations negative).

OUTCOME AND FOLLOW-UP

After 12 days of treatment the patient was able to eat. She was discharged at postoperative day 17 to a TB outpatient clinic and infectious diseases follow-up.

Currently, 5 months after surgery, under anti-TB regimen, the patient is asymptomatic and recovering weight.

Figure 2 (A) Urgent abdominal CT scan. Superior mesenteric artery in a right paramedian position (arrow). (B) Urgent pelvic CT scan showed a right ovarian complex cystic mass with 45 mm (*).

Figure 3 (A) Chronic granulomatous inflammatory process with necrosis (H&E; ×10). (B) Ziehl-Neelsen—multinucleated cells with acid-fast bacilli (H&E; ×40).

DISCUSSION

We report a case of a young woman admitted to the emergency department, similar to other acute abdomen cases, with typical clinical and radiological findings suggestive of bowel obstruction due to a common aetiology as of internal hernia. However, laparotomy findings were surprising because of the frozen abdomen and pelvis with multiple whitish small plaques in all bowel loops and omentum, which is commonly associated with carcinomatosis. This patient also showed a complex ovarian cystic mass in the CT scan. Even though gynaecologist consultation considered it as a most probable haemorrhagic benign cyst, an ovarian tumour with peritoneal dissemination was a plausible diagnosis which would explain all the clinical, radiological and intraoperative findings.

Figure 4 Thorax CT scan.

Abdominal TB is the most frequent form of extrathoracic tuberculosis.^{7–9} It may manifest with the widest range of clinical presentations: it may present as an acute, subacute or chronic disease; it may manifest with perforation, adhesion, stricture, ascites or peritonitis. Emergency laparotomy may be necessary in 20–40% of the patients who present with acute abdomen.¹⁰ Obstruction due to adhesions and strictures is not infrequent.^{11–14} However, presentation as abdominal cocoon is much less frequent.^{15–16} Among the risk factors for extrapulmonary TB and peritoneal TB, only female gender was in accordance. Our patient is younger than 40 years and has no HIV infection and no history of alcoholism or liver disease.⁹

In this patient, only pathological analysis of the abdominal biopsy specimens was able to distinguish between carcinoma and granulomatous disease. Except for night sweating, clinical, imaging and intraoperative findings were suggestive of peritoneal carcinomatosis secondary to a right ovarian cancer, which would imply a completely different treatment and a worse prognosis.

However, peritoneal TB should always be kept in mind as a possible differential diagnosis of bowel obstruction, particularly in countries with high incidence of the disease.^{17–18}

Learning points

- ▶ Typical clinical presentations for frequent diseases should always be the first diagnosis to be considered. However, less frequent or rare aetiologies should always be kept in mind.
- ▶ Multidisciplinary assessment is the key for success in rare diseases. An efficient communication between surgeons, radiologists, pathologist and infectious diseases physicians was the main factor for a quick aetiological diagnosis and appropriated treatment.
- ▶ One good clinical reason to explain all different findings in one patient should always be preferred. However, in some patients, two or more different aetiologies are present. In this case report, ovarian cancer with carcinomatosis would explain all the findings.
- ▶ Nevertheless, this patient has an atypical presentation of an infrequent disease (adhesive tuberculous peritonitis) and concomitantly a haemorrhagic ovarian cyst, which is frequent. The distinction between them has a relevant impact on survival and quality of life for a given patient.
- ▶ Microbiological confirmation of tuberculosis was not possible in this case because cultural examinations of biopsies were not asked for at the surgical procedure. Considering tuberculosis as differential diagnosis at presentation could have avoided this.
- ▶ In general, antituberculosis treatment should be evidence based and follow clear international guidelines. However, sometimes standard guidelines cannot be followed. In our patient we were obligated to use the parenteral route. There is a need for further research with resultant guidelines for treatment in such cases.

Exclusive parenteral drug therapy in TB has been addressed earlier in case reports, but a series of patients has yet been published and there are no current guidelines on this subject. It should be used in severe forms with intestinal involvement, haemodynamic instability and postgastrointestinal surgery, and in patients with altered intestinal absorption.⁵ Lack of appropriate induction therapy can result in higher risk for treatment failure and multidrug resistance.^{1–6} Exclusive parenteral therapy⁴ or combination of both oral and intravenous drugs⁵ has been successfully used; WHO recommends several intravenous drugs such as amikacin and kanamycin, fluoroquinolones, capreomycin, linezolid, ampicillin-sulbactam and meropenem/imipenem.^{5–6} In the case of intravenous treatment, drugs are easily absorbed, reaching higher concentrations in the target-infected tissues.^{3–4} In this patient after intestinal transit was regained it was possible to switch to oral treatment.

Competing interests None declared.

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