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SUPPLEMENTATION TO THE ENCYCLOPEDIA

Percutaneous Endoscopic Gastrostomy (pull method) and Jejunal Extension Tube Placement ☆

Shou-jiang Tang*, **Ruonan Wu**

Division of Digestive Diseases, Department of Medicine, 2500 North State Street, University of Mississippi Medical Center, Jackson, MS 39216 USA

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Video

Abstract
Background: Enteral feeding should be considered for patients with an intact and functional gastrointestinal tract. Percutaneous endoscopic gastrostomy (PEG) tube placement is indicated in patients requiring medium to long term enteral feeding (>30 days) and with impaired swallowing.
Patients and methods: In this video manuscript, we demonstrate the complete PEG procedure (pull method) in a 65 year old patient and placement of PEG jejunal extension tube in another patient who needed post-pyloric enteral feeding.
Conclusions: PEG-pull method is the most widely used PEG technique. Appropriate patient selection, timing of the procedure, informed consent, antibiotic prophylaxis, adequate endoscopic air insufflation during PEG site selection, and optimal PEG site localization are the keys in this procedure.

Video related to this article

Video related to this article can be found online at http://dx.doi.org/10.1016/j.vjgien.2013.10.004.

1. Background

- A 65 year old man was referred for percutaneous endoscopic gastrostomy (PEG) for enteral feeding.
- After dysphagic stroke, the patient developed impaired swallowing without improvement and failed a 3 weeks trial of nasogastric feeding.
- The patient and his family consented with PEG.
- Abdominal examination revealed no shifting dullness or surgical scars in the upper abdomen.

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*Corresponding author. Tel.: +1 601 984 4540; fax: +1 601 984 4548.
E-mail addresses: stang@umc.edu (S.-j. Tang), rwu@umc.edu (R. Wu).

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- On laboratory studies, there was no coagulopathy and leucocytosis.
- A dose of parenteral antibiotics is given 30 min before the procedure for prophylaxis.

2. Materials

- Diagnostic gastroscope (Olympus GIF-Q180, Olympus America, Center Valley, PA),
- percutaneous endoscopic gastrostomy set (PEG-24-PULL-S, Cook Medical, Winston-Salem, NC),
- PEG-jejunal tube extension tube (FLOWJ-9-20-S, PEGJ-12-24-S, Cook Medical), and
- endoclips (Instinct® clip, Cook Medical).

3. PEG (pull-through technique or pull method)

- The patient is placed in a supine position and the wrist restraints can be used during the procedure in selected patients.
- Diagnostic esophagogastroduodenoscopy is performed under standard sedation.
- A PEG set and a pair of sterile surgical gloves is placed on a bedside tray.
- The gastrostomy site is carefully selected and marked based on the followings:
  - Applying adequate endoscopic air insufflation to bring the gastric wall in apposition with the abdominal wall and no tissue or other organ lay between.
  - The optimal site is usually in the left upper quadrant about 2–4 cm below the costal margin or occasionally in the epigastric area.
  - Obtaining optimal trans-abdominal light illumination (Figure 1) and external finger or digital indentation.
    - The room lights are dimmed and the tip of the endoscope is directed to face the anterior abdominal wall.
    - The ideal site is selected and marked after endoscopically confirmed digital indentation at the location of maximum light trans-illumination.
    - If no optimal light trans-illumination is present during the procedure but good external finger indentation can be obtained, trans-abdominal wall needle insertion can be attempted.
- The skin at the marked site is prepped with topical antiseptic in a sterile fashion.
- The assistant opens the sealed cover of the PEG set, puts on the sterile gloves, and passes the enclosed endoscopic snare and PEG tube to the endoscopic staff.
- The region around the marked site is dressed with sterile drape(s).
- The selected site again confirmed by applying digital indentation on the gastric wall.
- Administer local anesthesia (10 mL 1% xylocaine) using a 25-gauge needle and advance the needle vertically into the stomach under endoscopic guidance.
  - During deep needle advancement and needle withdraw outside the gastric lumen, apply negative pressure on the syringe plunger to ensure no air, stool, or blood return into the syringe.
  - Air or stool aspiration may indicate puncture of an adjacent organ (colon or small bowel).
  - Administer 1% xylocaine during needle withdraw at 0.5–1 mL aliquot within the needle path after each intermittent negative pressure test.
- About 1 cm skin incision is made at the marked site with a surgical scalpel.
- A large-bore (13.5-gauge) needle with cover sheath (cannula) is advanced following the prior needle path into the stomach, guided by endoscopy (Figure 2).
  - The needle is removed.
  - The PEG wire is brought through the cannula into the stomach and grasped by the endoscopic snare.
- The endoscope with secured wire is withdrawn through the mouth.

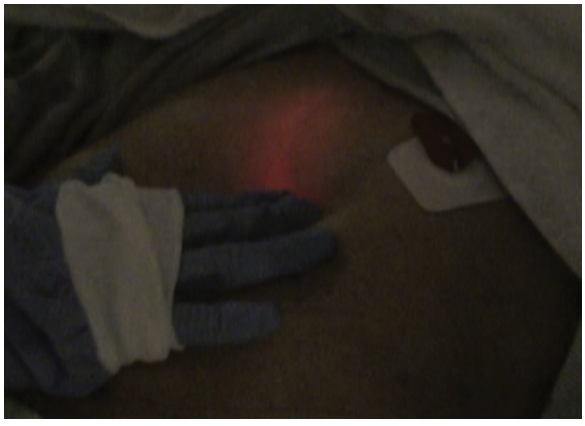

Figure 1 Image showing optimal trans-abdominal light illumination.

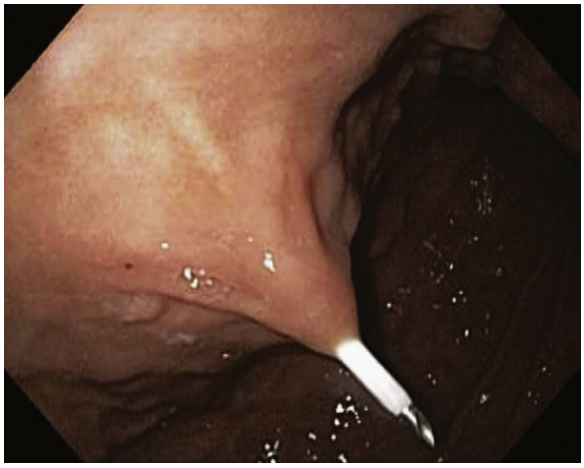

Figure 2 Endoscopic image showing the needle with a plastic sheath (cannula) punctured through the abdominal and gastric walls into the stomach.