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Endoscopic Retrieval of a Foreign Body within a Jejunostomy Tube

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Background	A 76-year-old male presented with acute blockage of a jejunostomy tube (J-tube) with a foreign body following surgical J-tube placement for long-term enteral nutrition.
Summary	Our patient presented at age 76 with a history of gastric perforation and multiple abdominal surgeries ultimately requiring surgical J-tube placement for enteral nutrition. His J-tube became obstructed on multiple occasions requiring the use of an enteral feeding tube DeClogger® (Bionix Medical Technologies, Toledo, OH) at the bedside. After a fragment of the DeClogger became lodged distally within the J-tube, interventional radiology (IR) was unable to use Seldinger technique to remove and exchange the J-tube. In an attempt to remove the foreign body from the J-tube noninvasively, a Flex-X™ Ureteroscope (Karl Storz, Tuttlingen, Germany) was used to visualize the foreign body and a 10mm DIMENSION® Articulating Stone Basket (Bard Medical, Covington, GA), and Captura® 3-Pronged Grasper (Cook Medical, Bloomington, IN) were utilized to extract the foreign body under direct visualization.
Conclusion	J-tube obstruction is quite common in the early postoperative setting and can often be treated using commercial products such as ones described above. We present an alternative option to relieve acute blockages using established endoscopic techniques when a Seldinger technique under fluoroscopic guidance is not feasible.
Keywords	Jejunostomy tube, ureteroscopy

DISCLOSURE:
The authors have no conflicts of interest to disclose.

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Case Description

A 76-year-old male was transferred to our institution with a history of gastric perforation and multiple abdominal collections. Over the course of several weeks, he required multiple interventional radiology (IR) drains, as well as surgical placement of a feeding jejunostomy tube (Bard® Red Rubber 14FR 16" All-Purpose Catheter) for long-term enteral nutrition. As a result of receiving multiple medications via this route, the J-tube became obstructed on several occasions beginning on postoperative day 3. At that time the patient was receiving Osmolite® 1.5 enteral nutrition at 55cc/hour continuously (providing him with 1,980 daily calories and 62.7 g/L of protein) as well as multiple home medications, all of which were deemed appropriate for administration via J-tube by our institution's pharmacy. Of note, per nursing protocol at our institution, the patient's J-tube was flushed with 20–30cc of water or saline before and immediately after any medication administration. Initial attempts to de-clog the J-tube included flushing the tube with 30 mL of sterile water, administration of 12,000 units of pancrealipase (Creon) delayed-release capsule dissolved in sterile water, as well as flushing the tube with 30 mL of carbonated cola. After these traditional methods were unsuccessful, an enteral feeding tube DeClogger® was used to try to relieve the blockage. During one attempt to overcome the obstruction, the tip of the DeClogger became lodged in the distal aspect of the J-tube. Multiple unsuccessful attempts were made at retrieval, including attempts to flush the obstructing fragment using saline solution. Furthermore, interventional radiology was unable to remove and exchange the J-tube because the location of the foreign body prevented successful passage of a guide wire.

In an effort to remove the foreign body without proceeding to an invasive procedure, a Flex-X Ureteroscope (Karl Storz, Tuttlingen, Germany) was used to enable direct visualization of the lumen of the 14 French J-tube at the patient's bedside (Figure 1). Using gentle handheld saline pressure irrigation, the scope was advanced under direct vision until the foreign body was visualized, approximately 20 cm distal to the opening of the tube. Using a 10 mm Dimension Articulating Stone Basket (Bard Medical, Covington, GA), the proximal tip of the foreign body was secured and extracted approximately 10 cm, but was unable to be completely removed (Figure 2). Further attempts at grasping the foreign body using this basket were unsuccessful. Using a Captura® 3-Pronged Grasper (Cook Medical, Bloomington, IN), the foreign body was successfully removed from the J-tube (Figure 3). The patient's enteral feeds were resumed the same day without issue, and the patient experienced no deleterious effects thereafter.

Figure 1. Flex-X™ Ureteroscope (Karl Storz, Tuttlingen, Germany)

Figure 2. DIMENSION® Articulating Stone Basket (Bard Medical, Covington, GA)

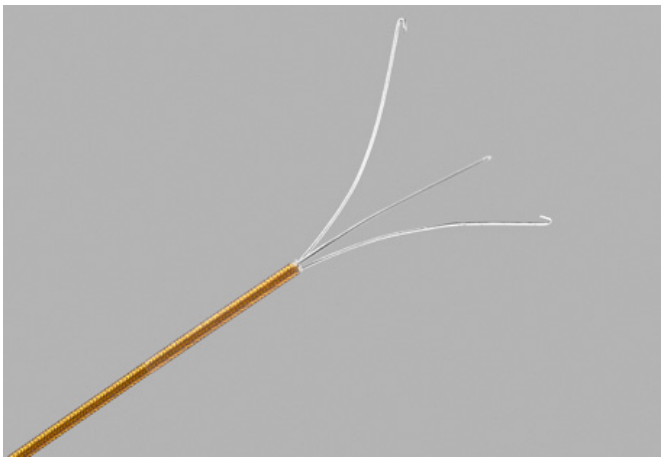

Figure 3. Captura® 3-Pronged Grasper (Cook Medical, Bloomington, IN)

Discussion

Though this represents a seemingly unique scenario of J-tube obstruction secondary to a foreign body, J-tube obstruction in the hospital setting is quite common. In a recent retrospective study by Young et al that reviewed outcomes in 299 patients with surgically placed J-tubes, blockages occurred in one percent of patients within 30 days of placement and in 1.3 percent of patients beyond the 30-day mark.[1] Other published rates of clogging/blockages have been comparable at 1 to 7 percent of all cases, representing a small but still significant number of patients.[2, 3] Established recommendations to de-clog feeding tubes include flushing warm water, enzymatic de-clogging agents as well as commercially available products such as the one initially utilized in this case.[4] Enzymatic agents such as pancrelipase have reasonable efficacy, however some studies report that patency is restored in less than 50 percent of cases.[5] Methods that are typically utilized according to our institution's protocols include flushing the tube with 10–30 mL of water or saline solution, administration of pancrelipase delayed-release capsules dissolved in sterile water (typically 12,000 units as described earlier), and flushing the clogged tube with 10–30 mL of carbonated cola. All of these more traditional strategies were utilized without success.

In the setting of obstruction or malfunction, J-tube removal and replacement is the procedure of choice for an established J-tube with a well-formed tract; however, removal and replacement in the early postoperative period can be challenging if Seldinger technique is not feasible, as in this case. Oftentimes, attempts are made at relieving this obstruction using commercially available products such as ones mentioned above. This case demonstrates a minimally invasive method for retrieving an obstructing foreign body from a feeding J-tube by using well-established endoscopic techniques. To our knowledge, there are no other reports describing this technique as a method for management of J-tube blockages in the early postoperative setting.

Conclusion

J-tube obstruction is quite common in the early postoperative setting and can often be treated using commercial products such as ones described above. We present an alternative option to relieve acute blockages using established endoscopic techniques when a Seldinger technique is not achievable.

Lessons Learned

Acute obstruction is a challenging complication following the surgical placement of a J-tube, and caution must be used attempting to de-clog a feeding tube using commercial products, especially in the early postoperative setting. In the unique scenario of a foreign body causing obstruction distally within a J-tube, established endoscopic techniques may be utilized to relieve such obstructions.

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