# Atypical presentation of Tuberculous Peritonitis: a case report.

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# Abstract

**Background.**

We report a case of tuberculous peritonitis in a 46 year-old North African male patient.

**Case presentation.**

Relentless hiccup, dyspepsia, anorexia and weight loss were the chief complaints. Physical examination revelead only abdominal distension, suggesting ascites. Ultrasound tomography and computed tomography scan of the abdomen showed massive ascites but no enlargement of the liver or the spleen. Diagnostic laparoscopy revelead a large macro and micro-nodular degeneration of the peritoneum similar to a massive carcinomatosis, but the histological examination showed epitheloid granuloma with Langhans type-giant cells with area of caseous necrosis. Repeated tests for mycobacteria, including Protein C Reactive, were negative; however, the diagnosis of tuberculous peritonitis was made, and the ascites responded rapidly to antimycobacterial therapy; the other symptoms gradually subsided.

The patient was symptom-free after 6 months.

**Conclusion.**

Peritoneal tuberculosis is particularly uncommon in European countries.

However, its incidence is growing due to the continuous immigration of people coming from tuberculosis endemic areas.

In the case report described, the clinical presentation of the disease is fairly original.

This case study may be an example of how is difficult the diagnosis of peritoneal tuberculosis,

and explains why it should include laparoscopy with peritoneal biopsy as gold standard in any cases of clinical suspicion.

Furthermore it is clear that the semiological marker was represented by the ascites and above all by the persistency of the hiccuping which gradually disappeared during antitubercolar therapy and with the improvement of the ascites.

# Introduction

Tuberculosis causes some 3 million deaths per year worldwide and is increasing in incidence in developed and developing countries.

Abdominal tuberculosis, which may involve the gastrointestinal tract, peritoneum, lymph nodes or solid viscera, constitutes up to 12% of extrapulmonary TB and about 3% of the total cases [7].

The disease can mimic many conditions, including inflammatory bowel disease, malignancy and other infectious diseases [9].

Diagnosis is therefore often delayed, even though it is known that the peritoneum is one of the most common extrapulmonary sites of tuberculous infection [13].

The clinical case presented here explains the clinical aspects and diagnostic problems with the management of patients affected by tuberculous peritonitis.

# Case presentation

In October 2006, the author visited a 46 year old immigrant Moroccan for the first time.

The patient reported having suffered from 4-6 months of a relentless hiccup, irregular dyspeptic illness, a lack of appetite, a tense, but not painful, abdomen and weight loss.

He did not report fever or sweating.

The examination showed the presence of hard, non painful bilaterally enlarged, lymph nodes in the inguinal and axillary sites, and abdominal distension that suggested an ascitic fluid collection.

No cardiovascular signs or symptoms were present.

An abdominal ultrasound examination ( see Figure 1) confirmed the presence of ascites, but there was no enlargement of the liver or the spleen.

In summary, an ascitic fluid collection with no signs of portal hypertension was present.

The patient was admitted to hospital, where further diagnostic procedures were performed including: an oesophagogastro-duodenoscopy (OGD-scopy) showing signs of Helicobacter Pylori positive and erosive gastritis, and colonoscopy showinga villous adenoma with low grade dysplasia.

A chest and abdomen computed tomography ( see Figure 1) revealed bilateral apical scarring of the lung parenchyma and absence of hilar and mediastinal lymphoadenomegaly, while confirming the presence of abundant ascitic fluid.

No significant alterations were seen in the remaining organs.

Blood investigations showed normochromic and normocytic anaemia (Hgb 10,6 gr/dl), low iron and normal ferritin.

Transaminases were slightly high, while indexes of inflammation were consistently high, with CRP values between 3.4 and 4.3 mg/dl, D-Dimer 1187 ng/ml, and ESR 42.

A Mantoux intradermal reaction was positive (8 mm), while an HIV test, tumor markers and serologies for Hepatitis were negative.

The following tests were normal: Rheumatoid test( Anti-nuclear Antibodies, Antimitochondrial Antibodies, Anti–smooth muscle Antibody, Liver-Kidney-Microsome Antibodies, Anti-neutrophil cytoplasmatic Antibodies), antiphospholipide Antibodies and circulating immunocomplex and complement factors.

Examination of the ascitic fluid, was positive to alkaline reaction and the Rivalta test, with a protein content of 65.3 g/l.

Microscopical examination of the sediment revealed the presence of erythrocytes, leukocytes with predominantly mature lymphocytes (lymph:80%) and a total amount of polymorphonuclear leukocytes of 1100 n°/mmc.

Direct bacterioscopy and cultures for mycobacteria were consistently negative. Cytological analysis for atypical cells was negative.

The average albumin in the ascitic fluid was 3.2 g/dL, while the average albumin in the serum was 2.8 g/dl; therefore, the serum ascitic albumin gradient (SAAG) was 0.4g/dl.

M. tuberculosis PCR (Polymerase Chain Reaction), performed in a laboratory at another local hospital, was negative.

A biopsy of two small lymph nodes in the left inguinal side showed only aspecific reactive inflammation.

The patient was discharged from the hospital after 32 days with a diagnosis of "ascites of uncertain nature and signs of inflammation".

Radiographic examination of the small intestine, was negative.

A laparoscopy with directed peritoneal biopsy, which is thought to be the best diagnostic procedure for tuberculosis peritonitis, was subsequently performed in another hospital. Laparoscopy of the abdomen revealed a large macro and micro-nodular degeneration of the visceral and parietal peritoneum, and the presence of plaques and omental thickening, interpreted macroscopically to be similar to a massive peritoneal carcinomatosis.

Histological examination of the peritoneal biopsies showed epithelial granuloma with the presence of Langhans type-giant cells and a wide area of caseous necrosis, but without acid-fast bacilli (see figure 2).

Cytological examination of the ascitic fluid showed the presence of inflammatory cells, predominant lymphocytes, monocytes and a low amount of polymorphonuclear cells, similar to Langhans cells (see Figure 2).

The patient was dismissed with a final diagnosis of massive peritoneal tuberculosis.

During a short period of hospitalization in the Infectious Disease Department, the patient was started on a four-drug regimen of isoniazid, rifampicin, pyrazinamide and streptomycin.

During the final stay in the hospital, direct examination and cultures of urine, faeces and sputum for mycobacteria were performed, but were negative.

After administration of the last treatment with streptomycin, the patient was dismissed in good general conditions, with maintenance therapy and a follow up protocol.

# Discussion

Abdominal Tuberculosis has diverse and non-specific symptoms.

No single test is adequate for the diagnosis of abdominal tuberculosis in all patients.

Diagnosis of abdominal TB in non-HIV patients remains an ongoing dilemma requiring a high index of clinical suspicion [12].

Tuberculous peritonitis (TP) constitutes up to 1 % of all causes of ascites.

TP is an exceptionally rare disease in the Western world, but is still present in Africa and developing countries, where a preponderance of young females are affected [15].

Abdominal tuberculosis can be diagnosed by culture growth of Mycobacterium Tuberculosis in the ascitic fluid or the presence of caseating granuloma, with or without positive smear for acid-fast bacilli, in biopsy specimens obtained by laparotomy.

Laparoscopy with directed biopsy is currently the best way to make a rapid specific diagnosis [10].

A diagnosis of tuberculous peritonitis is highly probable if the patient responds to antituberculous drug treatment with no recurrence.

PCR analyses for the M. tuberculosis complex in ascitic fluid is a rapid test to obtain a diagnosis, but with low accuracy.

Ascitic fluid adenosine deaminase (ADA) activity has been proposed as a useful diagnostic test for abdominal TB with good accuracy [15].

It is known that tuberculous peritonitis often manifests without any evidence of other sites of tuberculous infection[4].

In our patient, the signs and symptoms observed were generally in line with those of other reports on the presence of ascites.

As reported in the literature, a positive result from the Mantoux test is another diagnostic sign [6].

Moreover, the presence of predominantly lymphocytes in the ascitic fluid and polymorphonuclear leukocytes in amounts up to 250 cells/$mm^3$ is evidence of infection.

The majority of cases reported in the literature, like our report, were diagnosed via laparoscopy with directed biopsy of the peritoneum [2].

Even though it is a relatively rare disease, abdominal tuberculosis requires a high index of clinical suspicion, , particularly in case of ascites of uncertain nature without signs of portal hypertension [11] and cardiac insufficiency, and in the presence of lymphocytes in the ascitic fluid and a serum ascitic albumin gradient (SAAG) of less than 1.1g/dl.

A delay in diagnosis could be fatal [5].

Abdominal tuberculosis must be suspected if the patient is an immigrant from countries with a high prevalence of the disease, for example African countries such as Morocco [8].

In accordance with our clinical report, the gold standard for diagnosis of peritoneal tuberculosis infection is laparoscopic surgery with peritoneal biopsy [10].

This technique allows to examine and explore the peritoneum, and particularly, to obtain bioptic specimens for the subsequent histological examination (necessary for a definitive diagnosis and specific therapy [3]).

The only treatment for peritoneal tuberculosis is pharmacological.

The first-choice regimen is represented by five drugs: isioniazid, rifampicin, pyrazinamide, ethambutol and streptomycin.

The efficacy of the therapy is determined by the resolution of symptoms and the disappearance of ascites.

A delay in initiating therapy has been associated with higher mortality rates [5].

Although the current recommendations on the time of therapy suggest a pharmacological treatment of six months, other studies suggest continuing therapy for twelve months.

The only study that has compared different times of therapy (9 to 12 months) found no difference in the outcome between the two groups [1].

After two months of treatment for tuberculosis, our patient showed a significant improvement in his general condition.

Also, markers of inflammation returned to normal and ascites disappeared almost completely.

We are thus confident that, given the favourable evolution of the disease, the prognosis for our patient is now good.

The treatment of our patient with standard antituberculous therapy for six months should lead to definitive recovery.

# Conclusion

Peritoneal tuberculosis is particularly uncommon in European countries.

However, its  incidence is growing due to the continuous immigration of people coming from tuberculosis endemic

areas.

As a consequence, the diagnosis of such a disease is not immediate or easy in those countries where infectious diseases are thought to have been eradicated.

In the case report described, the clinical presentation of the disease is fairly original.

In the first phase there was incoercible hiccupping, which proved to be the main clinical sign of the course of the illness during treatment.

It is clear that the diagnostic gold standard of non specifically diagnosed ascitic effusion is laparoscopy with a possible biopsy; however, in this case peritoneal tuberculosis might also have been hypothesized on the basis of anamnesis and ascitic effusion, and, above all, on the basis of the presence of lymphocytes in the exudates.

Peritoneal biopsy was only performed in a second phase for diagnostic certainty as during the first hospitalization no diagnosis had been made and the patient had been discharged with generic instructions and with no indications of any specific treatment.

In conclusion, this case study may be an example of how is difficult the diagnosis of peritoneal tuberculosis, and explains why it should include laparoscopy with peritoneal biopsy as gold standard in any cases of clinical suspicion.

Furthermore, in the case considered, it is clear that the semiological marker was represented by the ascites and, above all, by the persistency of the hiccuping which gradually disappeared during antitubercolar therapy and with the improvement of the ascites.

**Abbreviations:**

TB (Tuberculosis), TP (Tuberculous Peritonitis), CRP ( C-reactive protein), OGD-scopy (Oesophagogastro-duodenoscopy), ESR (Erythrocyte Sedimetation Rate), SAAG (Serum ascitic albumin gradient), PCR (Polymerase Chain Reaction), ADA (Ascitic fluid adenosine deaminase), HIV (Human Immunodeficiency Virus)

"Written informed consent was obtained from the patient for publication of this case report and any accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal."

## Authors' declarations:

'The authors declare that they have no competing interests'.

1) Massimo Bolognesi:

I declare that I participated in the clinical examination, management and follow up of the patient described, and that I have seen and approved the final version.

Signed _____**Massimo Bolognesi**_____

2) Paolo Tomasi:

I declare that I participated in the clinical examination, management and follow up of the patient described, and that I have seen and approved the final version

Signed _____**Paolo Tomasi**_____

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Figure 1)
Abdominal US scan showed abundant ascites, with no other significant pathology

Abdominal TC scan confirming the presence of abundant ascitic fluid and no significant alterations in the remaining organs

Figure 2)
Ascitic fluid cytology: abundant lymphocytes are present, along with Langhans-like polynucleated cells

Peritoneal biopsy: cluster of epithelioid lymphocytes, with Langhans-type giant cells and a wide area of caseous necrosis



Figure 1