Complete closure of a large gastric perforation caused by percutaneous endoscopic gastrostomy using over-the-scope clips

Complications of percutaneous endoscopic gastrostomy (PEG) include bleeding, infection, miss-puncture of other organs, and perforation [1,2]. Herein we report on a large gastric perforation resulting from a PEG tube insertion that was successfully treated with a double over-the-scope clip technique.

An 84-year-old woman with a history of cerebral infarction and dysphagia was submitted for PEG gastropexy placement to guarantee enteral nutrition. Three point fixations of the abdominal wall and stomach had been performed under fluoroscopic assistance, before the PEG damper (Ideal PEG kit; Olympus, Tokyo, Japan) was inserted into stomach. While fluoroscopy was being performed to confirm the correct placement of the PEG damper, a massive amount of free air became evident (Fig. 1). A large lacerated wound with an opening of 3 cm in diameter was identified next to the damper, and the PEG tube trajectory through the abdominal wall and peritoneum could be seen (Fig. 2a). The pneumoperitoneum was treated by inserting a needle (Surgineedle, 120 mm, 14G; Covidien Japan, Tokyo, Japan) to deflate the air. The perforation was then closed using an over-the-scope clip (OTSC, type GC, 10 mm in diameter; Ovesco, Tübingen, Germany) (Video 1). After grasping both edges of the full-thickness perforation site using a Twin grasper, OTSC closure was accomplished using two clips (Fig. 2b). The second OTSC served to close the gap between the previous OTSC and the PEG tube (Fig. 2c).

After the wound had been closed, fluoroscopy showed the disappearance of the pneumoperitoneum (Fig. 3) and an endoscopic retroflexed view revealed the hermetically closed defect (Fig. 4). Enteral nutrition using the PEG was started 3 days after the closure, without any complications.

This report shows that it was possible to avoid surgery by the use of an advanced endoscopic repair technique.
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Competing interests: None

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Fig. 3  Fluoroscopic view after closure with two over-the-scope clips (OTSCs; blue arrows) showing the disappearance of the pneumoperitoneum and the stomach filled with insufflated air (yellow arrows).

Fig. 4  Retroflexed endoscopic view showing hermetic closure of the perforation (yellow curved arrow).