A case of small-bowel obstruction after insertion of a percutaneous endoscopic gastrostomy tube due to mesenteric penetration

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ABSTRACT

A case of small-bowel obstruction after insertion of a percutaneous endoscopic gastrostomy (PEG) tube is described. At laparotomy, the PEG tube was found to have penetrated the jejunal mesentery at two points, thereby acting as a focus for a volvulus. Direct injury and obstruction to the small bowel have been described but volvulus due to mesenteric penetration has not.

KEYWORDS

Percutaneous endoscopic gastrostomy – complication – small bowel – mesenteric penetration, volvulus

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Percutaneous endoscopic gastrostomy (PEG) for providing access to enteral feeding has been established for more than 30 years.¹ Overall prevalence of complications is low,² but serious complications, such as injury to the spleen, liver and bowel, are well recognised.^{3,4} Small-bowel injury is very rare due to its position below the omentum, but injury and volvulus have been described.⁵

Case History

A 39-year-old male presented to hospital 2 days after insertion of a PEG tube. The patient had a background of kyphoscoliosis causing restrictive respiratory disease and advanced multiple sclerosis. He had not undergone surgery before, and insertion of the PEG tube was unremarkable.

Over the next few days he developed symptoms of small-bowel obstruction: abdominal distension, nausea, vomiting, and high gastric output from the PEG tube. A nasogastric tube was placed that drained fluid identical to that from the PEG tube. A surgical review was requested and CT of his abdomen arranged: it showed obstruction in the mid-jejunum caused by a suspected volvulus around the PEG tube (Fig 1 and Fig 2). Hence, the patient was taken to theatre for a laparotomy, which confirmed a mid-jejunal obstruction. However, instead of the small bowel looping around the PEG tube as suspected, it had traversed the small bowel mesentery twice (Fig 3 and Fig 4). Fortunately, the bowel was not damaged nor was there blood in the abdomen. The mesentery was threaded off the PEG tube, which was left in the stomach and replaced through a new incision in the skin. No intra-abdominal adhesions

were encountered but the omentum was deficient. The patient was taken to the intensive treatment unit postoperatively, where he made a full recovery. The PEG tube was used to feed the patient.

Discussion

A case study has been published in which small-bowel obstruction was caused by the bowel looping around the PEG tube.⁵ However, a PEG tube traversing the mesentery twice has not been described. Small-bowel injury secondary to insertion of a PEG tube is rare and difficult to diagnose.⁴ When it has been described, a risk factor (eg previous surgery causing the small bowel to be adherent in the upper abdomen) has been cited. However, this was not the case for our patient. The kyphoscoliosis suffered by the patient may have been responsible for interposition of the small bowel between the stomach and abdominal wall at the time of insertion of the PEG tube. The thin omentum may also have been a factor in not maintaining the small bowel below the transverse colon. In this context, he was very fortunate not to sustain perforations or vascular injuries.

Conclusion

Insertion and use of a PEG tube remains a very safe and indispensable procedure for management of several gastric and neurological disorders.⁴ However, clinicians must be aware of the potential for injury, particularly for patients who have had surgery previously and those with abnormal skeletal anatomy. Full elimination of this potential complication

Figure 1 Coronal CT view

Figure 3 Intraoperative image showing penetration of the jejunal mesentery by the PEG tube

Figure 2 Sagittal CT view

Figure 4 Intraoperative image showing penetration of both points of the mesentery

would be very difficult but, in high-risk patients, pre-procedure radiography of the abdomen may be useful.

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