Massive Lower Gastrointestinal Bleeding from an External Iliac Artery Fistula in a Patient with Bladder Cancer

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Arterioenteric fistula is a rare cause of lower gastrointestinal bleeding, yet it can potentially cause massive, life-threatening bleeding. Patients with an advanced pelvic malignancy can develop hemorrhage from an arterioenteric fistula. Selective mesenteric angiography is unable to demonstrate the source of bleeding in these patients, so evaluation of the iliac arteries is essential. We present a 67-year old man with advanced bladder cancer presenting as massive, life-threatening lower gastrointestinal bleeding from an external iliac arterial fistula to the cecum. *(Chang Gung Med J 2008;31:612-5)*

Key words: massive lower gastrointestinal bleeding, unusual cause, arteriocolonic fistula

Lower gastrointestinal bleeding (LGIB) is a common cause of hospital admission.[1] It most frequently arises from colonic diverticula, angiodysplasia, neoplasms, and inflammatory bowel disease,[2] and is only rarely due to an arterioenteric fistula.[3,4] LGIB from an arterioenteric fistula is usually massive and potentially life-threatening.[4] The current investigative modalities for massive LGIB may be inadequate in localizing the bleeding source. Herein, we report a patient with advanced bladder cancer presenting with massive, life-threatening lower gastrointestinal bleeding from an external iliac arterial fistula to the cecum.

CASE REPORT

A 67-year-old man with a history of bladder cancer was admitted via the emergency room (ER) with an altered mental status and massive bleeding from the anus for one day. The patient had undergone transurethral excisional biopsy of the bladder tumor one and a half years prior to the current admission, and then had concurrent chemoradiotherapy (Gemcitabine and radiotherapy with a cumulative dose of 6300cGY/35 fractions) for local advanced bladder cancer. He had a partial cystectomy for residual bladder cancer ten months previously. One month prior to this admission, bilateral hydronephrosis was detected on a renal echo with suspicion of recurrent bladder cancer, and subsequently a bilateral percutaneous nephrostomy was done. In the ER, the patient was pale, diaphoretic, cool, and tachycardic. His hematocrit was 23.9%, with a pulse rate of 106 beats/min and a systolic blood pressure of 65 mmHg. The prothrombine time and partial thromboplastin time were both normal. Treatment began with intravenous fluid resuscitation, transfusion of 4 units of packed red blood cells (pRBCs), and broad spectrum antibiotics. A nasogastric tube was inserted and bilious gastric contents but no blood was aspirated. Rectal examination revealed normal sphincteric tone and a large quantity of bright red blood and blood clots; with no evidence of a rectal mass. However, he was subsequently referred for angiographic evaluation, because of the massive rectal bleeding. Selective arteriography of the celiac trunk, superior mesenteric artery (SMA), and inferior mesenteric artery (IMA) did not demonstrate a

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bleeding source. An urgent colonoscopy was performed and was non-diagnostic because of the large amount of bright red blood in the colon. Sixteen hours after arrival, after transfusion of a total of ten units of pRBCs, the patient's hemocrit was 23.1% and the systolic blood pressure was 87 mmHg. Selective mesenteric arteriography was repeated and still did not demonstrate a bleeding source. The patient remained unstable hemodynamically after massive transfusions and continued resuscitation. He lost consciousness and went into shock twenty-four hours after arrival. Consequently, an emergency exploratory laparotomy was carried out with the preoperative diagnosis being obscure. On opening the abdomen, an indurated, fixed mass involving the cecum, right lower retroperitoneum and right pelvic side wall was found with a rather dilated colon but non-dilated ileum. Recognizing that the massive lower gastrointestinal bleeding must be due to the mass, and that there might be an arteriocolonic fistula caused by tumor invasion, we clamped the terminal ileum and the ascending colon, and then exposed the right common iliac artery and clamped it. After removal of the cecum and terminal ileum, we revealed that the right external iliac artery had been invaded by the recurrent tumor with segmental necrosis, resulting in an external iliac arteriocecal fistula (Fig. 1). Ligation of the right external iliac artery was performed, and the circulation in the right leg was still adequate. The colon stump was closed and an end-ileostomy was performed. The patient became stable hemodynamically two days after surgery. The pathologic exam of the cecal mass showed recurrent bladder cancer. The patient experienced a prolonged post-operative course but he is still alive more than six months after this episode.

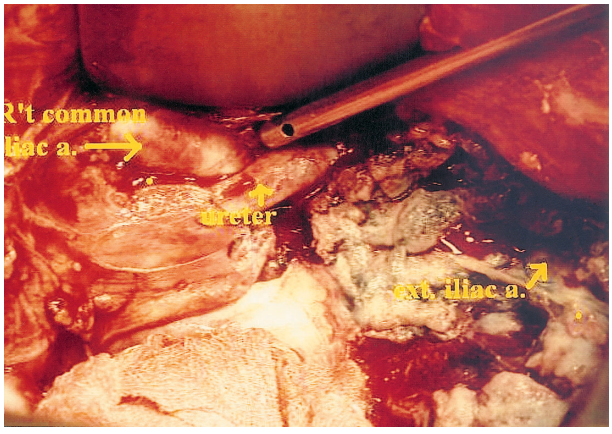

Fig. 1 Intraoperative findings after removal of the cecum and terminal ileum. Right external iliac artery had been invaded by the recurrent cancer.

DISCUSSION

LGIB is common and potentially life-threatening if massive. Most bleeding in the lower gastrointestinal tract stops spontaneously, however, about 10% to 15% of patients require urgent surgery.[5] Attempts to localize the site of acute LGIB and to diagnose its etiology can be challenging. The source of LGIB is most often branches of the SMA or IMA. LGIB arising from an arterioenteric fistula is uncommon. Arterioenteric fistula formation may be a complication of aneurismal disease of the aorta and iliac artery[6] or related to pelvic malignancy.[4]

The optimal diagnostic and therapeutic approach to patients with massive LGIB remains controversial. The initial approach consists of appropriate resuscitation and stabilization, directed history and physical examination, insertion of a nasogastric tube with examination of the aspirate to rule out any upper gastrointestinal cause, rectal examination, and sigmoidoscopy. The controversy concerns the next step. The three primary investigative tools for LGIB are colonoscopy, radionuclide scintigraphy, and mesenteric angiography.[5,7] The relative value of and appropriate order in which these investigations should be done has been hotly debated. Other investigative tools for LGIB include helical CT angiograpy[7,8] and wireless capsule endoscopy.[7,9]

Angiography is a well-accepted investigative tool for massive and life-threatening LGIB. A bleeding rate of at least 0.5 ml per minute is required for angiography to detect a hemorrhage.[7] It can be used for both diagnostic and therapeutic purposes. However, most studies and algorithms for management of LGIB only mention selective mesenteric angiography in the investigation[2,5,7] without including iliac or pelvic arteriography. The results of selective mesenteric angiography would be negative in patients with LGIB arising from an arterioenteric fistula. Clinicians should be alert to this rare cause of LGIB especially in patients with pelvic malignancy, and iliac and pelvic arteriography should be performed in these cases. In addition, helical CT seems to be a useful tool to detect unusual bleeders and it is

usually available in the ER.

Surgical intervention for LGIB is required when haemodynamic instability persists despite aggressive resuscitation, the blood transfusion requirement is greater than 6 U, or severe bleeding recurs.[10] With our patient, the timing of surgical intervention was somewhat delayed. However, mortality rates can be as high as 30-57% in patients who undergo a blind resection for acute LGIB.[10]

Surgical access of LGIB resulting from an arterioenteric fistula related to an advanced pelvic malignancy is difficult, very risky and always non-curative. Surgical exploration may also release the tamponade effects of the localizing hematoma, exacerbating acute bleeding. Successful treatment of these patients with percutaneous transcatheter embolotherapy has been reported if the bleeding source can be demonstrated by angiography.[3,11] If exploratory laparotomy has to be carried out, the common iliac artery should be explored and looped to provide a method of bleeding control during the operation.

In conclusion, if mesenteric angiography fails to demonstrate the source of LGIB in patients with acute massive bleeding, iliac and pelvic angiography is essential to exclude an arterioenteric fistula, especially in patients with a history of pelvic malignancy. Transcatheter arterial embolotherapy may be lifesaving in these patients and can avoid difficult, risky and potentially lethal surgery.

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源自外髂動脈出血之大量下消化道出血──罕見病因造成危及生命的下消化道出血的病例

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動脈腸道瘻管是導致下消化道出血的罕見原因；然而，它極可能造成大量且危及生命的出血。晚期骨盆腔惡性腫瘤的患者，可能會產生動脈腸道瘻管而造成下消化道出血的情況。而選擇性腸繫膜動脈攝影是用來偵測及治療消化道出血的工具，但是對這樣的病患而言，腸繫膜動脈攝影並無法找出其出血的來源。髂動脈及骨盆動脈攝影是必須的。我們在此報告一個病例，並對其診斷及治療加以探討。(長庚醫誌 2008;31:612-5)

關鍵詞：大量的下消化道出血，罕見病因，動脈結腸瘻管

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