

High mortality following gastrostomy tube insertion in adult peritoneal dialysis patients: case report and literature review

Table 1 Summary of case reports of patients on peritoneal dialysis and gastrostomy tube feeding by time elapsed between percutaneous endoscopic gastrostomy (PEG) and peritoneal dialysis (PD) catheter insertion.

Case report	Age in years	Sex	Cause of end-stage renal disease	Time elapsed between PEG and PD catheter insertion	Complications	Outcome
Lew et al., 2011	N/A	M	Amyloidosis	14 months	None	Later death due to unrelated cause
Fein et al., 2001	77	F	Vascular disease	N/A	Peritonitis × 2	Later death due to unrelated cause
Fein et al., 2001	69	M	Diabetes	4 years	None	Later death due to unrelated cause

F, female; M, male; N/A, data not available.

Table 2 Summary of case reports of patients on peritoneal dialysis and gastrostomy tube feeding providing duration of withholding peritoneal dialysis (PD) after percutaneous endoscopic gastrostomy (PEG) insertion.

Case report	Age in years	Sex	Cause of end-stage renal disease	Duration of withholding PD after PEG insertion	Complications (onset from time of insertion)	Outcome
Dahlan et al., 2013 (present study)	79	F	Multiple myeloma	Switched to hemodialysis	Leak, polymicrobial peritonitis (8 days)	Death due to peritonitis
Fein et al., 2001	37	M	Obstructive uropathy	48 hours	Leak, <i>Klebsiella</i> peritonitis	Recovered
Fein et al., 2001	81	F	Diabetes mellitus	2 weeks	Peritonitis while PD on hold (10 days)	Later death due to unrelated cause
Fein et al., 2001	44	M	? AIDS	Switched to hemodialysis	None	Later death due to unrelated cause
Fein et al., 2001	66	F	Diabetes mellitus	None	Leak, fungal peritonitis (< 1 day)	Death due to peritonitis
Fein et al., 2001	58	M	Diabetes mellitus	Switched to hemodialysis	Leak, polymicrobial peritonitis (7 days)	Death due to peritonitis
Fein et al., 2001	64	M	N/A	6 weeks	Fungal peritonitis (50 days)	Death due to peritonitis
Fein et al., 2001	86	M	N/A	Switched to hemodialysis	None	Later death due to unrelated cause
Fein et al., 2001	69	M	N/A	Switched to hemodialysis	None	Later death due to unrelated cause
Goel et al., 1998	N/A	N/A	N/A	N/A	Peritonitis	N/A
Goel et al., 1998	N/A	N/A	N/A	N/A	None	N/A

F, female; M, male; N/A, data not available.

A 79-year-old woman on peritoneal dialysis was admitted to hospital on January 14, 2013, for management of bilateral nonhealing heel ulcers. During her hospital stay, her oral intake was very poor and her albumin level progressively declined to 8g/L. On February 15, she underwent percutaneous endoscopic gastrostomy (PEG) tube insertion and was switched to hemodialysis. Prophylactic oral fluconazole and intravenous piperacillin/tazobactam were administered. On February 23, she developed fever, hypotension, and tachycardia, and subsequently had a cardiorespiratory arrest. She was resuscitated and transferred to the intensive care unit. A leak around the PEG tube site was noted and the PD catheter drained turbid fluid with a total white cell count of $9800 \times 10^{-6}/L$ and effluent culture grew *Klebsiella oxytoca*, *Pseudomonas aeruginosa*, *Enterococcus* species, and *Candida albicans*. Imaging showed no evidence of bowel perforation. The patient continued to deteriorate and she died on February 24, 2013.

A very limited number of case reports [1, 2] indicate that the insertion of peritoneal dialysis catheters in patients who have a preexistent and presumably well-healed PEG may be safe (Table 1), but that the insertion of gastrostomy tubes in patients receiving peritoneal dialysis is associated with major adverse outcomes including leaks and fatal or nonfatal peritonitis (Table 2) [2, 3]. With our patient, withholding peritoneal dialysis, switching to hemodialysis, and use of prophylactic antimicrobials did not prevent the development of fatal peritonitis. We hypothesize that residual peritoneal fluid may have prevented effective healing of the PEG site with subsequent spillage of gastric contents into the peritoneal space. It is uncertain whether surgical as opposed to endoscopic placement or a longer healing time would have resulted in a better outcome. We conclude that gastrostomy tubes should not be placed in adult patients on peritoneal dialysis, because of a very high rate of fatal peritonitis.

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Competing interests: None

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Bibliography

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