

Splenic injury following colonoscopy

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Splenic injury following colonoscopy is rare but can be fatal and easily overlooked. A case of colonoscopic splenic injury is presented to highlight its potentially fatal complication. The risk factors, underlying mechanism, possible measures of prevention, diagnosis, and treatment are also discussed.

HKMJ 1999;5:202-3

Key words: Colonoscopy; Colonoscopy/adverse effects; Postoperative complications; Spleen/injuries; Splenic rupture

Introduction

Colonoscopy is a relatively safe procedure. The most frequent complications following colonoscopy are haemorrhage after polypectomy (1%) and perforation (0.1%).¹ Injuries to other viscera are extremely rare and diagnosis is usually delayed. We report on a case of splenic trauma following colonoscopy in a 67-year-old woman.

Case report

A 67-year-old Chinese woman who had a history of carcinoma of the sigmoid colon and had undergone sigmoid colectomy 4 years previously, was admitted to the Department of Surgery at the Queen Elizabeth Hospital (QEH) in April 1997 for follow-up colonoscopy. Sodium picosulphate was given orally for bowel preparation. The patient was sedated with intravenous diazepam 7.5 mg and placed in the left lateral position during colonoscopy. She was subsequently placed in the supine position, as difficulty was encountered while negotiating the colonoscope through the splenic flexure. Colonoscopic examination was completed after approximately 20 minutes. A polyp was identified in the transverse colon and was snared.

The patient collapsed in the hospital ward 4 hours after the colonoscopy; her blood pressure was 75/35 mm Hg and pulse rate was 96 beats per minute. The abdomen was mildly distended and the left side was tender; bowel sound was sluggish. The haemoglobin level was 108 g/L and the clotting profile was normal,

as was liver function. There was no shoulder pain, fever, or rectal blood. An abdominal X-ray showed no evidence of free gas in the peritoneal cavity.

Fluid resuscitation was given and an emergency laparotomy revealed that the haemoperitoneum contained a blood clot of approximately 1.5 L. The capsule at the lower tip of the spleen had been torn and was bleeding. The colon was intact. Splenectomy was performed and results from the histological examination revealed a normal-size spleen and no pathological changes besides the capsular tear. Three units of blood had been transfused. The patient made an uneventful recovery and was discharged home on the eighth day after admission to the hospital.

Discussion

Splenic injury following colonoscopy is a rare complication; only 17 cases have been reported in the English literature.² Partial capsular avulsion of the spleen results from the colonoscope looping near the splenic flexure. The risk factors for splenic injury are previous abdominal surgery, inflammatory bowel disease, and difficult colonoscopic and therapeutic procedures. However, no unusual difficulty was encountered in most of the cases reported.³ In addition to the above risk factors, we feel that the positioning of the patient plays a role in the likelihood of colonoscopic injury occurring. If the patient assumes the supine position (as in this case), the forces exerted on the spleen due to gravity and traction during colonoscopy oppose each other. This factor will increase the chance of the splenic capsule tearing, especially if there are other predisposing factors, such as previous abdominal surgery. To prevent this complication, patients belonging to the high-risk group should be placed in the left lateral position, and the supine position needs to be avoided during colonoscopy.

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The diagnosis of splenic injury is usually delayed and most cases are relatively asymptomatic immediately after the procedure.^{2,4-6} Shock and abdominal pain are the most common presenting symptoms. There have been two cases of reported mortality related to this rare complication, which indicates the importance of making an early diagnosis.²

A review of 17 cases of splenic injury following colonoscopy has provided some clues to obtaining an early diagnosis. More than half of the reported cases are actually symptomatic within 1 day. The earliest symptom is abdominal pain that mainly involves the upper left quadrant of the abdomen; symptoms of hypotension follow.² Thus, a high level of suspicion and close monitoring of high-risk patients should be able to detect splenic injury at an early stage.

Colonoscopy is usually performed in a day-surgery setting and the patient is discharged on the day of the procedure. Consequently, there is potential risk that late-presenting complications will be missed. To minimise this possibility at the QEH, high-risk patients are identified at the time of admission and observed for at least 24 hours after the colonoscopy. Patients who are considered to be at high risk include those who have undergone previous abdominal surgery, those with a bleeding tendency (eg taking an anticoagulant), and those with portal hypertension (eg liver cirrhosis). At the QEH, all patients who have undergone a colonoscopic therapeutic procedure, such as polypectomy, and those who have been considered by the endoscopist to have undergone a difficult colonoscopic procedure are also admitted for observation. Patients are instructed to return if they experience any abdominal discomfort or if fever develops within a few days after the colonoscopy. We believe that these measures should be able to recognise most colonoscopic complications in their earliest stage.

Once the diagnosis of colonoscopic splenic injury is suspected, urgent investigation with abdominal ultrasonography or computed tomography is helpful

in stable cases. In unstable cases, however, as in this patient, emergency exploratory laparotomy is needed. Nearly all the reported cases describe the need for a splenectomy.³ Whether splenectomy or splenorrhaphy should be done will depend on the expertise available.

Conclusion

Splenic injury following colonoscopy is rare and is easily overlooked. A delay in the diagnosis, however, can be fatal. Appropriately positioning a high-risk patient during the procedure should be able to minimise its occurrence. The key step in preventing a lethal outcome is the early recognition of the symptoms. A review of the cases reported to date suggests that identifying high-risk patients and adequately observing them after a colonoscopy may help in the diagnosis of splenic injury at an earlier stage. Furthermore, these measures should also help detect other colonoscopic complications. Finally, endoscopists should always have a high level of suspicion of splenic injury in patients who present with abdominal symptoms after colonoscopy.

References

1. Macrae FA, Tan KG, Williams CB. Towards safer colonoscopy: a report on the complications of 5000 diagnostic or therapeutic colonoscopies. *Gut* 1983;24:376-83.
2. Espinal EA, Hoak T, Porter JA, Slezak FA. Splenic rupture from colonoscopy. A report of two cases and review of the literature. *Surg Endosc* 1997;11:71-3.
3. Colarian J, Alousi M, Calzada R. Splenic trauma during colonoscopy. *Endoscopy* 1991;23:48-9.
4. Gores PF, Simso LA. Splenic injury during colonoscopy. *Arch Surg* 1989;124:1342.
5. Castelli M. Splenic rupture: an unusual late complication of colonoscopy. *CMAJ* 1986;134:916-7.
6. Doctor NM, Monteleone F, Zarmakoupis C, Khalife M. Splenic injury as a complication of colonoscopy and polypectomy. *Dis Colon Rectum* 1987;30:967-8.
7. Dodds LJ, Hensman C. Splenic trauma following colonoscopy. *Aust NZ J Surg*. 1993;905-6.
8. Ong E, Bohmler U, Wurbs D. Splenic injury as a complication of endoscopy: two case reports and a literature review. *Endoscopy* 1991;23:302-4.