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Case Report

Splenic rupture post colonoscopy requiring splenectomy

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ABSTRACT

Colonoscopy is a safe procedure performed routinely worldwide. Splenic rupture is a rare complication of colonoscopy with less than 100 case reports since 1974. We report a case of splenic rupture post colonoscopy requiring splenectomy, with a focus on the analysis of risk, investigation and treatment. A 60-year-old patient underwent a colonoscopy with polypectomy after a positive faecal occult blood test. After 19 hours, the patient experienced abdominal pain and dizziness. A computed tomography showed a splenic rupture and abdominopelvic hemoperitoneum. An urgent splenectomy was successfully performed. Physicians should have greater awareness of the possibility of splenic rupture following coloscopy to avoid delay in diagnosis and treatment for this life-threatening complication.

Keywords: Spleen trauma, Spleen rupture, Colonoscopy, Endoscopy, Splenectomy

INTRODUCTION

Colonoscopy is a routine diagnostic and therapeutic tool. Complications are rare, consisting mainly of haemorrhage (1-2%) and colonic perforation (0.1-0.2%). Other rare complications are mesenteric tears, pneumothorax, ileus and colonic volvulus.[1] Splenic injury post-colonoscopy is rare and serious. Mechanisms of injury include the tension on the splenocolic ligament, pre-existing adhesion of the colon and a direct injury to the spleen. With the wide use of colonoscopy, physicians need to be aware of this rare life-threatening complication of this procedure. We present a case of spleen rupture after colonoscopy requiring splenectomy.

CASE REPORT

A 60-year-old female underwent a colonoscopy for a positive faecal occult blood test. She does not have any past abdominal surgeries or past medical history and does not take any regular medication. The visualization was extremely poor with extensive copious faecal fluid in the colon. The colonoscope was passed from the rectum to the descending colon with great difficulty. There was excessive looping, requiring external pressure. There were two large pedunculated polyps in the sigmoid colon. A polypectomy was performed, and bleeding was controlled with a haemostatic clip and injection of 3 ml of adrenaline 1:10000. The procedure was aborted post polypectomy (Figures 1 and 2).

The patient presented to the emergency department 19 hours post colonoscopy with severe abdominal pain in her left upper quadrant and suprapubic regions. The patient stated that her abdominal pain began several hours after recovery from her colonoscopy and the pain was constant. Her pain was ranked 10/10 in severity. Upon presentation, the patient was in haemorrhagic shock, with a blood pressure of 85/40 and a heart rate of 125. A physical examination revealed a distended abdomen with four quadrant tenderness.

After resuscitation with 2 liters of fluid and 1 packed red blood cell, the patient returned to normal hemodynamic stability. The initial haemoglobin was 106 g/l. A CT angiogram of the abdomen pelvis revealed a grade IV splenic rupture according to the American association for

the surgery of trauma (AAST) splenic injury scale. There was an anterior splenic laceration, with a parenchyma hematoma of 12×8×2 cm in size with an internal contrast blush, indicating active bleeding (Figure 3 and 4).

The patient underwent an emergency exploratory laparotomy. It revealed a large volume of blood and clots within the peritoneal cavity. There was no perforation of the colon. The spleen capsule was completely avulsed. A splenectomy was performed, and a drain was left in place.

The patient had an uneventful recovery post-operative period. The drain was removed on the fourth postoperatively day and the patient was discharged on the sixth postoperative day. The patient was registered on the spleen registry, commenced on lifelong prophylactic antibiotics and received pneumococcal, meningococcal and haemophilus influenza B immunisation. The patient was followed up one month post the operation and had a full return to daily activity.

Figure 1: Colonoscopy showing a pedunculated polyp at sigmoid colon.

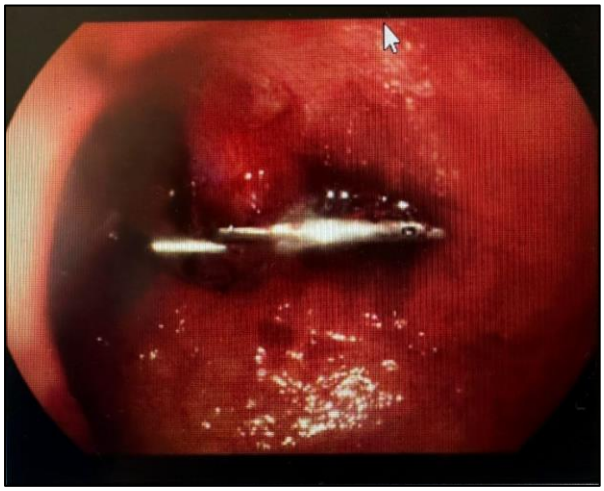

Figure 2: Colonoscopy showing haemostatic clip after hot snare polypectomy at sigmoid colon.

Figure 3: Axial CT abdomen with contrast showing the subcapsular perisplenic hematoma (red arrow).

Figure 4: Coronal CT abdomen with contrast showing the subcapsular perisplenic hematoma (red arrow).

DISCUSSION

Colonoscopy is a relatively safe procedure. A review of the literature indicates that the first case of splenic injury post colonoscopy was reported in 1974 and less than 100 cases have been reported in the literature since then.[2] The most recognizable theory that accounts for the mechanism of splenic injury is excessive traction from the splenocolic ligament during the navigation of the colon with the colonoscope, thereby pulling the splenic capsule off the spleen, causing laceration and avulsion.[3] Other theories include splenocolic adhesions from previous abdominal surgeries, the manoeuvre of hooking the splenic flexure to straighten the left colon and direct trauma via splenic flexure perforation.[4] Poor visualization, biopsies and polypectomy are also recognized risk factors.[5] Moreover, hematological, infectious and infiltrative diseases that lead to splenomegaly, inflammatory bowel disease, and pancreatitis can also increase the risk of splenic rupture after colonoscopy.[6] The aetiology of splenic injury in this case remains unclear although poor visualization, looping

requiring external pressure and polypectomy are suspected to play a role. The most common signs and symptoms are abdominal pain, peritonism and hemodynamic instability.[7] Kehr's sign refers to left shoulder pain upon bimanual palpation of the left upper quadrant was reported in 34% of the patients. Patients may or may not present with a drop in haemoglobin and hemodynamic instability, depending on the degree of splenic injury. Patients often develop symptoms within 24 hours after the colonoscopy, even though it has been reported up to 10 days after. Physicians involved in patient care should have a high index of suspicion for splenic injury, particularly with a constellation of left upper quadrant pain and hemodynamic instability.

Diagnostic modalities for suspected spleen injuries exist. Computerized tomography of the abdomen and pelvis with intravenous contrast can rapidly diagnose and grade the splenic injury. CT can also evaluate for other possible complications of colonoscopy that have similar presentations, including perforation or infection. A focused assessment with sonography (FAST) is a useful adjunct evaluation method. This modality is readily available by bedside and can visualize free fluid in the abdomen, and potentially hematoma adjacent to the spleen. A plain radiograph is of limited utility, as it does not allow for easy evaluation of the spleen and would only yield a positive result in cases associated with hollow viscus perforation.

The management depends on the severity of the splenic injury. Patients with low-grade splenic injury, normal hemodynamic stability and haemoglobin perform better with a conservative approach.[1] Conservative management includes bed rest, serial observation, abdominal examination, frequent hemodynamic checks and blood product replacement if required. Angioembolization is a management option for active contrast extravasation, splenic vascular injury and grade III or above splenic injury. This however was not available in the health network in this case study. Finally, urgent splenectomy should be performed for any patients with a splenic injury who develop hemodynamical instability or require substantial blood product replacement. Patients who underwent splenectomy need to be registered to the spleen registry, vaccinated against encapsulated organisms and be on lifelong antibiotic prophylaxis.

CONCLUSION

Splenic injury after colonoscopy is a rare but serious complication. Physicians need to have a high index of suspicion when a patient present with abdominal pain after colonoscopy. The proceduralist need to bear in mind that prevention of such complications can be assisted with gentle traction during polypectomy, repositioning the patient and avoid looping during the procedure.

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