Placement of Tracheostomies and PEG Tubes

- **Title**: *Complications and Advantages of Percutaneous Tracheostomy and PEG Tube Placement*
  Subtitle: *Learning Objectives and Key Insights*
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- **Disclaimer**
- I have no financial disclosures related to this presentation.
- No conflicts of interest to report.

Learning Objectives

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1. Understand the common complications associated with percutaneous tracheostomy tube placement.
2. Identify the risks and complications related to percutaneous endoscopic gastrostomy (PEG) tube placement.
3. Learn about the advantages of percutaneous tracheostomy tube placement in patient care.
4. Recognize the benefits of PEG tube placement for long-term nutritional support.

Percutaneous tracheostomies

- A percutaneous tracheostomy (PDT) is a surgical procedure that creates an opening in the neck to help maintain an airway in patients who need long-term mechanical ventilation. It's a life-saving procedure that can be performed quickly and safely at the patient's bedside

Advantages of Percutaneous Tracheostomy

Reduced Risk of Infection: Compared to traditional open tracheostomy, percutaneous tracheostomy typically has a lower rate of wound infections.

Shorter Procedure Time: The procedure is minimally invasive and can be performed more quickly than open surgery.

Faster Recovery: Patients usually experience a quicker recovery and shorter hospital stays.

Better Patient Comfort: The percutaneous approach may result in less pain and discomfort compared to traditional surgery.

Cost-Effective: Shorter hospital stays and less invasive techniques can reduce healthcare costs.

Percutaneous Endoscopic Gastrostomy

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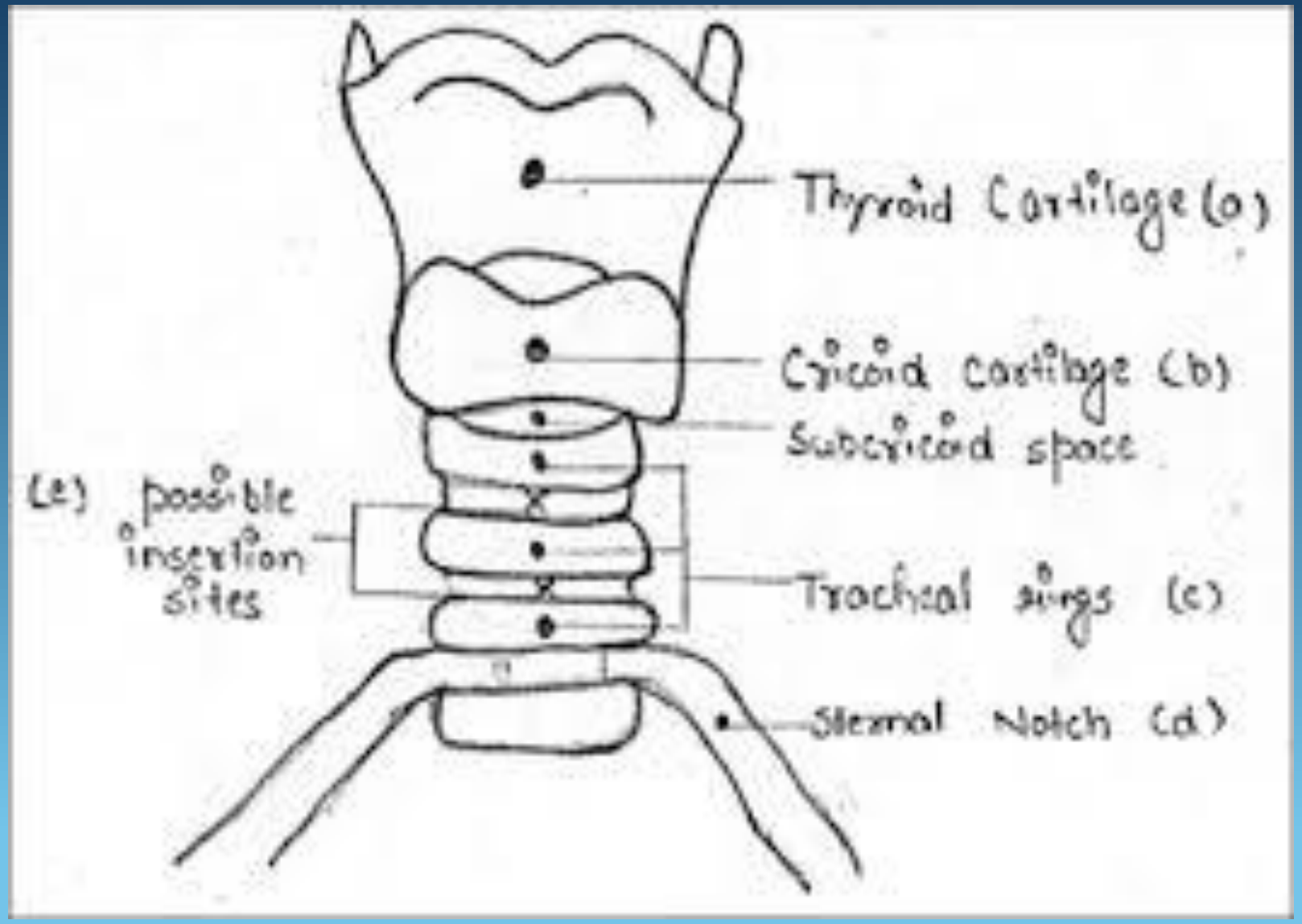
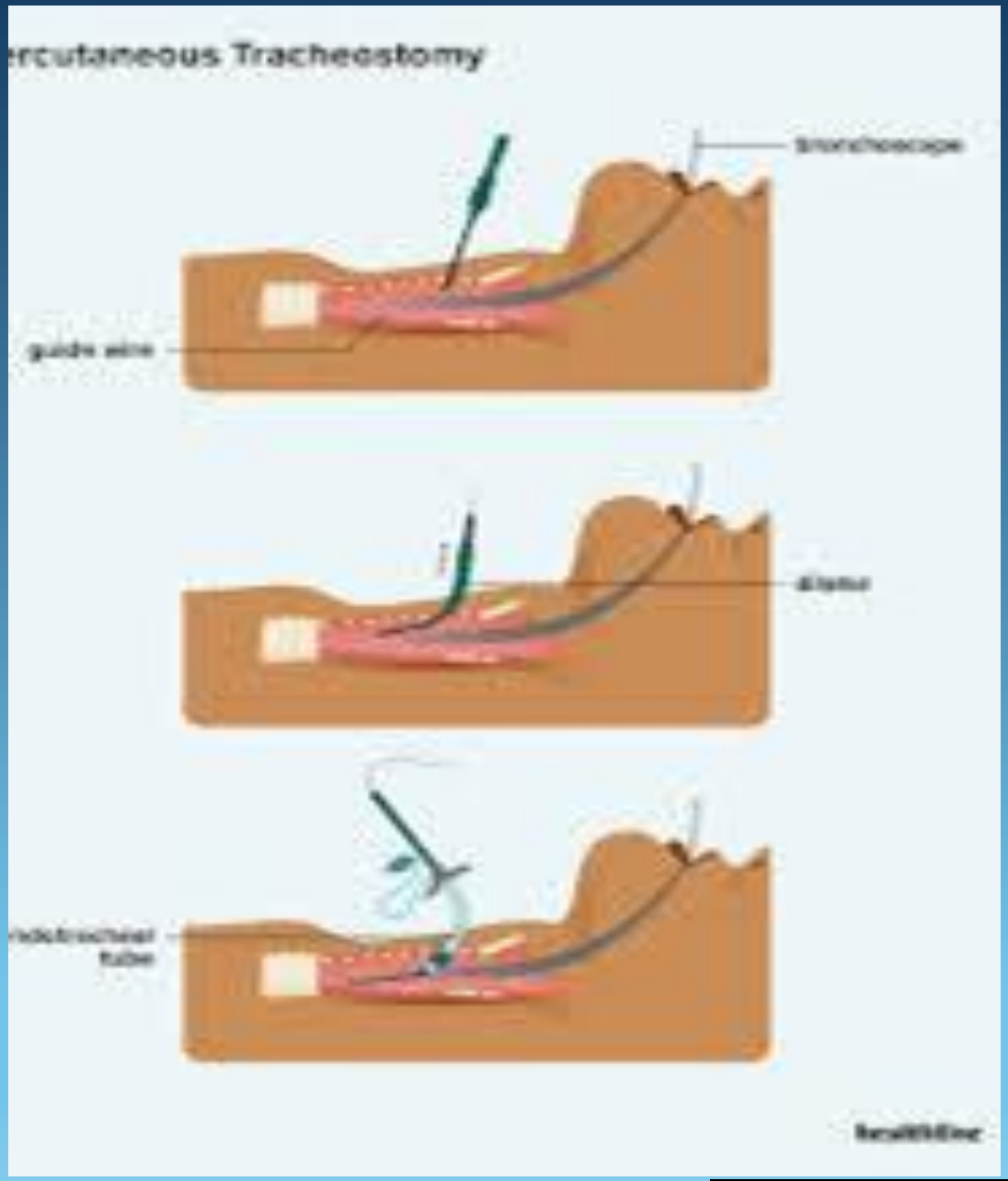
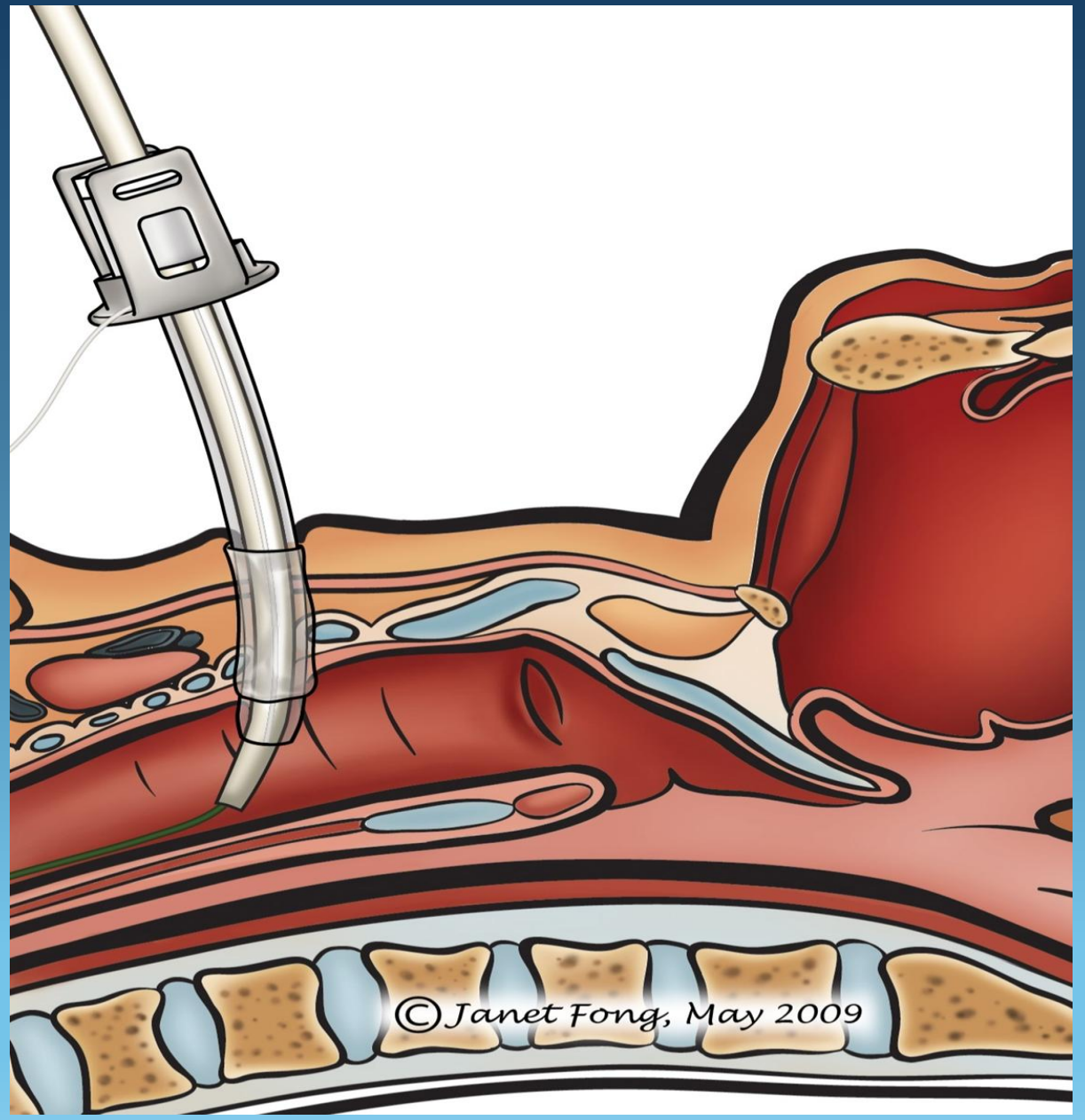
Percutaneous Tracheostomy



Percutaneous tracheostomies



Percutaneous tracheostomies



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Complications

Percutaneous tracheostomy tube placement, while generally considered a safe procedure, carries the risk of several complications. The major complications, along with their approximate incidence rates, are as follows:

Bleeding (3-10%)

The most common complication, often due to injury to blood vessels like the thyroid vessels or jugular veins. Severe bleeding, while rare, may require surgical intervention.

Infection (2-10%)

Local infections at the tracheostomy site can occur, and in some cases, more severe infections such as mediastinitis or pneumonia can develop.

Complications

Pneumothorax (1-3%)	Subcutaneous Emphysema (2-3%)	Tracheal Injury (1-5%)
• The risk of accidental puncture of the lung or pleura during insertion of the tracheostomy tube, which leads to air accumulation in the pleural space.	• Air may escape into the tissues surrounding the neck and chest. While generally mild, this can be a sign of a pneumothorax or perforation of the trachea.	• Damage to the tracheal wall or vocal cords, which can lead to long-term complications such as tracheal stenosis or difficulty speaking.

Complications

Tube Misplacement (1-2%)

- Incorrect placement of the tracheostomy tube, which may necessitate repositioning or further procedures to correct.

Esophageal Perforation (0.5-1%)

- A rare but serious complication where the esophagus is accidentally punctured, leading to risk of aspiration, infection, and mediastinitis.

Airway Obstruction (1-2%)

- The tracheostomy tube may become blocked due to mucus or blood clots, necessitating tube changes or suctioning.

Complications

Cardiovascular Complications (<1%)

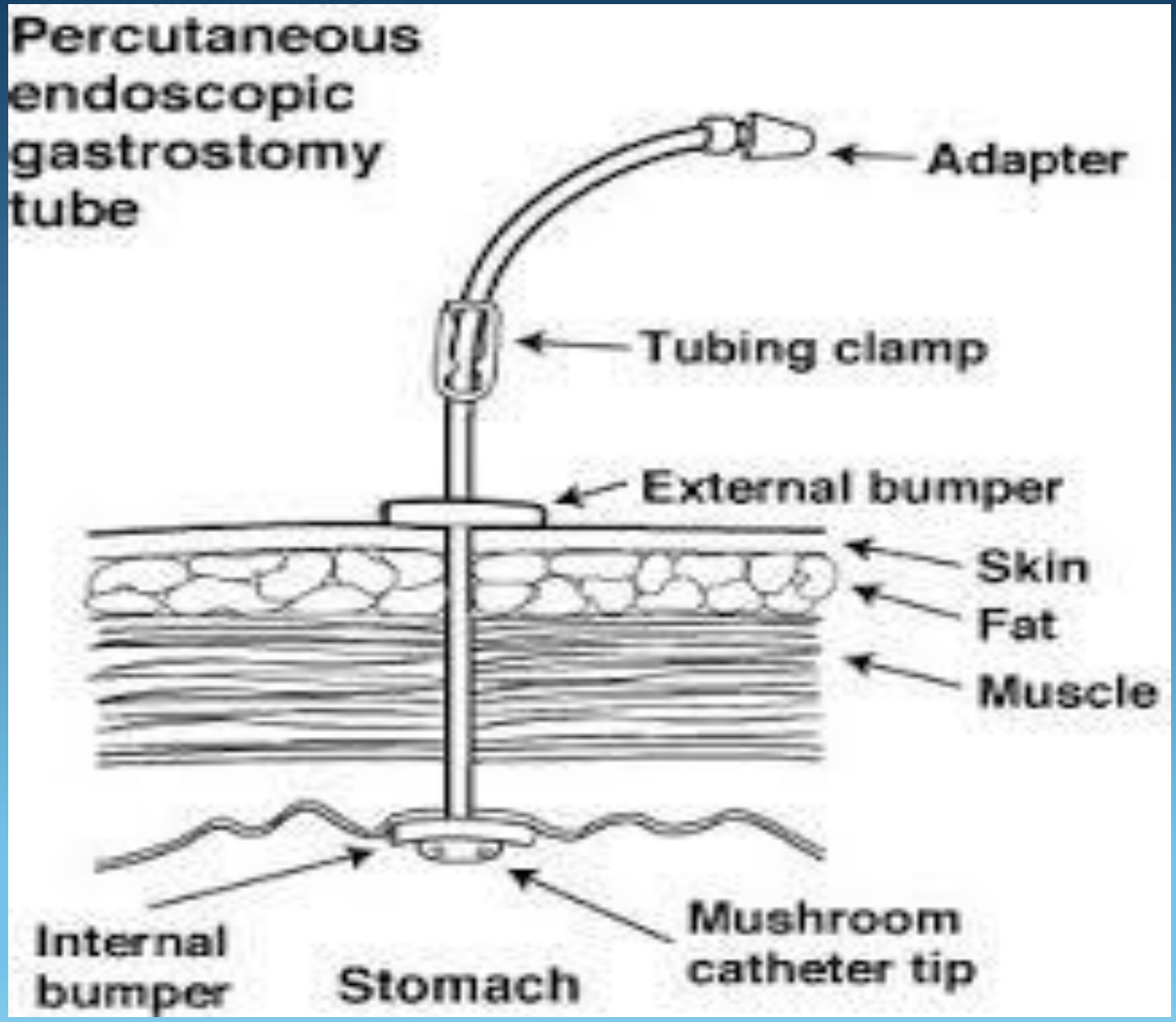
Rare complications, such as bradycardia or hypotension, especially if there is inadvertent stimulation of the vagus nerve during the procedure.

Death (0.1-0.3%)

In severe cases, complications from tracheostomy placement, such as significant bleeding or airway injury, can be fatal, though this is rare.

The exact rates of these complications can vary based on the patient's health, the skill of the physician, and the technique used. Some factors such as the patient's anatomy, presence of comorbid conditions (e.g., obesity, neck mass), and previous surgeries can increase the likelihood of complications.

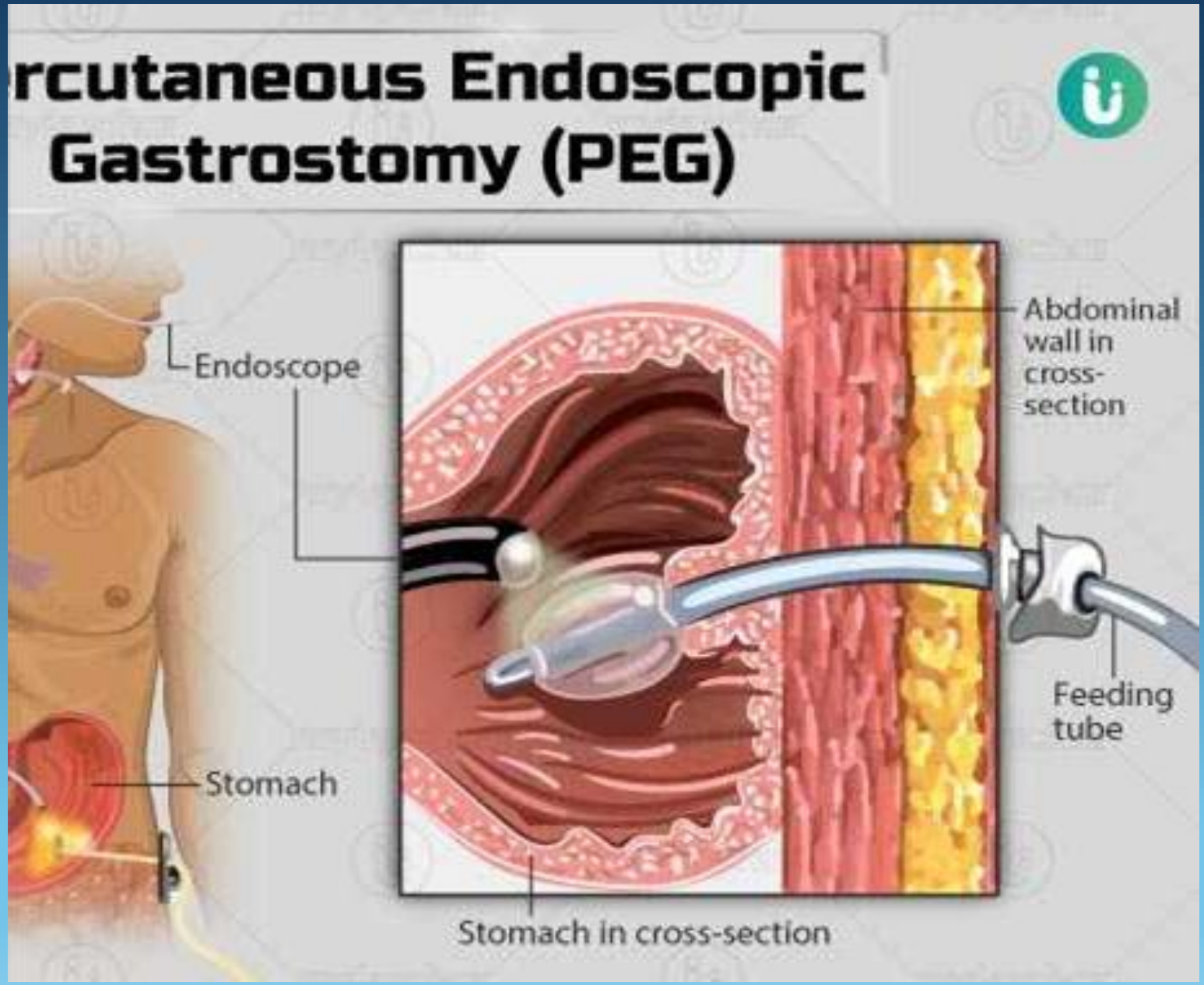
Percutaneous Endoscopic Gastrostomy



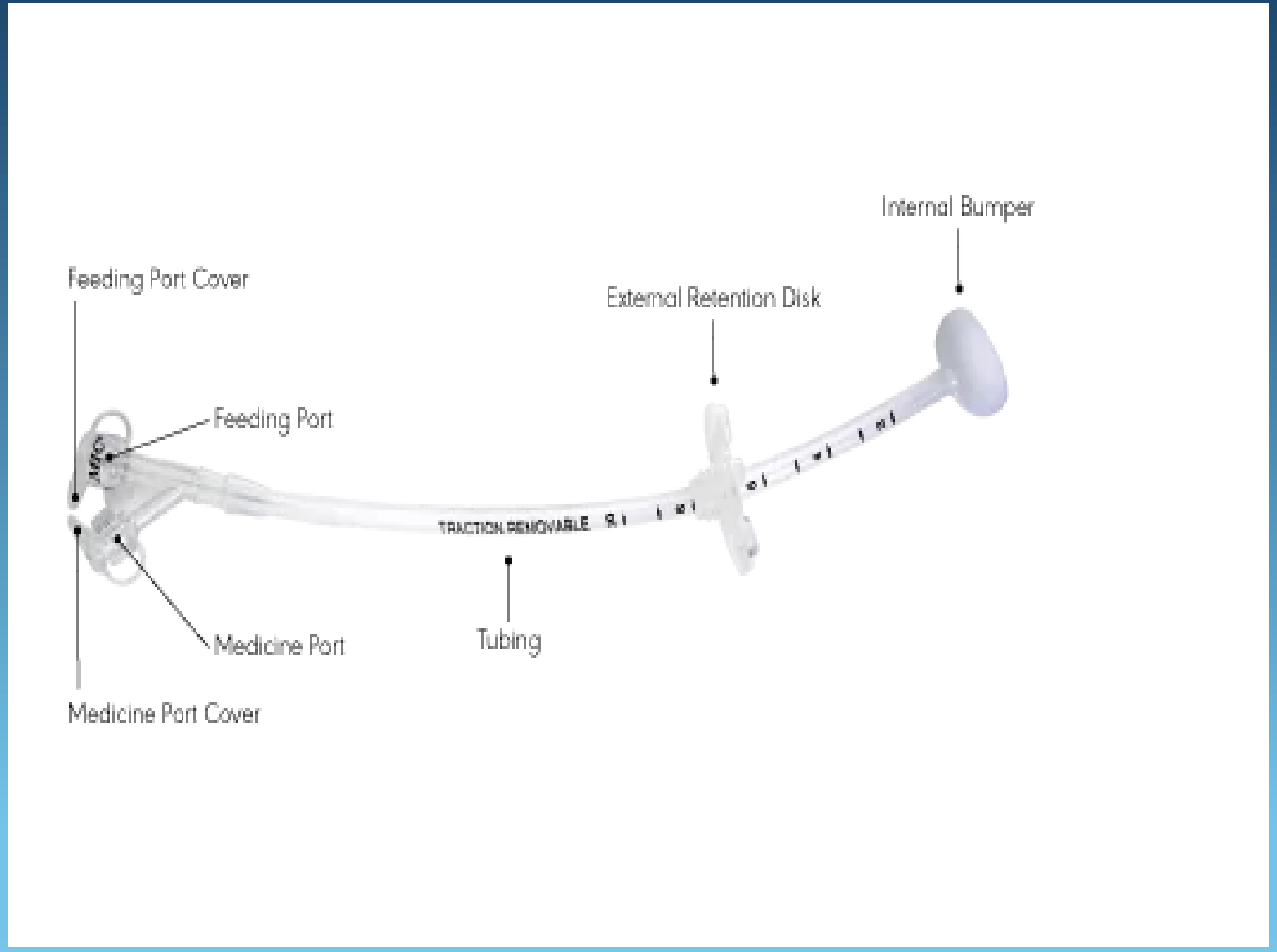
Advantages of PEG Tube Placement

1. **Long-Term Nutritional Support**: Ideal for patients who need extended nutritional support, especially those with swallowing difficulties.
2. **Minimally Invasive**: Percutaneous insertion avoids the need for a major surgical incision, reducing the risk of complications.
3. **Improved Quality of Life**: Provides a safe and effective means of feeding for patients with chronic conditions, leading to improved nutritional intake and better overall health.
4. **Lower Risk of Aspiration**: Reduces the risk of aspiration pneumonia by bypassing the oral cavity and pharynx.
5. **Ease of Maintenance**: Easier to manage and replace compared to other feeding tubes like nasogastric tubes.

Percutaneous Endoscopic Gastrostomy



Percutaneous Endoscopic Gastrostomy



Major Complications of PEG Tube Placement

Major Complications of PEG Tube Placement:	
Infection (5-10%)	• Local site infection, including cellulitis, can occur at the insertion site. In rare cases, more severe infections like peritonitis can develop.
Bleeding (1-5%)	• Bleeding may occur during the procedure, particularly if blood vessels are accidentally injured. The risk increases in patients with clotting disorders or those on anticoagulant therapy.
Peritonitis (<1%)	• This severe complication can occur if the stomach is punctured during the procedure, leading to leakage of gastric contents into the peritoneal cavity.
Bowel Injury (<1%)	• Accidental injury to surrounding structures, such as the bowel, during insertion is a rare but serious complication.

Major Complications of PEG Tube Placement

Aspiration Pneumonia (2-4%)

- A risk if the PEG tube dislodges or if the patient is unable to protect their airway, leading to aspiration of gastric contents into the lungs.

Tube Dislodgement (10-20%)

- The PEG tube can become dislodged, particularly within the first few days to weeks after insertion. This often requires replacement.

Gastrostomy Site Leakage (5-10%)

- Leakage around the site of insertion can occur due to poor healing or infection.

Major Complications of PEG Tube Placement

Gastric or Esophageal Perforation (<1%)

- Rare but serious, perforation of the gastric wall or esophagus can result in significant complications, including peritonitis and sepsis.

Granulation Tissue (2-10%)

- The formation of excessive tissue around the PEG site can occur, requiring medical management or minor surgical intervention.

Chronic Pain (1-2%)

- Persistent discomfort or pain at the insertion site can occur, especially in patients who have poorly healing or infected sites.

Death (0.1-0.5%)

- Although rare, severe complications like peritonitis, major bleeding, or aspiration pneumonia can result in mortality, particularly in critically ill patients.

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