INTRAMURAL HAEMATOMA OF THE DUODENUM

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Intramural haematoma is a rare cause of duodenal obstruction. Other causes are congenital defects of the duodenum, annular pancreas, anomalies of rotation, neoplasms of the duodenum and the ampulla of Vater, gallstones and foreign bodies, the superior mesenteric artery syndrome, and invasive tumours surrounding the duodenum.

The first report of a case of duodenal obstruction caused by intramural haematoma was that of Mclaughlan in 1838.[1] The first patient to survive operation for an intestinal intramural haematoma was reported in 1914 by Vogel,[2] who evacuated a subserosal haematoma of the sigmoid colon.

Up to 1959[3,4] 41 cases of intramural haematoma of various parts of the intestine had been reported. Twenty-one of these occurred in the duodenum. Two further cases are added in this paper.

CASE 1

On 15 October 1961 Mr. G.H.A., a thin wiry young man, was thrown to the ground while dismounting from his horse. He landed on his belly with his right arm beneath him. The fall was not unduly severe, and he rose at once complaining only of pain in the right elbow. X-rays taken the same day showed a crack-fracture of the head of the radius. A plaster was applied and he was allowed to return home.

At about 4 p.m. the next day he complained of upper abdominal discomfort slightly to the left of the midline. This soon became a severe persistent pain accompanied by increasing nausea, and followed shortly thereafter by vomiting. Some of the vomitus contained blood which appeared to be reasonably fresh, and he was therefore admitted to hospital.

On admission the patient was in great pain and obviously shocked. The upper abdomen was rigid and the clinical picture was highly suggestive of rupture of a hollow viscus. Straight X-ray plates of the abdomen showed no free gas, and no evidence of intestinal obstruction or ileus.

The usual supportive therapy was instituted and the patient was prepared for operation.

Operation

The abdomen was opened through a right upper paramedian incision. A small amount of pink-stained, clear fluid was present in the peritoneal cavity. No perforation was found. The entire third part of the duodenum presented as a tense, distended, dark-blue sausage-shaped mass extending distally to the duodenojejunal junction, and sharply defined at both limits. This appearance was thought to be due to haemorrhage within the lumen and an incision was planned to evacuate the

blood and search for a possible posterior-wall tear. As the serosa was incised, clot extruded from the wall of the duodenum, and it was found that the haemorrhage had taken place between the layers of the gut wall, stripping the serosa and the muscle coats from the mucous membrane, which apparently remained intact. The clot was evacuated gently, but without difficulty and without penetrating the mucosa. Fine interrupted catgut sutures were used to approximate the outer coats and a local drainage tube was led out of the abdomen.

The immediate postoperative course was uneventful, but after three days every attempt to discontinue aspiration of the Levine's tube resulted within an hour or so in a marked change in the patient's condition. He complained of nausea and upper abdominal discomfort with superimposed colicky pain, and shortly thereafter began vomiting. Reaspiration gave relief within a matter of minutes. Despite the passage of flatus and the presence of normal bowel sounds, this state of affairs persisted for 12 days. On the 12th post-operative day he was screened after an injection of 'gastro-grafin' *via* the Levine's tube into his stomach. This showed a normal appearance of the stomach itself, but the contrast medium failed to pass through the pylorus into the duodenum. X-ray plates taken an hour later showed a faint trickle present in the second part of the duodenum and only a trace in the upper loops of the jejunum. The quantity that remained in the stomach was apparently undiminished. Two days later this X-ray examination was repeated with identical findings. It was apparent that the third part of the duodenum failed completely to transmit its contents into the small bowel.

On 31 October the abdomen was reopened. The distal second part and the whole of the third part of the duodenum now appeared green, friable and lustreless, with the consistency of wet blotting paper. A posterior gastro-enterostomy was performed and the infarcted bowel left untouched, except for a drainage tube down to this area.

Convalescence after the second operation was entirely smooth. Since his discharge 14 days after the second operation the patient has continued to make normal progress, and takes a full diet without any dyspepsia.

CASE 2

Mr. E.P., aged 26, was involved in a motor accident on 14 December 1961. He was slightly winded by the steering wheel of the car, but recovered in a few minutes and was able to assist the other passengers to the hospital. Two hours after the accident he felt nauseated and vomited a fair amount of green material. He had no pain apart from a slight discomfort in the epigastrium. Physical examination at this stage was entirely negative, except for slight epigastric tenderness.

During the following few days he repeatedly vomited copious amounts of green material. He had very little pain. This state of affairs continued for two weeks until he was transferred to Pretoria for further treatment on 27 December.

Examination showed a young man who had lost a good deal of weight, and was moderately dehydrated. He was slightly jaundiced. On abdominal palpation a sausage-shaped tumour was found lying transversely in the epigastrium. The tumour was soft and only slightly tender. Above the tumour a distended stomach could be palpated. A clinical diagnosis of a pseudocyst of the pancreas was made.

Special Investigations

Blood — bilirubin 4·25 mg. per 100 ml., sodium 130·5 mEq./l., potassium 3·21 mEq./l., chloride 69·8 mEq./l., plasma bicarbonate 41·1 mEq./l., and serum diastase 148 mg. per 100 ml.

Barium meal — (Fig. 1). The stomach and duodenum were grossly dilated and no barium passed the third part of the duodenum. The typical coil-spring appearance of the duodenum, as described by Felson and Levine,[7] was noted. A tentative diagnosis of haematoma of the duodenal wall was made.

Operation

After correcting the dehydration, laparotomy was performed on 29 December. The abdomen was opened through a right paramedian incision. The stomach and duodenum were grossly dilated. The third part of the duodenum, the duodenojejunal flexure, and the first three inches of the jejunum contained a blue, soft, sausage-shaped tumour which was evidently a huge haematoma. The serous layer of the duodenum was incised and a large amount of blood clot evacuated. The clot was located between the mucous membrane and the seromuscular layers, and was easily removed. The lumen was inadvertently opened, closed again without difficulty, and the serosmuscular layer lightly oversewn. A soft-rubber drain was left in the region of the haematoma.

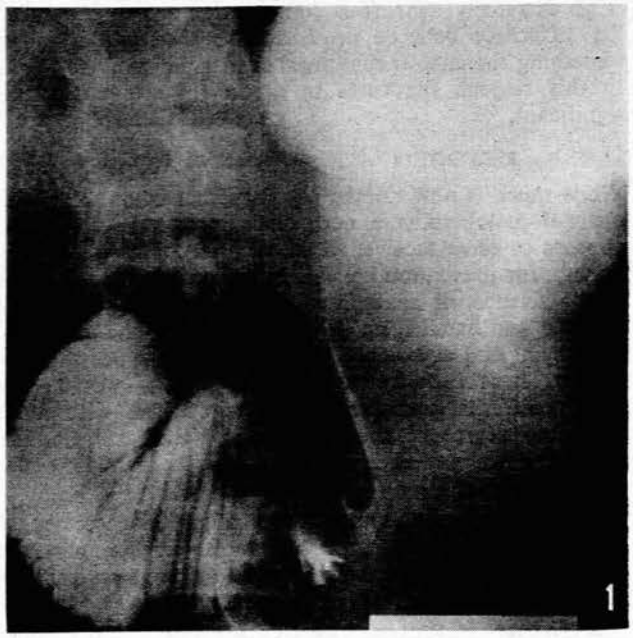

Fig. 1. See text.

The patient made an uneventful recovery. There was no further vomiting and he was discharged home where he rapidly regained his normal weight.

DISCUSSION

Anatomy

Intramural haematoma has been reported in the oesophagus, duodenum, jejunum, ileum, caecum, ascending and descending colon and sigmoid colon. The most common site, however, is the duodenum, probably owing to the fact that this is a relatively fixed part of the intestinal tract, and can easily be compressed against the spine.

Aetiology

A history of trauma was obtained in more than half the reported cases. This is usually a blunt injury to the abdomen. The trauma may be trivial, as in the case of the lady gardener who lifted potted geraniums,[4] but usually follows a direct blow to the abdomen. In three patients injury to the bowel was caused by needle puncture. Rare causes of spontaneous bleeding and haematoma formation include haemophilia, haemorrhagic diathesis, ruptured aneurysm and acute pancreatitis.

Symptoms and Signs

The most common symptoms encountered are vomiting and pain. There may be a lag period of several hours to several days before the appearance of symptoms. This is

due to the fact that symptoms result from mechanical obstruction by the intramural mass. In our first case there was in addition a physiological obstruction, in that the devitalized bowel was unable to transmit peristalsis. In a case reported by Rowe *et al.*[3] the patient also developed postoperative signs of obstruction. At a second operation these were found to be due to a diaphragm which had developed in the lumen of the duodenum at the site of the previously evacuated haematoma.

A mass is rarely palpable, but in our second case a huge sausage-shaped haematoma, as well as the dilated stomach, could be felt easily. The mass may be confused with a chronic intussusception. Tenderness may be absent or marked depending on the extent of the injury.

Jaundice

This is rarely encountered. Ferguson and Goade's[5] patient had light obstructive jaundice for five days. Glass[6] reported a newborn infant with generalized bleeding and an intramural haematoma of the duodenum. The baby had obstruction of the pancreatic and biliary ducts, as well as obstruction of the duodenum.

In our second case the jaundice was not of an obstructive type, but was probably due to haemolysis of blood clot. This finding suggested the possibility of a haemorrhage, and may be a useful pointer to the correct diagnosis.

Treatment

This should be surgical, although recovery after conservative therapy has been recorded. In most cases simple evacuation of the haematoma will suffice, but if there is questionable viability of the bowel, it should be resected. This would have been an extremely serious operation in our first patient, and a simple gastro-enterostomy was adequate to bypass the infarcted bowels, which was left *in situ* and fortunately did not perforate into the general peritoneal cavity. The prognosis after surgery is excellent.

SUMMARY

1. Two cases of intramural haematoma are described. The main symptoms are those of intestinal obstruction. This is usually of a mechanical nature.

2. The treatment of choice is operative. Evacuation of the haematoma is usually sufficient to relieve the symptoms, but in one case a short-circuit was necessary to bypass a gangrenous segment of duodenum.

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