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Video-Assisted Colorrhaphy of Iatrogenic Colonic Perforation: a Case Report

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ABSTRACT:

Iatrogenic colonic perforation is the most severe complication of lower gastrointestinal endoscopy. A prompt diagnosis is necessary in order to identify the site of perforation and to reduce peritonitis due to bacterial seeding. We reported our experience with a 10-month old baby admitted for descending colonic perforation during an endoscopic procedure, in whom an immediate use of the laparoscopic approach allowed an early recognition of the perforation, that was successfully repaired by video-assisted colorrhaphy, by the exteriorization of the colon from the umbilical wound.

Introduction

Iatrogenic colonic perforation is the most severe complication of lower gastrointestinal endoscopy (1), with an incidence estimated to be 0.03-0.8% for diagnostic colonoscopy and 0.15-3% for therapeutic colonoscopy (1-3). A prompt diagnosis is necessary in order to identify the site of perforation and to reduce peritonitis due to bacterial seeding. We reported our experience with a 10-month old baby admitted for descending colonic perforation during endoscopic procedure, in whom an immediate use of laparoscopy allowed an early recognition of the perforation, that was successfully repaired by exteriorization of the colon through the umbilical wound.

Case Presentation



Figure 1: Click to see parts A and B. Plain abdominal x-rays were requested immediately after the end of colonoscopy, and revealed massive pneumoperitoneum.

A 10-month old baby affected by severe communitary immunodeficiency (SCID) complicated with chronic enteritis underwent colonoscopy with multiple biopsies. At the end of the procedure huge abdominal distension was evident and plain x-rays of the abdomen were requested, confirming the suspicion of iatrogenic perforation (Figure 1). A 0° 10-mm telescope was inserted through a trans-umbilical approach with an open technique, and pneumoperitoneum was induced with 8 mmHg of CO₂ at 1 l/min.

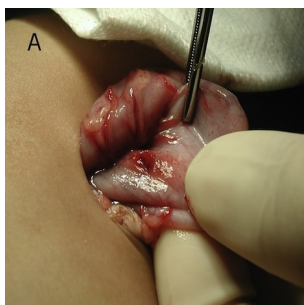


Figure 2: Click to see parts A and B. Intraoperative pictures showing the perforation of the descending colon (A), that was grasped and exteriorized through the umbilical incision. The perforation was closed with interrupted stitches (B).

At inspection of peritoneal cavity a 4 mm-length perforation of descending colon was immediately evident (Figure 2A). The portion of involved colon was grasped with Babcock forceps and exteriorized from the umbilical wound. The perforation was sutured with double-layer interrupted 6/0 PDS suture (Figure 2B). After the procedure the telescope was reintroduced into the abdominal cavity to rule out bleeding or other perforations. Broad-spectrum antibiotics were administered, and enteral feeding was restarted in post-operative day five. At 2-year follow up the child is doing well, and the cosmetic result is excellent.

Discussion

Colonic iatrogenic perforation represents a well-known event during lower gastrointestinal endoscopy. The largest series of pediatric colonoscopies was provided by Thakkar et al (1), who retrospectively analyzed 7792 procedures. In this series bleeding was the most common complication (0.43 %), followed by hypoxia (0.2%) and perforation (0.01%). Operative procedures such as biopsies and polypectomy and the presence of active inflammatory bowel disease or enteritis involve an augmented risk of perforations. A high index of suspicion is recommended, as a late diagnosis leads to extensive bacteria spread from the colon into the abdominal cavity and cause acute diffuse peritonitis (4). Prompt surgical closure of iatrogenic colon perforations is considered the treatment of choice (1-2). Small perforations can be safely closed with application of endoscopic metallic clips. A review of 58 adult patients treated with this approach documented a success rate of 89.6% (5). Nevertheless no significant experience is reported with this technique in younger patients, also due to lack of adequate instrumentation. Laparoscopy combined the obvious advantage of an early diagnosis and treatment. Single-incision laparoscopy allows a complete inspection of the entire colon, and a safe detection of the perforation site. The perforation could be subsequently managed with “in”, “mixed” or “out” techniques, according to the extension and location of the perforation and the experience of the surgeon. In our experience video-assisted colorrhaphy has proved to be a safe and effective approach in iatrogenic large bowel perforation arising during colonoscopy and we suggest this approach should be considered before submitting the patient to open surgery.

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