

## **Percutaneous Endoscopic Gastrostomy in infants and children.**

**Vishnu Murthy G S,**

**Asst Prof of Pediatric Gastroenterology, IGICH, Bangalore.**

---

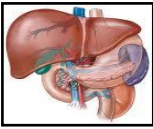
### **Introduction:**

Access to the intestinal tract may be via a nasal tube or by the percutaneous route, with delivery to the stomach or jejunum. Nasogastric tubes are employed for short-term delivery, usually up to 3 weeks. They are convenient to place, but associated with complications such as aspiration pneumonia, reflux esophagitis, esophageal mucosal damage and sinusitis. PEG feeding is employed if NGT feeding is likely to be required for a longer time. In the past, surgical gastrostomy was used, but this procedure is highly invasive and is associated with numerous potential complications<sup>1</sup>.

Since the first published report of a percutaneous endoscopic gastrostomy (PEG) in 1980 by Gauderer and Ponsky<sup>2</sup>, the procedure has been modified and improved several times. It has now replaced the surgical gastrostomy which was associated with a markedly higher rate of complications. Placement of a PEG/PEJ (percutaneous endoscopic jejunostomy) tube is simple, safe and well-tolerated by patients. There is a wide range of diets and nutrient preparations suitable for tube feeding currently available. Modern PEG tube systems made of polyurethane or silicone rubber are easy to insert and well-tolerated.

**Indications:** As a general rule, PEG feeding should be considered if it is expected that the patient's nutritional intake is likely to be qualitatively or quantitatively inadequate for a period exceeding 2–3 weeks.

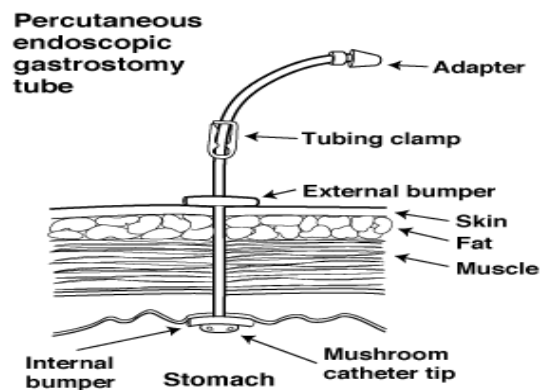
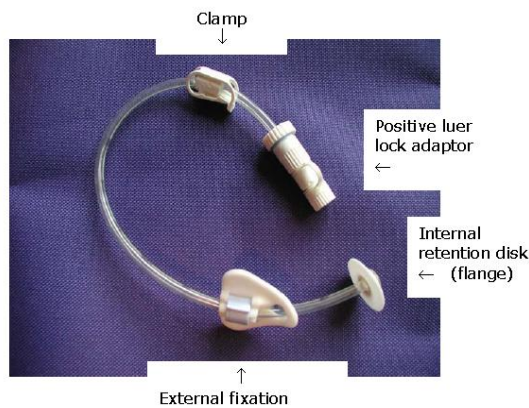
- **Oncological disorders** tumours in the ear, nose and throat region or the upper gastrointestinal tract
- **Palliative** in inoperable cases or placed prior to surgery, radiotherapy or chemotherapy
- **Neurological disorders** (dysphagic states after craniocerebral trauma, with cerebral tumours, bulbar paralysis, cerebral palsy).
- **GERD**, Short bowel syndrome, Crohn's disease
- AIDS/HIV encephalopathy,
- Reconstructive facial surgery,
- Prolonged coma
- Polytrauma
- Congenital abnormalities (e.g. tracheo-oesophageal fistula).



## Contraindications:

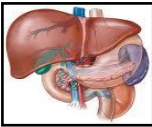
- Serious coagulation disorders  
(INR>1.5,PTT>50 s platelets<50,000)
- Interposed organs (e.g. liver, colon)
- Marked peritoneal carcinomatosis
- Severe ascites
- Peritonitis
- Limited life expectancy

## Parts of PEG Tube:



## Technique of PEG Tube insertion:

- Puncture site is marked with gastroscopic monitoring of the anterior gastric wall in the region of the distal corpus
- An appropriate (8 mm, depending on the tube size) initial incision is placed after local anaesthesia
- The puncture cannula is inserted under endoscopic control into the stomach, which has been previously fully dilated with air.
- A suture thread or guide wire is passed through the cannula sheath into the stomach, grasped using the biopsy forceps by the endoscopist and drawn out through the mouth together with the gastroscope.
- The thread loop is fastened tightly to the external end of the PEG tube and, while applying continuous traction, is drawn down through the oesophagus and stomach and



out through the puncture site until the internal fixation plate has drawn the anterior wall of the stomach against the abdominal wall.

- confirm appropriate placement by means of further gastroscopy or X-ray.



14 Fr Kimberly Clarke PEG tube placed in an infant aged 3 months weighing 3.5 kgs at our Insitute.

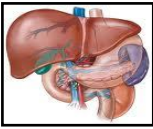
## Aftercare:

- The first change of dressing should be performed the morning after PEG placement.
- Until granulation of the stoma canal has taken place it is advisable to change the sterile dressing daily and provide local disinfection (usually day 1–7)
- The wound area is inspected (bleeding, erythema, secretion, induration, allergic skin reaction etc.), cleaned, disinfected and dried completely.

## Complications:

### Major complications

- Gastric perforation
- Gastrocolic fistula
- Internal leakage
- Dehiscence
- Peritonitis
- Aspiration pneumonia



- Subcutaneous abscess
- Buried bumper syndrome (migration of the internal bumper of the PEG tube into the gastric or abdominal wall).

## Minor complications

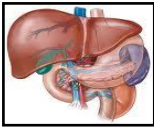
- Tube problems:
  - Tube blockages
  - Tube dislodgements
  - Tube degradation
  - External leakage
  - Unplanned removal
- Site infections (common but rarely serious).

The rate of complications after endoscopic placement of enteral feeding tubes is estimated in the available literature to be in the range 8–30%<sup>3</sup>. Acute and severe complications, such as perforation, serious abdominal haemorrhage or peritonitis, which require surgical intervention, occur in far fewer than 0.5% of cases<sup>4</sup>.

## Removal of a PEG Tube:

- In children, PEG tube should be removed endoscopically.
- The durability of a PEG tube system is primarily linked to its careful handling.
- There is no need to exchange a tube system at regular intervals.
- In case of adequate handling PEG tubes can stay in situ for many years exceeding even 10 years and more.

**Conclusion:** Enteral nutrition via a tube system inserted with endoscopic guidance is an efficient, highly effective and easy to use technique, associated with a low rate of complications. Few recent studies have clearly shown the safety of Percutaneous Endoscopic Gastrostomy tube in medically complicated infants<sup>5,6</sup>.



## References

1. Jye Hae Park, M.D., SeonKyeong Rhie, M.D., and Su Jin Jeong, M.D. Percutaneous Endoscopic Gastrostomy in children. *Korean J Pediatr* 2011;54(1):17-21
2. Gauderer MWL, Ponsky JL, Izant RJ. Gastrostomy without laparotomy: a percutaneous endoscopic technique. *J Paediatr Surg* 1980;15:872–5.
3. Kozarek RA, Payne M, Barkin J, Goff J, Gostout C. Prospective multicenter evaluation of an initially placed button gastrostomy. *Gastrointest Endosc* 1995;41:105–8.
4. Chr. Lo¨ser et al. ESPEN guidelines on artificial enteral nutrition—Percutaneous endoscopic gastrostomy (PEG). *Clinical Nutrition* (2005) 24, 848–861.
5. Wilson L, Oliva-Hemker M. Percutaneous endoscopic gastrostomy in small medically complex infants. *Endoscopy* 2001;33:433–6.
6. Philip Minar, Jeffery Garland, Alfonso Martinez, and Steven Werlin .Safety of Percutaneous Endoscopic Gastrostomy in Medically Complicated Infants. *JPGN* 2011;53: 293–295.