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Peritoneal tuberculosis revealed by a picture of appendiceal peritonitis

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Abstract
Tuberculosis disease is a public health problem in developing countries.
We report the case of a 20-year-old female patient admitted with appendiceal peritonitis.
Surgical exploration made it possible to evoke the diagnosis of tuberculous peritonitis as early as macroscopic examination (Peritoneal granulations). The diagnosis was confirmed by anatomopathological study.
This observation underlines that the treatment is based on quadruple therapy; however, surgery is sometimes necessary.

Keywords: Peritoneal tuberculosis-appendicular peritonitis-anti-tuberculosis treatment-laparotomy

Introduction
Tuberculosis constitutes a truly global pandemic [1].
It is a contagious endemoepidemic disease with essentially human-to-human transmission due to the Mycobacterium tuberculosis complex [1].
In Morocco, a total of 29,327 cases were notified and put under treatment in 2021, as part of the National Anti-Tuberculosis Program (PNLAT) [2].
Peritoneal tuberculosis is the most common abdominal form.
It represents 1 to 6.1% of extrapulmonary tuberculosis and approximately 50% of abdominal locations [3].
We report the case of a 20-year-old female patient admitted with appendiceal peritonitis.

Case report
20-year-old patient, without any significant medical history no notable, was admitted to the emergency room for the right iliac fossa with vomiting.
The clinical examination found a patient in fairly good general condition, with a fever of 38.5 °C.
Abdominal examination reveals diffuse tenderness with localized guarding in the right iliac fossa.
The blood count shows white blood cells at 11,100 elements/mm3, hemoglobin at 11.5 g/dL, platelets at 325,000 elements/mm3 and a PT at 70 percent.
The ionogram reveals a CRP of 151 and normal renal function.
An abdominal ultrasound and an abdominopelvic CT in axial section after injection of the contrast product (Fig.1) are performed.
Abdominal ultrasound revealed a moderate intraperitoneal effusion with finely echogenic content.
Abdominopelvic computed tomography with contrast product injection reveals a swollen laterocoecal appendix measuring 11 mm in maximum thickness with moderate peritoneal effusion associated with significant infiltration of mesocolic fat.
Given this CT appearance, the diagnosis suggested is peritonitis over probable appendicitis.
The patient's conditioning consisted of putting in place a nasogastric tube, a urinary catheter, and good peripheral hydration.
The patient underwent emergency surgery with a midline subumbilical incision.

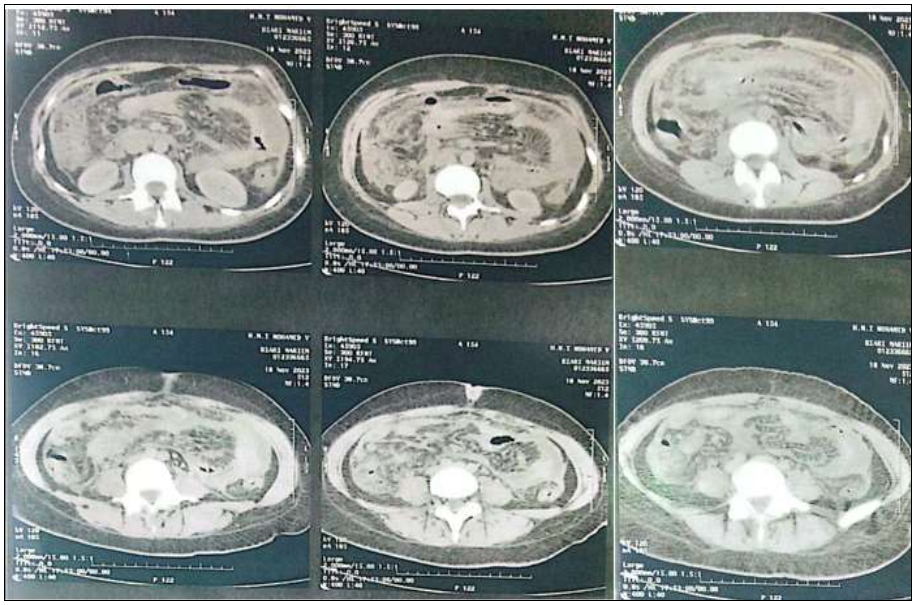

Fig 1: Abdominopelvic CT in axial section after injection of the contrast product.

Exploration reveals a medium abundance sero-hematic peritoneal effusion with granulations of 0.5 to 1 cm in the peritoneum, mesentery, mesocolon, omental, the pouch of Douglas and diaphragm (Fig. 2).

The appendix was normal size with a healthy base (Fig. 2).

A sample of ascites fluid as well as a peritoneal biopsy were taken for cytobacteriological study, Genexpert and histological study.

A peritoneal toilet was subsequently performed followed by parietal closure.

The pathological examination of the peritoneal biopsy came back in favor of epithelioid and gigantocellular granulomatous inflammatory changes with caseous necrosis consistent with tuberculosis.

The diagnosis of tuberculous peritonitis was taken on, and anti-tuberculosis quadruple therapy orally was started with rifampicin, isoniazid, and pyrazinamide and ethambutol for 2 months, then followed by dual therapy based on rifampicin and isoniazid for 4 months.

Fig 2: Operative images showing the sero-hematic peritoneal effusion, the appendix and the peritoneal granulations.

Discussion

Abdominal localization is the third most common form of extrapulmonary tuberculosis.

Peritoneal and ileocecal involvement represent the two most common abdominal forms.

They are characterized by the diversity of their clinical and radiological aspects [3].

Tuberculous peritonitis is a primary peritonitis found during medical illnesses.

In these conditions, seeding of the peritoneal cavity results from the passage of bacteria hematogenously or by translocation to the peritoneal cavity. They are the consequence an alteration of antibacterial defense mechanisms, mainly affecting the reticuloendothelial system, the function of polynuclear neutrophils (PNN) and mechanisms of humoral and cellular immunity [7].

The most common clinical signs are abdominal pain and fever.

They are associated with other general signs such as non-selective anorexia, weight loss or diarrhea.

The physical examination often reveals ascites which is of medium abundance and more rarely of low or even high abundance [5].

Peritoneal tuberculosis can manifest itself in three forms: a productive form with ascites of variable abundance, a so-called fibroadhesive or dry form with peritoneal thickening associated with granulations and adhesions, and a tumor form producing masses associated with ascites partitioned [6].

Other clinical forms can be indicative: this is the case of the pseudosurgical form which can perfectly simulate acute peritonitis, appendicular syndrome, intestinal obstruction or a clinical picture of cholecystitis [6].

The ultrasound appearance is in the form of a heterogeneous intra-digestive formation, or in the form of a hyperechoic image with a posterior shadow cone, resembling an intradigestive stone; But its sensitivity would be poor, of the order of 20 to 60% [6].

The diagnostic approach remains a problem because the usual biological methods, including the isolation of BK are rarely contributory.

The IDR is difficult to interpret because it is often negative in immunocompetent subjects with documented tuberculosis. Depending on the studies, the sensitivity of IDR varies between 14 and 100%. Interferon gamma release tests (QuantiFERON®or ELISpot TB®) are often contributory factors in extrapulmonary tuberculosis in

immunocompetent subjects. Their sensitivity varies from 40% in peritoneal forms to 100% in intestinal forms, for an overall specificity of around 80% [4].

The search for Koch's bacillus in ascitic fluid on direct examination is very often disappointing, its sensitivity being estimated between 0 and 6%.

A selective culture medium has better sensitivity with a positivity rate of up to 35%. [6].

Measuring adenosine deaminase activity in ascitic fluid has good diagnostic value [6].

The cut-off value used for the diagnosis of peritoneal tuberculosis varies depending on the study.

A value of 30 IU/l is generally accepted as a positivity threshold [6].

Laparoscopy is the most effective diagnostic method for peritoneal tuberculosis.

It is currently carried out by laparoscopic surgery in equipped centers.

Laparoscopy with biopsy makes it possible to make the diagnosis of peritoneal tuberculosis in 85 in 90% of cases [6].

It allows highlighting three types of lesions: peritoneal thickening associated with granulations which are typical, raised, of uniform size, "pinhead", or "millet", whitish, translucent and surrounded by an inflammatory halo, and ascites in 61% of cases, peritoneal thickening with adhesions and ascites in 21% of cases, and a fibroadhesive appearance with a very thickened peritoneum with yellowish nodules and adhesions giving an appearance of "cheese" [6].

The differential diagnosis of peritoneal tuberculosis must be made with other causes of ascites, particularly inflammatory, but especially with peritoneal carcinomatosis [8].

The treatment of this tuberculous peritonitis consisted of two parts: the treatment emergency surgical treatment of peritonitis and antibacterial treatment.

The use of surgery was undertaken due to the surgical presentation [4].

The antibacillary chemotherapy protocol is the same as that of the national tuberculosis control program.

This patient was treated according to the 4RHZE/2RH protocol (Treatment duration of six months) [9].

The development was favorable.

The prevention of abdominal tuberculosis is based on the comprehensive fight against tuberculosis [10].

Conclusion

Peritoneal tuberculosis is the most common abdominal form, however, tuberculous peritonitis is a rare manifestation.

Surgery remains important in the event of complications.

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