

*Disseminated peritoneal mycobacteriosis: what treatment is more appropriate?**

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Abstract

The optimal treatment of rapidly growing mycobacterial disseminated infections remains poorly established. Combined medical and surgical therapy seems to produce great results, but the increased risk of complications due to multiorganic resections keeps the correct treatment a matter of controversy. The aim of this paper is to report a case of disseminated mycobacterial infection treated with radical surgery plus antibiotic therapy and to discuss the role of surgery in this setting.

Keywords: *Mycobacterial disseminated infections – Surgery – Antibiotic therapy.*

INTRODUCTION

Mycobacterium Fortuitum, Mycobacterium chelonae and Mycobacterium abscessus are referred to as atypical mycobacteria or non-tuberculous mycobacteria (NTM). NTM are a rapid growing mycobacteria and have clinical presentation with formation of located abscesses and chronic ulcers^{1,2}. Currently, this species is been classified in different

categories, because they present different levels of sensitivity to the drugs. Therefore, the species' identification is crucial for the correct therapeutical handling³⁻⁵.

These mycobacterias are frequently found in soil and natural water supplies. Investigations of some nosocomial outbreaks caused by these species have suggested that tap water and distilled water used for dialysis or preparing surgical solutions may

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be the sources of these organisms. They are saprophytic but can be opportunistic and sometimes deadly pathogens.

NTM have been isolated from various sites and procedures such as cutaneous and soft tissue infections after skin injury following inoculation, minor trauma and surgery, including plastic surgery procedures, median sternotomy and rhinoplasty. The clinical presentation can be localized or systemic infection, depending on the patient's immunity condition⁶⁻⁸.

Several cases of surgical site infections have been described in literature, most of them in India⁶. These infections have been reported in Brazil since 1994. The Rio de Janeiro State Health Organization reported, so far, 938 cases of surgical site infection due to NTM after laparoscopic surgery. This occurrence can be explained by the contamination of the surgical instruments due to outbreaks in the sterilization techniques used in the operation theatre⁹.

The disseminated disease is still a controversial subject and there is no consensus concerning the proper antibiotic schedule and the role of surgical resection in peritoneal NTM infection treatment.

The aim of this paper is to report a case of disseminated mycobacterial infection treated with radical surgery plus antibiotic therapy and to discuss the role of surgery in this setting.

CASE REPORT

We report a 52-year-old woman who presented hematoquezia and weight loss of approximately 7kg in April 2006. She had the diagnosis of colon cancer (moderately differentiated sigmoid adeno carcinoma). The patient underwent laparoscopic colectomy in July 2006 at the General Surgery department (Hospital Geral de Bonsucesso – Rio de Janeiro, Brazil). The final pathological stage was T4N1M0 (3 positive lymphnodes out of 18).

Adjuvant chemotherapy was performed with 5FU 700mg + Leucovorin 35mg weekly, during 6 months, initiated in August 2006. During follow up, hardened nodules were detected, in the laparoscopic ports that presented seropurulent secretion. A resection of the ports was performed in

January 2007, and the histopathology examination showed mixed suppurative-granulomatous reaction with giant cells and negative microscopic acid-fast bacilli. The culture demonstrated *Mycobacterium fortuitum*, and treatment was initiated with clarithromycin + ethambutol+ terizidon. Later on, the patient presented tomographic images of small nodules topographically placed just above the liver segment 3 (Figure 1), plus pelvic mass and multiples peritoneal nodules (Figure 2). Colonoscopy examination showed stenosis of the previous colon-rectal anastomosis

The patient was submitted to an exploratory laparotomy in September 2007 that demonstrated some peritoneal nodules, (Figure 3; Figure 4), suggestive of granuloma, plus intense inflammatory pelvic reaction, causing stenosis of the colon-rectal anastomosis. A 2,5cm granulomatous nodule was also visualized on the esplenic capsule. We performed resection of the peritoneal nodules, resection of the previous colon-rectal anastomosis, total hysterectomy+ bilateral salpingo oophorectomy + enterectomy. Also, decided not to perform esplenectomy because it would extend the surgical procedure time and also because we thought that being a small nodule, it could be reduced with antibiomatic treatment.

The histopathology findings were as follows:
1-Peritoneal nodules: abscessed granulomatous inflammatory compatible with infection by mycobacterium of the complex *Mycobacterium Fortuitum*.

2- Segment of small intestine: granulomatous peritonitis.

3- Uterus, ovarium and rectum: granulomatous serositis in rectum wall; chronic cervicitis; atrophic endometrium; escleratrofific ovarium; chronic salpingitis.

A 6 weeks treatment with Clarithromycin + Amikacin + Cefoxitin was initiated and in February, 2008, the patient was reoperated because of multiple hepatic metastasis and for the closure of the colostomy. Small granuloma nodules (< 5mm), found in the peritoneum, were resected and splenectomy was performed to treat the nodule (about 3,0cm) found on the esplenic capsule (located at the same place it was found on the previous surgery). The pelvis didn't show any evidence of granulomatosis disease.

Figure 1. Abdominal CT showing granulomatosis disease located at the peritoneo just above liver segment III (white arrow).

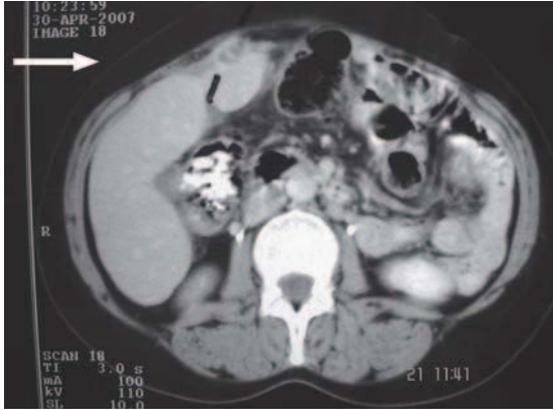


Figure 2. Abdominal CT showing granulomatosis disease near the left diaphragmatic dome (white arrow).

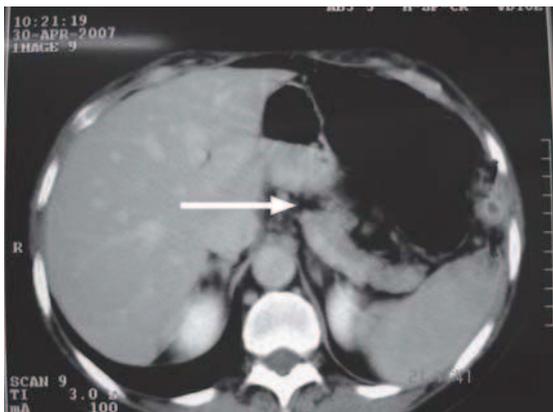


Figure 3. Resection of the granulomatosis disease located at liver segment III.

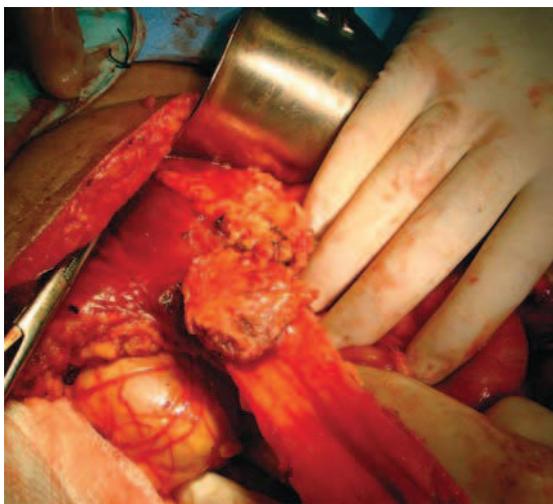


Figure 4. Resection of the granulomatosis disease adhered to the small bowel.



Figure 5. Microscopy (40x) showing granuloma with necrotic center surrounded with peritoneal fat.

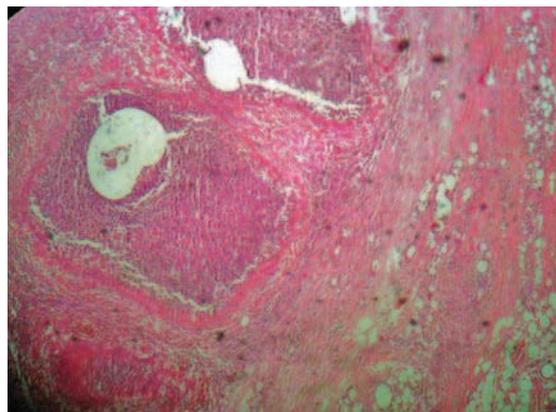
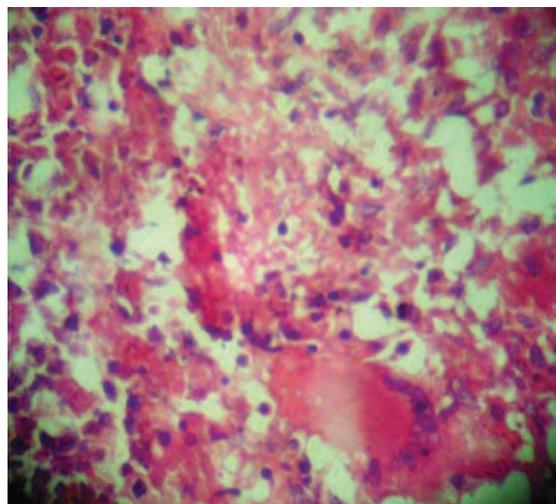


Figure 6. Microscopy (400x) showing giant multinucleous cell in granuloma.



DISCUSSION

For being a very uncommon illness, the diagnosis of the infections caused by atypical mycobacteria is usually delayed, increasing the number of serious cases.

The identification of the species still presents technical difficulties since the lab methods are laborious taking a great amount of time for the final result of the cultures, needing several biochemistry proofs associated with molecular techniques as the analysis of the genetic sequence of 16rRNA and PCR¹⁰.

In patients with disseminated illness or in immunosuppressed, the monotherapy induces to drug resistance and that resistance leads to the choice of a scheme with polymicrobial flora influence.

Many antibiotics were tested and, in most of the series, the ones which presented the best susceptibility were the aminoglycosids, the imipenem, the ethambutol and some quinolons. The treatment period and the best therapeutic scheme are still uncertain¹⁰⁻¹⁵.

The rationale of the surgery resection has, as theoretical basis, the reduction of bacterial population, which would contribute for the reduction of resistant cepas' development and would optimize the efficiency of the antibiotic therapy. Moreover, the resection of the intra-abdominal lesions would avoid complications

related to intense inflammatory reaction caused by the bacteria, as we could see in the related case, where a stenosis of the colon-rectal anastomosis was provoked by the granulomatous' inflammation. On the other hand, in these cases, the surgery resection is related to high morbidity due to the great technique difficulties initiated by the peritoneal inflammatory process produced by the presence of the mycobacteria. (The surgical procedure in this related case took approximately 10 hours).

The finds of the second laparomy give the impression that surgery played pivotal role in the treatment of disseminated peritoneal mycobacterial infection because we could see no inflammatory reaction in the pelvis (where we performed aggressive resection) and only few small peritoneal nodules (< 5mm). On the other hand, the granulomatous' splenic nodule did not respond to antibiotic therapy alone and it was necessary to perform splenectomy in the second procedure.

Despite the apparent benefit using surgery in the disseminated peritoneal mycobacteria treatment, there are few facts in literature concerning this therapeutic approach. In this way, the ideal handling in these situations is not defined yet, contributing for the therapeutic decision to be individualized, considering the clinical condition of the patient, his basis disease and the risk/benefit of this aggressive surgical treatment.

Mycobacteriose peritoneal disseminada: que tratamento é o mais apropriado?

Resumo

A infecção por *Mycobacterium Fortuitum*, *Mycobacterium chelonae* e *Mycobacterium abscessus* após procedimentos cirúrgicos tem despertado o interesse de cirurgiões e infectologistas brasileiros, uma vez que, recentemente, houve inúmeros casos após procedimentos videolaparoscópicos, em diversas cidades brasileiras. Trata-se de um caso de uma paciente de 52 anos que foi contaminada pela *Mycobacterium Fortuitum*, após uma colectomia videolaparoscópica, devido à adenocarcinoma de cólon sigmóide. Essa paciente foi submetida a tratamento cirúrgico (com ressecção multiorgânica) e a antibioticoterapia prolongada. Aspectos como o esquema antibiótico e sua duração, o papel da cirurgia com ressecção multiorgânica e os métodos diagnósticos ainda são temas controversos, devido à pouca experiência em se tratar a micobacteriose com extensão peritoneal.

Palavras-chave: Micobacteriose peritoneal – Infecções disseminadas – Cirurgia – Antibioticoterapia.

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Recebido em / Received: 10/09/2009
 Aceito em / Accepted: 19/12/2009