

## Splenic rupture – A rare complication of routine colonoscopy

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### Abstract

A 66-year-old female patient presented on our emergency department in hemorrhagic shock with a blood pressure of 70/50 mmHg and a hemoglobin level of 9.1g/dl after routine colonoscopy. The patient had severe abdominal pain and a tense abdomen. Computed tomography showed splenic rupture with haemoperitoneum. By means of volume, erythrocyte transfusion and tranexamic acid the patient became stable in circulation.

Control computed tomography after 24 showed no ongoing bleeding.

Splenic rupture is a rare complication after colonoscopy and can be treated conservatively.

**Key Words:** Splenic rupture; Colonoscopy; Hemorrhagic shock; Conservative treatment; Hypotension; Resuscitation.

### Introduction

A 66-year-old female patient was admitted to our emergency department by ambulance crew due to severe abdominal pain (VAS 7/10). The patient reported that the symptoms had gradually begun within 24 hours after a routine colonoscopy with removal of three polyps. Self-medication with non-opioid analgesics did not sufficiently relieve pain. Melena or rectal bleeding did not occur. Personal history was significant for arterial hypertension and dyslipidemia treated with enalapril and rosuvastatin respectively. Apart from two cesarean sections, no abdominal surgery had been carried out in the past.

### Methods

On admission, the patient presented in circulatory shock, with a blood pressure of 68/51mmHg, a normal heartrate of 71bpm and an oxygen-saturation of 99% without supplemental oxygen. Physical evaluation revealed diffuse abdominal tenderness on palpation, skin pallor and peripheral vasoconstriction. Blood analysis showed a hemoglobin of 9.1g/dl, a normal thrombocyte count and normal coagulation studies. Computed tomography demonstrated splenic rupture with hemoperitoneum, consistent with subacute bleeding (Fig. 1/2).



**Figure 1.** Computed tomography splenic rupture with hem peritoneum (frontal section)



**Figure 2.** Computed tomography splenic rupture with hemoperitoneum (coronary section)

After volume-resuscitation with 3000ml of crystalloids, administration of 1g tranexamic acid and two erythrocyte concentrates, hemodynamic stabilization was achieved and the patient was transferred to the intensive-care-unit for further monitoring. We decided for a conservative approach.

Prophylaxis of thrombosis was achieved with pneumatic compression only, to reduce the chance of secondary hemorrhage by anticoagulants. The blood pressure was kept in the low normal range.

A control- computed tomography after 24 hours showed no progression of hemoperitoneum and no signs of active bleeding. Meanwhile, the patient was hemodynamically stable without administration of vasopressors or coagulation factors. After an initial drop in hemoglobin to 7.4mg/dl due to volume resuscitation, a steady increase to 8.8mg/dl within 24 hours was observed. Following stepwise mobilization and transition to a normal diet, the patient could be transferred to the ward on day 5. The patient was discharged to her home in good overall condition on day 11. At follow-up three month later the patient is completely asymptomatic and reports no limitations in daily life, abdominal sonography reveals only minor residual hematoma of 5x6cm.

## Discussion

Splenic rupture is a rare complication of colonoscopy with an estimated incidence of 1 per 100'000 procedures that is seen more frequently in female patients [1, 2]. As a differential diagnosis perforation and post-polypectomy syndrome have to be considered, which are more

common.[3,4]The vast majority of splenic ruptures occur in apparently uncomplicated colonoscopies and symptoms typically develop within the first 24 hours, as was the case in our patient[1,2]. The clinical presentation is mostly unspecific, including abdominal pain of variable location and intensity. Hemodynamic stability is maintained in more than half of the cases at initial presentation [5]. The mechanism of injury is still topic of debate but direct blunt trauma, traction of spleno-colic ligaments and decreased mobility between the colon and the spleen have been suggested.[6] Non-operative management of blunt splenic injury is encouraged by recent guidelines, especially in hemodynamically stable patients without signs of ongoing bleeding [7]. Yet close monitoring of hemodynamic status, the course of

Hemoglobin levels and radiologic follow-up is mandatory in this context. Computed tomography is widely used as the modality of choice, but ultrasound has its role in early detection of free fluid [7]. Additionally contrast enhanced sonography is an option to rule-out delayed splenic pseudoaneurysm formation [8].

## Conclusion

Splenic rupture is a rare complication of colonoscopy whose etiology remains uncertain. In hemodynamically stable patients without signs of ongoing bleeding, non-operative treatment under close monitoring is an appropriate strategy.

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