

## **GASTRIC FOREIGN BODIES IN DOGS**

**Author :** Jon Mills

**Categories :** [Vets](#)

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**Jon Mills** examines three canine case studies where each animal had ingested a kebab skewer, and debates the merits of catheter usage and gastropexy as treatment modalities

**THREE dogs were treated after ingesting wooden kebab skewers. All three skewers later migrated through the left cranial abdominal wall and were retrieved percutaneously without laparotomy.**

Foley catheters were placed through the stomas in two cases. These were placed with the minimum of equipment, using the kebab skewer as an introducer. All stomas closed with secondary healing.

Wooden skewers, used domestically and commercially for kebabs, may present as foreign bodies after ingestion by dogs. The sharp nature of these objects favours migration, which can be intra-abdominal, through the body wall, or into the thoracic cavity (Hunt, Worth and Marchevsky, 2004).

Cases often present with a draining sinus. Plain radiography has poor diagnostic sensitivity; only one out of six skewers was identified on radiographs preoperatively in one case study (Hunt, Worth and Marchevsky, 2004). Surgical retrieval of the skewer led to the resolution of signs in these six cases. A wooden lolly stick that migrated after ingestion has also been associated with a gastrocutaneous fistula, which healed after surgical intervention (Brennan et al, 2004).

This report describes the removal of skewer foreign bodies in the three dogs mentioned earlier and resolution of clinical signs without laparotomy.

## Case reports

Cases one and two involved young adult male Staffordshire bull terriers, whose owners had been unaware of skewer ingestion. This probably occurred during exercise in an urban environment. Case three involved a one-year-old male Dobermann pinscher that probably ingested the skewer during a barbecue two weeks before presentation.

All cases presented with a firm, painful and subcutaneous swelling on the left abdominal wall, caudal to the costal arch. Vomiting was not reported. None of the cases was pyrexia.

In cases one and two, the swelling had progressed for a few days before presentation.

In case three, the swelling was first noted on the day of presentation. The swelling was, by then, very pronounced, and had probably been present to some degree for a few days. In all cases, purulent exudate drained from the skin and a wooden point was then visible.

In the first case, the owner withdrew the wooden skewer. It was about 20cm long, approximately the width of the dog's abdomen. The skewer's orientation, perpendicular to the skin of the left cranial abdomen, and its size and association with food made it almost certain that it had previously been in the stomach. Other than the locally inflamed stoma, the dog was clinically normal. No imaging was performed, and the patient was observed for signs of peritonitis. However, recovery and secondary healing of the stoma proceeded uneventfully.

When the wooden tips became visible in cases two and three, it was strongly suspected they were skewers. In both cases, premedication with acepromazine (0.02mg/kg IM) and buprenorphine (0.01mg/kg IM) was followed by induction of general anaesthesia with propofol (4mg/kg IV) and aseptic preparation of the left lateral abdomen.

In case two, the tip was grasped and the 20cm skewer was completely withdrawn. A Foley catheter (eight French gauge, 30cm) was then advanced several centimetres into the freshly vacated stoma.

The catheter bulb was inflated with air, and the catheter's location in the gastric lumen was confirmed radiographically.

In case three, the tip of the skewer was grasped and withdrawn about 6cm above skin level. It was firmly gripped with forceps as close to the skin as possible ("A" in [Figure 1](#)), and 20cm of plastic tubing that had been cut from a giving set or extension set was introduced over the exposed point of the skewer. The tubing was advanced to the forceps, and bent at the level of the external end of the skewer. A tiny longitudinal incision was made in the tubing to allow the tip of the skewer to penetrate.

The exposed point was gripped with another pair of forceps (“B” in [Figure 1](#)), and the first forceps were removed from “A”. The tubing was further advanced through the body wall into the gastric lumen while the skewer was held fixed, acting as an introducer ([Figure 2](#)).

Experience with gastrostomy feeding tubes suggests that skin-lumen distance is usually 2cm to 4cm. Once the tubing had been advanced at least 6cm beyond the skin surface, it was held in position while the skewer was fully withdrawn, leaving the tubing in place. The tubing was cut to leave just a few centimetres exposed, by which it was held. A Foley catheter (eight French gauge, 30cm) was inserted into the stomach through the tubing and the catheter bulb was inflated with air ([Figure 3](#)).

The tubing was withdrawn, and carefully split with a stitch-cutting blade to remove it from around the catheter ([Figure 4](#)).

In cases two and three, plain and contrast gastrography with iothalamic acid confirmed the catheter’s position, gastropexy integrity and the absence of pneumoperitoneum ([Figure 5](#)). Catheters were secured with Chinese finger trap sutures and maintained for 10 days before removal. In all three cases, 9mg/ kg of amoxicillin-clavulonic acid was injected subcutaneously, and then 13mg/kg was administered orally, twice daily, for 10 days. In all cases, the healing of secondary stoma sites was uneventful.

All cases involved young dogs presenting with swelling on the left lateral body wall, just caudal to the costal arch, and vomiting and pyrexia were not noted.

## Discussion

There were variable findings in another report (Hunt, Worth and Marchevsky, 2004), where all three skewers became visible in the centre of a discharging swelling. Once the wooden tip was visible, it was suspected to be part of a skewer. In a previous series, six out of eight cases involved skewers, but only one of these migrated to the left body wall, and this was associated with a draining tract at the left 11th intercostal space (Hunt, Worth and Marchevsky, 2004). The remainder migrated within the abdomen, chest and lateral to the ilium. None of those six skewers was visible at skin level, and all required surgical removal.

Plain radiography is insensitive in demonstrating skewers (Hunt, Worth and Marchevsky, 2004), and was not performed prior to skewer removal in the kebab skewer case studies.

Sinography has been described (Hunt, Worth and Marchevsky, 2004; Lamb, White and McEvoy, 1994), but was not attempted in the case studies mentioned earlier, as the skewer tips were already visible. Gastroscopy was not available, but could have been useful to confirm skewer location and length, and to confirm tubing and catheter location in the gastric lumen in cases two and three.

The 20cm skewers, at least in the two Staffordshire bull terriers, must have been lying across the full length of the stomach's body. In all cases, the sharp ends of the skewers migrated through the gastric wall on the body's left-hand side, presumably because on the right side, the gastric wall is thicker at the pylorus.

In all cases, the gastric wall's adhesion to the body wall was well established by the time the skewer became visible. As the tip penetrated the gastric wall, it must have engaged the body wall, thereby fixing the stomach in place and allowing adhesions to rapidly develop. The omentum is likely to have contributed to a rapid seal, preventing peritoneal leakage of gastric contents. Penetration of the spleen on the left side of the cranial abdomen might conceivably occur with skewer migration through the left cranial abdomen.

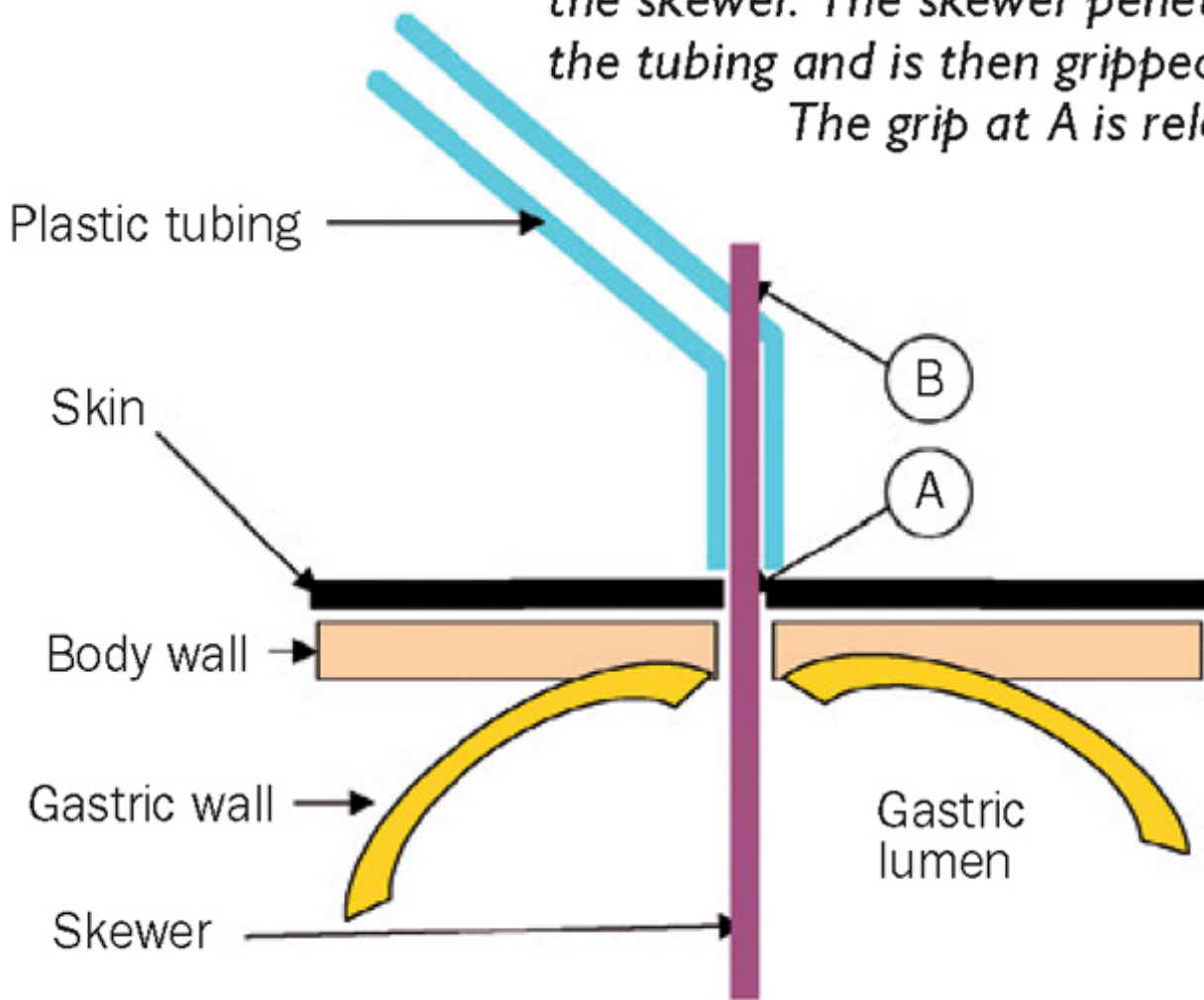
The time taken for the skewers to work through the body wall – apparently a couple of weeks – seems to be sufficient for a reliable gastropexy to establish. The gastropexy in case one proved perfectly adequate without the support of a catheter, so maybe cases two and three didn't need catheter placement. However, catheter placement was cheap and easy, and it was deemed prudent to protect the gastropexy while it matured. Catheters also facilitated radio-graphic assessment of the gas-tropexy. Narrow catheters were adequate for simply maintaining the gastric and/or body wall juxtaposition, as no tube feeding was required. Standard giving-set tubing was initially tried, but it was too tight a fit over the skewer for easy advancement, so the wider-bore extension set tubing was used. For narrow skewers, standard giving-set tubing might suffice.

A snug fit of tubing over the skewer should make for easier introduction of the tubing through the gastric wall, but wider tubing allows larger catheters to be passed. A 10 French Foley catheter will fit down the wider tube, but with significant friction, so the eight French size was preferred. Catheters were maintained for 10 days – the minimum duration recommended for percutaneous gastrostomy feeding tubes that are placed without surgical gastropexy (Seim and Willard, 2002).

## References and further reading

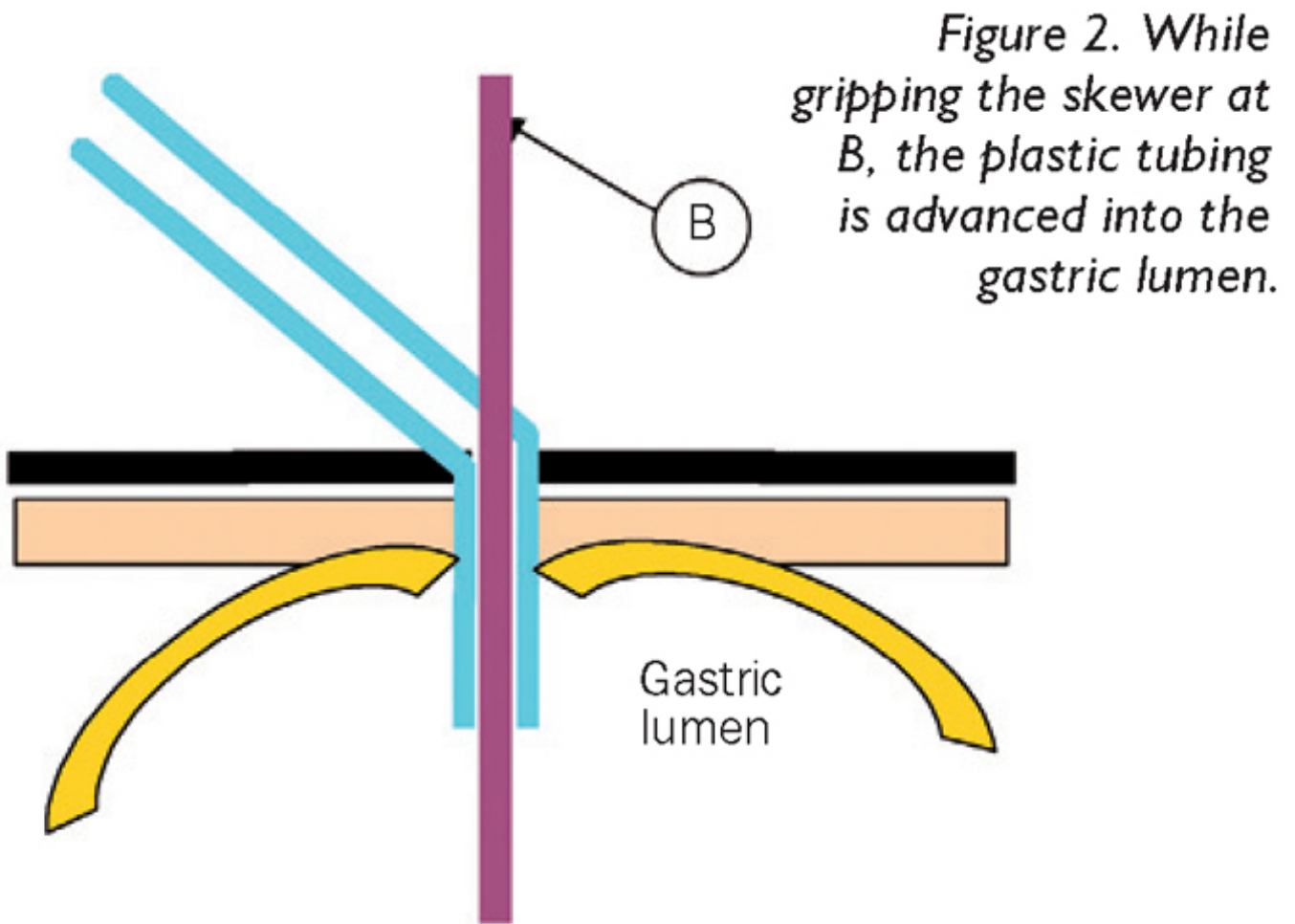
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*Figure 1. The skewer is gripped at A. Plastic tubing is advanced over the skewer. The skewer penetrates the tubing and is then gripped at B. The grip at A is released.*

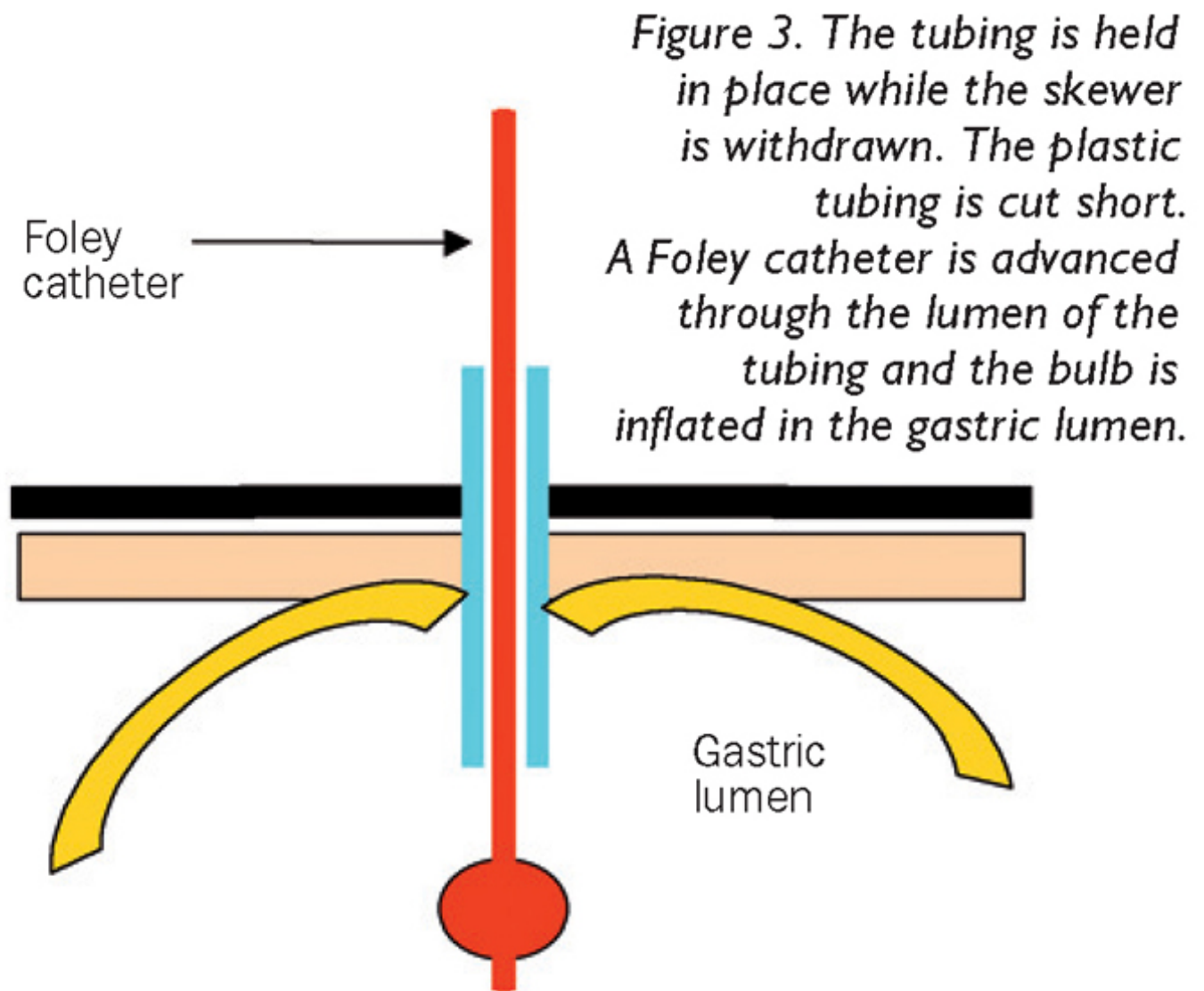


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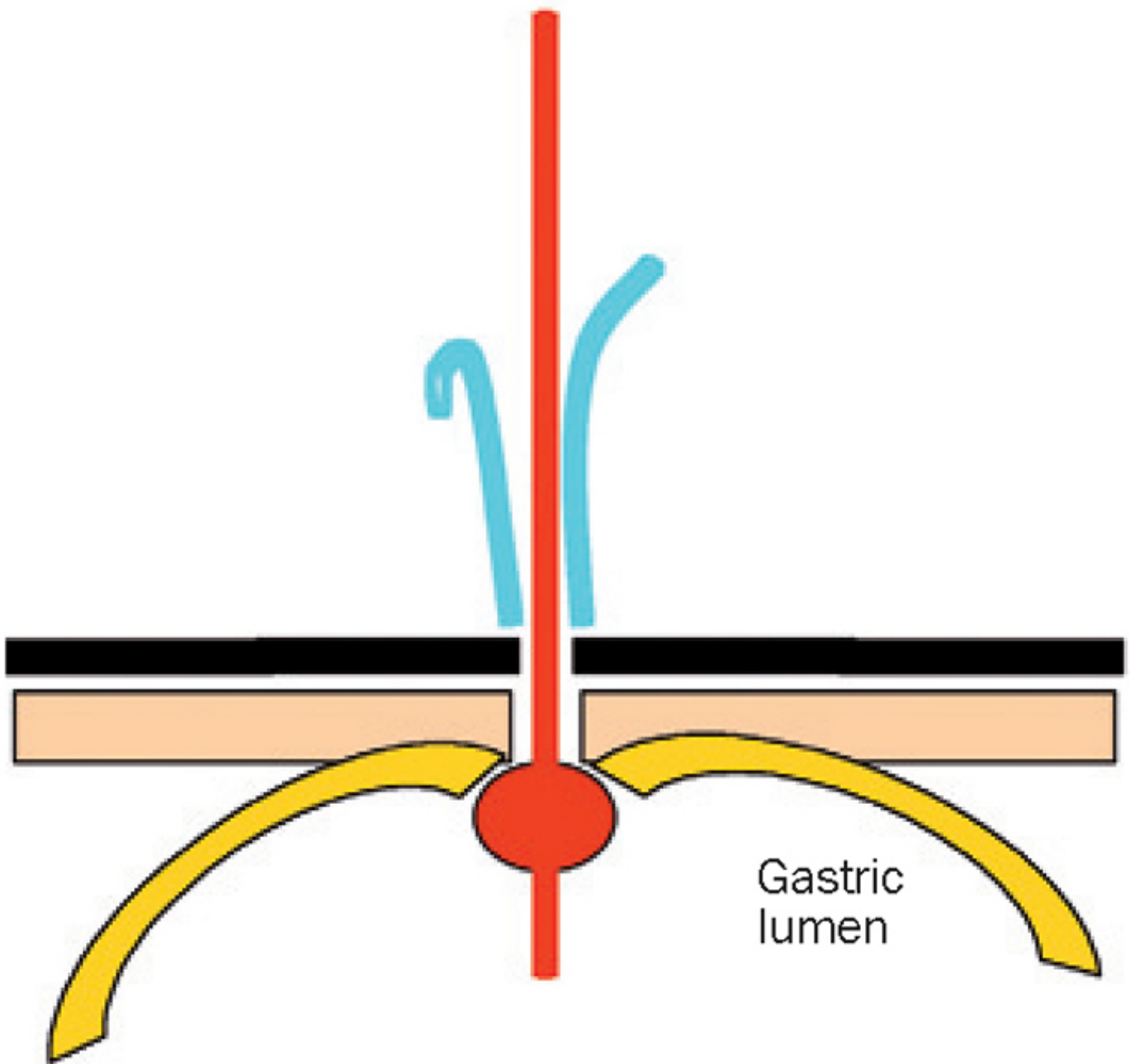


**Figure 2. While gripping the skewer at B, the plastic tubing is advanced into the gastric lumen.**



***Figure 3. The tubing is held in place while the skewer is withdrawn. The plastic tubing is cut short. A Foley catheter is advanced through the lumen of the tubing and the bulbs is inflated in the gastric lumen.***





**Figure 4.** The tubing is withdrawn and split with a scalpel blade to allow removal from around the Foley catheter. The catheter is withdrawn until the bulb contacts the gastric wall, and the catheter is then secured in place.



***Figure 5. A positive-contrast gastrograph from case three, with the patient in right lateral recumbency.***

