Laparoscopic management of iatrogenic colonoscopic perforation

Chean Leung CHONG
Department of Surgery, RIPAS Hospital, Brunei Darussalam

ABSTRACT
A 40-year-old Malay lady was admitted with iatrogenic perforation following colonoscopic polypectomy. Diagnostic laparoscopy was performed but no obvious perforations were found after a thorough inspection. The abdomen was lavaged. The patient recovered with bowel rest and a drain and no further surgical interventions were necessary. A review of the literature shows that the treatment of iatrogenic colonoscopy perforations is controversial with the most common method being laparotomy and repair or resection of the affected colon. However, there are also reports of conservative management and this depends on the condition of the patient.

Keywords: Colonoscopy, polypectomy, complications, laparoscopy

INTRODUCTION
Colonoscopy is generally a safe procedure. Iatrogenic colonoscopy perforation is rare with incidence as low as 0.016% for diagnostic colonoscopies and up to 5% for therapeutic colonoscopies.1 When it happens, there can be serious consequences for the patient, including mortality. A patient with iatrogenic colonic perforation post polypectomy is presented with a review of the literature on the various management options.

CASE REPORT
A previously fit 40-year-old Malay lady was admitted with progressive left-sided abdominal pain following an elective colonoscopy 36 hours previously. This was done for follow-up of a resected large adenomatous polyp. She also has a strong family history of colorectal cancer. Two small polyps (Figure 1) in the sigmoid were removed using hot biopsy. The bowel preparation was good. Twelve hours after the procedure, she started to experience lower abdominal pain which progressed needing hospital admission. She had a mild tachycardia of 100/min, fever of 38°C and a neutrophilia of 18,000/mm³ on admission. There was generalised peritonitis, worse in the left lower quadrant, and an erect plain chest radiograph confirmed pneumoperitoneum. A diagnosis of a perforated hollow viscus was made, likely to be in the sigmoid colon secondary to the colonoscopic intervention.

Intravenous broad spectrum antibiotics (cefuroxime 1.5gm t.i.d and metronidazole 500mg t.i.d) were commenced and she was taken to the operating theatre three hours following admission. Informed consent had
been taken for laparoscopy with the option of laparotomy, bowel resection and stoma formation. Laparoscopic findings were those of a small amount of pus in the pelvis and lateral to the sigmoid colon but otherwise the peritoneal cavity was not found to be contaminated. No perforations were noted on careful inspection of the large bowel and no leakage of bowel contents were observed during colonic manipulation with the laparoscopic equipment.

Considering the relatively clean state of the peritoneal cavity, that the therapeutic intervention was a hot biopsy on a small polyp and therefore the perforation was likely to be small and, that the patient was a healthy young lady, a decision was made not to explore further with a laparotomy but to aspirate the pus, lavage the peritoneal cavity and leave a drain. The patient was put on parenteral nutrition and bowel rest and she recovered bowel function on the third postoperative day. She was discharged uneventfully from hospital on the seventh postoperative day. She was reviewed once in the surgical clinic after which she was discharged back to the care of her usual gastroenterologist for polyp follow-up.

**DISCUSSION**

Colonoscopy is very useful both as a diagnostic and a therapeutic tool but the risks are perforation (0.1%), bleeding (0.63%), cardiovascular/pulmonary complications (1.91%) and mortality (0.1%).

Perforation is either due to mechanical trauma from the colonoscope, barotrauma from extreme air insufflation or perforations from therapeutic procedures.

The management of colonoscopy perforation has been a controversial topic, with advocates for non-surgical treatment and advocates for surgical treatment, depending on the condition of the patient. Current therapeutic approaches include conservative (bowel rest plus broad-spectrum antibiotics), endoscopic (closure of the defects with endoclips) and operative management (open or laparoscopic approach).

Open surgery has been the mainstay in management of iatrogenic colonoscopy perforation as it allows a closer inspection of the bowel and for a repair or resection of the involved segment of colon to be performed, with or without anastomosis. Conservative treatment has been recommended by Castellvi et al. for patients with the following conditions: good general health, unnoticed perforation during endoscopy, early diagnosis, no signs of diffuse peritonitis, proper colonic preparation, and a different injury mechanism to traction. Castellvi et al. also noted in his retrospective multicentric study that patients with non-operative management
had fewer complications and shorter hospital stay. Laparoscopic surgery has previously been shown in a systematic review to reduce post-operative analgesic requirements, length of hospital stay, wound infection and even reduced mortality rates in the management of perforated peptic ulcers.

When perforation occurs in an otherwise intact colon, diagnostic laparoscopy can be considered as an appropriate initial surgical management. It also can be used as a prelude to open surgery in order to confirm and localise the site of perforation and limit the length of a laparotomy incision. Laparoscopy can be used to identify and repair the site of the perforation, often with just a simple suture. Laparoscopic lavage of the contaminated peritoneal cavity has been used successfully in acute complicated diverticulitis with a Hinchey Grade of up to 3.

In this report, this patient did not require a full laparotomy. Laparoscopy was successful in excluding a large perforation, lavaging the soiled peritoneal cavity and leaving behind a drain, avoiding the need for a full length laparotomy wound. Laparotomy wounds are associated with peritoneal adhesions and this can be a risk factor for colonoscopy perforation. This is an important consideration in this patient, who has confirmed colonic polyps and a strong family of colorectal cancer. She will require future colonoscopies, with a risk of future perforations and consequent surgeries. Previous laparotomies increase the difficulty level of a laparotomy. Added to that, the patient, a female, reaps the benefit of lesser cosmetic scars from laparoscopy (Figure 2).

In conclusion, there is no surgical need to explore every iatrogenic colonoscopy perforation patient with a laparotomy. Conservative and less invasive management including laparoscopic surgery is feasible. The type of management chosen will depend on the condition of the patient, the severity of the perforation and the ability of the surgeon and centre.

REFERENCES


CHONG. Brunei Int Med J. 2013; 9 (3): 198

HUMERUS

MILLIPEDE SIGN!

A magnetic resonance cholangiopancreatography (MRCP) showing the ‘Millipede sign’ of chronic pancreatitis. 😊