

# Abdominal mycobacterial infection in acquired immunodeficiency syndrome patients

*Emergency Service of the Hospital Ipiranga - São Paulo, Brazil*

The authors studied 12 patients with AIDS and abdominal mycobacteriosis hospitalized in the Hospital Ipiranga (São Paulo, Brazil), from June 1989 to January 1992. Diagnosis was confirmed by the histopathological examination of organ specimens collected during laparotomy, which, in most cases, was carried out due to an emergency situation. Observations included perforation of the ileum, seropurulent fluid involved and blocked by viscera, epiploon, and fibrin. Hepatoesplenomegaly was present in all patients and generalized granulomatous peritonitis was observed in more than 50%. A patient died in the immediate post-op period, four after an average period of 55 days in the hospital. A patient evolved with stercoral fistula and asked to be discharged. Six patients were discharged after an average hospitalization period of 27 days. The authors stress that in developing regions where tuberculosis incidence is high, a patient with AIDS and a painful and irritative abdominal picture should always lead to the hypothesis of mycobacteriosis.

**UNITERMS:** Abdominal tuberculosis. Tuberculosis and Aids. Abdominal mycobacteriosis. Surgery and Aids. Abdominal Infection and Aids.

## INTRODUCTION

In First World countries, abdominal mycobacteriosis is very seldom observed in non-immunosuppressed patients (3,11,12).

The peritoneal involvement by mycobacteria occurs more often in regions where environmental sanitation is deficient (7,17).

The resurgence of tuberculosis in general, atypical bacillar forms and their dissemination particularly in the abdomen, can be related to the boom of AIDS epidemics and the deterioration of living conditions of minorities that took place in the last decade (6,7,15,16).

Major challenges presented to clinical evaluation are the very little elucidative clinical picture of abdominal mycobacterioses and the need for an early diagnosis, in order to revert the prognosis.

This retrospective study of abdominal bacterial infections in patients with AIDS, treated in the Hospital Ipiranga, in the last three years, is an attempt to bring to the surface important aspects of this association in our environment.

## METHOD

Among patients seen at the Emergency Service and Infectious Disease Service of Hospital Ipiranga, from July 1989 to January 1992, 12 were diagnosed as having Acquired Immunodeficiency Syndrome and abdominal mycobacteriosis.

### **Address for correspondence:**

Ruggero Bernardo Guidugli  
Av. Nazaré, 28 - Ipiranga  
São Paulo - SP - Brasil - CEP 04262-000

The diagnosis of AIDS was established in accordance with the criteria of the CDC in Atlanta (4,5). The diagnosis of abdominal mycobacteriosis, on the other hand, was confirmed by histopathological examination of specimens obtained from abdominal viscera, during laparotomy.

In 9 patients, the surgery was performed as a result of acute abdomen, promptly diagnosed in the Emergency Sector. Infusion of liquid and electrolytes was given; blood was collected for blood count, biochemical profile and determination of clotting factors. A plain X-ray was used in the exam of chest and abdomen, the patient being then referred to the Surgical Center for laparotomy.

In 3 patients, surgery was carried out for primary diagnosis purposes, as a painful and progressive abdominal picture evolved during hospitalization in Infectious Disease Ward. Laparotomy became mandatory after the non-invasive image diagnostic procedures (ultrasound, CT scan) had been used, suggesting ganglionic masses, accumulation of fluid in the abdomen or even sub-occlusive situations.

A systematic exploration of the abdominal cavity was made during surgery. When perforations were located in hollow viscera, sutures with non-absorbable material were made. Fluid accumulations were drained, organs were biopsied when there was a suspicion of their involvement, and the cavity closed by separate planes.

Patients in a critical situation during the post-op period were referred to the Intensive Care Unit. Stable patients followed the routine treatment in the Infectious Disease Ward.

After the histopathological result was obtained, specific treatment with hydrazid, pyrazinamide, and rifampycin was started. If the slide examination suggested an atypical mycobacteriosis, therapy would include rifampycin, isoniazid, ethambutol, clofazimine and ciprofloxacin.

Patients that had been hospitalized due to emergency were still being investigated for the other pathologies of the syndrome. The nutritional status was not overlooked; many patients had to receive enteral and parenteral nutrition due to the extreme cachexia and the prolonged ileum.

Although all patients discharged from the hospital received instructions to attend the Infectious Disease Ambulatory, many did not. Some preferred to be followed-up at the AIDS Reference and Training Center of the Health Secretary that referred them to us for hospitalization.

## RESULTS

### *Patients Data*

Twelve patients underwent surgery, 8 males and 4 females, ages between 21 years and 38 years. All belonged to some risk group for AIDS: 9 were IV drug users and 3 homosexuals (Table I).

**Table I**  
Patients with AIDS and abdominal mycobacteriosis that underwent surgery in Hospital Ipiranga, July 1989 to January 1992

Patient	Date of Surgery	ID Number	Age	Sex	Risk Factors	
1	PTS	07.21.89	53.759	31	M	Toxicomania
2	ATS	07.24.89	56.077	20	M	Toxicomania
3	SB	07.27.90	67.138	26	F	Toxicomania
4	LCA	10.30.90	71.745	28	M	Homosexuality
5	RIR	02.22.91	75.752	21	M	Homosexuality
6	MTS	02.22.91	75.765	23	M	Toxicomania
7	DLF	03.04.91	78.033	23	M	Homosexuality
8	AMRM	06.20.91	83.055	22	F	Toxicomania
9	MLC	08.13.91	84.087	21	F	Toxicomania
10	HM	09.30.91	74.598	38	M	Toxicomania
11	EAA	10.10.91	67.210	29	F	Toxicomania
12	MR	12.01.92	90.420	24	M	Toxicomania

### Preoperative Clinical Picture

All patients had a poor general state, weight loss and hyperthermia. Anemia was constant and leucopenia predominates over leucocytosis. Three had also pulmonary tuberculosis, demonstrated by bacteriological examination of sputum (Table II).

In the emergency cases, the clinical picture of acute abdomen was characteristic (pain, distension/rigidity, sudden painful decompression, vomiting, non-elimination of gases and feces).

Patients who underwent laparotomy for primary diagnostic purposes had the abdomen in a dangerous situation, but with less intense manifestations. Imaging diagnosis suggested the presence of masses, fluid accumulation, and fluid/air levels in some cases (Figure 1) (Table III).

### Laparotomy Findings

The laparotomy incisions were paramedial on the right side, as symptoms were predominant on this side of the abdomen. In 4 emergency cases, there was perforation of the terminal ileum (Table IV).

The small intestine loops were thickened, their mesenterium with a large number of lymphonodi and much fat tissue.

The perforations, which had granulous borders and approximately 3 mm, were partially blocked by fibrin and by the entanglement of the gut, mesenterium and epiploon that circumscribed areas with major caseous necrosis.

This aspect of twisted and thickened loops would also be responsible for the abdominal distention present in 11 patients (Table III). In the forms described as "dry", the fibrin layer formed a thick outer layer making it difficult to identify the site of leakage or fistulization.

A citron yellow ascites, free or blocked by thickened loops, and marked by intense edema and congestion characterized the "humid" form.

The mesenteric adenitis present in 7 patients was seen as a large volume mass, formed by adhered lymphonodi projecting the posterior peritoneum.

In the elective laparotomies, efective perforation was not observed, but areas of caseous necrosis were present in hollow viscera with intense surrounding inflammatory area to which the epiploon had moved, attempting to block it.

The same blockage also delimited the fluid collection resulting from exsudation and rupture of caseous nodes.

A moderate to volumous hepatosplenomegaly was observed in all patients and in 50% of patients the peritoneal serosa was speckled by caseous microgranules. Figure 2 illustrates these findings.

### Histopathological findings

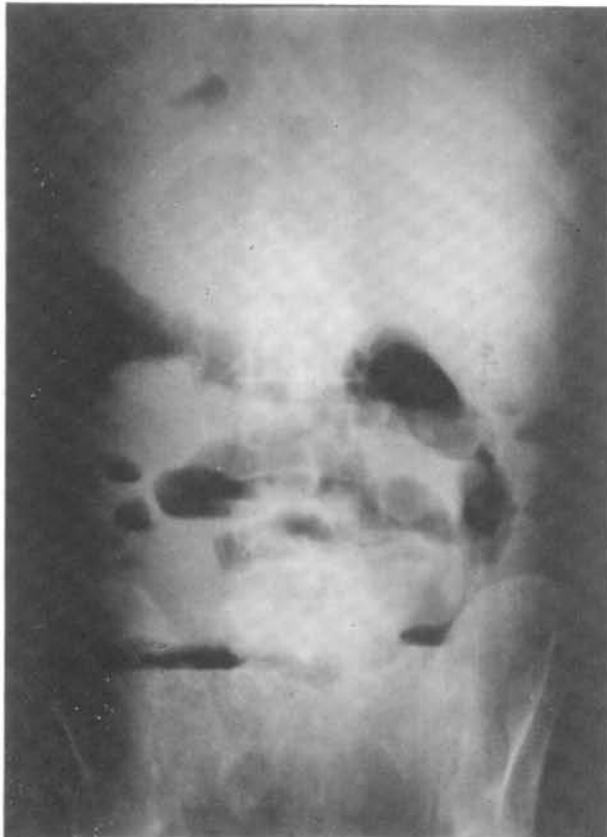
Material sent to histological examination was mainly lymphonodes. Four of them (57%) showed extense areas of caseous necrosis, with little surrounding epithelioid granulomatous reaction and rare Langhans-type giant cells. This picture was also seen in the examination of

**Table II**  
Patients with AIDS and abdominal mycobacteriosis that underwent surgery in Hospital Ipiranga, July 1989 to January 1992

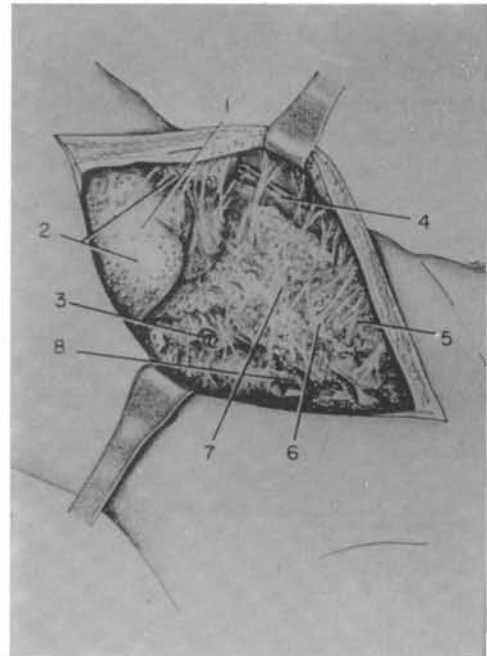
Temperature and hemogram at admission. Koch bacillus (KB) in sputum confirmed later.						
Patient	Temperature	Hemogram			KB in sputum	
		Ht	Hb	G.B.		
1	37.4	38	11.5	2.300	-	
2	39.0	16	5.1	2.860	+	
3	37.8	25	7.8	6.200	-	
4	39.0	23	7.7	6.000	-	
5	38.4	28	8.1	9.300	-	
6	38.0	35	10.0	4.300	+	
7	37.8	26	6.1	2.400	-	
8	37.7	18	7.2	3.100	-	
9	37.1	23	7.6	3.700	-	
10	37.8	37	11.8	4.160	+	
11	38.0	18	6.2	1.600	-	
12	37.6	22	5.2	4.100	-	

**Table III**  
**Patients with AIDS and abdominal mycobacteriosis that underwent surgery in Hospital Ipiranga, July 1989 to January 1992**

Patient	Type of surgery	Diagnostic (D) or emergency (E) surgery, abdominal signs before surgery				
		Pain	Distension	Rigidity	Nausea/ Vomiting	Interruption of gas and feces elimination
1	U	+	+	+	+	+
2	U	+	-	+	+	+
3	D	+	+	-	-	-
4	U	+	+	+	+	+
5	U	+	+	+	+	+
6	U	+	+	+	+	+
7	U	+	+	+	+	-
8	D	+	+	-	+	-
9	D	+	+	-	-	-
10	U	+	+	+	+	+
11	U	+	+	+	+	+
12	U	+	+	+	+	+



**FIGURE 1** - Plain X-ray of the abdomen of a patient with AIDS and abdominal mycobacterial infection. Observe the fluid/air levels as a consequence of a subocclusion and density increase, suggesting the presence of fluid samples in the cavity.



**FIGURE 2** - Abdominal Mycobacterial Infection In Patients With Aids

**Surgical findings**

1. parietal and visceral peritoneum speckled by granulomas
2. Hepatoesplenomegaly
3. Hypertrophy of the mesenteric lymphonodi
4. Septate fluid accumulations (ascites or seropurulent secretions)
5. Fibrin adhesences and septations
6. Increase of mesenteric fat
7. Fistula and perforations of hollow viscera blocked by epiploon
8. Hypertrophy, stenosis and entanglement of the terminal ileum

**Table IV**  
**Patients with AIDS and abdominal mycobacteriosis that underwent surgery in Hospital Ipiranga, July 1989 to January 1992**

Indication for laparotomy and surgical finding		
Patient	Indication	Surgical finding
1	Perforated acute abdomen	Perforation of terminal ileum with blockage
2	Perforated acute abdomen	Perforation of terminal ileum with blockage
3	Diagnosis	Granulomatous peritonitis, mesenteric lymphadenitis, ascites
4	Inflammatory acute abdomen	Supuration of lymphonodus, granulomatous peritonitis
5	Perforated acute abdomen accumulations	Several perforations at the terminal ileum, blocked fluid
6	Inflammatory acute abdomen	Supuration of lymphonodus, granulomatous peritonitis
7	Perforated acute abdomen + obstruction	Hyperplastic ileitis with fistula, granulomatous peritonitis, ascites
8	Diagnosis	Granulomatous hepatitis, mesenteric lymphadenitis, ascistis
9	Diagnosis	Volumous mesenteric and retroperitoneal lymphadenitis, ascites
10	Inflammatory acute abdomen	Granulomatous peritonitis, granulomatous hepatitis, ascites, lymphadenitis
11	Inflammatory acute abdomen	Granulomatous peritonitis, perihylar lymphadenitis, chronic colecistitis with stones, ascites
12	Hemorrhagic acute abdomen (post-biopsy)	Hemoperitoneum, granulomatous hepatitis

peritoneum, small intestine and liver (Figures 3 and 3A). Positive alcohol-acid-resistant bacilli were found in 8 cases (67%). In the lymphonodi of 3 patients (25%), lymphoid tissue was replaced by granulomas formed by xanthomatous macrophages full of bacilli, without caseous necrosis (Figure 4). This response pattern, associated with the clinical picture suggests atypical mycobacteriosis (13).

#### **Evolution in the post-op period**

One patient died during the period immediately after surgery, as a consequence of poor general state.

Four patients died after an average period of 55 days in the hospital. The death was much more a consequence of other complications, resulting from the syndrome, than the abdominal mycobacteriosis itself.

One patient had a stercoral fistula and asked to be discharged from the hospital.

Six patients were discharged after a long hospitalization period (27 days in average) (Table VI).

## **DISCUSSION**

Abdominal tuberculosis was initially described in 1843 (17) and has always been characterized by occurring in regions where environmental sanitation is deficient (11).

In the last decade, even the more developed countries where it was about to disappear, a resurgence of this infection was observed, caused not only by the immigration of Asian populations, but also by the AIDS epidemics (6,7,11,13).

Literature has referred the presence of atypical bacilli forms, namely *Mycobacterium avium intracellulare* in patients with the AIDS syndrome. This bacterium is an opportunist with low pathogenicity, but in patients with immunosuppression causes severe and disseminated problems, often involving the abdomen (24).

For this reason, in these patients it is more adequate to refer to the disease as abdominal mycobacteriosis, as there are several species of alcohol-acid-resistant bacilli that can act as infectious agents.

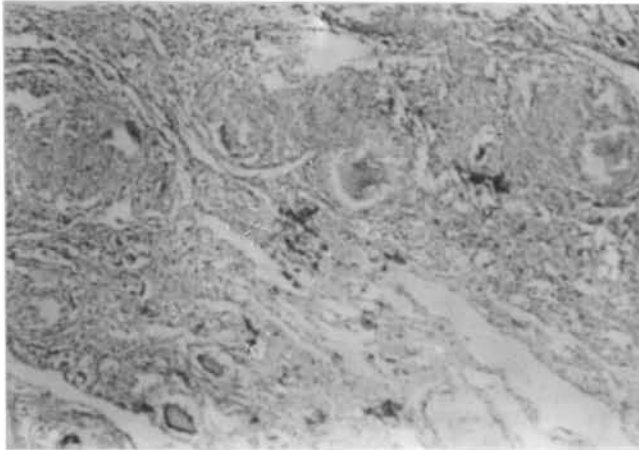
The immunosuppression status is also responsible for the massive dissemination of the bacillus to abdominal organs, evolving very rapidly with complications such as perforations and stenosis in hollow viscera, producing an extremely severe picture that is difficult to revert.

In the beginning, signs and symptoms can be very non-specific, as other manifestations of AIDS could interfere with the clinic picture.

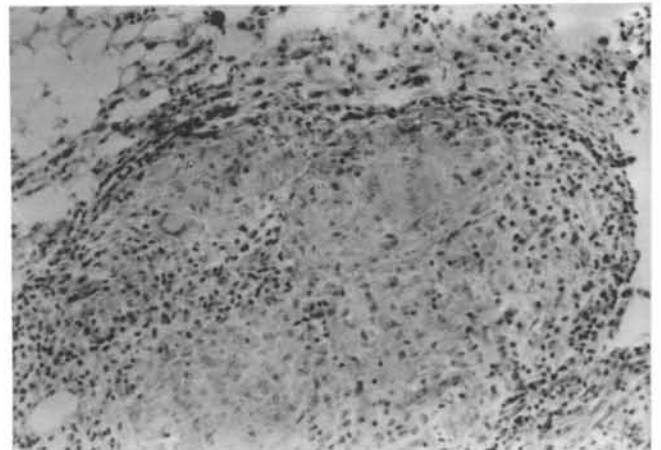
Abdominal pain, fever, weight loss, anemia, vomiting, hepatosplenomegaly, could also be caused by other pathogens that characterize the syndrome.

The concomitant pulmonary disease confirmed by finding the alcohol-acid-resistant bacillus in the sputum

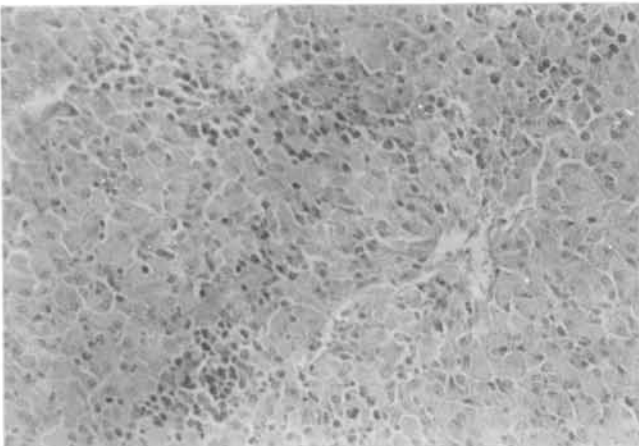




**FIGURE 3** - Peritoneal mycobacteriosis (100x). Epithelioid granulomas in Langhans-type giant cells on peritoneum



**FIGURE 3A** - Peritoneal mycobacteriosis (200x). Epithelioid granulomas in Langhans-type giant cells on peritoneum



**FIGURE 4** - Abdominal mycobacteriosis. Xantogranulomatous reaction in lymphnode (200x). Strongly positive BAAR

can suggest the presence of this same agent in the abdomen, but this association is not always observed, as we could corroborate in our study.

Imaging diagnosis of the abdomen could suggest the presence of liquid collections, node masses and fluid/air levels.

Changes observed in the chemical profile and in the hemogram are also non-specific.

Constantly seen in our patients, anemia and leucopenia are also observed in other AIDS patients that do not have mycobacteriosis.

Laparotomy is imperative if the early manifestation is an acute abdomen, as a consequence of its fast spreading.

A diagnostic laparotomy is imperative in a patient that has progressive abdominal pain with signs of peritoneal infection or abdominal distension, and is under the suspicion of having mycobacteriosis.

The surgical intervention should be as little aggressive as possible.

Resections or wide anastomosis are not indicated in dealing with edematous tissue, infiltrated by granulomas, with fistula and perforation.

In spite of the satisfactory response to the specific treatment, the advance of other agents of the syndrome will follow.

As a consequence, a long period of hospitalization and even late death caused by other complications can be observed.

Thus, association with abdominal mycobacteriosis and AIDS leads to high morbidity and high mortality.

In our situation, due to the high incidence of tuberculosis and poor sanitation, an AIDS patient with acute or insidious abdomen should always lead to the hypothesis of mycobacteriosis.

**Table V**  
**Patients with AIDS and abdominal mycobacteriosis that underwent surgery in Hospital Ipiranga, July 1989 to January 1992**

Abdominal pattern of disease and presence of hepatoesplenomegaly

Patient	Ileocecal	Ganglionic	Hepatic	Peritoneal	Hepatoesplenomegaly
1	+				+
2	+				+
3		+		+	+
4		+		+	+
5	+				+
6		+		+	+
7	+	+		+	+
8		+	+		+
9		+			+
10			+	+	+
11		+		+	+
12			+		+

**Table VI**  
**Patients with AIDS and abdominal mycobacteriosis that underwent surgery in Hospital Ipiranga, July 1989 to January 1992**

Associated Pathologies, Morbidity And Mortality

Patient	Surgery Elective/Emergency	Associated pathology	Evolution/complications
1	Emergency	Esophageal candidiasis	Sepsis/SARA - Death after 18 hours
2	Emergency	Candidiasis/diarrhea	Discharged after 20 days
3	Elective	Candidiasis/pneumocistosis	Sepsis/SARA - Death after 25 days
4	Emergency	Non-specific cervical lymphadenitis	Discharged after 19 days
5	Emergency	Candidiasis/scrofulosis	Stercoral fistula, asked to be discharged after 25 days
6	Emergency	Kaposi's sarcoma	Discharged after 18 days
7	Emergency	Diarrhea/non-specific rectitis	Sepsis, death after 6 months and a half
8	Elective	Oral candidiasis	Discharged after 22 days
9	Elective	Pneumocistosis/candidiasis	Sepsis/SARA - Death after 62 days
10	Emergency	Scrofulosis/pulmonary tuberculosis	Discharged after 35 days
11	Emergency	Oral candidiasis/brain toxoplasmosis	Death after 52 days
12	Emergency	Non-specific encephalopathy	Discharged after 20 days

## RESUMO

**Objetivo:** estudar a infecção micobacteriana abdominal em portadores da Síndrome de Imunodeficiência Adquirida. **Material e Métodos:** os autores estudaram 12 pacientes portadores de AIDS e de micobacteriose abdominal, internados no Hospital Ipiranga (São Paulo - Brasil) de junho de 1989 a janeiro de 1992. O diagnóstico de todos eles foi confirmado através de exame histopatológico de fragmentos de órgãos colhidos durante a laparotomia realizada, em sua maioria, por motivos emergenciais. **Resultados:** foram observadas perfurações de alças íleas, coleções seropurulentas envoltas e bloqueadas por vísceras, epíploon e fibrina. A hepatoesplenomegalia se fazia presente em todos os pacientes e uma peritonite granulomatosa generalizada foi observada em mais da metade. Um doente faleceu no pós-operatório imediato; 4 após 55 dias em média de internação. Um paciente evoluiu com fístula estercoral e teve alta a pedido; 6 tiveram alta após um período de internação de 27 dias em média. **Conclusões:** os autores realçam que em regiões em desenvolvimento onde a incidência de tuberculose ainda é elevada, num doente com AIDS que apresente um quadro abdominal doloroso e irritativo, a hipótese de micobacteriose deverá sempre ser cogitada.

## REFERENCES

- BARNES, P.; LEEDOM, J.M.; RAVELIN, D.R.; CHANDRASOMA, P. - An unusual case of tuberculosis peritonitis in a man with AIDS. *Est J Med* **144**:467-9, 1986.
- BARONE, J.E.; GILGOLD, B.S.; ARVANTIS, M.L.; NEALON, T.F. - Abdominal pain in patients with acquired immune deficiency syndrome. *Ann Surg* **204**:619-23, 1986.
- BASTANI, B.; SAHRIATZADEH, M.R.; DEHDASHTI, F. - Tuberculous peritonitis. Report of 30 cases and review of the literature. *Q J Med* **56**:249-57, 1985.
- C.D.C. - Update. Acquired immune deficiency syndrome (AIDS) - *MMWR* **31**:507-14, 1982.
- C.D.C. - Tuberculosis and acquired immunodeficiency syndrome. *MMWR* **36**:785-94, 1987.
- C.D.C. - Tuberculosis and human immunodeficiency virus infection: recommendaton for the Advisory Council for the Elimination of Tuberculosis. *MMWR* **38**:236-8, 1989.
- C.D.C. - Prevention and control of tuberculosis in US. Communities with at risk minority population. *MMWR* **41**:1-22, 1992.
- DAS, P.; SHULKA, H.S. - Clinical diagnosis of abdominal tuberculosis. *Br J Surg* **63**:941-6, 1976.
- DINNEN, P.; HOMAN, W.P.; GRAFE, W.R. - Tuberculous peritonitis. *Ann Surg* **184**:717-22, 1976.
- EPSTEIN, B.M.; MANN, J.H. - CT of abdominal tuberculosis. *AJR* **139**:891-6, 1982.
- HADDAD, F.S.; GHROSSIAN, A.; SAWAYA, E.; NELSON, A.R. - Abdominal tuberculosis. *Dis Col Rectum* **30**:724-35, 1987.
- KAPOOR, V.K.; SHARMA, L.K. - Abdominal tuberculosis. *Br J Surg* **75**:2-3, 1988.
- LOUIE, E.; RICE, L.B.; HOLZMAN, R.S. - Tuberculous in non-haitian patients with acquired immunodeficiency syndrome. *Chest* **90**:452-5, 1986.
- MINISTÉRIO DA SAÚDE - Programa Nacional de Combate à Tuberculose - Reunião da Avaliação Operacional da Década de 80 - Brasília, 1992.
- OLCOTT, C.T.; PACCHINE, D. - Tuberculous peritonitis. *Am Rev Tuberc* **28**:27-33, 1933.
- PALMER, K.R.; PATIL, D.H.; BASRAN, G.S.; RIORDAN, J.F.; SILK, D.B.A. - Abdominal tuberculosis in urban Britain - a common disease. *Gut* **26**: 1296-1305, 1985.
- ROSENGART, T.K.; COPPA, G.F. - Abdominal mycobacterial infections in immunocompromited patients. *Am J Surg* **159**:125-31, 1990.
- SENISE, J.F.; HANRICK, P.A.; GUIDUGLI, R.G.; RIBERA, J.M.; SIQUEIRA, S.A.C. - Perfuração de alça ileal por tuberculose em portadores da síndrome da imunodeficiência adquirida. *Rev Paul Med* **109**:61-4, 1991.
- SORIANO, V.; TOR, J.; DOMENECH, E.; GABARRE, E.; MUGA, R.; CLOTET, B. - Tuberculosis abdominal in los pacientes com AIDS. *Med Clin (Barc)* **97**(4):121-4, 1991.
- SOUBANI, A.O. & GLATT, A.E. - Tuberculosis peritonitis as a initial manifestation of HIV infection. *N.Y. State J. Med.* **92**:269-70, 1992.
- STUBENBORD, J.G.; SPES, J. - Tuberculous peritonitis, an analisis of 257 cases. *Surg Gynec Obst* **269**:67-9, 1938.
- SUNDERMAN, G.; Mc DONALD, R.J.; MANIATIS, T.; OLESKE, J.; KAPILA, R.; REICHMAN, R.B. - Tuberculosis as a manifestation of the acquired immunodeficiency syndrome (AIDS). *JAMA* **276**:362-6, 1986.
- VANDERPOOL, D.M.; O'LEARY, J.P. - Primary tuberculous enteritis. *Surg Gynec. Obst* **167**:167-73, 1988.
- ZAKOWSKI, F.; FLIGIEL, S.; BERLIN, G.W.; JOHNSON, L. - Disseminated Mycobacterium avium-intracellulare infection in homosexual man dying of AIDS. *JAMA* **248**:2980-82, 1982.
- ZENDER, H.O.; ARRIGONI, E.; ECKERT, J.; KAPANCI, Y. - A case of encephalitozoon patient with AIDS. *Am J Clin Pathol* **92**: 352-6, 1989.