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Splenic Injury after Colonoscopy

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Abstract
Introduction: *For many years colonoscopy has been a standard and safe procedure. However, complications occur, and splenic injury is one of the rarest and most serious complications following a colonoscopy.*
Case presentation: *We present a case of a 54-year-old woman who had a splenic injury after undergoing a colonoscopy. She was taken to the operating room because she was hemodynamically unstable. It was decided to have a splenectomy.*
Discussion: *Observation (27,3%), selective arterial splenic embolization (4,5%), and splenectomy are the three treatment options for splenic injury (56.1 percent). The decision is based on the patient's medical history and current hemodynamic condition.*
Keywords: *Splenic injury, colonoscopy, splenectomy*

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I. Introduction

Nowadays , colonoscopy is considered an increasingly performed and safe procedure ,yet complications do happen .Although colonoscopic splenic injury after colonoscopy is rare, it remains a life-threatening complication. Traction on the splenocolic ligament and/or excessive manipulation of pre-existing adhesions between spleen and colon are considered the most common etiologies for splenic injury. The diagnosis is often delayed due to its rareness. Thereby, the risk of morbidity as well as mortality is increased. [1]

Most of the patients become symptomatic in the first 24 hours after colonoscopy, while others can remain asymptomatic for longer. [3] The diagnosis of colonic splenic rupture remains clinical, however the early symptoms are often masked by sedation, analgesia, impaired mental status and older age. When it comes to treatment, most of the reported cases are managed by surgical splenectomy; especially in the case of unstable patients. Observation or selective arterial embolization is the treatment of choice for the hemodynamically stable patients, while CT scan is the gold standard diagnostic modality for them. [3]

II. Case Presentation

A 54-year-old woman came to the emergency department with diffuse abdominal pain. Before 10 hours she had a colonoscopy to investigate a chronic anemia. Her medical history included arterial hypertension, and dyslipidemia. Her colonoscopy went well, and the cause of her anemia was not discovered. After 6 hours of the procedure, she began to develop abdominal pain, and 4 hours later, she was seeking for medical health.

In the emergency room, she was hypotensive, with a systolic blood pressure of 80 mmHg and a tachycardia of 124 beats per minute. Tenderness in the left upper abdominal quadrant was found during her abdominal examination. Her hemoglobin level was 6.9 g/L, with a hematocrit of 22 per cent. The other blood tests were normal. She was transfused with two units of packed red blood cells immediately.

The abdominal ultrasound revealed intraperitoneal fluid in the abdominal cavity and the CT scan showed a grade IV scenic injury with hemoperitoneum. She was taken to the operation room where an

exploratory laparotomy revealed the hemoperitoneum and the splenic injury as described from the CT scan. The other organs of the abdomen did not have any injury. The spleen could not have been preserved, so a splenectomy was performed. A total of 5 units of packed red blood cells were transfused. Postoperatively the patient recovered without complications and was discharged from the hospital on the seventh day.

III. Discussion

Colonoscopy is considered as a gold standard procedure; however, complications do happen. The most common ones are intraluminal bleeding and colonic (micro)perforation. Mesenteric tear, subcutaneous emphysema, pneumothorax, pneumomediastinum, septicemia, incarceration of hernia, diverticulitis, appendicitis, volvulus, methane or hydrogen gas explosion, and injury of the spleen consist some of the rarest ones. [1]Splenic injury upon colonoscopy is rare, yet a life-threatening complication. Only a few cases have been reported since the initial description by Wherry and Zehner 1974, with incidence and mortality rates of 0.00005–0.017% and 5% respectively. [1] 73.53% of splenic injuries do appear to exist in women compared with the 26.47% of that in men. [3]The most likely mechanism for splenic injury is tension on the splenocolic ligament or a direct injury to the spleen during passage through the splenic flexure. Other risk factors associated with this complication are therapeutic colonoscopies, colon cancer splenomegaly, anticoagulation therapy and fibrous adhesions between spleen and colon due to inflammatory bowel disease, pancreatitis or previous surgery. [1,4]The technical manoeuvres that can increase the risk for splenic injury are the α-manoeuvre, external pressure on the left hypochondrium ,and straightening of the sigmoid loop. [2] This risk may be decreased with the supine position of the patient, where the spleen falls posteriorly away from the splenic flexure thereby minimizing the external forces exerted on it. [3] However, this increases the risk of tearing the splenic capsule, especially in patients with prior abdominal surgeries or intrabdominal adhesions. Therefore, the left lateral position is the only way to prevent this complication by minimizing the external pressure. [1,3] The symptoms may vary depending on the severity of the injury. Most patients become symptomatic in the first 24 hours after colonoscopy, while others can remain asymptomatic for longer (10-14 days). [3] Mild abdominal discomfort, nausea, vomiting, increased abdominal distention are some of the symptoms presented, with the upper quadrant pain being the most commonly reported one. [1,4] 34,4% of the patients may also experience pain radiating to the left shoulders (Kehr sign) due to diaphragm irritation. [1,4] Unfortunately, half of the patients after uncomplicated colonoscopy present with these symptoms due to gas distention alone. However, cardiovascular instability and hypotension were reported in 74,4% of the cases. [3]Abdominal CT scan and US are the most reliable methods for a fast and prompt diagnosis of intrabdominal fluid. However , CT scan is the most common diagnostic modality because it can rule out injury to other organs and the possibility of grading splenic injuries. [1] Colonic perforation can be visualized through CT scan (free gas in the abdominal cavity). Treatment options for splenic injury consist of observation (27,3%) ,selective arterial splenic embolization (4,5%) and splenectomy (56.1%). [1] Observation or selective arterial splenic embolization is the treatment of choice for the hemodynamically stable patients ,while surgical splenectomy is the only treatment for hemodynamically unstable patients. [1] 77.4% of patients with splenic injury after colonoscopy may need surgical exploration, while 95% of them may need splenectomy. [4] Selective embolization is a safe and effective treatment in elderly patients with comorbidity and patients under anticoagulation therapy. [1]However, a hemodynamically stable patient who responds well to moderate resuscitation or makes no use of anticoagulants can be closely observed and treated with bed rest, IV antibiotics, close hemodynamic monitoring, volume replacement, imaging and serial hemoglobin checks. [1]

IV. Conclusion

In conclusion, splenic injury after colonoscopy is a rare but sometimes fatal complication. Patients with post-procedural abdominal pain and /or shock after colonoscopy, suspicion of splenic injury should be raised. The diagnosis remains a clinical one, and is confirmed mostly through CT scan. According to the literature, the treatment of the splenic injury after colonoscopy depends on the patient's hemodynamic status. In hemodynamically stable patients, observation or selective arterial embolization is the treatment of choice, however in hemodynamic unstable ones, surgical management is needed. In most case reports, splenectomy is the most common management.

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