
BILE DUCT-DUODENAL FISTULA CAUSED BY AIDS/ HIV-ASSOCIATED TUBERCULOSIS

Carlos Patino, Belchor Fontes, Renato Sergio Poggetti, Cornelius Mitteldorf,
Conrado Alvarenga and Dario Birolini

PATINO C et al. - Bile duct-duodenal fistula caused by AIDS/HIV-associated tuberculosis. *Rev. Hosp. Clín. Fac. Med. S. Paulo* 58(4):223-226 2003.

Although infrequent, digestive fistulae in HIV/AIDS patients have been reported throughout the digestive tract from the esophagus to the anus, with predominance of esophageal fistulae. AIDS/HIV-associated opportunistic infections may invade the digestive system and lead to fistula formation. Tuberculosis is the most common infection associated with these esophageal fistulae. We report here one case of bile duct-duodenal fistula in a female AIDS patient with associated abdominal *Mycobacterium tuberculosis* infection compromising lymphnodes of the hepatic pedicle where the fistula was found. According to the reviewed literature, this is the third case of bile duct-duodenal fistula associated with abdominal tuberculosis in AIDS patient, and the first where both the fistula and the tuberculosis infection were diagnosed at laparotomy for acute abdomen. Whether the AIDS patient with abdominal pain needs or not a laparotomy to treat an infectious disease is often a difficult matter for the surgeon to decide, as most of the times appropriate medical treatment will bring more benefit.

DESCRIPTORS: Bile duct fistula. Acute abdomen. AIDS. HIV. Tuberculosis.

Fistula communicating the bile duct with the duodenum occur very infrequently in the overall population^{1,2}. AIDS-associated tuberculosis (TB) infection has become a frequent finding in the last decades, and complications of abdominal TB, including the involvement of the digestive system, may have contributed to the increase of surgical interventions in HIV infected patients in the last years³. Several cases of digestive fistulae attributed to AIDS-associated TB have been described, usually communicating the esophagus lumen to mediastinal lymphnodes, the most common site involved by extrapulmonary TB^{2,4-11}. Fistulae related to AIDS-associated TB and compromising the digestive tract distally to the esophagus are rare, being 3 cases reported in the reviewed literature: 1 case of anal fistula¹², and 2 cases of bilio-enteric fistulae^{13, 14}. Our

purpose is to report 1 case of digestive fistula communicating the bile duct to the duodenum in a patient with AIDS-associated TB, being the fistula and TB infection diagnosed during the laparotomy indicated for acute abdomen.

CASE REPORT

N.V.B.M, 51 years old, a HIV positive female patient, was admitted to the Emergency Surgery Service on November/02-1995. She complained of anorexia, abdominal pain, and vomiting of bilious gastric content in the last 2

From the Emergency Surgery Service, Hospital das Clínicas, Faculty of Medicine, University of São Paulo – São Paulo/SP, Brazil.

Received for publication on
November 13, 2002.

weeks, and a 20kg weight loss in the last 2 months. On physical examination, she was pale and dehydrated, with normal heart and lung sounds on auscultation, 110 x 70 mmHg blood pressure, 39 C° axillary temperature, and 116 bpm heart rate. No palpable cervical or axilar lymphnodes were found. The right upper and lower abdominal quadrants were painful, with guarding, and rebound tenderness. The laboratory analysis of blood samples showed 128 mEq/l Na, 3.9 mEq/l K, 71 g% glucose, 0.5 mg/dL creatinine, 13 U/L glutamic oxaloacetic transaminase, 7 U/L glutamic pyruvic transaminase, 27 U/L amilase, 95 IU alkaline phosphatase, 38 IU gamaglutamyltranspeptidase, 0.5 mg/dL total bilirubin, 0.2 mg/dL direct bilirubin, 78% prothrombin time, 6.3 g/dL total plasma protein, 2.9 g/dL plasma albumin, 8.2 g/dL hemoglobin and 25% hematocrit. The white blood

cell count showed 7000 leukocytes (2% rods, 77% segmented forms, 13% lymphocytes). The serum test was positive for HIV, and for CMV (IgG and IgM), and the lymphocyte count was 189.

The thorax and abdominal RX exam was normal. The abdominal USG exam showed small amount of fluid surrounding the gallbladder, but no stones within it, and enlarged lymphnodes surrounding the pancreas and the abdominal aorta. The computed abdominal tomography showed gas in the bile duct, and a retroperitoneal mass close to the right and lower border of the pancreas, extending toward the pelvis. After crystalloid (2000ml) and blood (4 units) infusion, a diagnostic laparotomy was performed, because of uncertain diagnosis and worsening in clinical status, and disclosed a large lymphnode mass with multiple abscesses in the mesentery, extending to the hepatic pedicle, celiac axis and terminal ileum. A cholecystectomy was performed, since the hepatic pedicle was involved and the CT scan showed gas in the biliary tree, and a trans-operative cholangiogram with contrast infusion through a catheter inserted into the cystic duct disclosed a fistulous tract from the proximal bile duct to the duodenum; the intra-hepatic biliary tree showed no signs of cholangitis or other abnormalities, the distal bile duct was normal and there were no images of gallstones or periampullary tumors. The bile duct was opened and a T-tube with arms of different lengths was inserted. The tip of the longer arm was placed distally to the fistulous opening in the bile duct. Another cholangiogram, with contrast infusion through the T-tube, showed predominant contrast flow through the distal bile duct into the duodenum. The pancreas, liver and duodenum appeared to be normal, except for the fistula. The bile culture was negative. The histological examination of the gallbladder showed no spe-

cial features, and that of the lymphnodes removed from the hepatic pedicle revealed ganglionic TB. No CMV inclusion was found on histology. A triple therapeutic regimen for TB was started on the second post-operative day. The patient had an uneventful post-operative course. The T-tube was closed on the 5th postoperative (PO) day and the patient was discharged on the 7^o PO day. Two months after the operation, another cholangiogram showed no fistula, and the T-tube was removed. On the follow up at the Department of Infections Diseases, 3 months after the operation, the patient was under AZT and anti-tuberculosis therapy. She had no abdominal symptoms. Three months later, she was admitted to our service, complaining of malaise, dizziness, anorexia, weightloss and headache. Her clinical state progressively worsened with fever and seizures. Her death occurred three days later, and was attributed to neurotoxoplasmosis.

DISCUSSION

The incidence of extrapulmonary mycobacterial infection in patients with pulmonary TB is common, frequently resulting in mediastinal lymphnode involvement by *Mycobacterium* leading to lymphnode necrosis and esophageal involvement with esophagitis, deep ulceration, intramural dissection and esophagomediastinal fistula^{4, 6, 9}. Although it seems clear that mediastinal TB is associated with the incidence of esophageal fistulae in HIV infection, it remains unclear whether HIV infection may increase the incidence of digestive fistulae distally to the esophagus, in the presence of associated abdominal TB¹⁵. This uncertainty may be attributed to the fact that abdominal digestive fistulae caused by *Mycobacterium* infection is a rare entity either in the absence or in the pres-

ence of HIV infection^{3, 16-20}.

Abdominal TB can present as tuberculous peritonitis with generalized or loculated ascites, intestinal TB, and frequently leads to lymphadenitis of the mesenteric or retroperitoneal lymphnodes, where inflammation, necrosis, and suppuration may result in fistula formation^{12, 21}. Fistulae of the small bowel attributed to HIV/AIDS associated TB infection have been reported in the reviewed literature only in 2 cases, and in both cases the biliary tree was involved. One of these is a case of bile duct fistula associated with abdominal TB, that was diagnosed endoscopically and successfully treated with anti-TB drugs, without surgical intervention, in an ambulatory HIV positive patient with a clinical picture of pulmonary and ganglionic TB¹³. The other one is a case of a choledocho-enteric fistula due to *Mycobacterium tuberculosis* in a patient with AIDS. This fistula was revealed by endoscopic retrograde cholangiography. The patient was then treated with anti-TB drugs and broad spectrum antibiotics, and the fistula resolved¹⁴.

In the present case, the anatomopathological examination of samples from the site of the bile duct-duodenal fistula disclosed abdominal lymphnode TB with granulomatous inflammatory reaction, leading to the diagnosis of AIDS-associated TB. Usually, AIDS-associated TB is successfully treated by antimycobacterial pharmacotherapy^{10, 12}. Early in the postoperative period, our patient started receiving antimycobacterial therapy, and the fistula completely receded within 2 months. Patients with complicated abdominal TB not infrequently present with the clinical picture of acute abdomen requiring exploratory laparotomy. This was the case of our patient, where the laparotomy allowed the diagnosis of abdominal TB, as well as the diagnosis and surgical treatment of the fistula, allowing a safe anti-TB therapy.

Another condition found in our patient was serum positive result for CMV (IgG and IgM). Infection with CMV is a major feature of AIDS, and may involve the gastrointestinal system, leading to esophagitis, gastritis, enteritis, colitis, pancreatitis, and cholangitis, and even hemorrhage, and intestinal perforation²². In our patient, however, the histological analysis of abdominal tissue samples showed no CMV inclusion. Therefore, no evidence was found that CMV had contributed to the

biliary fistula.

In conclusion, a case of bile duct-duodenal fistula caused by AIDS-associated tuberculosis is here reported, in which the diagnosis of the fistula and of the abdominal TB was achieved during an exploratory laparotomy indicated for acute abdomen. No other possible causes of fistula were found, such as gallstones or tumors, and the fistula closed with treatment for TB, so that the evident cause for the fistula was the infection, although this was not proved

histologically. The patient with AIDS, presenting with abdominal pain, fever and tachycardia is sometimes difficult to deal with, as the underlying disease may be an AIDS-related uncomplicated opportunistic infection, which can be treated with appropriate medication. Nevertheless the acute abdomen may also be caused by a complicated AIDS-related infection ending with perforation of a hollow viscus, or may even be due to other non-AIDS related conditions which need an urgent laparotomy to be treated.

RESUMO

PATINO C e col. - Fístula colédoco-duodenal causada por tuberculose associada à SIDA. **Rev. Hosp. Clín. Fac. Med. S. Paulo** 58(4):223-226, 2003.

Fístulas digestivas em pacientes com Síndrome da Imunodeficiência Adquirida (SIDA), embora raras, têm sido identificadas desde o esôfago até o ânus, predominando no esôfago. Infecções oportunistas relacionadas à SIDA podem acometer a parede do trato digestivo, levando a formação de

fístulas. A Tuberculose é a infecção mais frequentemente associada com fístula esofágica. Relatamos o caso de uma paciente portadora de SIDA, com tuberculose ganglionar comprometendo o hilo hepático, que evoluiu com fístula entre o ducto colédoco e o duodeno. A literatura revisada indica ser este o terceiro caso de fístula colédoco-duodenal descrito em paciente com tuberculose abdominal, associada à SIDA, e o primeiro em que a infecção pelo *Mycobacterium tuberculosis* e a fístula colédoco-duodenal fo-

ram diagnosticados durante laparotomia exploradora, indicada em paciente com abdome agudo. No paciente com SIDA e dor abdominal, pode ser difícil para o cirurgião decidir, se está indicada laparotomia exploradora, uma vez que, na maioria das vezes, o tratamento clínico apropriado será o melhor.

DESCRITORES: Fístula colédoco-duodenal. Abdome agudo. Tuberculose. HIV. SIDA.

REFERENCES

1. TEMES RT, WONG RS, DAVBIS M *et al.* - Esophago-airway fistula in AIDS. **Ann Thorac Surg** 1995; **60**:440-442.
2. ALKHUJA S, MILLER A - Tuberculous bronchoesophageal fistulae in patients infected with the human immunodeficiency virus: a case report and review. **Heart Lung** 1998; **27**:143-145.
3. ROSENGART TK, COPPA GF - Abdominal mycobacterial infection in immunocompromised patients. **Am J Surg** 1999; **159**:125-131.
4. GRETEN T, HAUTMANN H, TRAUNER A *et al.* - Esophagomediastinal fistulae as a rare complication of tuberculosis in an HIV-infected patient. **Dtsch Med Wochenschr** 1994; **119**:1613-1617.
5. ALLEN CM, CRAZE J, GRUNDY A - Tuberculous bronchoesophageal fistula in the acquired immunodeficiency syndrome. **Clin Radiol** 1991; **43**:60-62.
6. DE SILVA R, STOOPACK PM, RAUFMAN JP - Esophageal fistulas associated with mycobacterial infection in patients at risk for AIDS. **Radiology** 1990; **175**:449-453.
7. LLETI SM, IBAÑEZ VN, GARCIA NA *et al.* - Esophagomediastinal fistula in a patient with lymphatic tuberculosis and human immunodeficiency virus infection. **An Med Interna** 1989; **6**:309-311.
8. IM JG, KIM JH, HAN MC *et al.* - Computed tomography of esophagomediastinal fistula in tuberculous mediastinal lymphadenitis. **J Comput Assist Tomogr** 1990; **14**:89-92.
9. LEE GK, LEE YS, PARK SH *et al.* - Acquired immune deficiency syndrome - report of an autopsy case. **J Korean Med Sci** 1989; **4**:103-109.
10. PORTER JC, FRIEDLAND JS, FREEDMAN AR - Tuberculous bronchoesophageal fistulae in patients infected with the human immunodeficiency virus: three case reports and review. **Clin Infect Dis** 1994; **19**:954-957.
11. PURSNER M, HALLER JO, BERDON WE - Imaging features of Mycobacterium avium-intracellulare complex (MAC) in children with AIDS. **Pediatr Radiol** 2000; **30**:426-429.
12. MUSCH E, TUENNERHOFF MUECKE A - Tuberculous anal fistula in acquired immunodeficiency syndrome. **Gastroenterol** 1995; **33**:440.
13. PAUPARD T, ETIENNEY I, PATEY O *et al.* - Diagnostic endoscopique d'une fistule bilio-digestive d'origine tuberculeuse révélatrice d'un syndrome d'immunodéficience acquise. **Gastroenterol Clin Biol** 1995; **19**:1055-1058.
14. DESTA TT, MAN KM, BOUVIER D *et al.* - Choledocho-enteric fistula due to Mycobacterium tuberculosis in a patient with acquired immunodeficiency syndrome. **Gastrointest Endosc** 1998; **48**:623-626.
15. FREE MJ, OO MM, GABAYAN AE *et al.* - Abdominal tuberculosis in patients infected with the human immunodeficiency virus. **Clin Infect Dis** 1995; **20**:938-994.
16. HADDAD FS, GHOSAIN A, SAWAYA E *et al.* - Abdominal tuberculosis. **Dis Colon Rectum** 1987; **30**:724-735.
17. TSUKUDA T, NISHIKA T, ISHIDA *et al.* - Colonic and peritoneal tuberculosis associated with coloduodenal fistula. **J Gastroenterol** 1995; **20**:520-523.
18. ALYOUNE M, NADIR S, MERZOUK M *et al.* - A Tuberculous anal fistulas. 13 cases. **Ann Gastroenterol Hepatol Paris** 1994; **30**:9-11.
19. IWAMOTO I, TAKESHI Y, TOMOE H *et al.* - Right common iliac arterio-intestinal fistula caused by tubercular peritonitis: report of a case. **Surg Today** 1993; **23**:78-80.
20. HEMAL AK, GUPTA NP, WADHWA SN *et al.* - Primary repair of colorenocutaneous fistula in patients with genitourinary tuberculosis. **Urol Int** 1994; **52**:41-44.
21. NAIR A, PATE R, MONEYPENNEY IJ - Tuberculous peritonitis presenting as coloenteric fistula. **Br J Clin Pract** 1993; **47**:2314-2315.
22. WILSON SE, ROBINSON G, WILLIAMS RA *et al.* - Acquired immune deficiency syndrome (AIDS). Indications for abdominal surgery, pathology, and outcome. **Ann Surg** 1989; **210**:428-429.