

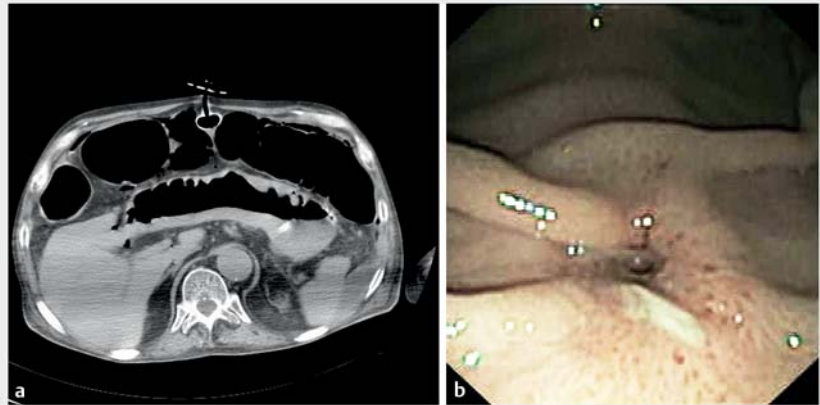
## Unusual application of an endoscopic–laparoscopic rendezvous technique to restore the percutaneous gastrostomy in buried bumper syndrome

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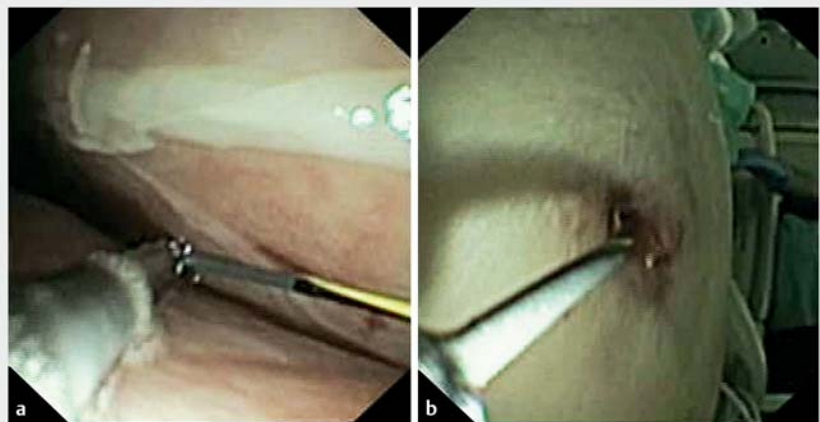
A 66-year-old man with cerebrovascular disease underwent placement of a percutaneous endoscopic gastrostomy (PEG) using a 20-Fr dome-bolstered tube. After 1-month, the patient was admitted to our institute for investigation of infusion resistance and leakage around the tube. On physical examination, the internal bumper was not rotatable or moveable, and was subcutaneously palpable. A computed tomography scan confirmed dislocation of the peritoneal bumper (► **Fig. 1 a**). Endoscopically, just a small dimple was visible in the mucosa of the anterior wall of the stomach (► **Fig. 1 b**), confirming the diagnosis of complete buried bumper syndrome. The PEG was removed with gentle external traction.

Under direct endoscopic view, a 0.035-inch guidewire was introduced through both original orifices of the PEG fistula (from the gastric cavity towards the abdominal wall and vice versa), but it was not possible to restore the connection. A pediatric gastroscope (GIF-XP160, 5.9-mm diameter), inserted percutaneously through the abdominal orifice, was used to perform an endoscopic peritoneoscopy, visualizing the peritoneal side of the gastric orifice. After multiple unsuccessful attempts to reach the stomach from the peritoneum, it was decided to change the strategy.

A guidewire was passed from the stomach through the fistulous gastric orifice reaching the peritoneal cavity. With access again via the transabdominal route, the guidewire was grasped with a forceps and pulled to the outside, restoring the fistulous tract in an endoscopic–laparoscopic rendezvous approach (► **Fig. 2**). After an over-the-wire 8-mm hydro-pneumatic dilation of the fistulous tract had been performed, a 20-Fr replacement gastrostomy tube was substituted (► **Fig. 3**; ► **Video 1**). A broad-spectrum antibiotic was continued for 7 days. The



► **Fig. 1** Evidence of internal bumper dislocation into the peritoneum near the transverse colon: **a** on computed tomography scan; **b** on endoscopic view showing a small orifice with smooth margins and erythematous mucosa and no evidence of the percutaneous endoscopic gastrostomy bumper on the anterior wall of the stomach.

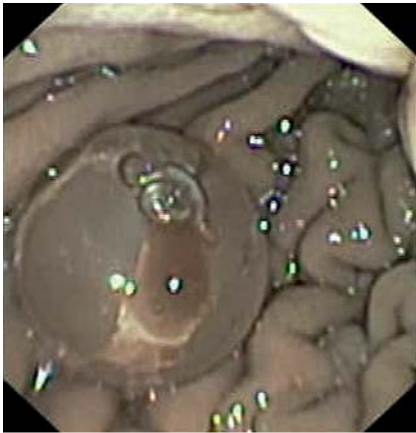


► **Fig. 2** Images during endoscopic peritoneoscopy via the percutaneous transabdominal access, which allowed the connection between the gastric and abdominal fistulous orifices to be restored in a rendezvous approach showing: **a** the guidewire grasped with a forceps in the peritoneal cavity; **b** the guidewire pulled through to the outside.

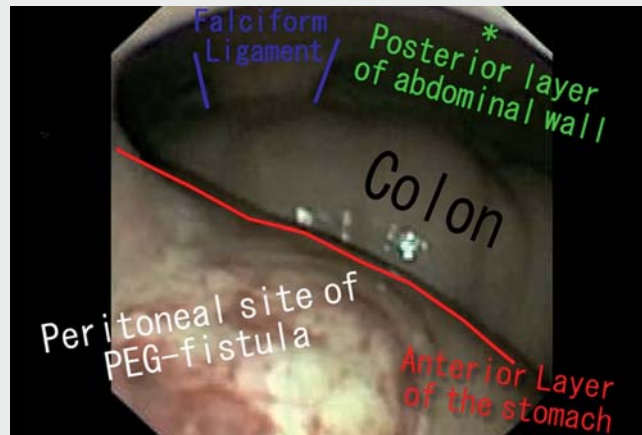
PEG was working normally at 3-month follow-up.

Buried bumper syndrome is a rare complication (1%–4%), with a possible severe evolution if underestimated [1]. Approp-

riate care and correct instruction of patients and their relatives may prevent buried bumper syndrome by reducing prolonged excessive mechanical traction of the external bolster [2, 3]. Early diag-



► **Fig. 3** Endoscopic image showing a new 20-Fr replacement gastrostomy tube, which had normal rotation and mobilization in the longitudinal axis, correctly positioned at the previous gastric site.



► **Video 1** Buried bumper syndrome after placement of a percutaneous endoscopic gastrostomy is successfully treated using a novel rendezvous approach with direct endoscopic peritoneoscopy and grasping of the guidewire.

nosis of buried bumper syndrome and appropriate expertise can allow minimally invasive and conservative resolution of this complication.

Endoscopy\_UCTN\_Code\_CPL\_1AH\_2AI

### Competing interests

The authors declare that they have no conflict of interest.

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### Bibliography

Endoscopy  
DOI 10.1055/a-1816-7758  
ISSN 0013-726X  
published online 2022  
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