Case Report

Common Bile Duct Perforation Due to Tuberculosis: A Case Report

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A young man with HIV presented with biliary peritonitis secondary to spontaneous common bile duct perforation. Investigation revealed that the perforation was due to *Mycobacterium tuberculosis*. Tuberculosis of the bile duct is uncommon and usually presents with obstructive jaundice due to stricture. Bile duct perforation due to tuberculosis is extremely rare. Its management is discussed. [Asian J Surg 2004;27(4):342–4]

Introduction

The increase in the number of patients infected with the human immunodeficiency virus (HIV) has led to uncommon and sometimes bizarre presentations of illnesses. The emergence of uncommon opportunistic infections has made the management of these immunosuppressed patients more challenging. We report a case of an immunosuppressed young man presenting with a rare complication of common bile duct perforation arising from an atypical opportunistic infection.

Case report

A 36-year-old Malay man presented with a 2-week history of lower abdominal pain associated with chills and rigors. The pain was not well localized to any specific region in the lower abdomen, and it was not colicky in nature. It was not associated with vomiting, constipation, abdominal distension or diarrhoea. The patient confessed to being an active intravenous drug user.

On clinical examination, he was drowsy, pale and tachycardic but afebrile. The abdomen was generally tender and guarded with clear signs of peritonitis. Digital rectal examination elicited tenderness at the anterior aspect of the rectal wall. Blood investigations revealed anaemia and leucocytosis. Chest radiography in the erect position showed pneumoperitoneum. Assays for HIV and hepatitis C were positive. A provisional diagnosis of perforated peptic ulcer was made and an emergency laparotomy was performed.

The intraoperative finding was a perforation of the periportal area of the supraduodenal common bile duct measuring 2 × 2 cm, with bile leakage. The surrounding periportal area was inflamed and thickened with caseous material extruded from the area adjacent to the perforation. There was free pus in the peritoneal cavity, with multiple enlarged lymph nodes in the mesentery and para-aortic region. Other solid organs and hollow viscus appeared normal. There was no finding of concealed bowel perforation. Swabs for culture and biopsies of the periportal and mesenteric nodes were taken. A T-tube was inserted into the perforated bile duct and general peritoneal lavage was performed.

Postoperatively, the patient was managed in the intensive care unit because of sepsicaemia. Parenteral feeding was started because of poor nutritional status. Enteral feeding was resumed 1 week after surgery. He developed persistent fever that lasted for 3 weeks. Culture of the intraperitoneal pus showed mixed growth. The bile culture grew *Candida* sp., and the
central line culture grew Staphylococcus and Pseudomonas sp. Lymph node biopsies from the periporal area and the edge of the perforated bile duct were positive for Mycobacterium organisms. Antibiotic and antifungal therapy was initiated, and anti-tuberculosis therapy consisting of isoniazid, ethambutol, pyrazinamide and rifampicin was commenced early in the postoperative period. After 4 weeks, a T-tube cholangiogram showed a normal common duct. There was no filling defect suggesting a common bile duct stone, or gross dilatation of the common duct to suggest a choledochal cyst.

**Discussion**

Approximately 68% of persons co-infected with HIV and tuberculosis live in sub-Saharan Africa and 22% live in Asia. HIV-related opportunistic infections predominantly occur in patients not receiving antiretroviral therapy or those who are in the period just after starting antiretroviral therapy, because of a lack of immune reconstitution, or because of eliciting a previously absent inflammatory host response, or due to failure of the antiretroviral therapy caused by viral resistance. The reported incidence of biliary tuberculosis is low, and prior to 1900, it was commonly found during autopsy.1

Abdominal tuberculosis commonly affects the peritoneum, intestine and lymph nodes.2 Tuberculosis of the bile duct is rare. The involvement of the bile duct could be due to spread of caseous material from the portal tract or secondary inflammation related to tuberculous periportal adenitis.3,4 Usually, the disease presents with obstructive jaundice due to bile-duct stricture.5 Spontaneous common bile duct perforation due to tuberculosis is extremely rare. There is no reported case in the literature describing this condition. However, it has been demonstrated histologically that periportal tubercles can rupture into the walls of contiguous bile ductules, thereby giving rise to an abscess cavity that can later cause common bile duct perforation.6

This patient presented with peritonitis. Although he was immunosuppressed and susceptible to atypical infection, pneumoperitoneum only suggested a perforated viscus. Hence, the diagnosis of common bile duct perforation could only be established during laparotomy. The intraoperative findings of mesenteric and periportal lymph nodes discharging caseating material suggested tuberculosis. The definitive diagnosis could only be made and confirmed with the histological and bacteriological presence of Mycobacterium tuberculosis.

HIV-positive patients with tuberculosis respond poorly to major surgery due to the presentation of systemic illness and multiple sites of involvement. During surgery, a damage-control approach was used. Peritoneal lavage for the contamination and T-tube drainage at the perforated common bile duct controlled bile leakage. Factors such as operating in the contaminated peritoneal cavity, poor wound healing and the immunosuppressive stage of the patient need to be considered before proceeding to other forms of surgical intervention, such as primary closure or primary biliary enteric anastomosis.

The Centers for Disease Control and the British Thoracic Society recommend a standard 6-month course of four-drug chemotherapy for HIV-related tuberculosis.7,8 Treatment may differ from the standard in the choice of anti-tuberculosis regimen and dosage adjustment, duration of treatment (ideally with directly observed therapy), promotion of antiretroviral therapy, and monitoring requirements. Early initiation of antiretroviral therapy is now recommended. If simultaneous anti-tuberculosis and antiretroviral therapy are to be given, the selected regimens and doses must account for significant drug interactions between the rifamycin group and protease inhibitors and non-nucleoside reverse transcriptase inhibitors. There is also a higher risk of reactivation of tuberculosis and development of resistance in HIV-positive patients. Thus, it is recommended that all patients with HIV infection receiving anti-tuberculosis treatment have directly observed therapy to ensure adherence and to limit drug resistance.9

In conclusion, perforated common bile duct due to tuberculosis is extremely rare. Since it was an incidental finding during laparotomy, a damage-control procedure was an appropriate surgical approach. Commencement of anti-tuberculosis and antiretroviral therapy should be started once the diagnosis has been established.

**References**

7. Centers for Disease Control and Prevention. Prevention and treatment of tuberculosis among patients infected with human immu-
