



Case Report

A Rare Case of Splenocolonic Fistula Presenting as Rectal Bleeding after Non-Operative Management of Blunt Splenic Trauma and Review of the Literature

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Abstract

Background: Non-Operative Management of Splenic Injuries (NOMSI) is the standard approach to blunt splenic trauma in the stable patient. Complications of NOMSI are well documented, however splenocolonic fistulas (SCFs) are rare and usually due to chronic inflammatory or neoplastic events. After NOMSI, SCFs are extremely rare and knowledge around incidence and presenting complaints entirely unknown.

Objective: To present a rare case of SCF after non-operative management of blunt splenic trauma in a patient who presented without abdominal pain, but rectal bleeding.

Case Summary: A 35-year-old male who presented with hematochezia after NOMSI for blunt splenic trauma and was admitted with CT evidence of a large necrotic splenic abscess with splenocolonic fistula. He was evaluated by gastroenterology, Interventional Radiology (IR) and medical critical care. Pre-operatively angiography and gelfoam embolization of the splenic artery were performed and once appropriately optimized patient underwent exploratory laparotomy with splenectomy and left hemicolectomy for intra-operative findings of a large splenic abscess with a fistulous connection to the descending colon. Postoperatively, he regained bowel function, was ambulating and tolerating diet with stable vital signs. However, postoperative day 10, he left against medical advice and awaits postoperative follow up.

Conclusion: This case highlights the importance of further studies to investigate the complications following NOMSI and the potential of rectal bleeding as a crucial presenting symptom of SCF following NOMSI.

Keywords: Blunt trauma; Splenic abscess; Splenic embolization; Splenocolonic fistula

Introduction

Following blunt trauma, Non-Operative Management of Splenic Injuries (NOMSI) is recognized as the preferred approach, replacing splenectomy and splenorrhaphy unless otherwise dictated by a

patient's hemodynamic instability [1,2]. Complications following NOMSI are well documented and include cystic evolution of subcapsular hematoma, pseudoaneurysm formation, development of hemodynamic instability and splenic abscess [2]. Splenocolonic Fistulas (SCFs) are exceptionally rare and most commonly associated with inflammatory and neoplastic etiologies including complicated diverticular disease, Crohn's disease, locally advanced

colorectal cancer, lymphoma or pancreatitis [3-5]. Following NOMSI the incidence of SCF is largely unknown and only one aforementioned paper [2] has described the presence of SCF after blunt splenic trauma. Similarly, we present a rare case of SCF after blunt trauma managed nonoperatively and subsequently review the literature to hypothesize whether rectal bleeding could raise clinical suspicion of SCF after NOMSI.

Case Summary

A 35-year-old male with a history of Intravenous Drug Abuse (IVDA) presented to the Emergency Department (ED) with hematochezia two weeks after NOMSI for blunt splenic trauma at an Outside Hospital (OSH). At the OSH previously, he was evaluated and found to have multiple left sided rib fractures, left chest hemopneumothorax and hemoperitoneum secondary to splenic trauma. He was treated nonoperatively with left chest pigtail catheter placement and Angioembolization (AE) of the splenic artery via Interventional Radiology (IR). On presentation to our ED, his chief complaint was rectal bleeding with mild abdominal discomfort whilst denying prior history of rectal bleeding, diverticulosis, peptic ulcer disease or weight loss. Physical examination was largely benign with normal vital signs and left upper quadrant tenderness to palpation, without rigidity, guarding or other peritoneal signs. Laboratory studies revealed a leukocytosis of 28,800, anemia (hemoglobin/hematocrit level 9.5/31.0), thrombocytosis of 566,000, metabolic acidosis with pH 7.27, creatinine 1.6 and lactic acid level of 3.0. CT scan of the abdomen and pelvis with oral and intravenous contrast was significant for a large splenic abscess with necrotic splenic tissue and splenocolonic fistula connecting with the proximal descending colon (Figure 1).



Image showing large splenic abscess with associated SCF. Left: transverse section with red arrow indicating SCF; Right: coronal view with red and blue arrows indicating SCF and splenic abscess respectively.

Figure 1: CT scan of abdomen and pelvis on presentation to ED.

The patient was admitted to a telemetry unit for optimization and close cardiopulmonary monitoring and evaluation prior to open splenectomy. IR, medical critical care and gastroenterology consults were placed and empiric intravenous antibiotics (Zosyn and Vancomycin) started. Angiography of the splenic artery was performed by IR to evaluate for possible pseudoaneurysm or active extravasation leading to the patient's presenting symptom of hematochezia. No active bleeding or pseudoaneurysms were appreciated however due to planned splenectomy gelfoam embolization of the splenic artery by IR was performed. Once appropriately optimized on hospital day four, the patient underwent exploratory laparotomy, lysis of adhesions, splenectomy, left hemicolectomy with primary anastomosis and Jackson Pratt (JP) drain placement. Intraoperatively, he was found to have a large splenic abscess with necrosis and a 3 x 3 cm fistulous connection between the proximal descending colon and spleen. At the time of surgery there was frank abdominopelvic contamination with feces, purulence and blood adjacent to the splenic flexure and abscess capsule. The splenic abscess with fistula were removed en bloc and examined on the back table as shown in Figure 2. The fascia was closed primarily and skin was left open with a negative pressure wound vacuum system in place.

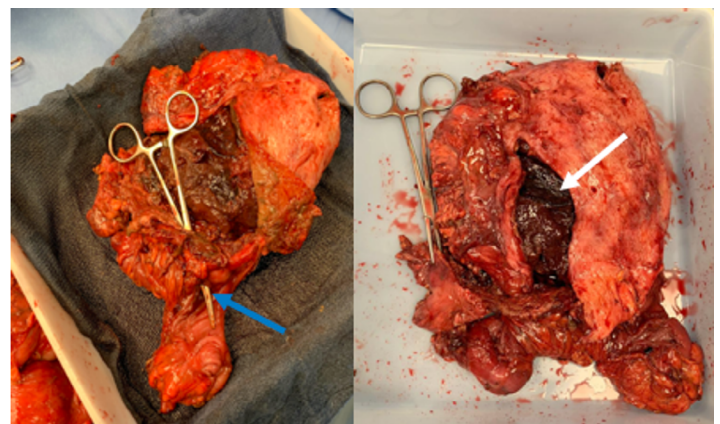


Image showing specimen removed. Blue and white arrow indicating Splenocolonic fistula tract and splenic abscess cavity respectively.

Figure 2: Specimen from en bloc resection.

Postoperatively, the patient's vital signs remained stable, afebrile and hemodynamically stable. On postoperative day 1, blood cultures drawn on admission in the ED revealed MRSA and Infectious Disease (ID) was consulted for antibiotic recommendations. Per ID recommendation antibiotics were adjusted appropriately (meropenem, vancomycin and micafungin) and a Transthoracic Echocardiogram (TTE) was performed to

evaluate for cardiac vegetations. After TTE was limited but showed no vegetations cardiology was consulted for Transesophageal Echocardiogram (TEE) to definitively rule out cardiac vegetations in order to estimate duration of antibiotic therapy.

During his postoperative recovery the negative pressure wound vacuum therapy was discontinued and his midline wound continued healing without signs of infection. Despite clinically improving, ambulating, having bowel function and subjectively feeling well a persistent leukocytosis remained 20,000-27,000 which the team partially attributed to be secondary to splenectomy. The patient remained in the hospital as the surgical team evaluated safe discharge for him in the setting of active IV drug use and a possible long-term IV antibiotic need depending on his TEE result. However, on hospital day 13 (postoperative day 9), he left against medical advice with a 14 day course oral Augmentin and is to be seen in the clinic for postoperative follow up.

Discussion

This case describes a case of SCF following NOMSI after blunt splenic trauma. SCFs are commonly associated with inflammatory or neoplastic conditions, such as complicated diverticular disease, Crohn's disease, colorectal cancer, lymphoma, or pancreatitis [3,4]. However, in this case, the patient developed a SCF after NOMSI, making it a unique and unusual occurrence, reported only once in prior literature as case report [2]. The standard management of blunt splenic trauma is generally dictated by a patient's hemodynamic status with NOMSI now widely accepted as the preferred approach above splenectomy and splenorrhaphy in the stable patient [1,2]. The incidence of specific complications following NOMSI can vary and is not well documented in the literature. Complications are most commonly separated into two arms; major (post-procedural bleeding, near-total infarction, and abscess) and minor (fever, pleural effusion, coil migration, and partial splenic infarction) [6-10]. SCF as a complication however is extremely rare after trauma and with minimal discussion in prior literature.

Chronic inflammation plays an integral role in the development of fistulous disease throughout the body [11] with splenic abscess after angioembolization in our case providing increased risk of fistula formation. In a previous report after Splenic Artery Embolization (SAE) patients were found to have statistically greater chance of splenic abscess development after >50% infarction [8]. Additionally, in the >50% infarction group, only 2 of the 15 patients who developed intra-splenic gas developed splenic abscess [8]. Notably in accordance with a previous study, it is difficult to distinguish intra-parenchymal gas from abscesses on follow-up CT scans after SAE [12]. In the context of SAE, it is important to note that while splenic abscess formation is a known complication, its incidence is relatively low. Studies have reported

varying rates of abscess formation, ranging from less than 1% to 4% [6]. In our case, gas was seen on follow-up CT scan and abscess observed intra-operatively during resection.

Interestingly, the chief presenting complaint surrounding our patient and the only other SCF after NOMSI found reported in the literature [2] was painless rectal bleeding. Rectal bleeding is a concerning symptom that can have various etiologies, including gastrointestinal bleeding, hemorrhoids, inflammatory bowel disease and colorectal cancer. While SAE itself does not typically cause rectal bleeding, it is important to note that complications can occur. In rare cases, embolization may result in ischemic or necrotic tissue changes within the spleen, potentially leading to infection or abscess formation [8-10]. If an embolized spleen becomes infected and subsequently forms a splenic abscess, it is possible for the abscess to erode into adjacent structures, most common being the stomach forming a gastro-splenic fistula [13]. Fistulization may however occur to the colon, forming a SCF, which can manifest as rectal bleeding as in our patient. In the context of blunt splenic trauma, rectal bleeding may not be initially attributed to a splenic injury or its complications. However, in cases where a patient presents with rectal bleeding after NOMSI, rectal bleeding may serve as a key clinical finding to prompt clinical evaluation and diagnosis to allow for detection and effective treatment as in our case.

In this case, CT imaging played a vital role in identifying the large splenic abscess and the fistulous connection between the spleen and the proximal descending colon. The detection of SCF through imaging allowed for the timely initiation of appropriate interventions, including antibiotic therapy, re-embolization and medical optimization. The management of SCF typically involves surgical intervention, which was done in our patient and included splenectomy and colonic resection with primary anastomosis which were performed to remove the abscess and fistula en bloc.

In summary, this rare case of splenocolonic fistula highlights the importance of recognizing potential complications associated with NOMSI. Prompt evaluation and diagnosis through appropriate imaging modalities are crucial for early management and successful outcomes. Additionally, rectal bleeding may serve as a significant clinical finding to prompt clinical evaluation and diagnosis to allow for detection and effective treatment as in our case.

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