

# Answer

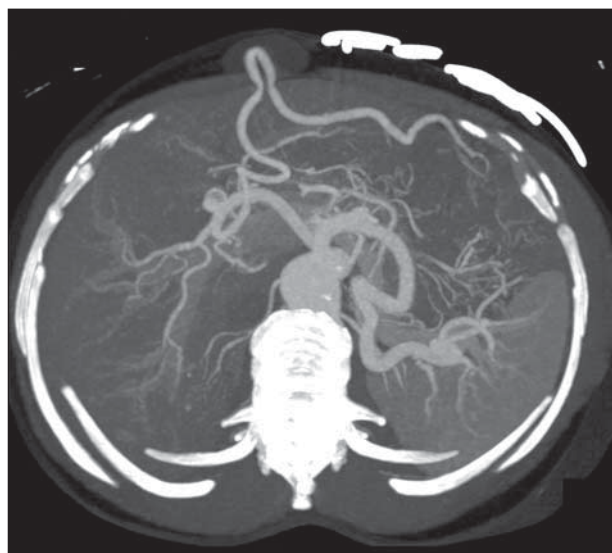
## Hernia Containing Omentum and Right Gastroepiploic Artery

Computed tomography identified a right paramedian hernia containing the right gastroepiploic artery and a portion of the omentum with fluid and stranding, suspicious for incarceration (**Figure 2**). No attempt at reduction had been made prior to the scan because of the pulsatile nature of the hernia on physical examination. Confirmation of arterial involvement from the imaging study prompted surgical reduction under direct visualization.

Paramedian ventral hernia repair was performed through her prior incision. Intraoperatively, we found a hernia sac containing omentum with the right gastroepiploic artery. No evidence of strangulation was seen. The hernia contents were reduced and the hernia sac was excised. The non-functioning PD catheter was removed. The hernia defect was closed primarily using nonabsorbable, braided, polyester sutures. A tunneled dialysis catheter was placed for temporary intermittent hemodialysis, and the patient was discharged without any complications.

Complications after PD catheter placement can cause significant morbidity and mortality and may result in catheter loss and discontinuation of PD, with the need for temporary or permanent change to hemodialysis in about 10% to 20% of the patients.<sup>1</sup> The most frequent and important complication is infection (peritonitis, surgical wound, and tunnel and exit-site infections), followed by mechanical complications (obstruction, leakage, and hernia formation).

Hernia formation is a frequent complication of PD. The prevalence of hernias in patients with PD has been reported to be higher than in the general population, ranging from 10% to 25%.<sup>2</sup> The most common type is umbilical (50%-60%), followed by inguinal (25%-35%) and incisional (10%-15%), while femoral, epigastric, and ventral hernias each compose less than 5% of abdominal wall



**Figure 2.** Arterial phase imaging demonstrating that within the hernia is the right gastroepiploic artery, branching off the gastroduodenal artery.

hernias in this population.<sup>2,3</sup> Many factors predispose to herniation, including high intra-abdominal pressures sustained during dialysis as well as malnutrition and uremia, which may contribute to this complication by impairing wound healing and cellular proliferation.

Most hernias in patients on CAPD are asymptomatic and therefore can be easily missed if not carefully explored. In a prospective observational study,<sup>2</sup> more than two-thirds of hernias in patients on CAPD were found before initiation of PD. Performing a thorough search for hernias in all new patients going on PD before initiation of PD is highly recommended, and early repair is advised to avoid complications. If hernias are recognized at the time of PD catheter implantation, they can be repaired simultaneously and save the patient an extra operation.<sup>4</sup> Polypropylene mesh repair has been used recently in patients on CAPD. Use of mesh does not seem to increase the incidence of peritonitis or exit-site infection.<sup>2,5</sup>

Peritoneal dialysis may frequently be resumed within several days of hernia repair using low volume, supine position, or rapid cycling of PD,<sup>6</sup> while other centers usually wait 4 to 6 weeks before restarting CAPD. In this case, our patient was quite small and was already experiencing difficulty tolerating adequate dialysate volumes, so resuming PD immediately was not recommended for her.

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### REFERENCES

1. Mujais S, Story K. Peritoneal dialysis in the US. *Kidney Int Suppl.* 2006;(103):S21-S26.
2. García-Ureña MA, Rodríguez CR, Vega Ruiz V, et al. Prevalence and management of hernias in peritoneal dialysis patients. *Perit Dial Int.* 2006;26(2):198-202.
3. Afthentopoulos IE, Panduranga Rao S, Mathews R, Oreopoulos DG. Hernia development in CAPD patients and the effect of 2.5 l dialysate volume in selected patients. *Clin Nephrol.* 1998;49(4):251-257.
4. Nicholson ML, Madden AM, Veitch PS, Donnelly PK. Combined abdominal hernia repair and continuous ambulatory peritoneal dialysis (CAPD) catheter insertion. *Perit Dial Int.* 1989;9(4):307-308.
5. Imvrios G, Tsakiris D, Gakis D, et al. Prosthetic mesh repair of multiple recurrent and large abdominal hernias in continuous ambulatory peritoneal dialysis patients. *Perit Dial Int.* 1994;14(4):338-343.
6. Tast C, Kuhlmann U, Stölzing H, Alscher D, Mettang T. Continuing CAPD after herniotomy. *EDTNA ERCA J.* 2002;28(4):173-175.