



## The Percutaneous Endoscopic Gastrostomy

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#### What is a P.E.G.P

#### Percutaneous

- Endoscopic
- Gastrostomy



The percutaneous endoscopic gastrostomy (PEG) tube provides nutrition for patients who are having difficulty swallowing. The internal bumper rests in the stomach, and the adapter exits through the skin of the abdomen.

## **Indications for P.E.G. Insertion**

- Long-term feeding
- Mechanical Dysfunction
  - Esophageal obstruction
  - Swallowing disorder
  - Facial fractures
- Neurologic impairment
  - Stroke
  - Closed head injury
- Replace nasogastric feeding tube
  - Reduce risk of aspiration, sinusitis
  - Facilitates tube replacement for mechanical problems
- Permit transfer to long term facility

## **Additional Indications for P.E.G. Insertion**

- Decompressive tube for palliation (carcinomatosis, gastric obstruction, severe diabetic gastroparesis)
- Access for repeated endoscopic or surgical instrumentation
- Recirculation of bile
  Fistula, biliary drain
- Gastric volvulus

## **Contra-Indications for P.E.G. Insertion**

#### Terminal illness

- Poorly selected populations have 30 day mortality of up to 50% after PEG
- Exception: palliative, for decompression
- Inability to perform upper endoscopy
  - Obstructing esophageal tumor
  - Stricture
- Ascites
- Inability to appose gastrotomy to anterior abdominal wall
  - Previous subtotal gastric resection
  - Hepatomegaly, esp left lobe

#### **Relative Contra-Indications for P.E.G. Insertion**

- Coagulopathy
- Portal hypertension
- Peritoneal dialysis
- Large hiatal hernia



After the endoscope has been passed into the stomach and the stomach sufficiently inflated with air,



the lights are dimmed and the appropriate puncture site is located by trans-illumination.



The puncture site is palpated with the fingers from the outside, the gastric mucosa bulging outwards.



# The chosen puncture site is washed extensively using aseptic technique.



Local anaesthetic is injected into all layers of the abdominal wall, slowly advancing into the gastric lumen.



A stab incision of about 3mm in width is made level with the puncture site.



The puncture cannula is advanced into the stomach under endoscopic control and the puncture needle removed.



The introducer is advanced by the double thread until the loop only protrudes approximately 1mm.



The introducer device is attached to the cannula using the thread and immediately guided into the stomach.



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The loop of the thread is passed through the fixation loop of the tube (a).



The retention plate and the tube are pulled right through the loop of the thread (b).



The loops are joined firmly together by pulling on the guide thread and on the tube (c).



The tube is positioned in the stomach by slowly pulling on the distal end of the thread.



The tube and cannula are pulled together out of the abdominal wall until the retention plate reaches the inner gastric wall.



# The guide wire thread of the tube is cut off close to the cone.



#### The outer end of the tube is pulled through the hole of the fixation plate.



# Then the tube clamp is pushed onto the tube.



The tube is pulled until elastic resistance is felt and it is kept under tension.



The puncture site, fixation plate and tube are cleaned and dried thoroughly to ensure secure attachment.



The tube is inserted into the fixation plate guide and secured using the clip (10).



# The tube clamp is closed and then the cone of the tube is cut off (11).



# The fixing screw for the Luer lock connector is pushed over the tube.



The pin of the Luer lock connector is pushed as far onto the tube as possible and secured with the fixing screw.



# The screwing aid is pulled off in a downward direction and removed.

## **Complications of P.E.G. Insertion**

- Direct, major complications: 4%
- Mortality from complications: 25%
- High mortality attributed to patient population
  - Debilitated
  - Cannot tolerate additional insult

#### **Complications: Dislodgement of P.E.G.**

- Concern when occurs prior to maturation of gastrocutaneous tract
- Initial Rx
  - Nasogastric suction
  - Broad spectrum antibiotics
- Surgery
  - Failure to improve
  - Overt peritonitis, sepsis

#### **Complications: Buried Bumper Syndrome**

- Excessive traction on PEG tube
- Over-tightening of skin disk
  - Ischemic necrosis of the gastric mucosa
  - Migration of the internal bolster into the gastric or abdominal wall
- Prevention
  - Confirm some laxity at initial insertion

#### **Complications: Buried Bumper Syndrome**

#### • Findings

- Resistance to flow
- PEG tube fixed, with surround subcutaneous erythema

#### Endoscopy

- Ulceration, mucosal dimpling
- Non-visualization internal bumper

## **Complications: Buried Bumper Syndrome**

#### Treatment

- Dissection of the buried appliance from the abdominal wall
- Replace with new gastrostomy tube
- Large gastrocutaneous fistula may warrant laparotomy/resection

#### **Complications: Peristomal Wound Infection**

- 5-30% of cases
- Prophylactic Antibiotics
  - Single dose 30 minutes before procedure
  - Narrow spectrum (e.g. cefazolin)
- Skin incision
  - Large enough to *easily* admit tube
  - Smaller incision allows entrapment of bacteria ⇒ post-op infection

#### **Complications: Haemorrhage**

- 2.5% of cases
- Repeat endoscopy indicated for Dx, possible Rx
- Often related to gastric ulceration under internal bumper
  - Pressure necrosis
  - Friction
- Caution in patients with coagulopathy

### **Complications: Aspiration**

- Clinically evident aspiration rare
- 50-60% mortality rate
- Related to
  - Initial illness
  - Positioning and sedation during procedure
- Monitor residuals, appropriate interventions if increased

#### **Complications: Tube Migration**

 Inadequate stabilization Proximal migration - Vomiting, aspiration Migration into distal stomach Gastric outlet obstruction – Distention, vomiting Distal migration (small bowel) Dumping syndrome

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#### **Duration of use**

- A PEG tube can normally remain in situ for several months without complications being recorded if the PEG is well cared for.
- If problems, such as blockage, perforation, ..., are encountered the Clinical Nutrition Team should be consulted.

## Care of the puncture site

- Loosen the clamp device of the outer fixation plate and pull back plate.
- Clean puncture site and fixation plate.
- Push tube carefully 2-3cm into stoma and rotate daily.
- Pull tube gently until resistance is felt, push fixation plate onto the slit compress and fix into position.

## Care of the puncture site

 For the first week, the PEG should be covered with a dressing and kept clean.
A soiled dressing must be changed.

 After that the dressing can be removed but the PEG and stoma must be kept clean.

#### Care of the tube

- The tube is to be flushed with at least 20ml water before and after feeds – at least once daily.
- It the tube blocks, <u>under no</u> <u>circumstances</u> should the tube be cleared using force or a wire, for risk of perforating the tube.
- Do not flush tube with acids, especially fruit juices, teas, ... as it may cause irritation or coagulation.

#### **Administration of medicines**

- Preferably medications should be dissolved or liquid – syrups or drops.
- The tube should be flushed with 20ml of water before, after and between medications.
- Medications, such as antacids, Epanutin, ..., should not be administered together with food under any circumstance.

#### After a P.E.G.

#### Low-Profile Skin-Level Gastrostomy



