Other full case

Emergency double balloon enteroscopy: a feasible and promising diagnostic as well as possible therapeutic option in recurrent midgut bleeding

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Summary

Gastrointestinal (GI) tract bleeding, in particular originating within the long segment of the small intestine, remains a diagnostic and therapeutic challenge. The authors describe the potential utility of emergency double balloon enteroscopy (DBE) for small bowel bleeding. An elderly woman was admitted because of a hypertensive crisis to the medical department of a regional hospital. Her medical history was significant for non-steroidal anti-inflammatory drug (NSAID) abuse. While in hospital she had massive obscure GI bleeding. Upper GI endoscopy and colonoscopy for recurrent bleeding showed only thrombotic residuals in two sigmoid diverticuli, which led to segmental resection of the sigmoid colon. However, postoperatively, bleeding recurred leading to transfer to our university hospital. Immediate angiography only revealed a vascular malformation at the upper jejunum but no ongoing bleeding. Subsequent emergency DBE detected an oozing jejunal ulcer, which was coagulated using a argon beamer. Because of recurrent falls in haemoglobin with the need for repeated transfusion, the patient underwent surgical reintervention including segmental resection of the ulcerated upper jejunum with subsequent end-to-end anastomosis. Histopathology revealed NSAID-induced ulcerous jejunopathy. Postoperatively, there was no further bleeding and the patient was discharged home in a stable condition. In conclusion, this is one of the first reports of successful emergency use of DBE in a case of recurrent and occult bleeding within the small bowel which successfully located the source of bleeding and facilitated successful superficial ulcer coagulation with an argon beamer to prevent further bleeding.

BACKGROUND

Obscure overt or occult gastrointestinal (GI) tract bleeding, in particular originating within the long segment of the small intestine, remains a diagnostic and therapeutic challenge.

This case report describes the unusual course of occult overt recurrent GI bleeding caused by non-steroidal anti-inflammatory drug (NSAID) abuse, where it was demonstrated that emergency double balloon enteroscopy (DBE) can be successfully used to diagnose the source, type and location of occult bleeding or similar lesions and, thus, facilitate surgical intervention or endoscopic procedures.

CASE PRESENTATION

An elderly woman in her seventies was admitted because of a hypertensive crisis to the medical department of a regional hospital. Her medical history was significant for cardiac failure, atrial fibrillation, diabetes mellitus and chronic renal insufficiency due to diabetic nephropathy. Her medications included cardioprotective doses of aspirin. Prior to her discharge, the patient experienced GI bleeding manifested as haematochezia. Prompt oesophagogastroduodenoscopy (EGD) failed to reveal the source of bleeding, while colonoscopy showed some blood and multiple blood clots within two sigmoid diverticula.

Ileocecal valve intubation showed scant blood in the terminal ileum. Because of recurrent bleeding episodes manifested by a fall in haemoglobin, which required repeated blood transfusions, the patient underwent open resection of the sigmoid colon including end-to-end stapled anastomosis. Intraoperatively, no inflamed Meckel's diverticulum was found nor were any other causes of GI bleeding visible from the extraintestinal site including angiodysplasia at the small intestine, midgut or colon. However, the patient experienced rectal bleeding on the first postoperative day. Again, immediate EGD revealed blood and blood clots in the stomach and duodenum. However, after carefully removing the blood and blood clots, no bleeding source was found as colonoscopy additionally showed an intact anastomosis. Therefore, the patient was transferred to our surgery department since her transfusion requirements had reached six units of packed red blood cells within the previous 24 h. The 1-h follow-up haemoglobin control after the patient's admission showed a fall from 6.1 to 4.9 mmol/l. The patient immediately underwent angiography, which revealed a small vascular malformation at the middle jejunum but no ongoing bleeding and no feasible option for selective catheterisation and subsequent radiological intervention (figure 1A and B). Therefore, the patient underwent emergency endoscopy under deep sedation using double balloon endoscopy (Fujinon Intestinoscope EN 450T 5/20;

Fujinon, Fuji, Japan), which did not show massive bleeding but did reveal (1) a jejunal mucosal ulcer dripping blood at approximately 90 cm with a small 'kissing' ulcer on the immediate opposite side of the jejunal wall, (2) a varix-like lesion with no indication of former bleeding at approximately 60 cm and (3) multiple mucosal changes typical for NSAID abuse, such as a whitish appearance and gross pattern at the mucosal surface (figure 2).

The surfaces of the jejunal ulcer and the 'kissing ulcer' were coagulated using an argon beamer. The varix was not touched. The endoscopic procedure lasted only 38 min.¹

Because of recurrent falls in haemoglobin with repeated transfusions needed after the first intervention, the patient underwent surgical reintervention with resection of a 12-cm segment of the upper jejunum with pathological lesions. An end-to-end anastomosis was done.

INVESTIGATIONS

The surgical specimen showed several areas of submucosal bleeding within an area of 4×5 cm, indicating macroscopically the jejunal segment which needed to be resected, as well as single mucosal erosions (figure 3). Pathohistological

Figure 1 Angiogram of the superior mesenteric artery revealing peripheral vascular malformation at the jejunal segment but no ongoing bleeding: (A) arterial phase; (B) parenchymatous phase.

Figure 2 Intraluminal image by emergency push-and-pull enteroscopy showing jejunal mucosa and varix-like impression in the jejunal lumen.

Figure 3 Endoscopic image by emergency double balloon enteroscopy showing eroded jejunal mucosa with oozing bleeding at approximately 90 cm distal to the pylorus.

investigation revealed a circumscribed ulcerous, partly haemorrhagic necrosis of the jejunal wall with vascular thrombosis and arteriosclerotic vascular stenoses. In addition, fibrosis was detected within the connecting tissue of the jejunal wall layers, together with a chronic lymphatic and bloody accumulation and a circumscribed fibrinous serositis with no suggestion of vasculitis.

DIFFERENTIAL DIAGNOSIS

Tumour lesion versus angiodysplasia.

Inflammatory bowel disease versus carcinoma, adenoma and angiodysplasia.

OUTCOME AND FOLLOW-UP

The postoperative course was uneventful. There were no further bleeding episodes, complaints, signs or symptoms. The patient's cardiovascular system and haemoglobin level were stable and blood pressure was normal. NSAIDs were discontinued during the hospital stay as they were assumed responsible for the bleeding episodes. The patient was discharged on the 13th postoperative day and died approximately 1 year later surgery from heart failure.

DISCUSSION

This is one of the first case reports on the emergency use of DBE in a case of recurrent massive obscure bleeding within the GI tract, in particular, in its middle segment, the small intestine. This case is of interest as it shows that emergency enteroscopy can aid in the diagnosis and treatment of acute, life-threatening small bowel bleeding. Until very recently, the emergency endoscopic diagnosis

and treatment of small bowel disease was not feasible as DBE had only ever been used for regular endoscopic diagnosis²⁻⁵ since its introduction in 2000, which itself greatly increased endoscopic options, in particular for inflammatory and tumour-like lesions of the small intestine and the entire midgut.

The successful use of this diagnostic tool to clarify the diagnosis, locate the source of bleeding and stop the bleeding (with an argon beamer), shows that DBE is an elegant and feasible method even in emergencies as reported here. In addition, clipping of vessels or (sub)mucosal injection are a therapeutic option (figure 4). Until recently most cases of small bowel bleeding were managed exclusively using angiography or surgery.^{6,7}

However, DBE use requires suitably experienced endoscopists and endoscopy nurses since additional skills and time are required regarding preparation, scheduling and patient monitoring while scoping and during any subsequent interventions.⁶

In addition, push-and-pull enteroscopy in experienced hands can help avoid the more traumatic open surgery or, at least, aid preparation for surgical intervention and lower peri-interventional risk as in the present case, by aiding diagnosis and locating the small intestine lesion(s) prior to surgery.

Further clinical experience and systematic evaluation of DBE with guidelines is required, as has been initially shown in a small group of patients.³

Finally, this case highlights the advantages of DBE versus capsule enteroscopy, since after diagnosis it facilitates endoscopic intervention and possibly obviates major surgery.⁷

Figure 4 Jejunal lesion treated with argon plasma coagulation.

Learning points

- ▶ This is one of the first cases report describing emergency double balloon enteroscopy (DBE).
- ▶ DBE can be a very useful to clarify a diagnosis and possibly obviate major surgery.
- ▶ DBE (compared to capsule endoscopy) allows endoscopic intervention immediately after diagnosis.

Competing interest None.

Patient consent Not obtained.

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