

Laparoscopic-assisted percutaneous endoscopic gastrostomy – rendez-vous PEG – in infants, children and adolescents

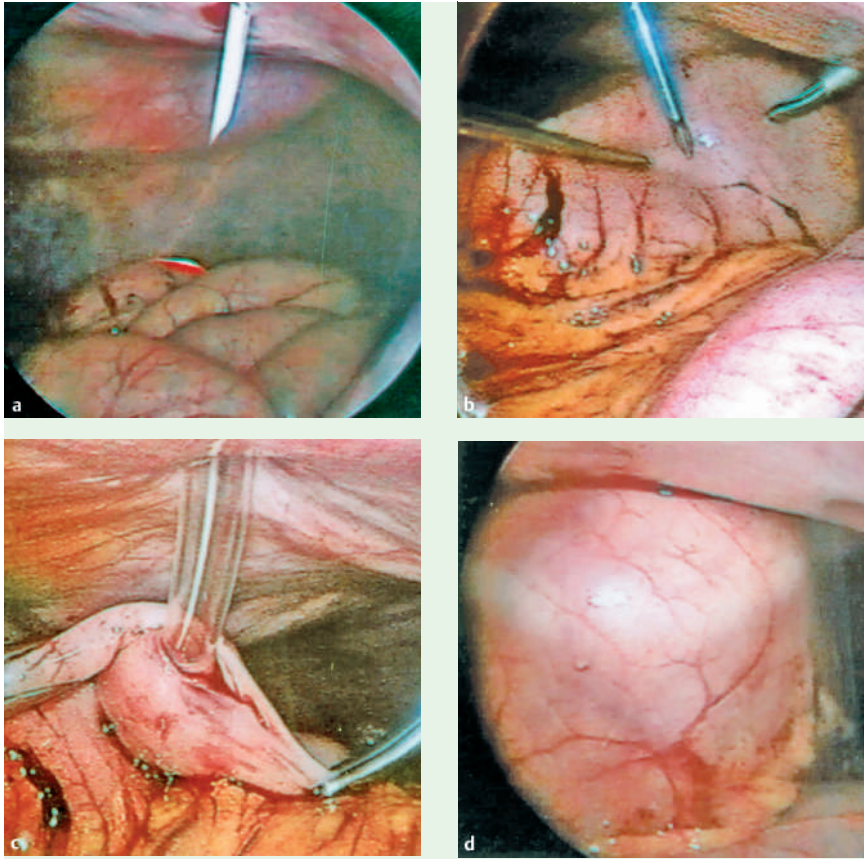


Figure 1 Laparoscopic view showing: **a** the transilluminated stomach and the percutaneous endoscopic gastrostomy puncture cannula in the abdominal cavity; **b** the laparoscopic-assisted positioning of the stomach and its puncture by the puncture cannula; **c** the stomach being pulled to the abdominal wall from outside after insertion of the feeding tube; **d** complete apposition of the stomach to abdominal wall.

In children with insufficient oral intake, the percutaneous endoscopic gastrostomy (PEG) has become the preferred method for enteral feeding [1,2]. However, percutaneous puncture of the stomach may not be safe because of unfavorable anatomy. Major puncture-related complications, such as failed attempts, gastrocolocutaneous fistula, and massive hemorrhage, were seen in 9% of all children who underwent PEG [3]. In order to avoid these complications we use a combined laparoscopic-assisted endoscopic (rendez-vous) approach in selected patients.

In the past 5 years, 277 pediatric patients were referred to our unit for PEG. Nine patients (3.24%) did not qualify for a sole-

ly endoscopically guided percutaneous placement of a gastric feeding tube because of missing transillumination, gastric indention, or an abdominal tumor. These patients were selected for a laparoscopic-assisted PEG. The patients were aged 5 months to 19 years (median 12.7 years), and median body weight was 20.7 kg (range 6.0–58.6 kg). All patients underwent general anesthesia in the supine position. After a pneumoperitoneum was created via a Hasson umbilical access, a 5 mm 30° optic device was inserted. Additional laparoscopic instruments, such as a grasper and a mini-forceps, were needed in four patients. Endoscopy was performed using an appropriate-sized flexible endoscope. The stomach was

punctured under direct laparoscopic and endoscopic vision (► **Figure 1a–d**). The feeding tube (Freka CH 15, Fresenius GmbH, Germany) was placed subsequently using the standard pull technique. The procedure was completed successfully in all patients. Median procedure time was 15 minutes (range 10–25 minutes). The only complication was one case of minor skin infection.

We propose the laparoscopic-assisted PEG technique, even in small children, whenever conventional PEG placement is not considered safe due to unfavorable anatomy [4]. The laparoscopic monitoring helps to avoid major complications of conventional PEG, such as puncture of the bowel or solid organs.

Endoscopy_UCTN_Code_TTT_1AO_2AK

Endoscopy_UCTN_Code_TTT_1AT_2AF

**H. Köhler¹, S. Razeghi¹,
N. Spychalski²,
R. Behrens^{1,3}, R. Carbon²**

¹ Kinder- und Jugendklinik, Universitätsklinikum, Erlangen, Germany

² Abteilung f. Kinderchirurgie, Universitätsklinikum, Erlangen, Germany

³ Zentrum für Neugeborene, Kinder und Jugendliche, Südklinikum, Nürnberg, Germany

References

- 1 Behrens R, Lang T, Muschweck H et al. Percutaneous endoscopic gastrostomy in children and adolescents. *J Pediatr Gastroenterol Nutr* 1997; 25: 487–491
- 2 Gauderer MWL, Ponsky JL, Izant RJ. Gastrostomy without laparoscopy – a percutaneous endoscopic technique. *J Pediatr Surg* 1980; 15: 872
- 3 Khattak IU, Kimber C, Kiely EM, Spitz L. Percutaneous endoscopic gastrostomy in paediatric practice: complications and outcome. *J Pediatr Surg* 1998; 33: 67–72
- 4 Lotan G, Broide E, Efrati Y, Klin B. Laparoscopically monitored percutaneous endoscopic gastrostomy in children. *Surg Endosc* 2004; 18: 1280–1282

Bibliography

DOI 10.1055/s-2007-966108

Endoscopy 2007; 39: E136

© Georg Thieme Verlag KG Stuttgart · New York · ISSN 0013-726X

Corresponding author

H. Köhler, MD

Kinder- und Jugendklinik
Universitätsklinikum Erlangen

Loschgestr. 15
91054 Erlangen

Germany

Fax: +49-9131-85-33113

henrik.koehler@kinder.imed.uni-erlangen.de