

Extensive peritoneal calcifications and ascites in a dialysis patient

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Section: Abdominal imaging

Area of Interest: Abdomen

Procedure: Contrast agent-oral

Imaging Technique: CT

Special Focus: Calcifications / Calculi Case Type:

Clinical Cases

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Patient: 85 years, male

Clinical History:

An 85-year-old man on long-term peritoneal dialysis due to end-stage renal disease, was admitted to our hospital with abdominal distension, vomiting and diffuse abdominal pain. He had not undergone renal transplantation and from his past history, congestive heart failure was referred. A computed tomography examination was requested by the pathologist.

Imaging Findings:

CT of the abdomen and pelvis was performed with oral contrast administration, without intravenous contrast due to chronic renal failure. It revealed large intraperitoneal fluid collection, extensive sheet-like and curvilinear calcifications of the visceral and parietal peritoneum, as well as large plaque-like calcifications corresponding to the inferior lying parts of the fluid collection. Arterial wall calcifications and adhesions of bowel loops were also detected, whereas there were no dilated bowel loops.

The patient was managed conservatively (cessation of peritoneal dialysis, immunosuppression, parenteral nutrition), due to his medical history of congestive heart failure.

However, he succumbed a few days later, following an incident of cardiac arrest.

Discussion:

Calcification of the peritoneal membranes is a rare but serious, life-threatening complication in patients undergoing long-term peritoneal dialysis. Progressive calcifying peritonitis, sclerosing peritonitis or encapsulating peritoneal sclerosis are three terms used to describe this unusual condition [1].

The aetiology is poorly understood, but is believed to be multifactorial. Generally, constant peritoneal irritation and continuous exposure to a fluid with a non-physiological composition is probably involved in progressive peritoneal thickening, calcifications and adhesions [2].

The clinical manifestations usually include diffuse intermittent abdominal pain, loss of appetite, nausea, vomiting and swelling of the abdomen with discomfort.

Abdominal CT is the diagnostic imaging modality of choice for the evaluation of calcifying peritonitis. CT findings include: peritoneal thickening and calcifications, fluid collection (ascites), bowel wall thickening, tethered small bowel loops, as well as peritoneal enhancement in cases of intravenous contrast material administration. These findings are diagnostic of encapsulating peritoneal sclerosis in the appropriate clinical setting [3, 4].

Histological findings in a peritoneal biopsy include a thick sclerosing tissue involving the peritoneal wall with

inflammatory cells (neutrophils, lymphocytes), microabscesses, calcifications and severe vascular alterations [5]. Cessation of peritoneal dialysis is usually the first step of therapy. Additional treatment options include excision of thickened peritoneum and adhesiolysis in case of surgical intervention, as well as conservative treatment (immunosuppressive therapy, tamoxifen and bowel rest with total parenteral nutrition) [6].

The prognosis of calcifying peritonitis is poor and prevention is difficult. Careful monitoring with CT in patients on long-term peritoneal dialysis is recommended, with early catheter removal if ascites and peritoneal calcifications are detected. Abdominal CT which provides a reliable and noninvasive diagnostic tool, also plays an important role in therapy planning.

Therefore, early recognition of this serious and unusual condition followed by proper treatment is essential.

Differential Diagnosis List: Encapsulating peritoneal sclerosis, Mucinous tumour metastases, Tuberculous peritonitis

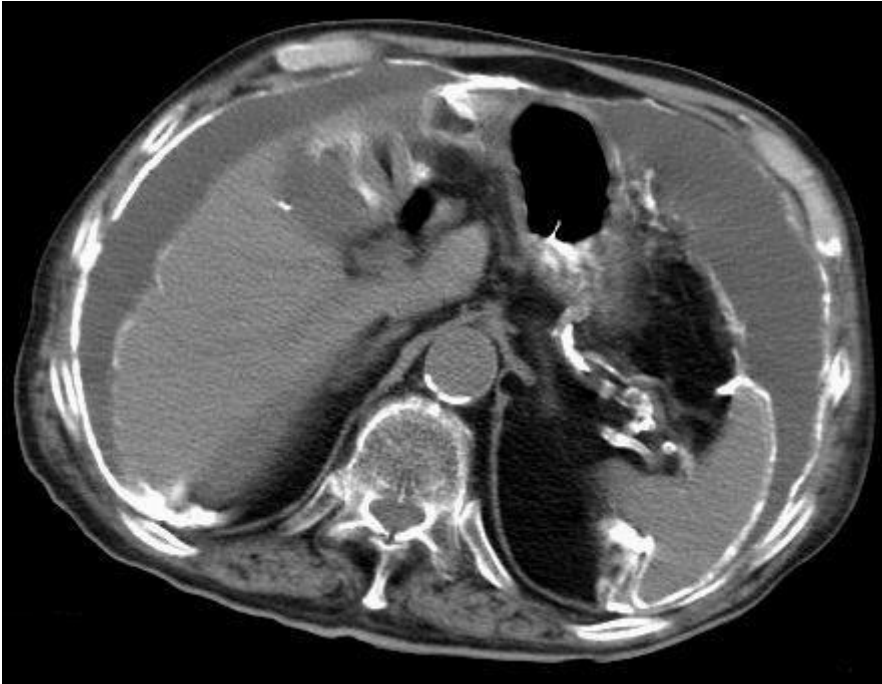
Final Diagnosis: Encapsulating peritoneal sclerosis

References:

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Figure 1

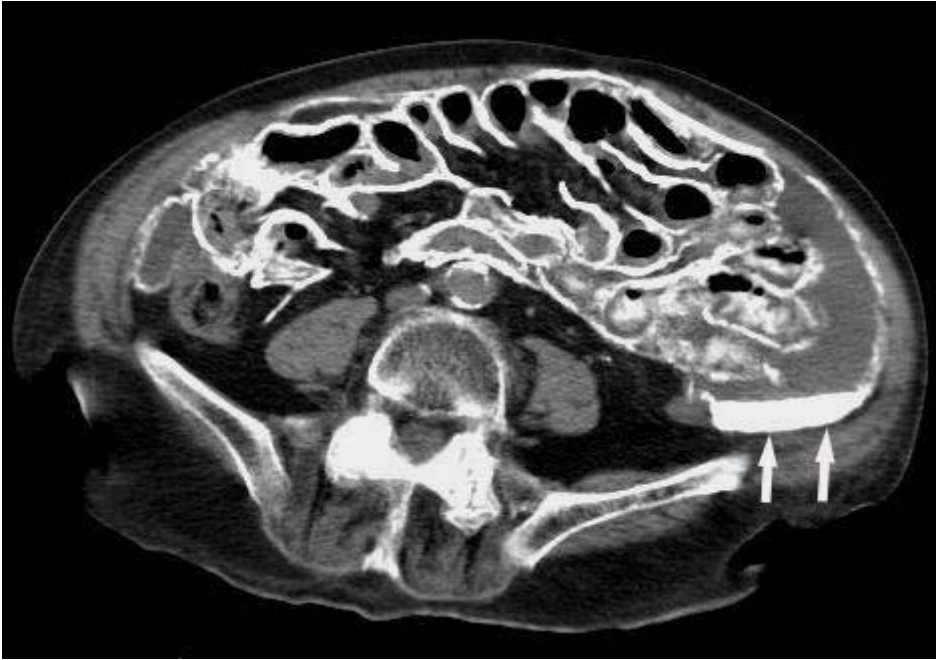
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Description: Calcifications of the visceral and parietal peritoneum and ascites **Origin:** Department of Radiology, General Hospital of Kozani, Greece

Figure 2

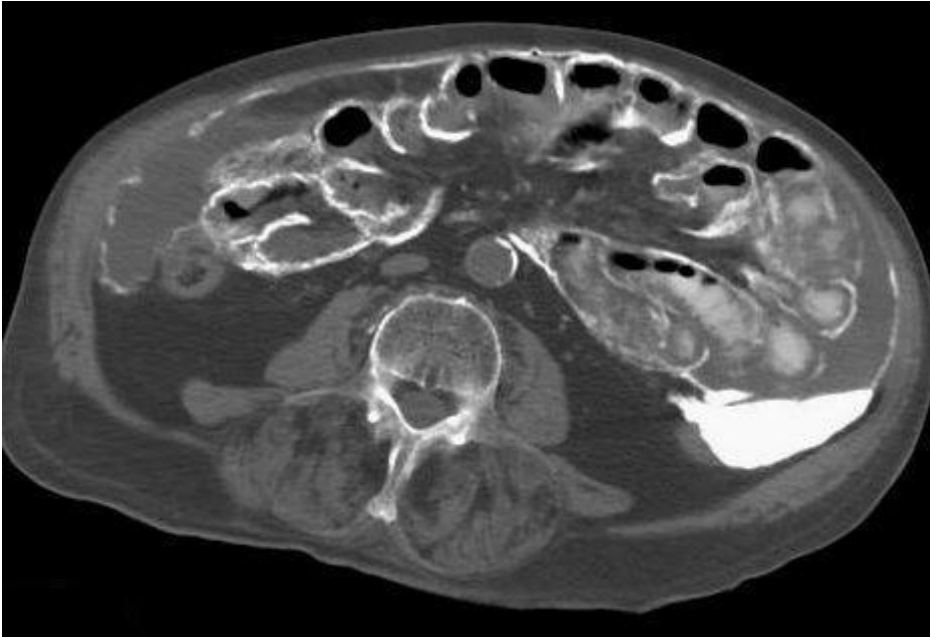
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Description: Tethered small bowel loops and large plaque-like calcification (arrows) **Origin:** Department of Radiology, General Hospital of Kozani, Greece

Figure 3

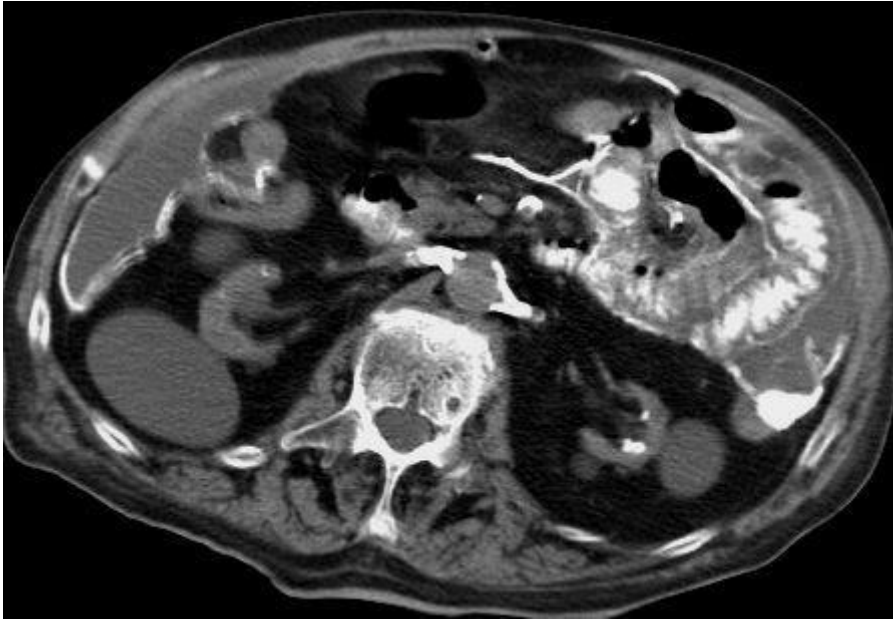
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Description: Bone window **Origin:** Department of Radiology, General Hospital of Kozani, Greece

Figure 4

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Description: Calcifications at the origin of renal arteries. Shrunken kidneys with calcifications and cysts

Origin: Department of Radiology, General Hospital of Kozani, Greece