

## Case report

# Large bowel obstruction caused by sclerosing peritonitis: contrast-enhanced CT findings

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**Abstract.** Sclerosing peritonitis (SP) is a rare but serious complication of chronic ambulatory peritoneal dialysis (CAPD). SP is characterized by thickening of the peritoneum that encloses some or all of the small intestine. However, the early clinical features of SP are non-specific and are often not recognized until the patient develops complications. The most common complications of SP appear to be partial or complete small bowel obstruction, small bowel necrosis, and enterocutaneous fistulae, all of which, necessitate surgical intervention and have high mortality rates. Although the CT findings of SP are well recognized, to our knowledge, large bowel obstruction due to SP without peritoneal change have not been reported. We report a case of large bowel obstruction due to peritoneal sclerosis following long-term CAPD.

Sclerosing peritonitis (SP) is a rare but serious complication of chronic ambulatory peritoneal dialysis (CAPD) that occurs with an incidence of between 0.6% and 7.3% [1, 2]. SP is characterized by thickening of the peritoneum that encloses some or all of the small intestine. The end result of this process is either partial or complete small bowel obstruction [3–6]. Clinically, SP presents with a loss of ultrafiltration, a bloody dialysis effluent and recurrent abdominal pain [1]. However, the early clinical features of SP are non-specific and are often not recognized until the patient develops complications. Gastrointestinal involvement may occur and may result in serious complications such as small bowel obstruction and necrosis. Although CT findings of SP are well recognized [7, 8], to our knowledge, large bowel obstruction due to SP without peritoneal change have not been reported.

We report a case of large bowel obstruction due to peritoneal sclerosis following long-term CAPD.

## Case report

A 62-year-old woman with chronic renal failure underwent CAPD for 3 years. The patient presented with abdominal pain, vomiting and constipation for 1 week. Her medical history included recurrent abdominal pain. On physical examination, there was distension of the abdomen. The laboratory findings were unremarkable except for leukocytosis ( $11\,000$  white blood cells  $\text{mm}^{-3}$ ). Plain abdominal radiography revealed dilatation of the ascending colon with a large amount of faecal material and multiple air-fluid levels in the small bowel loops (Figure 1). Contrast-enhanced abdominal CT also demonstrated marked dilatation with faecal material in the ascending colon caused by stricture of the proximal transverse colon. Mesenteric vascular engorgement and a small amount of peritoneal fluid were also demonstrated, however, there were no peritoneal change such as enhancement, fibrosis or calcification



**Figure 1.** Plain erect abdominal radiography revealed dilatation of the ascending colon with a large amount of faecal material (arrowheads) and multiple air-fluid levels in the small bowel loops.

(Figure 2). Emergency surgery was performed. At surgery, a colonic obstruction caused by a short segmental stricture of the transverse colon was found. A small amount of ascites was also noted. A right hemicolectomy and an end-to-end anastomosis were performed. Pathological examination

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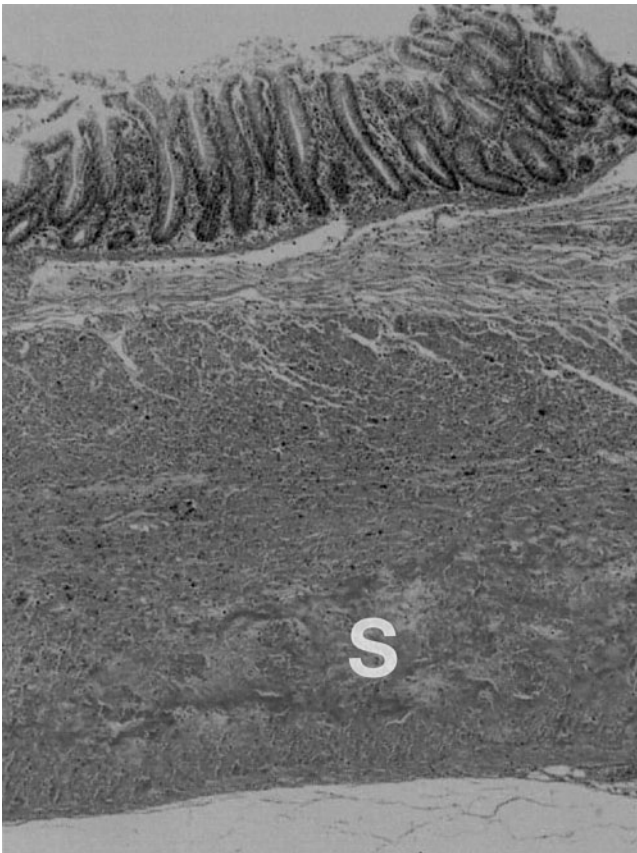


**Figure 2.** Contrast-enhanced CT shows a marked dilatation with faecal material in the ascending colon caused by stricture of the proximal transverse colon (arrows). Mesenteric vascular engorgement and a small amount of peritoneal fluid were also demonstrated. However, there were no peritoneal changes such as enhancement, fibrosis or calcification. The left kidney shows atrophy with calcifications.

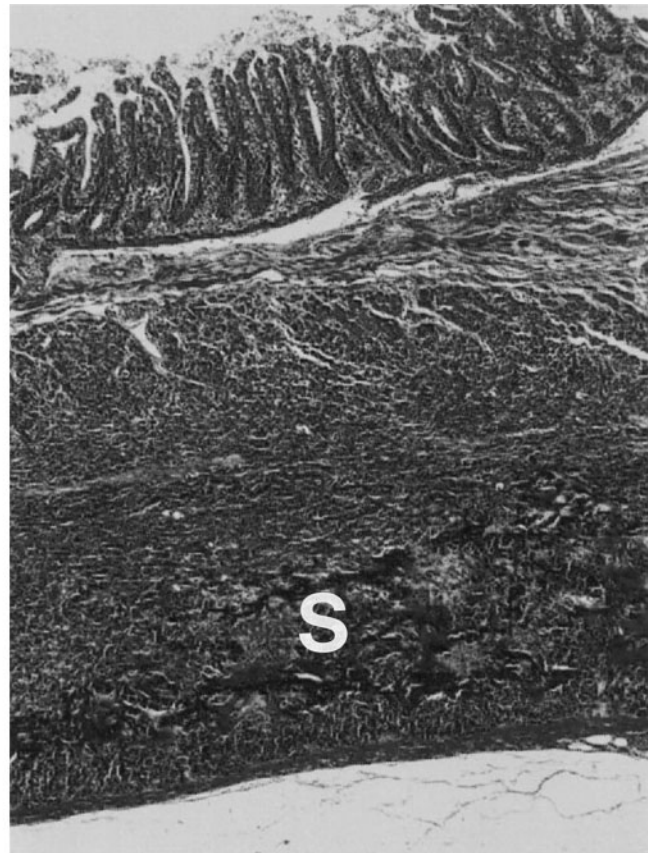
of the surgical specimen showed a markedly thickened and fibrous serosal membrane and disappearance of the outer longitudinal muscle layer in the colon (Figure 3). This patient's confirmed colon obstruction was caused by SP.

## Discussion

SP is a recognized entity that causes diffuse peritoneal thickening, bowel wall thickening and ascites. It has been described in association with recurrent episodes of infective peritonitis, treatment with beta-adrenergic blockers, the presence of acetate in the dialysate, use of antiseptics during bag exchange, duration of CAPD, and direct irritation effect of the CAPD catheter or peritoneovenous shunting [1, 2]. Clinical manifestations are non-specific and include vague abdominal pain and weight loss. Pathologically, SP appears to be an inflammatory process that transforms the peritoneal membrane into thick fibrous tissue due to fibroconnective tissue proliferation. The inflammatory response then progresses to develop serosal fibrosis. The most frequently involved site of SP is the serosa of the small bowel. The end result of this process is partial or complete small bowel obstruction [4]. The most common complications of SP appear to be intestinal



(a)



(b)

**Figure 3.** (a) On pathology, the colon shows a markedly thickened and fibrous serosal membrane (S) and disappearance of the outer longitudinal muscle layer (haematoxylin-eosin stain  $\times 40$ ). (b) On special stain for fibrous tissue, the colon shows a markedly thickened and fibrous serosal membrane (S) (Masson-trichrom stain  $\times 40$ ).

obstruction, small bowel necrosis, and enterocutaneous fistulae. This condition necessitates surgical intervention, and the mortality rate is 60% within 4 months of diagnosis [5, 6].

Several reports describe the CT findings of SP [7, 8]. Stafford-Johnson et al [8] reported that the CT findings of SP are peritoneal thickening (100%) and calcification (70%), peritoneal enhancement (50%), small bowel tethering (60%), and loculated fluid collections (90%). An interesting feature of our case was that CT showed a colon obstruction with a small amount of peritoneal fluid but no peritoneal change, such as thickening, enhancement, calcification or small bowel tethering.

CAPD is a commonly used mode of renal replacement therapy. Although a rare complication, colon obstruction due to SP should be considered in any patient on prolonged CAPD who develops recurrent abdominal pain.

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