Arterio-enteric Fistula – An Unusual Complication of Improper Wound Closure

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MJAFI 2005; 61 : 179-180

Key Words: Hematochezia; Arterio-enteric fistula

Introduction

Gastro-intestinal (GI) bleeding may originate anywhere from oral cavity to anus. Classically if the cause of bleeding is somewhere below the ligament of Treitz, the stools are maroon or bright red in colour and it is described as lower GI bleeding or hematochezia. Any vigorous upper GI bleeding with rapid transit of blood, gets insufficient time for conversion of red hemoglobin to brown hematin by gastric acid, and hence also presents as hematochezia. We present a case of hematochezia which was caused by an arterio-enteric fistula between left inferior epigastric artery and small bowel, causing life threatening lower GI bleeding in a lady who had undergone abdominal hysterectomy and cholecystectomy.

Case report

A 45 years old lady, who had undergone cholecystectomy and abdominal hysterectomy in same sitting two years earlier presented with two episodes of recurrent bleeding per rectum at an interval of one month. On first occasion she had profuse bleeding per rectum which was associated with giddiness and profound weakness. She was taken to a private hospital where four units of blood was transfused and upper GI endoscopy carried out which was suggestive of grade II oesophagitis. Bleeding stopped on conservative management. On second occasion she had catastrophic lower GI bleeding. General Examination revealed a middle aged lady, with pulse rate 146/min, BP 90/60 mm of Hg, pallor and dehydration. She had a soft systolic murmur in aortic area. Examination of abdomen showed healed scars of right subcostal incision and an infraumbilical, midline scar with a large incisional hernia. There was no hepatosplenomegaly. Per-rectal examination revealed dark coloured blood on gloved finger. Ryle's tube aspirate was clear. Proctoscopy, sigmoidoscopy and colonoscopy were non-contributory except for the presence of dark blood upto caecum. Investigations revealed – Hb – 4.2 gms%, PCV – 13%, Chest radiograph was

suggestive of healed tuberculosis.

After resuscitation with seven units of blood and colonic preparation she was taken up for exploratory laparotomy through midline infra umbilical incision. Per operative findings revealed entrapment of small bowel loop in prolene suture, and a 5 mm thick branch of left inferior epigastric artery entering in the antimesenteric border of small bowel at the junction of its middle and lower one-third (Fig 1). Adjacent bowel wall was congested and the bowel contents below it were dark coloured. After division and transfixation of the vessel, an approx. 20 cm of adjacent small bowel segment was resected and an end-to-end anastomosis was performed. Histopathological examination of the resected segment revealed serosal congestion and multiple thin wall ectatic vessels in edematous stroma of submucosa. No well-defined network of vessels was seen. Mucosa and muscularis mucosa appeared normal. Postoperative recovery was uneventful. Patient was asymptomatic on her follow-up visit after eight weeks and her Hb was 11.2 gms%.

Discussion

The causes of lower GI bleeding shows a

Fig. 1 : Gross resected segment of the ileum showing the site of entry of left inferior epigastric artery forming the arterio-enteric fistula

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geographical variation, while colonic diverticulosis and vascular ectasia of colon are the most common causes in the West [1]. Idiopathic ulcerative colitis, acute colitis, colonic polyps, solitary rectal ulcer, colonic carcinoma, ileal and colonic tuberculosis, non steroidal anti-inflammatory drug enteropathy and enteric fever are the major causes of lower GI bleeding in India [2,3]. Small bowel sources and other colonic pathologies like small bowel diverticular disease, inflammatory bowel diseases, neoplasia of small and large bowel, angiodysplasia, aorto-enteric fistula, ischaemic and radiation colitis are uncommon causes but pose a challenge to the clinician in making correct preoperative diagnosis [3,4].

It is imperative to localize the source of bleeding preoperatively for successful treatment. Only rarely does laparotomy need to be performed without knowledge of the site of hemorrhage [5]. The diagnostic work-up should be done as soon as the resuscitation is over and the general condition stabilizes.

The first step is nasogastric aspiration and upper gastrointestinal endoscopy (esophago-gastro-duodenoscopy) to rule out upper GI hemorrhage since peptic ulcer bleeding may be the cause of hematochezia and melena. Anoscopy and sigmoidoscopy (rigid or flexible) are relatively simple procedures to exclude hemorrhage below the peritoneal reflection such as bleeding internal hemorrhoids, rectal polyps and growths. Colonoscopy, visceral angiography and abdominal scintigraphy with 99m Tc labeled RBCs are three useful tests for localization [5]. Colonoscopy may be most useful if the bleeding has stopped or at least slowed substantially. Selective visceral angiography is very useful if the patient is having active bleeding at a rate that requires intravenous fluid or blood transfusion to maintain hemodynamics. Abdominal scintigraphy with 99m Tc labeled RBC infusion is helpful in delineating the site of bleeding when bleeding is intermittent and at a rate below that which is detectable by angiography. In case the facilities of the above are not at hand, a combination of sigmoidoscopy and air contrast barium enema may be tried if patient's general condition permits [6].

We have searched the literature on the subject and have come across some pathological conditions leading to fistula formation between aorta and the intestine [7,8].

Abdominal aortic aneurysm and infective aortitis may lead to primary aorto-enteric fistula but in most of the cases the bleeding occurs due to erosion of aortic vascular prosthesis through the wall of distal duodenum due to prolonged contact between prosthetic graft and a fixed segment of intestine (secondary aorto-enteric fistula). Bleeding may occur due to dehiscence of the anastomosis with bleeding into the bowel lumen from the edges of the eroded intestine [7]. The intestine may take blood supply from the anterior abdominal wall due to adhesion formation as seen sometimes as a sequelae of mesenteric venous thrombosis, malignancies and fungal infection. A case has been reported where mucormycosis invasion took place into the iliac artery causing severe haemorrhage, in a case of non Hodgkin's lymphoma receiving chemotherapy [8].

In this case, the cause of arterio-enteric fistula formation was due to improper wound closure in which there was entrapment of bowel in polypropylene suture. In spite of good efforts, we have not found any case similar to ours in English literature.

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