

Cases of nephrotic syndrome in conjunction with AIN, with features of renal failure in addition, are of interest; these patients have shown 'minimal change nephropathy' on electron microscopic study of renal biopsy material.⁵ The patient described here had only mild proteinuria and normal glomeruli on both light microscopy and electron microscopy. In most of the cases reported⁵⁻⁷ the patient had been exposed to multiple drugs. Our patient had taken tolmetin only.

The pathogenesis of AIN in association with this group of drugs is not entirely clear but it is most likely due to a hypersensitivity reaction since only a small proportion of patients using these drugs develop the syndrome. The absence of other features of a hypersensitivity reaction may represent an altered hypersensitivity response in the face of an anti-inflammatory drug. Eosinophils are a feature of the renal interstitium even in the absence of peripheral eosinophilia.

Renal function recovers rapidly in most patients on withdrawal of the drug. Since the time lag between starting the

drug and the onset of AIN is variable it appears unwise to challenge the patient with the drug after renal function has been restored.

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Left paraduodenal hernia with acute abdominal symptoms

A case report

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Summary

A 22-year-old man with an incarcerated left paraduodenal hernia is described. Symptoms included nausea, vomiting, cramp-like abdominal pain and obstipation. A clinical diagnosis of mechanical small-intestinal obstruction was made on the history, examination, and abdominal radiographic findings. At laparotomy successful manual reduction was achieved, resection was not required and the patient made an uneventful recovery.

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Among the frequent causes of acute intestinal obstruction encountered in surgical practice are adhesions resulting from previous abdominal operations, obstruction of inguinal and femoral hernia, and malignant obstruction of the large bowel.

Rarely, small-bowel obstruction may be caused by entrapment of the bowel within an intra-abdominal hernia. Numerous

retroperitoneal fossae have been reported of which the paraduodenal type has most frequently been associated with intestinal obstruction. Paraduodenal hernias are intra-abdominal defects which result from errors in the development and rotation of the gut.¹⁻⁷ However, a paraduodenal hernia is an unusual cause of small-intestinal obstruction, but one with which all surgeons should be familiar, particularly as far as the anatomy, pathophysiology and surgical treatment are concerned.

The clinical presentation and management of a patient with a left paraduodenal hernia are discussed.

Case report

A 22-year-old coloured man was admitted to Tygerberg Hospital with a sudden onset of severe abdominal pain, nausea, vomiting and obstipation. His past medical history was unremarkable and revealed no previous abdominal surgery. Examination revealed moderate dehydration, lower abdominal tenderness and guarding. The external hernia sites were normal. Laboratory investigations, including haematocrit, leucocyte count, serum amylase level and urinalysis were all normal. An abdominal radiograph showed signs of lower small-bowel obstruction (Fig. 1). An emergency laparotomy was indicated because of the possibility of underlying strangulation of the bowel.

At laparotomy, small-bowel obstruction was evident in the absence of strangulation, adhesions, organomegaly, lymphadenopathy, volvulus, intussusception or gut malrotation. Further scrutiny confirmed the presence of incarceration of a portion of the distal ileum in a left paraduodenal hernia. Manual reduction of a 10 cm loop of distal ileum from the hernia sac was accomplished after placing a releasing incision in an avascular area of the mesentery of the descending colon adjacent to the hernia opening.

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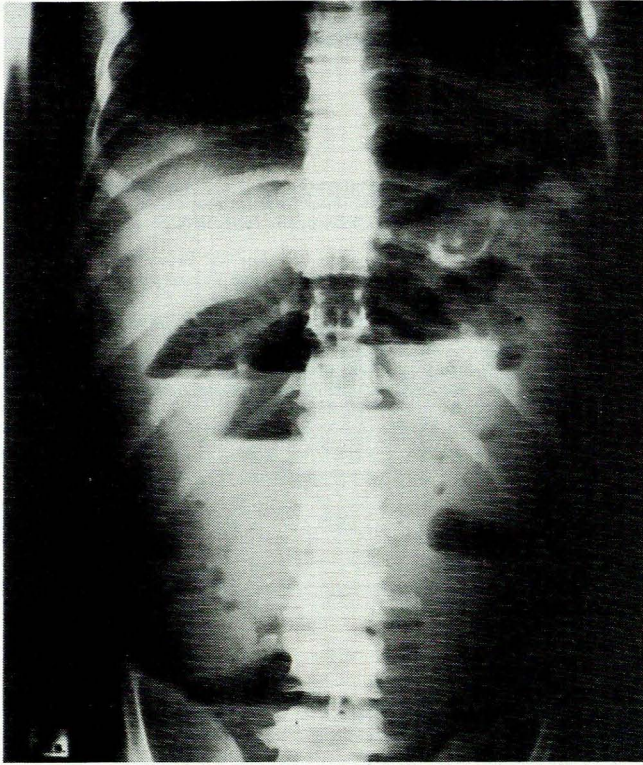


Fig. 1. Erect abdominal radiograph showing signs of an incomplete small-bowel obstruction. The incarcerated paraduodenal hernia was not suspected from this radiograph.

The bowel loop was viable and resection was not required after freeing the entrapped bowel from the hernia sac. Closure of the sac opening was technically not feasible and the inferior mesenteric vessels were preserved during reduction of the hernia. A prominent paracaecal fossa was also observed. No additional lesion was evident and closure of the abdomen was followed by an uneventful postoperative course.

Discussion

Paraduodenal hernias are intra-abdominal defects which result from errors in the development and rotation of the gut.^{2,3} The first description of a paraduodenal hernia was made in 1786 by Neubauer (Brigham *et al.*³) and in recent years the complications of these hernias have been reviewed by numerous workers.²⁻⁴

Unfortunately, the precise pathogenesis of these hernias is unknown, as is reflected in the various classifications proposed. Two theories have been prominent, one suggesting that bowel becomes trapped in the underlying paraduodenal fossae and the other indicating that these hernias are anomalies of intestinal rotation in which the small intestine is trapped behind the transverse mesocolon.^{2,4}

The incidence of paraduodenal hernia is unknown but is reported to account for about 53% of all internal hernias.² The majority of cases have been reported between the fourth and

sixth decades of life with an average age of 38.5 years. Men are affected more than women.²

The clinical presentation results from partial or complete obstruction of the small bowel with or without strangulation. Many paraduodenal hernias are asymptomatic and are incidental findings at laparotomy and autopsy.⁷ The clinical features of obstruction due to paraduodenal incarceration are indistinguishable from those due to other causes of mechanical small-bowel obstruction. As in other hernias, obstruction of the small bowel in paraduodenal hernia is caused by adhesions within the sac, prolapse of small bowel through a small hernial opening, as seen in our patient, or adhesions in and about the neck of the sac. In patients presenting with a past history of chronic digestive complaints indicating subacute obstruction, plain radiographs of the abdomen, a barium meal and follow-through, arteriogram or computed tomography of the abdomen may show agglomeration of small-bowel loops into one area of the abdominal cavity.^{5,6}

The surgical treatment depends on a clear understanding of the congenital defect. For practical purposes the surgeon has to deal with either a left or right paraduodenal hernia. It is essential to recognize the difference in order to avoid unnecessary compromise to vessels of the small and large intestine, and unsolicited operations.^{1-4,7} In the two types the technical problems involved are quite different. The left paraduodenal hernia can usually be manually reduced without much difficulty, especially if it is small. Suture of the orifice has been recommended but elaborate efforts to close the hernial orifice have been deemed unnecessary by others.² In some cases dilatation of the neck of the hernia together with lysis of the adhesions may be needed to ensure easy reduction of the bowel loops. If the neck of the sac is small and the contents of the hernia cannot be manually reduced, a releasing incision in an avascular area of the mesentery of the descending colon will facilitate safe delivery of the entrapped bowel into the peritoneal cavity. Injury to the mesenteric vessels should be avoided. The right paraduodenal hernia is mobilized by freeing the lateral peritoneal margin of the right colon over to the left side. In so doing, the sac of the hernia is widely opened, and the small opening through which the terminal ileum passes is eliminated. The hernial sac now becomes part of the general peritoneal cavity.^{1-4,7}

Although paraduodenal hernias are infrequently encountered in clinical practice, a surgeon must have knowledge of the two types, their causation and anatomical relationships to ensure safe correction of the defects.

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