



# Deconstructing the steps of PEG tube insertion using the introducer technique

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PEG is an alternative to operative gastrostomy for patients needing long-term enteral feeding.<sup>1,2</sup> The pull-type insertion technique is the commonly performed approach for PEG tube insertion. However, the major limitation of this method is the inability to perform in patients with upper aerodigestive tract or head and neck cancers and the risk of tumor seeding and infection at the peristomal site after PEG.<sup>3-5</sup> The introducer technique of PEG insertion could overcome these limitations associated with pull-type PEG.<sup>6,7</sup> In this instructional video (Video 1, available online at [www.videogie.org](http://www.videogie.org)), we deconstruct the steps for performing PEG using the introducer technique.

We perform the procedure with the patient in the supine position and under general anesthesia. Care coordination between different team members is critical to ensure the safe performance of the procedure. We prefer anesthesiologist-directed sedation administration in high-risk settings and administer prophylactic antibiotics before the procedure. We perform an EGD to evaluate the stomach for contraindications of PEG insertion. We distend the stomach maximally to approximate the gastric and abdominal walls and locate the puncture site using simultaneous transillumination and finger indentation (Fig. 1). We mark the location and sterilize the area and its surroundings to prevent postprocedure infection.

We infiltrate the skin, subcutaneous, and deeper tissue with a local anesthetic. The introducer technique requires the creation of gastropexy to prevent stomach movement and entrapment of intervening structures. We use the T-fasteners in the PEG kit to create the gastropexy (Fig. 2). We puncture the abdominal wall at the site of maximum transillumination and release the T-tags into the stomach under endoscopic visualization. We place 3 fasteners 1 cm apart in a circular fashion to fix the stomach to the abdominal wall without injuring the intervening structures and blood vessels (Fig. 3). Once fixed, a 1-cm-long transverse incision is made between the fasteners to facilitate the guidewire and introducer insertion (Fig. 4).

We insert the introducer needle through the incision and advance a guidewire through the needle into the stomach (Fig. 5). We remove the needle, and over the wire, we advance the dilator into the stomach. The abdominal incision can be extended further if resistance is encountered during the dilator introduction. Using gentle clockwise and anti-clockwise rotation, we sequentially advance each dilator sleeve until the external sheath is visualized in the stomach (Fig. 6). Once seen, we remove the dilator and leave the external sheath in place (Fig. 7).

For an 18F PEG tube, we use a 22F introducer kit. We lubricate the sheath and PEG tube generously and advance the tube through the external sheath. We peel the sheath gradually and advance the tube until the balloon is witnessed in the stomach (Fig. 8). We secure the tube by inflating the balloon with 10 mL of saline. Next, we completely peel and remove the external sheath. Finally, we advance the external bumper and place it at a 1-cm gap from the skin (Fig. 9). The T-fasteners are left in place and typically fall off in 5 to 10 days. We decompress the stomach and secure the tube for feeding. In the immediate postprocedure period, we regularly monitor the patient's vital signs (15 minutes for the first 2 hours, 30 minutes for the next 2 hours, and hourly for the next 4-6 hours) and assess for new symptoms. We routinely administer analgesia for pain and resume feeding by 4 hours if there are no adverse events.

## CONCLUSION

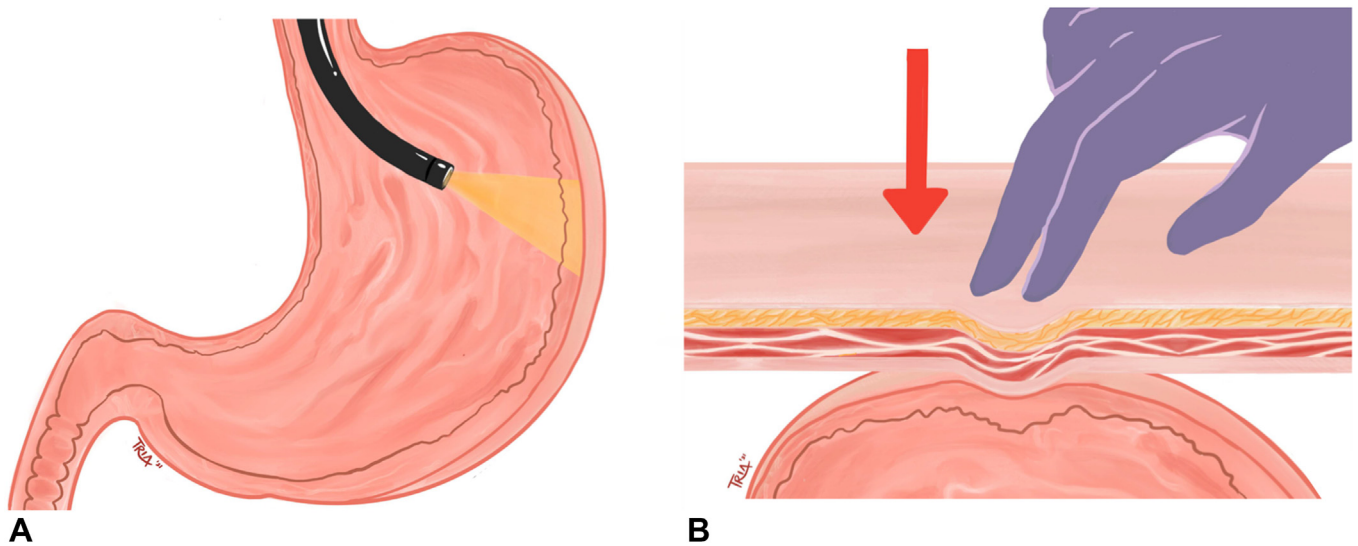
PEG insertion using the introducer technique is a safe and effective method to establish feeding, specifically in

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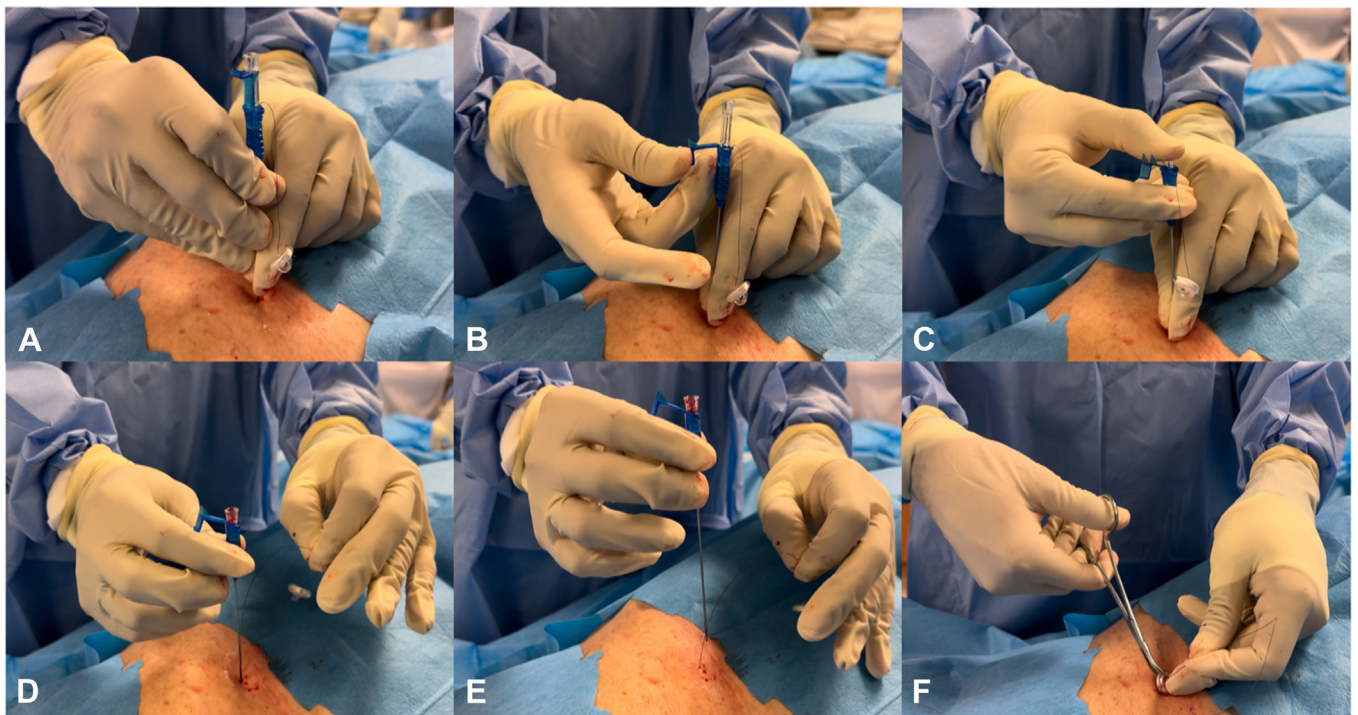
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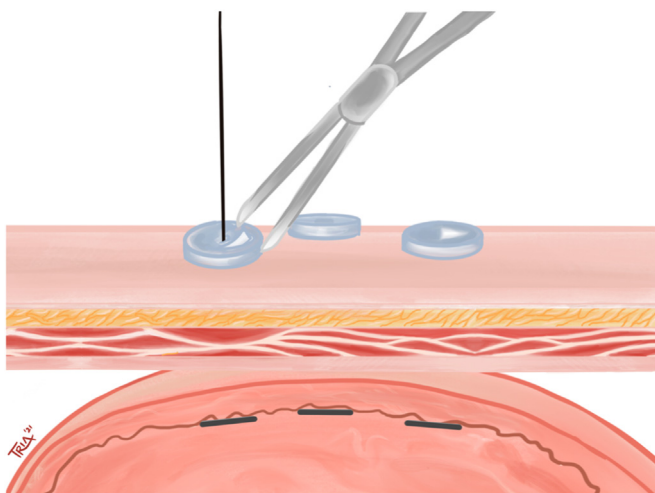
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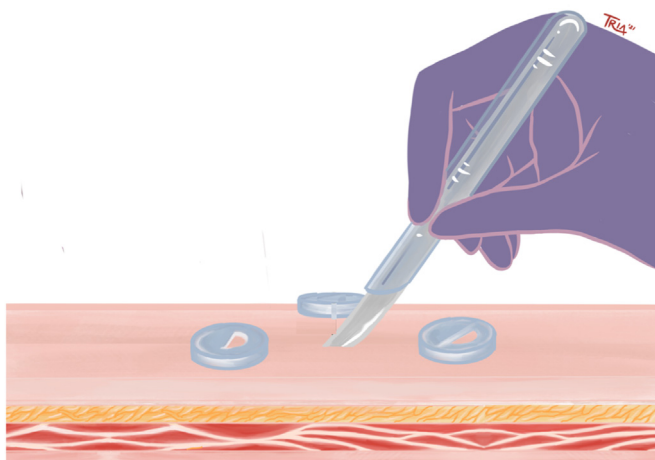
**Figure 1.** **A**, Transillumination of the stomach after insufflation. **B**, Finger indentation to identify the site of puncture.



**Figure 2.** Step-by-step deployment of a T-fastener. **A**, Introduce the needle perpendicularly to the abdominal wall and advance it slowly into the stomach. Maintain continuous air insufflation and confirm the needle entry with the endoscope. **B**, Bend the locking tab. **C**, Push the inner hub to release the T-tag. **D**, Release the suture strand. **E**, Withdraw the needle. **F**, Pull the suture until the T-tag fixes the stomach to the abdominal wall as seen in endoscopy, and then slide and close the external suture lock.



**Figure 3.** Place 3 T-fasteners surrounding the intended PEG puncture site and secure them using the bolsters. Trim the excess sutures.

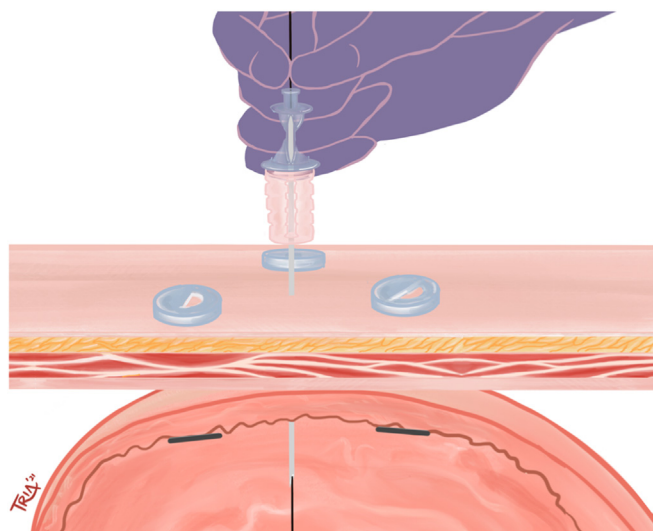


**Figure 4.** Make a 1-cm transverse incision between the T-fasteners.

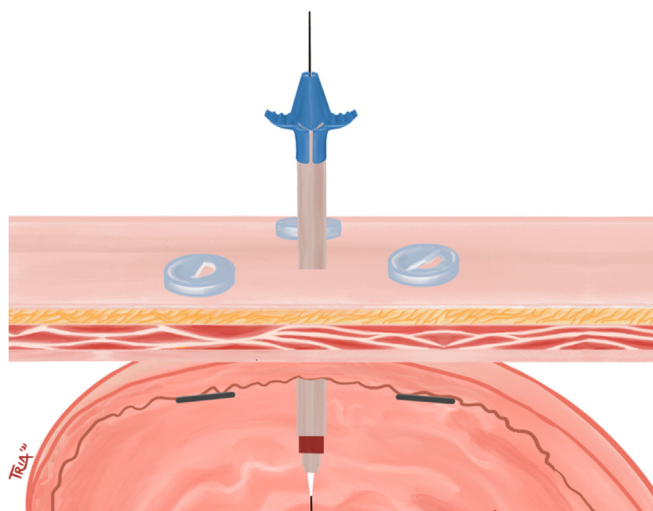
patients with upper aerodigestive tract or head and neck cancers. Our video deconstructs and provides stepwise instruction on the performance of introducer-type PEG.

## DISCLOSURE

Dr Asokkumar is a consultant for Apollo Endosurgery, USA. Dr Soetikno is a consultant for Olympus, USA, and Fujifilm, Japan. All other authors disclosed no financial relationships relevant to this publication.

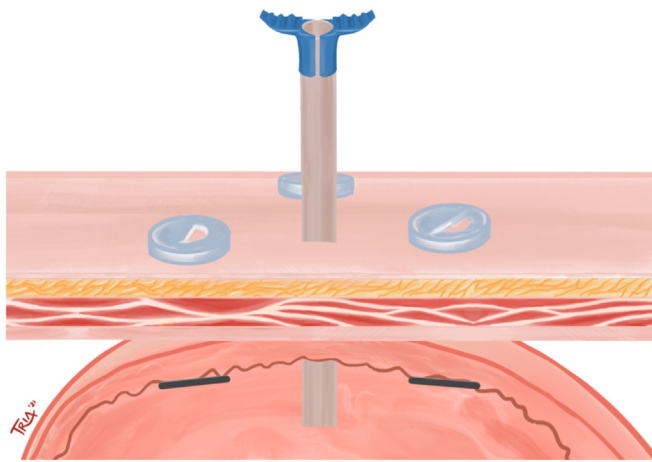


**Figure 5.** Introduce the needle through the incision. Confirm the needle entry into the stomach with the endoscope and advance the guidewire through the needle into the stomach.

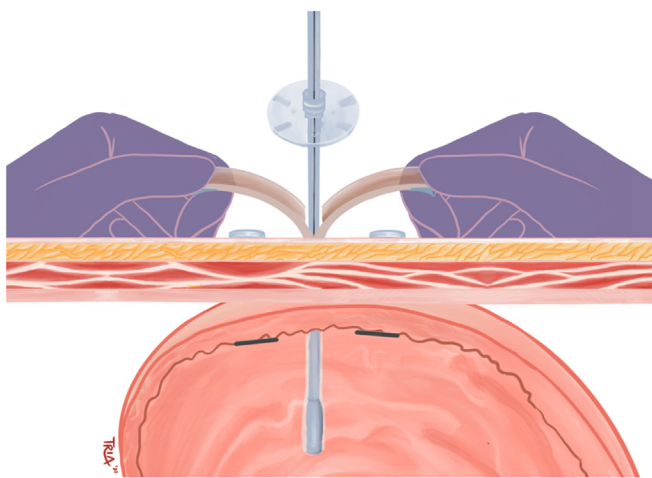


**Figure 6.** Remove the needle, and over the guidewire advance the dilator into the stomach. Advance each dilator sleeve by applying clockwise and anti-clockwise rotation until the external sheath is advanced into the stomach.

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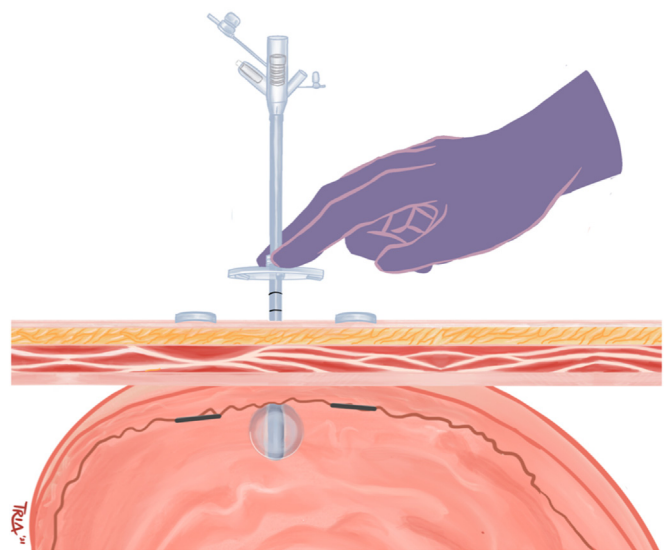
**Figure 7.** Remove the dilator and leave the external sheath in place, which serves as a track to introduce the PEG into the stomach.



**Figure 8.** After lubricating the external sheath, advance the PEG tube through it by gradually peeling the sheath until the distal balloon becomes visible in the stomach. Once seen, fill the balloon with 10 mL of saline and completely remove the external sheath.

#### ACKNOWLEDGMENT

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**Figure 9.** Slide the external bolster and position it 1 cm from the skin. Secure the PEG tube, decompress the stomach, and withdraw the endoscope.

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