

## **PEG Tube: A Medical Treatment with Complications**

**Mark C. Aita, S.J., M.D.**

Assistant Director

Institute of Catholic Bioethics

St. Joseph's University

Feeding tubes are used when patients have difficulty in swallowing or diminished consciousness or when they cannot eat or drink sufficient amounts to maintain health or sustain life. There are several types of feeding tubes (nasogastric, gastrostomy and jejunostomy)<sup>1</sup> but the PEG (percutaneous endoscopic gastrostomy) tube is most commonly used for patients in the persistent vegetative state. An anesthesiologist administers sedation and a gastroenterologist passes the endoscope through the mouth and esophagus into the stomach and then maneuvers the tip toward the outer surface. Identification of the PEG site requires transillumination of the anterior stomach against the abdominal wall. After puncturing the site with a 14-gauge angiocatheter, a guidewire is threaded through the angiocatheter, grasped by the endoscope's forceps, and pulled up the esophagus and out the mouth. The tapered end of the PEG tube is secured to the guidewire and pulled back through the esophagus into the stomach by traction of the guidewire's exterior end. An incision is made through the abdominal wall allowing the PEG tube to exit the stomach to the exterior. The proximal end of the tube is anchored within the stomach once the balloon on its tip is inflated, and the distal end is the conduit for assisted nutrition and hydration.<sup>2</sup> The medical procedure usually takes 20 minutes.

Although immediate complications of PEG tube insertion (bleeding, infection and perforation) are infrequent, management of tube feedings is complex and there are serious potential long-term harms. Every patient requires skilled nursing care, frequent laboratory tests and careful physician supervision. Infusion rate must be monitored carefully as gastric distention may cause abdominal discomfort and vomiting. At times patients must be physically restrained from pulling out the PEG tube.<sup>3</sup> Infection at insertion site is the most common complication, and leakage of tube feeding formula and gastric contents around the PEG site can be a significant management problem.<sup>4</sup> Diarrhea is common with enteral feeding<sup>5</sup> and may result in fluid and electrolyte imbalances leading to pulmonary edema, kidney failure and seizures. Prolonged diarrhea and immobilization often cause decubitus ulcers that are difficult to heal. Fistulae, gastric ulcers and gastrointestinal bleeding are uncommon but potentially disastrous

complications.<sup>6</sup> And aspiration of tube feedings up the esophagus and into the air tubes is a serious, often life-threatening cause of pneumonia that requires emergent hospitalization.

Healthcare costs associated with PEG feedings are significant. The average daily cost of PEG tube feeding is \$87.21 (\$31,832 per year).<sup>7</sup> In addition to the risk of harm from multiple potential complications, the economic cost of PEG tube feeding is another consideration in decision making for long-term enteral feeding among patients in the persistent vegetative state.

---

<sup>1</sup> Sheehan M (2001) "Feeding tubes: sorting out the issues", *Health Progress* 22-27.

<sup>2</sup> Brunicaudi FC, Andersen DK, Billiar R, Dunn DL, Hunter JC, Matthews JB, Pollock RE, Schwartz SI (2004) *Schwartz's Principles of Surgery, 8th Edition*, New York: The McGraw-Hill Companies Inc., Chapter 1.

<sup>3</sup> Lynn J and Childress J (1995). "Must patients always be given food and water?" in *Life Choices* eds J. Howell and W. Sale, Washington, D.C.: Georgetown University Press 201-213.

<sup>4</sup> Lynch CR, Fang JC (2004) "Prevention and Mangement of Complications of Percutaneous Endoscopic Gastrostomy (PEG) Tubes", *Practical Gastroenterology*, November 66-73.

<sup>5</sup> Hull MA, Rawlings J, Murray FE, et al. (1993) "Audit of outcome of long-term enteral nutrition by percutaneous endoscopic gastrostomy", *Lancet* 341: 869-872.

<sup>6</sup> *Ibid*, Lynch and Fang.

<sup>7</sup> Callahan CM, Buchanan NN, Stump TE (2001) "Healthcare costs associated with percutaneous endoscopic gastrostomy among older adults in a defined community" *Journal of the American Geriatrics Society* 49(11):1525-1529.