

Enteral Access and Associated Complications

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KEYWORDS

- Enteral access • Nutrition • Complications • Nasoenteric tubes • Gastrostomy tube
- Jejunostomy tube • Gastrojejunostomy

KEY POINTS

- Enteral access is the foundation for feeding in patients who are unable to meet their nutrition needs orally and have a functional gastrointestinal tract.
- Tubes can be placed through an orifice such as the mouth or the nose, or percutaneously into the stomach or proximal small intestine.
- Although there are a number of commonalities between the techniques used for placing tubes, there are also a number of considerable differences.

INTRODUCTION

Enteral access is the foundation for feeding in those patients who are unable to meet their nutrition needs orally and have a functional gastrointestinal tract. Enteral feeding (tube feeding) requires placement of a feeding tube. The tubes can be placed through an orifice such as the mouth or the nose, or percutaneously into the stomach or proximal small intestine. These tubes can be placed at the bedside or in specialized areas of the hospital, such as the endoscopy suite, operating room, or radiology department. Bedside tubes can be placed by the nurse or the physician, such as in the intensive care unit. Percutaneous feeding tubes are placed by the gastroenterologist, surgeon, or radiologist (**Table 1**). This article reviews the types of enteral access and the associated complications.

NASOENTERIC TUBES

Bedside nasoenteric tube placement is the most common enteral access technique used in the hospital setting. Either a nasogastric (NG) or nasojejunal (NJ) tube may be placed.

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Location	Oral	Nasal	Percutaneous
Gastric	Oral gastric tube	Nasal gastric tube	<ul style="list-style-type: none"> • Percutaneous endoscopic gastrostomy • Radiologic gastrostomy • Surgical gastrostomy
Gastrojejunal	Oral gastrojejunal tube	Nasal gastrojejunal tube	<ul style="list-style-type: none"> • Percutaneous endoscopic gastrojejunostomy • Radiologic gastrojejunostomy • Surgical gastrojejunostomy
Jejunal	Oral jejunal tube	Nasal jejunal tube	<ul style="list-style-type: none"> • Direct percutaneous endoscopic jejunostomy • Radiologic jejunostomy • Surgical jejunostomy

These tubes can also be placed orally if desired. There are many techniques available for passing bedside NG tubes. Typically, an 8 to 12-Fr NG tube is passed into the stomach after the tube has been lubricated, the head is flexed, and the patient ingests sips of water to assist in passing the tube into the stomach.¹ Many centers promote bedside auscultation of the abdomen or aspiration of gastric contents for confirmation of an adequate position of the NG tube before use. However, this process can be misleading, because inappropriate tube locations, such as in the lung, in the pleural cavity after perforation, or coiled in the esophagus may be misinterpreted as being in proper position by bedside auscultatory techniques. For this reason, every patient should have a radiograph to confirm proper position of a blindly placed bedside NG tube before initiating feedings.²

It is not unusual to be faced with a patient who is comatose and therefore unable to assist with the passage of an NG tube. In these instances, the tube can again be passed at the bedside after tube lubrication and head flexion. Auscultation of the abdominal cavity and a radiograph can confirm proper tube location. Patients with nasal or facial fractures may be more appropriate for orogastric tubes.

In general, placement of an NG tube is technically “easier” than placement of an NJ tube for the simple reason that the NG tube has to pass the esophagus and arrive in a gastric location, whereas an NJ tube must pass the esophagus and stomach, make its way through the pylorus, and end its journey in the jejunum. A number of techniques have been promoted for blind, bedside placement of an NJ tube. [Table 2](#) details some of these techniques that have been reported in the literature.

Author	Technique
Thurlow, ³ 1986	Stiffen nasal jejunal tube with internal stylet and use corkscrew motion with advancement
Zaloga, ⁴ 1991	Thurlow technique with 90% success rate
Ugo et al, ⁵ 1992	Patient in right lateral decubitus position and tube position tracked with auscultation during advancement
Lord et al, ⁶ 1993	Use of unweighted nasal jejunal tubes associated with greater successful placement than weighted nasal jejunal tubes
Roubenoff & Ravich, ⁷ 1981	Advance tube to esophagus, get radiograph to ensure esophageal location before advancing into stomach or small bowel

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