

Answer

Typhoid Intestinal Perforation

The patient was clinically diagnosed with typhoid perforation of the ileum. The diagnosis was confirmed by a Widal serology test. A peritoneal toilet and simple transverse closure of the perforation were performed. The patient was discharged home on the 10th postoperative day in good condition.

Although *Salmonella typhi* infection causing typhoid fever has become rare in the United States and other developed nations in recent decades, it continues to be a major health problem throughout most of the developing world, particularly in Africa. Typhoid bacilli gain entrance to the body via ingestion of foods or liquids contaminated with infected feces or urine. They are not destroyed by gastric acidity and reach the bloodstream after successfully invading the intestinal mucosa and navigating intestinal lymphatics and mesenteric lymph nodes. A severe complication and a frequent cause for death from typhoid is perforation of ileal ulcerations arising from necrosis of the Peyer patches in the terminal ileum, although the jejunum and cecum may also be involved. The Peyer patches undergo swelling and ulceration, which can evolve into capillary thrombosis and subsequent necrosis. These ulcerations are always located on the antimesenteric border of the intestine and may perforate or bleed, usually in the third week of the disease. The reported mortality rates of 20% to 60% associated with this complication are especially high when considering the young age of many of the patients.^{1,2} Furthermore, the increased incidence of *S typhi* infections in patients with AIDS raises the possibility of a resurgence of typhoid fever in the developed world.³ In areas where typhoid is endemic, the diagnosis of typhoid perforation can usually be made without difficulty based on a clinical history extending over a period of 1 to 4 weeks and culminating in an acute picture of enteric perforation. The physical findings are typical of diffused peritonitis following a perforated viscus, and roentgenologic studies will reveal a pneumoperitoneum in about two-thirds of cases. This intraoperative finding is so characteristic of typhoid perforation that diagnosis can be based on this alone.⁴ Perforations, generally single, appear as "punched-out" holes on the antimesenteric border of the terminal ileum. Widal serology test results are positive in 20% to 75% of cases⁵ but are frequently negative early in the course of the disease.⁶ The antibiotic of choice for *S typhi* infection is chloramphenicol. This drug has great efficacy in nonperforated typhoid fever and may decrease the incidence of perforation. The treatment of typhoid ileal perforations, however, remains somewhat controversial. A variety of surgical procedures have been rec-

ommended. In moribund patients, simple drainage of the peritoneum under local anesthesia may be all that is feasible. The most common definitive treatment for nonmoribund patients has been debridement with a simple transverse closure of the perforation in either 1 or 2 layers.⁷ More aggressive treatment in the form of wedge resection⁸ or small-bowel resection⁹ has been recommended. Most authors recommend resection only for severely damaged bowel whereas others use it for multiple perforations.¹⁰ All operative procedures reported are followed by a high complication rate, which is explained by a combination of massive peritonitis and poor patient resistance.

Until typhoid fever is eliminated by improved sanitation and immunization programs, surgeons will be confronted with its complications in developing nations. Of these, enteric perforation is the most common and lethal. Only prompt recognition and urgent surgical intervention will improve results.

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