An Uncommon Cause of Duodenal Obstruction

R Dharmendran, MBBS, A A Zainal, MS

Department of General Surgery, Hospital Kuala Lumpur, 50586 Kuala Lumpur

Summary

This is a case report of an elderly male, who presented with duodenal obstruction caused by abdominal aortic aneurysm. An axillo-bifemoral shunting with an infra renal straight inlay graft together with a feeding jejunostomy was performed. This is rare presentation with only a few cases reported.

Key Words: Duodenal obstruction, Abdominal aortic aneurysm

Introduction

Patients with abdominal aortic aneurysm are usually diagnosed because of local symptoms produced by vascular mass or distant symptoms attributed to either ischemic or embolic phenomenon. Gastrointestinal symptoms may be present in 55% or these patients ¹.

Duodenal obstruction secondary to extrinsic compression from an abdominal aortic aneurysm is a very rare condition. This case was first described by Osler (1905) and in 1986 Hodgson et al reported 14 cases in the literature ²³.

Case Report

A 72 years old, Malay male was initially admitted to a general surgical unit of a peripheral hospital with history of persistent vomiting and generalized abdominal pain for five days prior to admission. Clinically they found him to be dehydrated with a distended abdomen. There was generalized tenderness with absent bowel sounds. He was diagnosed as having intestinal obstruction and underwent a laparotomy. However, intraoperatively they noted 600mls of haemoserous fluids with an abdominal aortic aneurysm. An on-table diagnosis of leaking aneurysm was made and the procedure was abandoned and patient was managed in ICU. After a few days when he was stable, CT scan abdomen was done and revealed a 7cm aneurysm with no leak. The duodenum and stomach was distended. The patient was then transferred to our vascular unit for further management. He had a past medical history of hypertension and diabetis mellitus, which was fairly well controlled.

Physical examination revealed a weak and dehydrated man. His vital signs were stable and he was afebrile. His abdomen was distended with a recent surgical scar. Bowel sounds were absent and a succession splash could be illicited. There was a pulsatile mass measuring 8 centimetres in the left hypochondrium. All distal pulses were present and equal bilaterally.

This article was accepted: 26 August 2002

Corresponding Author: R Dharmendran, Department of General Surgery, Hospital Kuala Lumpur, Jalan Pahang, 50586 Kuala Lumpur

CASE REPORT

Admission laboratory data revealed a haemoglobin of 10.7 g/dl, total white count of 10.2x10³, platelets 354x10³ micro/L, sodium 130 mmol/L, urea 12.2 mmol/L, potassium 3.6mmol/L, creatinine 141 micromol/L and albumin of 25 grams/L.

He however developed atrial fibrillation on the second day of admission and was transferred to the coronary care ward for three days for stabilization and started on digoxin.

Due to the nausea and vomiting, he was started on total parental nutrition and required decompression of stomach with Ryle's tube.

The CT scan done initially showed an infra-renal aortic aneurysm measuring 7cm with compression of the third part of the duodenum. (Figure 1). A barium mean and follow through was done for further evaluation which showed external compression of the third part of duodenum causing almost complete obstruction with minimal barium noted in the jejunum. (Figure 2). Cardiac assessment which included an echocardiogram showed impaired left ventricular function, with an ejection fraction of 34%.

In view of the possibility of duodenal involvement and possibility of infection, (on CT scan), an extra-anatomical bypass (axillo bifemoral) was planned with an aneurysectomy and closure of the aortic stump. After completion of the axillo bifemoral bypass, laparotomy was done. The findings were that of an juxtarenal abdominal aortic aneurysm kinking the third part of duodenum over the neck of the aneurysm. The proximal duodenum and stomach were dilated. There were minimal fibrous adhesions and no signs of infection or duodenal erosion. There was no difficulty dissecting the 3rd and 4th part of the duodenum off the neck of the aneurysm. In view of this a standard aneurysectomy was performed and inlay graft (22 Dacron tube graft inserted). A feeding jejunostomy was also created after meticulous closure of the retroperitoneum for post operative nutrition. Intra operatively he was haemo dynamically stable, except for the persistent ST depression on lead two of the ECG. Post operatively he was extubated on day one. He was started on oral as well as jejunostomy feeding on the third post operatively day. There was intolerance initially, however some we successfully weaned of the jejunostomy tube prior to discharge, which was twenty days post operatively.

He was readmitted again two weeks post discharge for superficial wound infection, which has currently resolved. He has no more gastrointestinal symptoms and is currently in good health.









Discussion

Aneurysms of the intra-renal aorta are uniquely situated to exert compressive effects on 3rd and 4th portion of the duodenum. However, it is surprising to note that obstruction is not more common. In a study of 100 consecutive patients with abdominal aortic aneurysm. Sondheimer and Steinberg found that 55% had abdominal symptoms and only 4% had nausea and vomiting after eating. Radiographic gastrointestinal studies often show the expected mild compressive effects of a large abdominal aortic aneurysm on adjacent structures ^{2,3}.

Review of the previous 13 reported cases revealed a strong male predominance and a prevalence towards the elderly. The average age was 66 years. (range 45 to 80 years). The most consistent symptom was vomiting which was present in all 12 cases that have been reported in detail. Abdominal pain, distention, weight loss electrolyte disturbances and plain radiograph calcifications were each present in approximately half of these patients.

The time between onset of the symptoms of duodenal obstruction and diagnosis of abdominal aortic aneurysm was highly variable, ranging from 2 days to 7 years. The aneurysms with which this complication has been reported have all been large with a range of 5 to 9.5cm in diameter 123 .

The case we reported is different from previous reported cases, as the abdominal aortic aneurysm was discovered only at the initial laparotomy for intestinal obstruction. We further investigated him to confirm that the aneurysm was the cause of his obstructive symptoms prior to the aneurysm surgery.

In our patient the enlarged aneurysm was directly compressing on the duodenum causing obstructive symptoms. There were minimal adhesion bands present and no erosion into the lumen of the duodenum. This is contrary to, Coster et al who suggested that the posterior wall of the duodenum must be adherent to the lateral aspect of the aneurysm in order to induce the foreshortening of the posterior wall that effectively closes off the duodenum ².

Surgical intervention was undertaken in 11 of the 13 reported cases. Prior to the advent of aortic replacement treatment was mainly palliative. Of the seven operated cases in the post aortic replacement era, four have undergone replacement with the remaining three having palliative gastrojejunostomy. Two of the seven operated cases died in the post operative period, one whom was treated with replacement and the other anterior gastrojejunostomy.

With recent advances and decline in mortality in elective aortic replacement, it has become the therapy of choice for most patients. In high risk patients extra-anatomical bypass with illiac artery ligation has been suggested, it could be coupled with a gastrointestinal bypass to relieve duodenal obstruction ³.

The diagnosis should be entertained in elderly patients with an aneurysm, who present with symptoms of bowel obstruction. An upper gastrointestinal series and a CT scan is helpful in making a diagnosis. With operative mortality of 5% in elective aortic replacement, resection of the aneurysm is the treatment of choice. An intestinal feeding of some type should be placed at the time of surgery, as these patients are slow to resume peristalsis. As was with all patient, prolong use of parenteral nutrition has it's associated As most of these patients are complications. elderly with associated underlying medical illness, significant morbidity and long term hospitalization can be expected, adequate preoperative fluid and nutrition resuscitation is mandatory.

CASE REPORT

References

1. HoughDR, O' Meara TF. Abdominal aortic aneurysm with initial symptom of duodenal obstruction. Am J Gastroenterol. 1981; 76: 538-41.

- David D. Coster, David H. Stubbs, David T. Sydney. Duodenal obstruction by abdominal aortic aneurysms. Am J Gastroenterol. 1988, 83: 981-84.
- 3. Hodgson KJ, Webster DJ. Abdominal aortic aneurysm causing duodenal and ureteric obstruction. J Vasc Surg 1986; 3: 364-8.