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(Accepted 9 June 1981)

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Abdominal hernias in patients receiving continuous ambulatory peritoneal dialysis

Continuous ambulatory peritoneal dialysis¹ is gaining wider acceptance as an alternative to haemodialysis in the treatment of end-stage renal failure. We report six cases of abdominal hernias encountered in 61 patients treated with continuous ambulatory peritoneal dialysis.

Case reports

The table summarises the pertinent features of the patients. The first case is described in detail.

Case 1—A 52-year-old man whose original kidney disease defied diagnosis despite extensive investigations including renal arteriography and renal biopsy was transferred to our unit in end-stage renal failure in April 1979. Peritoneal dialysis was started in May 1979 and after eight weeks in hospital, including an initial three weeks undergoing intermittent peritoneal dialysis to ensure adequate healing of the subcutaneous tunnel made during the insertion of the single-cuffed Teckenhoff silastic catheter, he was discharged receiving continuous ambulatory peritoneal dialysis with four exchanges of two litres isotonic solutions a day. Blood chemical values were quite acceptable and the patient's general condition satisfactory despite five episodes of peritonitis, which was cleared by continuous peritoneal lavage with antibiotics. On 24 December 1980 he was readmitted with fever and abdominal pain. Peritoneal fluid was clear and examination showed an irreducible umbilical hernia. Radiography of the abdomen showed multiple fluid levels. Strangulated hernia was diagnosed and he underwent laparotomy, at which 18 cm of gangrenous small bowel were resected. The hernia was repaired and the peritoneum carefully stitched. Immediately after operation peritoneal dialysis was continued using exchange volumes of 200-250 ml with zero dwell time. Flucloxacillin and ampicillin were given intraperitoneally and metronidazole rectally. He recovered uneventfully and continued with intermittent peritoneal dialysis for three weeks before returning to

continuous ambulatory peritoneal dialysis. He was well when reviewed three months after discharge from hospital.

Comment

The incidence of hernias in patients receiving continuous ambulatory peritoneal dialysis (9.8%) was not appreciably different from that in patients receiving intermittent peritoneal dialysis (8%) at the same centre (unpublished observations). Of the five hernias observed in 64 patients receiving intermittent peritoneal dialysis, however, two were incisional hernias at the site of failed renal allografts and were probably not directly attributable to intermittent peritoneal dialysis. Moreover, the hernias in patients receiving continuous ambulatory peritoneal dialysis occurred within a short time (less than two years) of starting treatment. Undoubtedly the constant presence of two litres of dialysis solution will encourage the development of hernias through any sites of weakness in the abdominal wall—for example, catheter sites in case 2, umbilical hernias in cases 1 and 3, and a patent processus vaginalis in case 4. While the first differential diagnosis of abdominal pain in a patient undergoing peritoneal dialysis is peritonitis, the possibility of intestinal obstruction must not be forgotten. Our experience of abdominal hernias in patients receiving continuous ambulatory peritoneal dialysis is similar to that reported by the Toronto group.² In addition we have shown that careful repair of the hernia by surgeons familiar with the use of peritoneal dialysis catheters rendered it possible to continue dialysis immediately after operation. To avoid leakage of peritoneal fluid and dehiscence of the wound, intermittent dialysis with small volumes (125-250 ml) was used.

The true incidence of hernias in patients receiving continuous ambulatory peritoneal dialysis may be determined only when more experience with this technique has accumulated. Nevertheless, case 3 serves as a reminder that such a complication could ultimately lead to the failure of the technique in some patients.

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(Accepted 1 July 1981)

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Clinical features of patients receiving continuous ambulatory peritoneal dialysis with abdominal hernias

| Case No | Sex | Age (years) | Original kidney disease | Other important medical condition | Hernial site | Presenting symptoms | Interval* | Operation | Outcome |
|---------|-----|-------------|---|-----------------------------------|---------------|---|-----------|--|--|
| 1 | M | 52 | Unknown | Ischaemic heart disease | Umbilical | Fever, abdominal pain | 19 months | Resection of gangrenous bowel. Hernia repair | Continuing continuous ambulatory peritoneal dialysis |
| 2 | M | 19 | Vesicoureteric reflux with dysplastic kidneys | Two failed renal allografts | Catheter site | Sudden "collapse" with abdominal pain | 10 months | Hernia repair | Continuing continuous ambulatory peritoneal dialysis |
| 3 | M | 42 | Hypertensive nephrosclerosis | — | Umbilical | Abdominal pain, cloudy peritoneal fluid | 11 months | Hernia repair | Continuous ambulatory peritoneal dialysis abandoned owing to unexplained persistent abdominal pain after the operation |
| 4 | F | 13 | Vesicoureteric reflux with dysplastic kidneys | Annular pancreas | Inguinal | Inguinal swelling on instilling dialysis solution | 2 months | Resection of patent process vaginalis. Hernia repair | Continuing continuous ambulatory peritoneal dialysis |
| 5 | M | 62 | Polycystic kidneys | Poor nutritional state | Incisional | Swelling related to catheter site | 2 months | — | Catheter leak has sealed. Continuing continuous ambulatory peritoneal dialysis |
| 6 | M | 65 | Unknown | Gastric carcinoma | Inguinal | Inguinal swelling | 10 months | — | Currently undergoing haemodialysis for reason unrelated to the hernia |

*Time between initiation of treatment of end-stage renal failure with continuous ambulatory peritoneal dialysis and the diagnosis of hernia.