PERFORATED CHRONIC DUODENAL ULCER IN CHILDREN

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SYNOPSIS

Duodenal ulcer disease in children is reported to be uncommon and often the diagnosis is not made until complications occur e.g. perforation or haemorrhage. Therefore the diagnosis is only made at surgery or at postmortem examination. In this paper we report 3 cases of perforated chronic duodenal ulcer in 3 young children, successfully managed by surgical treatment. This stresses the importance of early diagnosis and awareness of the complications so that early treatment can be instituted.

INTRODUCTION

Duodenal ulceration is an uncommon disease in children (1). Whereas gastrointestinal symptoms like vomiting and abdominal pain occur commonly in children, duodenal ulceration is rarely the cause. It is therefore rarely diagnosed as it is not thought of in the differential diagnosis of a child's abdominal pain (2).

Duodenal ulceration in children is often diagnosed only after complications have occurred. The diagnosis is therefore often made at surgery or at post-mortem examination (3).

In this paper, we report 3 cases of perforated chronic duodenal ulceration in 3 young children.

CASE REPORTS

Case 1:

L.C.Y., a 7-year old Chinese male was admitted with a one-day history of fever, vomiting and repeated grandmal seizures. He had previously been seen for delayed milestones and epilepsy and was on phenobarbitone therapy. Appetite had always been poor and for the past 2 years he had several episodes of vomiting, not associated with abdominal pain.

On clinical examination he was pale, dehydrated, comatose and in shock. The systolic blood pressure was 80 mg Hg. The abdomen was distended with boardlike rigidity and absent bowel sounds. Abdominal radiograph showed gas under the right hemidiaphragm.

At laparotomy, there was a chronic ulcer, 0.5 cm in diameter, on the anterior aspect of the first part of the duodenum with a spurting artery. There was 600 c.c. of bilestained stale blood in the peritoneal cavity which was aspirated. An ulcer repair was done. The biopsy report was consistent with a benign chronic duodenal ulcer.

He had another episode of bleeding a week postoperatively and had to undergo vagotomy, pyloroplasty and undermining of the ulcer. He has remained asymptomatic since then.

Case 2:

C.L.P., a 3½ year old Chinese female was admitted with a one-week history of diarrhoea, vomiting and loss of appetite. One the day of admission she developed central colicky abdominal pain accompanied by haematemesis. This girl had a large lumbar lipoma with diplomyelia of the cord since birth for which a partial repair was done. She had had a ventriculoperitoneal shunt inserted for hydrocephalus and aqueductal stenosis. She had a neurogenic bladder with recurrent urinary tract infection. There was no past history of abdominal pain or vomiting though she had bowel incontinence.

On clinical examination she was pale, lethargic, febrile, severely dehydrated and in shock. Pulse rate was 140/minute and blood pressure was 90 mm Hg systolic. The abdomen was tense and distended with absent bowel sounds. Abdominal radiograph showed a pneumoperitoneum (Fig. 1).

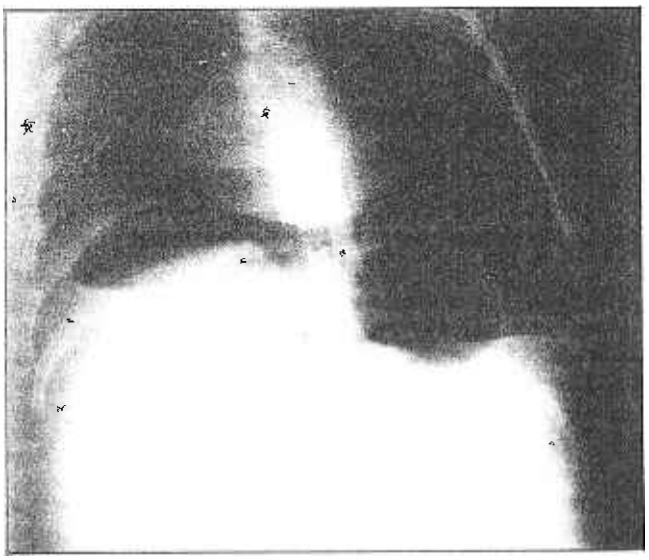

FIG. 1:
Abdominal radiograph of Case No. 2 showing gas under both diaphragms.

At laparotomy, there was a 0.5 cm perforation of a chronic ulcer on the anterior surface of the first part of the duodenum (Fig. 2) with multiple small acute bleeding gastric ulcers. There was a large amount of bile stained fluid in the peritoneum. The perforation was repaired and sealed with an omental patch and her shunt converted to a ventriculoatrial shunt.

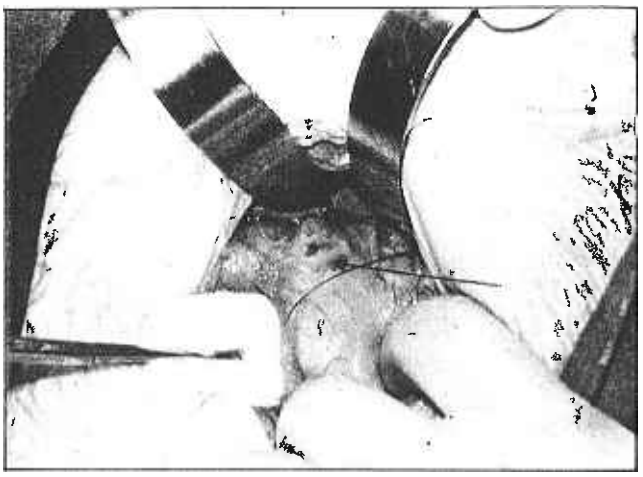

FIG. 2:
Photograph of Case No. 2 at laparotomy showing the 0.5 cm. perforation on the anterior surface of the first part of the duodenum.

Postoperatively she was on cimetidine for 3 months and has been symptom free since.

Case 3:

T.C.F., a 3-month old Chinese male infant presented with a 4-day history of breathlessness. He has previously been diagnosed to have a ventricular septal defect with patent ductus arteriosus and pulmonary hypertension. He underwent pulmonary artery banding and ligation of ductus 2 weeks prior to admission.

On clinical examination he had cardiac failure, bronchopneumonia and a left diaphragmatic paralysis for which he required mechanical ventilation and tube feeding. On the 10th hospital day, he suddenly turned pale and began to have haematemesis, bleeding per rectum and abdominal distension. However the abdomen was soft and bowel sounds were present. Abdominal radiograph revealed a pneumoperitoneum (Fig. 3).

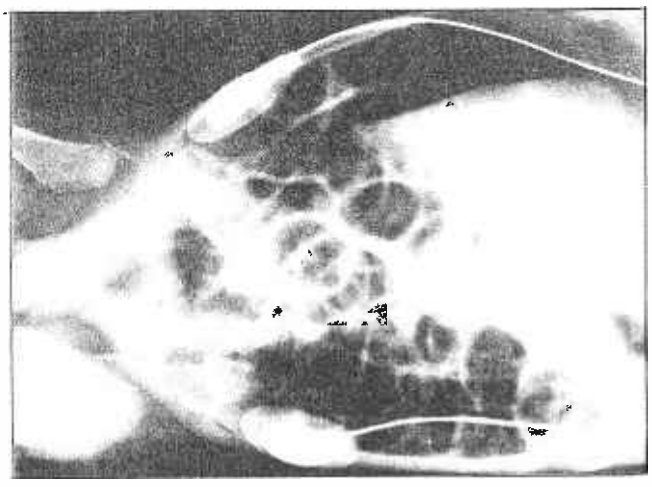

FIG. 3:
Abdominal radiograph of Case No. 3 in the left lateral decubitus position showing a large penumoperitoneum.

At laparotomy, there was a chronic duodenal ulcer on the posterior wall of the first part of the duodenum with a 0.5 c.m. perforation (Fig. 4) and a haemoperitoneum. Closure of the perforation was done.

Postoperatively he had gastrointestinal bleeding for a few days but it eventually settled. He was on cimetidine for 2 months and has been asymptomatic since.

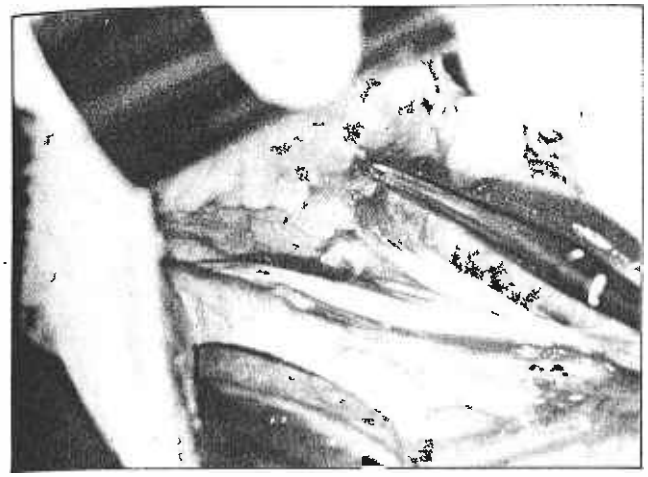

FIG. 4:
Photograph of Case No. 3 at laparotomy showing the 0.5 cm. perforation on the posterior wall of the first part of the duodenum.

DISCUSSION

Duodenal ulcer disease in children is an uncommon entity (1) and often the diagnosis is not made until complications occur or at postmortem examination (2). The presenting symptoms may be vague and variable. Gastrointestinal symptoms such as vomiting, were found to be more common in the younger age group, while abdominal pain was more common in older children (3). Abdominal pain in children is a common complaint but a diagnosis of duodenal ulceration is seldom entertained because it is uncommon in children.

In one review (2) perforation occurred in 7 out of 22 patients, leading to death in 4 patients. It was the most common complication and occurred in every age group. Signs may be masked by the presence of other disease and diagnosis is frequently missed because of its rarity (3). An abdominal radiograph in the lateral or erect position is useful as it may show evidence of a perforation which was not suspected (4) as was the case in our third patient.

The cause of peptic ulcer disease in children is unknown in most cases, though often there may be associated disorders of the central nervous system, congenital heart disease, steroid therapy, burns, sepsis or trauma. In our three patients there was associated central nervous system disease and congenital heart disease. As the symptoms of a chronic ulcer in children may be vague or atypical (5) it may not be suspected or diagnosed until complications develop, as was the case in all our 3 patients.

Some studies reported mortality figures for complications as high as 11% (6). For perforation, surgery is the treatment of choice and simple oversewing is sufficient. In selected cases, vagotomy and pyloroplasty may be necessary. (7).

In conclusion, although duodenal ulcer disease is rare in children in comparison with adults, it does occur but the diagnosis may be difficult or obscure, because it is not thought of. An earlier diagnosis of a chronic ulcer may prevent complications which e.g. occasionally are fatal. The diagnosis of these complications e.g. perforation, may themselves be difficult as the signs may be atypical, or are masked by the presence of associated diseases. Early diagnosis and surgery are important in preventing a fatal outcome.

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