CASE REPORT

The Role of Abdominal Angiography in Difficult Gastrointestinal Bleeding

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Summary

Two cases of leiomyomas of the jejunum presenting with gastrointestinal bleeding of uncertain origin are described. Diagnosis was finally established by selective angiography. Laparotomy and resection of the tumour were successfully performed. The approach and management of this rare tumour are outlined.

Key Words: Leiomyoma, Jejunum gastrointestinal bleeding angiography

Introduction

Clinicians are still challenged by an occasional patient who presents with blood loss from the gastrointestinal tract manifested by malaena or hemetemesis in whom the cause cannot be established by initial conventional investigation such as endoscopy and barium studies. Smooth muscle tumours of the small intestine represent a rare but important source of gastrointestinal bleeding and are not often suspected as the cause of bleeding. We report two cases of bleeding caused by leiomyoma of the jejunum which illustrate the difficulty in establishing a diagnosis.

Case Reports

Case 1

A 62-year-old Chinese woman presented to another hospital in July 1990 with recurrent episodes of malaena. She had not suffered any abdominal pain and denied having taken any non-steroidal anti-inflammatory drug or alcohol. Her hemoglobin on admission was 7 g/dl/ Oesophago-gastroduodenoscopy, barium meal, small bowel follow-through and barium enema were all normal. Her malaena ceased and she was discharged after blood transfusion without a diagnosis having been made.

She returned one year later with dizziness and lethargy but no hemetemesis or malaena. Physical examination revealed pallor but no other significant finding. The hemoglobin value then had fallen to 8.3 g/dl and she was referred to our hospital.

The peripheral blood film was compatible with iron deficiency anemia. Repeat oesophago-gastroduodenoscopy and colonoscopy were normal. Push-enteroscopy failed to determine the cause of the bleeding. Ultrasound of the abdomen showed no abnormality.

Selective superior mesenteric angiography demonstrated a high vascular lesion in the small bowel (Fig. 1). Laparotomy revealed a leiomyoma of the jejunum measuring 5 x 7 x 10 cm with an ulcerated mucosal surface about 30 cm distal to the ligament of Treitz. There was also an incidental finding of cholelithiasis. A segmental resection of the tumour and cholecystectomy were performed. Pathological examination of the resected specimen confirmed benign leiomyoma of the jejunum. The patient made an uneventful recovery and has remained well since then.

Case 2

A 46-year-old female was admitted as an emergency in July 1992. In the 24 hours prior to admission she

had passed four malaena stools. She felt dizzy and had vomited undigested food but there was no blood in the vomit. There was no significant past history apart from occasional dyspepsia.

On examination she looked pale. The pulse rate was 110 per minute and B/P was 90/60 mm Hg on admission. There was no tenderness or palpable mass felt in her abdomen. Rectal examination showed fresh Milan. The hemoglobin was 6.6 g/dl. Oesophago-gastroduodenoscopy was normal. Complete colonoscopy up to the caecum showed no mucosal lesion but old blood clots throughout the colon. Barium follow-through of the small bowel was normal. Selective superior mesenteric angiography demonstrated a hypervascularised She was transfused and a laparotomy was performed. A jejunal leiomyoma measuring 4 x 4 x 5 cm was found 60 cm distal to the ligament of Treitz and was resected. There was no obvious mucosal ulceration. The histopathology of the resected specimen showed a benign intramural leiomyoma.

Discussion

Leiomyomas of the small intestine are rare benign tumours accounting for only 0.2 per cent to 1.8 percent of all gastrointestinal tumours. More leiomyomas are found in the jejunum (44%) than in the ileum (37%) or duodenum (19%)[1]. Leiomyomas originate from the muscular coat of the intestine and may project subserosally. These tumours vary in size from as small as a pea to as big as a grapefruit. Peak age of occurrence is in the fifth and sixth decade and there is no sex predominance[1].

Fig. 1: Selective superior mesenteric arteriogram demonstrates hypervascular tumour in the jejunum with abundant tumour vessels and dense blush (black arrow)

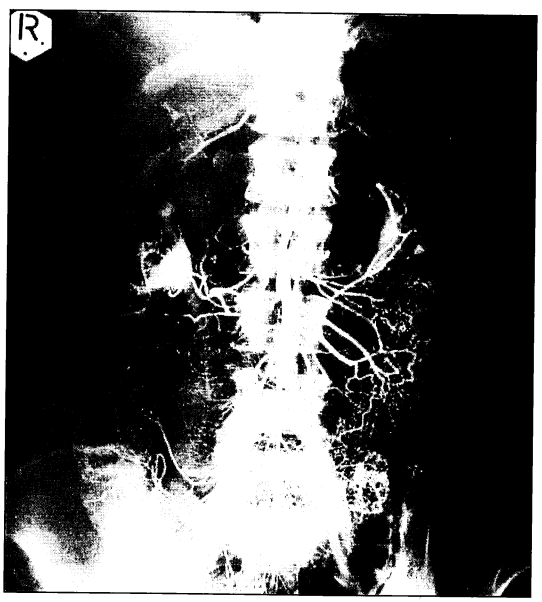

Fig. 2: Selective superior mesenteric arteriogram shows highly vascular, well-outlined mass (black arrow) supplied by jejunal branches

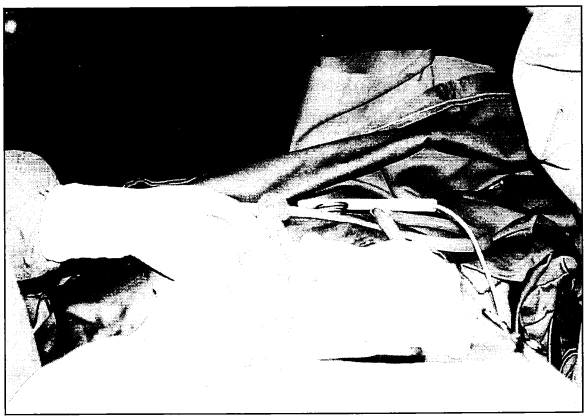

Fig. 3: Leiomyoma of jejunum

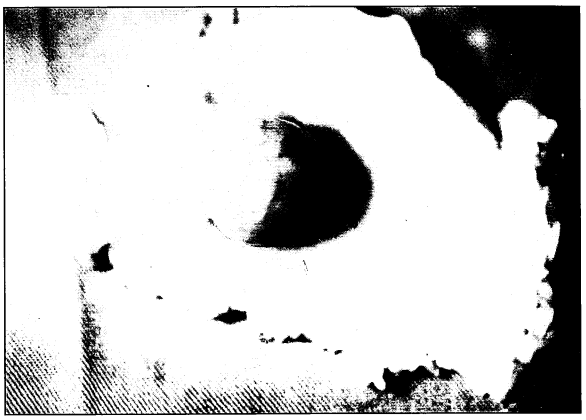

Fig. 4: Resected jejunum showing leiomyoma

Gastrointestinal hemorrhage manifested by either malaena or hemetemesis and abdominal pain are the most common presenting symptoms[1]. Less common presentation include abdominal mass and intestinal obstruction. Perforation leading to peritonitis is rare. Christou *et al* reported 57 per cent of the patients in their series presented with recurrent gastrointestinal bleeding, which usually results from mucosal ulceration and central avascular necrosis or erosion of a dilated submucosal vein[2].

Diagnosis is often difficult and delayed. Small leiomyomas can even be missed at laparotomy. These patients would typically have recurrent malaena without a diagnosis being made despite thorough investigation until surgery is performed. Routine investigation such as endoscopy and barium contrast studies, although necessary in the initial work-up of the patient, are not helpful as a rule for they usually yield normal results as illustrated in both our cases.

We believe that selective angiography is the most valuable diagnostic tool which is underutilised or not freely available and should be performed without delay. Leiomyomas have characteristic arteriographic features. These include well circumscribed margins, prominent feeding arteries and draining veins, irregular tumour vessels giving rise to a dense stain, and small pools of contrast within the mass[3]. Although all of the features need not be present in each case, the vascular pattern is quite constant. This technique not only provides an indication of the size and extent of the tumour but can also localise it to a specific segment of bowel, thereby permitting a direct surgical approach. In acute gastrointestinal bleeding, angiography is more likely to succeed if performed during active bleeding when the rate of blood loss exceeds 0.5 mls/min and if contrast is injected into the appropriate feeding vessel[4]. The success rate of angiography in chronic gastrointestinal bleeding of obscure origin when performed not during active bleeding is about 45 per cent[5].

Surgery is the only effective treatment for smooth muscle tumour of the small intestine. Pathological distinction between leiomyoma and malignant leiomyosarcoma can be difficult. Hence all smooth muscle tumours should be treated as if they were malignant.

In the jejunum or ileum, Skandalakis *et al* advocate removal of the segment containing the tumour as well as sufficient healthy intestine proximal and distal of the tumour with primary end to end anastomosis. However, what constitutes "sufficient healthy intestine" remains controversial. Some authors would recommend resection of 10 cm on either side of the tumour where possible in order to reduce the recurrence rate and improve the survival or "cure" rate[6]. The prognosis for leiomyoma of the small intestine is excellent provided the source of bleeding can be identified and the tumour resected.

Angiography should be seriously considered in

difficult gastrointestinal bleeders and diagnostic laparotomy should be reserved for those in whom full endoscopic and radiological investigations have been performed.

Acknowledgements

The authors would like to thank the Director of The Specialists Centre, Penang for his permission to publish this paper and Ms. L. Stewart for typing the manuscript.

References

1. Wilson JM, Melvin DB, Gray G, Thorbjarnason B. Benign small bowel tumour. Annals of Surgery 1975;181 : 247-50.

2. Christou NV, Stein LA, Meakins JL. Recurrent gastrointestinal bleeding due to smooth muscle tumours of the small intestine. Canadian Journal of Surgery 1979;22 : 95-8.

3. Ramer M, Mitty HA, Baron MG. Angiography in leiomyomatous neoplasms of the small bowel. Amer J Roentgenol 1971;113 : 263-8.

4. Nusbaum M, Baum S, Blakemore W, Finkelstein A. Demonstration of intra-abdominal bleeding by selective arteriography, J.A.M.A. 1965;191 : 389-90.

5. Sheedy PF, Fulton RE, Atwell DT. Angiographic evaluation of patients with chronic gastrointestinal bleeding. Amer J Roentgenol 1975;123 : 338-47.

6. Skandalakis JE, Gray SW, Shepard D. Smooth muscle tumours of small bowel. Am J Gastroenterol 1964;42 : 172-90.