

# Rare Complications Following Colonoscopy: Case Reports of Splenic Rupture and Appendicitis

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## ABSTRACT

**Background:** Appendicitis and splenic rupture are 2 rare complications of colonoscopy reported in the literature. To our knowledge splenic rupture following colonoscopy has been reported 17 times in the English-language literature and is associated with excess traction on the splenocolic ligament. Appendicitis after colonoscopy has been reported only 9 times and is usually associated with obstruction of the appendiceal lumen with fecal matter during colonoscopy.

**Methods:** We present the case reports of 2 patients: a 76-year-old woman who presented in consultation 24 hours after a routine colonoscopy with massive hemoperitoneum secondary to splenic rupture, seen on computed tomographic (CT) scan, who then underwent splenectomy; the second, a 60-year-old male who presented to the emergency room 16 hours after colonoscopy with clinical and computed tomographic scan findings of acute appendicitis who underwent a laparoscopic appendectomy.

**Results:** Treatment of both patients resulted in resolution of their complications, splenic rupture and appendicitis. They both had an uneventful postoperative course and are doing well several months postoperatively.

**Conclusions:** We report 2 rare complications of colonoscopy, splenic rupture and appendicitis. In the setting of a recent colonoscopy and abdominal pain, a high index of suspicion is needed for their diagnosis.

**Key Words:** Colonoscopy, Splenic rupture, Appendicitis.

## INTRODUCTION

Two unusual complications of colonoscopy are splenic rupture and appendicitis. These are both rare and have each been reported less than 20 times. The mechanism for their occurrence is different. Although very uncommon, these potential complications should be considered when a patient presents with abdominal pain following colonoscopy.

Splenic rupture following colonoscopy has been reported 17 times (18 including our case) in the English-language literature, with the first reported case in 1974.<sup>1</sup> Symptoms were usually reported within the first 24 hours after colonoscopy, and nearly all cases resulted in splenectomy.<sup>2</sup> The proposed mechanism for injury to the spleen involves avulsion of the splenic capsule from excess traction on the splenocolic ligament during colonoscopy. This traction is from movement of the scope itself and excess torque against the wall of the colon, placing traction on these ligaments. Predisposing factors include splenomegaly and adhesions between the spleen and colon from prior surgery. Excess traction resulting in splenic rupture can occur during routine colonoscopy or as more commonly reported during colonoscopy with polypectomy.<sup>3</sup> One other mechanism that has been proposed is excess traction on the ligaments generated by external pressure on the left hypochondrium used to straighten the scope during colonoscopy.<sup>4</sup> Splenic rupture may go unrecognized or the diagnosis may be delayed because of its rare occurrence and presentation of pain that may often be attributed to the instillation of air during the colonoscopy itself.<sup>5</sup>

Appendicitis after colonoscopy has been reported 10 times in the literature, to our knowledge, including our case.<sup>6,7</sup> It has been suggested that excess pressure from the endoscope at the appendiceal lumen and possible excess inflation can result in inflammation secondary to trauma or can lead to formation of a fecalith.<sup>8-11</sup> It has also been reported that impaction of stool at the appendix orifice during colonoscopy can lead to obstructive appendicitis.<sup>12</sup>

## CASE REPORT ONE

A 76-year-old woman underwent colonoscopy with biopsy of a 1-mm cecal polyp and biopsy of a 1.5-cm ileal

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nodule 10cm from the ileocecal valve. Biopsies were taken without evidence of postbiopsy bleeding. The patient was in her usual state of health before the procedure. Her medical history is significant for endometrial cancer treated with total abdominal hysterectomy and bilateral oophorectomy (TAH-BSO), a large hiatal hernia, and cecal tubular adenoma removed endoscopically. Her history is negative for any known disease process involving the spleen. Thirty minutes after this colonoscopy, she was found to be hypotensive, with a systolic blood pressure of 71 over a diastolic pressure of 51, diaphoretic, pale, and nervous. She was admitted to the intensive care unit with a hemoglobin level of 8.4g/dL and a hematocrit of 25%, placed on norepinephrine to support her blood pressure, and transfused with packed red blood cells.

The surgical service was asked to consult the following day, after she remained hypotensive, required multiple blood transfusions, and had a computed tomographic (CT) scan that showed massive hemoperitoneum (**Figure 1**). At this time, she was taken for emergency laparotomy, during which she was found to have splenic rupture with avulsion of the splenic capsule and splenocolic ligaments. She underwent splenectomy. The spleen was a normal size, measuring 54 g with no pathology found on gross or microscopic examination. Postoperatively, she did well and was transferred from the intensive care unit to a regular surgical floor on postoperative day 2.

## CASE REPORT TWO

A 60-year-old male presented to the emergency department 16 hours after a screening colonoscopy, during which he underwent sigmoid polypectomy of a 5-mm,



**Figure 1.** Computed tomographic scan showing massive hemoperitoneum.

tubular adenoma. Upon presentation to the emergency department, he was complaining of 8 hours of worsening right lower quadrant (RLQ) pain, nausea, and vomiting. His past medical history is significant for hypertension, coronary artery disease, myocardial infarction, and hyperlipidemia. On admission, his white blood cell count was 13.7 thousand with a left shift. Computed tomography scan demonstrated a retrocecal appendix with a small appendicolith, wall thickening, and periappendiceal inflammation. The patient was admitted to the hospital and underwent laparoscopic appendectomy for a grossly inflamed appendix with fecalith. He tolerated his operation well and was discharged home the next day.

## DISCUSSION

Colonoscopy is a fairly safe procedure, with bleeding and perforation reported as the most common complications. Other, rare, complications include hepatic portal vein gas, pneumomediastinum, pneumothorax, and diverticulitis, among others.<sup>11</sup> Mechanical small bowel obstruction has also been reported following colonoscopy.<sup>13</sup> The rare complications of colonoscopy we have reported, cases of splenic rupture and appendicitis, occur with infrequency. Computed tomography can be useful when the diagnosis is not clear in a patient who has recently undergone a colonoscopy and presents with significant physical findings. Not previously reported is one factor unique to our case of splenic rupture, entry into the ileum with ileal biopsy. This could theoretically contribute to increased torque of the scope at the splenic flexure secondary to the increased working distance of the scope.

## CONCLUSION

These rare complications that we have reported often present with nonspecific signs of abdominal pain, and clinicians must have a high index of suspicion and awareness of these entities to make their diagnosis.

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