CASE REPORTS

Gastric antral vascular ectasia: a problem of recognition and diagnosis

D R Gouldesbrough, A C H Pell

Abstract

Gastric antral vascular ectasia ('water melon stomach') is a poorly documented cause of occult upper gastrointestinal blood loss. We describe a case which emphasises the clinical and pathological difficulties that can be encountered in making this elusive diagnosis.

Case report

A previously healthy 81 year old woman presented with a one month history of increasing fatigue. She was found to have an iron deficiency anaemia (haemoglobin 4.2 g/dl) and faecal occult blood testing was positive. She had no previous history of gastrointestinal disease and was on no medication. A barium meal showed antral mucosal irregularity and upper gastrointestinal endoscopy showed a moderately severe gastritis. Biopsy specimens from this were reported as showing a mild chronic gastritis. A barium enema showed diverticular disease of the sigmoid colon, but was otherwise normal. After transfusion, her haemoglobin concentration rose to 11.8 g/dl but three months later it had again fallen to 6.8 g/dl. Further investigations, which included barium meal and follow through examination of the small bowel, flexible sigmoido-

scopy, colonoscopy, ^{99m}Tc -pertechnetate scan, and mesenteric angiography failed to show a source of blood loss. A second upper gastrointestinal endoscopy was reported as showing a florid gastritis localised to the gastric antrum. Biopsy specimens taken were said to show an atrophic gastritis.

The patient was treated with ranitidine, but her haemoglobin concentration continued to fall by 1 to 2 g/dl each week. Seven hospital admissions were required over an eight month period for blood transfusions. A third upper gastrointestinal endoscopy was performed by a different operator, and on this occasion the appearances that had previously been interpreted as florid gastritis, were seen to be caused by columns of ectatic blood vessels in the mucosa of the gastric antrum. The previous biopsy specimen appearances were reviewed and seen to be consistent with a diagnosis of gastric antral vascular ectasia ('water melon stomach') and the patient underwent an uncomplicated Bilroth I antrectomy.

The patient remained well for 18 months after surgery with a stable haemoglobin concentration and consistently negative faecal occult blood tests. She then died at home. No necropsy was performed.

Pathology

The initial biopsy specimen showed a patchy, mild, chronic inflammatory infiltrate in the lamina propria of a superficial fragment of gastric antrum and was reported as a mild chronic gastritis. Three small capillaries in the superficial lamina propria were thrombosed but conspicuous capillary dilatation was not seen. These thrombi were noted on review. Atrophic changes were present in the second antral biopsy specimen, with dilated focally thrombosed capillary vessels in the superficial lamina propria. This was reported as atrophic gastritis but on review by a specialist in gastrointestinal pathology a diagnosis of water melon stomach was supported.

The antrectomy specimen measured 10×8 cm. Distal prominence of the rugal fold pattern was seen with scattered small punctate haemorrhages present on the summits of these folds. Diffuse granularity of the mucosa was noted with prominent submucosal oedema.

Microscopy showed hyperplastic antral mucosa. Capillary dilatation was seen in both the superficial and deep lamina propria (Fig 1) with

Department of
Pathology, University of
Edinburgh Medical
School
D R Gouldesbrough

Department of Medicine,
Royal Infirmary of
Edinburgh
A C H Pell

Correspondence to:
Dr D R Gouldesbrough,
Department of Pathology,
University Medical School,
Teviot Place, Edinburgh
EH18 9AG.

Accepted for publication
24 September 1990

Figure 1: Photomicrograph of dilated capillaries in the inflamed superficial gastric lamina propria. Intravascular thrombosis is seen (it). (Haematoxylin and eosin, original magnification ×250.)

Figure 2: Tortuous venous channels in the oedematous submucosa. Thickened muscularis mucosa (mm) is also seen. (Haematoxylin and eosin, original magnification $\times 40$.)

focal thrombosis in the former. A mild chronic inflammatory infiltrate was present. Thickening of the muscularis mucosa was evident with strips of muscle extending into the lamina propria. Leashes of tortuous veins were identified in the noticeably oedematous submucosa (Fig 2) and the muscularis propria was thickened. These features confirmed the diagnosis made retrospectively on previous biopsy specimens of gastric antral vascular ectasia.

Discussion

Chronic unexplained anaemia resulting from bleeding from abnormal gastric vessels has been recognised for some time¹⁻³ but the condition is poorly documented and its aetiology and pathogenesis are unclear. Jabbari *et al*⁴ described three patients of their own and identified four cases from published reports. All patients presented with a severe iron deficiency anaemia as a result of occult gastrointestinal blood loss, six of the seven were women and all were over the age of 40 years.

Characteristically, radiological investigations including barium meal and mesenteric angiography failed to make the diagnosis and identification of the cause of the blood loss was delayed for many years.⁵

The endoscopic findings are crucial and the term 'water melon stomach' has been coined by Jabbari and co-workers to describe the characteristic columns of dilated ectatic vessels on the summits of prominent antral rugal folds. These appearances, however, can easily be misinterpreted as a moderate to severe gastritis.

Likewise, the pathological findings of dilated and focally thrombosed lamina propria capillaries with thickened muscularis mucosa and prominent leashes of submucosal veins may be misinterpreted, particularly in superficial biopsy

specimens. Indeed, a mild gastritis may accompany the condition both in the antrum and elsewhere in the stomach, and in the former both atrophic and hyperplastic changes have been described.

The patient we describe illustrates well the problem of recognition of the characteristic endoscopic appearances and also the difficulty of obtaining diagnostic pathological samples. The gross and histological features of the antrectomy specimen correspond exactly with those described by Jabbari *et al*, who suggested prolapse through the pylorus of a mobile mucosa as the pathogenesis for the condition.⁴ Nine antral biopsy specimens from seven patients with characteristic clinical and endoscopic appearances were analysed by Suit *et al*.⁶ They showed that the significant differences histologically were an increase in mean blood vessel cross sectional area, intravascular fibrin thrombi, and fibromuscular hyperplasia of the muscularis mucosa. They stated 'we believe gastric antral vascular ectasia is a distinct clinicopathologic entity probably related to mucosal trauma'. The resemblance of the histological findings to those of prolapse of the rectal mucosa and those seen at stomal sites would support this theory, although the presence of abnormal vessels in the first part of the duodenum in a previously reported case³ would require explanation.

Characteristically, these patients respond well to antrectomy with a Bilroth type I anastomosis. This occurred in our patient, although there is appreciable mortality from the operation in the elderly. Response to long term corticosteroids and to heat probe therapy has also been reported^{5,6} and these forms of therapy may be safer in these characteristically older patients.

Gastric antral vascular ectasia is a rarely reported cause of occult upper gastrointestinal blood loss. Jabbari *et al*⁴ identified three cases in 10 000 gastroscopies. The difficulty and the importance of the condition lies in the problems surrounding its recognition. These problems are well illustrated by the patient we present. An increasing awareness of the features of the 'water melon stomach' may facilitate identification of an uncommon but eminently treatable cause of unexplained gastric blood loss.

We thank Dr A D Toft for permission to report this case and Helena Black for secretarial assistance.

- 1 Pastershank SP, Chappell EW, Buchan DJ. Arterio-venous malformation of the stomach. *Can Med Assoc J* 1974; 110: 57-8.
- 2 Wheeler MH, Smith PM, Cotton PB, Evans DMD, Lawrie BW. Abnormal blood vessels in the gastric antrum. *Dig Dis Sci* 1979; 24: 155-8.
- 3 Lewis TD, Laufer I, Goodacre RL. Arterio-venous malformation of the stomach. Radiologic and endoscopic features. *Am J Dig Dis* 1978; 23: 467-71.
- 4 Jabbari M, Cherry R, Lough JO, Daly DS, Kinnear DC, Goresky CA. Gastric antral vascular ectasia: the watermelon stomach. *Gastroenterology* 1984; 87: 1165-70.
- 5 Calam J, Walker RJ. Antral vascular lesion, achlorhydria and chronic blood loss. Response to steroids. *Dig Dis Sci* 1980; 25: 236-9.
- 6 Suit PF, Petras RE, Bauer TW, Petrini JL. Gastric antral vascular ectasia: a histologic and morphometric study of the watermelon stomach. *Am J Surg Pathol* 1987; 11: 750-7.