



## Case Report

# ENDOSCOPY GUIDED RETRIEVAL OF GASTRIC FOREIGN BODY BY MINI LAPAROTOMY FOLLOWING PEG PRINCIPLE IN A TODDLER

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### Abstract:

Foreign body ingestion is a common phenomenon in pediatric age group. Our toddler patient playfully ingested a metallic alphabet 23 days back and admitted in our unit for retrieval of the retained gastric FB. As the FB was large and might cause oesophageal injury, endoscopy assisted removal through mini laparotomy according to PEG principle was done. Master M had a smooth recovery.

**Keywords:** Gastric foreign body, PEG principle, Endoscopy assisted FB retrieval.

### Background:

In the pediatric population, toddlers, younger than 5 years are most commonly affected by inhalation or ingestion of foreign body because of their increased mobility and natural propensity for experimentation. Although children younger than 6 months are rarely able to get a foreign object into the oropharynx, infants can ingest foreign bodies with the assistance of a sibling. Although any child can swallow a foreign body,

most incidents result in minor annoyance; however, some can become a challenging problem and have serious life-threatening complications.<sup>1</sup>

The most common types of foreign objects ingested (Table-I) differ between children and adults and each group may present with a unique set of symptoms<sup>2,3,5</sup>. Upwards of 80% of foreign bodies pass spontaneously and do not require intervention<sup>6</sup>, with less than 1% of all cases necessitating surgical intervention<sup>7</sup>. Despite the fact that most foreign bodies pass spontaneously, there is still significant morbidity and mortality associated with retained foreign bodies, with some reports estimating that nearly 1500 deaths occur in the United States annually due to foreign body ingestion<sup>4</sup>. The type of foreign body ingested may predispose patients to a particular site of impaction as well as common patterns of complications (Table-II). The upper esophagus is the most common lodgment site, followed by the middle esophagus, stomach, pharynx, lower esophagus, and finally the duodenum<sup>4, 8</sup>.

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**Table-I**

*Commonly ingested foreign bodies Observed population*

Coins	
Button batteries	Children
Crayons	
Toys	
Food boluses	
Fish bones	Adults
Chicken bones	
Dentures	
Crab shells	
Wires	
Pins	

**Table-II**

*Common Sites of Impaction of Sharp Objects Occur at Acute Angles or Intestinal Narrowing*

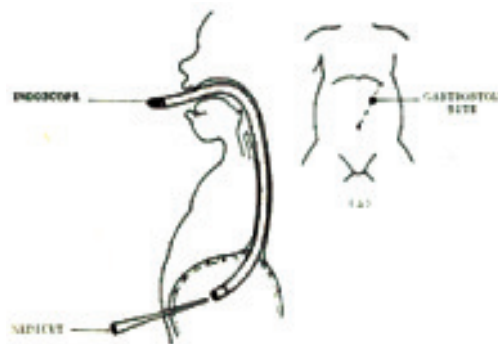
Sites of impaction
Duodenal loop
Duodenojejunal junction
Appendix
Terminal ileum

Endoscopy is a valuable tool in the armamentarium of removing foreign bodies from the upper aerodigestive tract. A number of endoscopic tools are available for foreign body removal and all endoscopists should be familiar with and comfortable using these tools. A flexible endoscope is important for both diagnosing and removing foreign bodies with a success rate of greater than 95%<sup>8</sup>. Flexible endoscopes are preferred when compared to rigid endoscopes because there is a lower risk of perforation<sup>10</sup>. Commonly used tools include polypectomy snares, grasping forceps, magnetic probes, retrieval snare net, and transparent cap-fitting device which is frequently used in endoscopic mucosal resection<sup>11, 12</sup>. An overtube is beneficial in that it protects the airway and facilitates passage of the endoscope to be more effective in piecemeal removal of a food impaction<sup>13</sup>. Depending on the type of impaction, different devices should be used. In complicated cases where the endoscopic removal might cause esophageal injury or injury in the upper respiratory tract, guidance of endoscopy play a vital role in retrieval of FB by mini laparotomy.

Surgical intervention is often necessary for FB removal if it appears that the patient has developed symptoms suggestive of a perforation, or if the sharp object has not progressed in a period longer than 72 hours<sup>14</sup>. In adult case endoscopic removal can be achieved with retrieval net, forceps, or a polypectomy snare. But in pediatric age group narrow aerodigestive tract is in risk of tear or perforation during removal of a rather large, sharp, decaying, multi-angle FB. In our case we have done endoscopic evaluation, site and condition of retained FB and preoperative decision taken to retrieve the FB through a gastrotomy approach according to PEG principle. New approach like ours is still on trial basis.

Surgical gastrostomy is technically simple, but it does involve a large abdominal incision. Hence, it has been

a less popular option to percutaneous gastrostomy because of the higher rate of complications. Percutaneous endoscopic gastrostomy (PEG) has rapidly become the preferred method of delivering long-term enteral nutrition to those with swallowing difficulties. It is now the most commonly used method in both children and adults, much more widely used than surgical or radiological insertion<sup>9</sup>. Figure 1, shows PEG principle and usual site of gastrostomy in pediatric patients.



**Fig.-1:** Passage of PEG cannula and Gastrostomy site

Some of the absolute contraindications of PEG tube placement are summarized in Table-III.

**Table-III**  
*Contraindications of PEG*

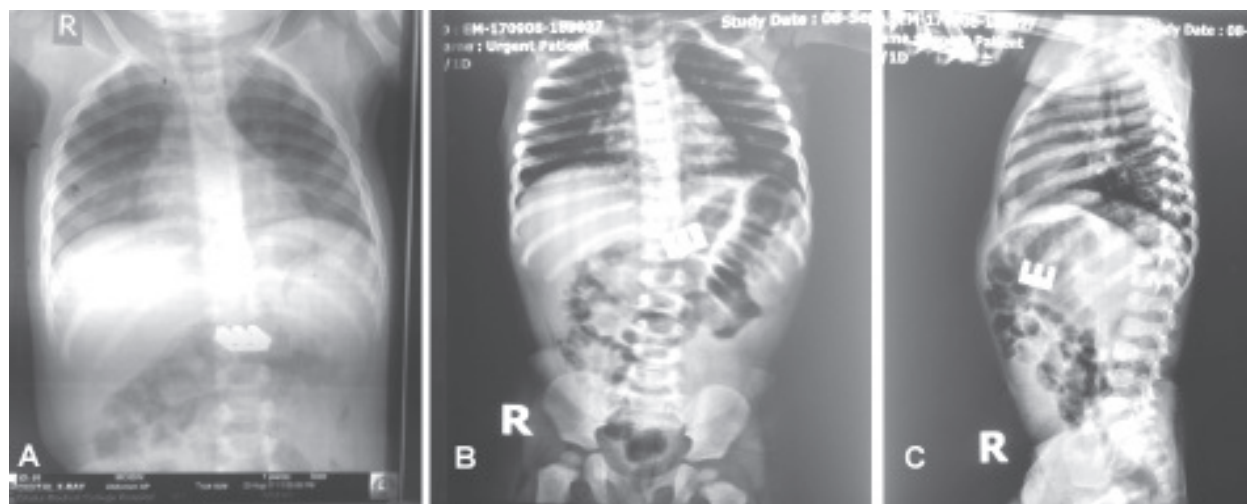
- |  |
|--|
| 1. Serious coagulation disorders (INR > 1.5, PTT > 50 s, platelets < 50000/mm <sup>3</sup> ) |
| 2. Hemodynamic instability   |
| 3. Sepsis  |
| 4. Severe ascites  |
| 5. Peritonitis   |
| 6. Abdominal wall infection at the selected site of placement                                |
| 7. Interposed organs (e.g., liver, colon)  |
| 8. Lack of informed consent for the procedure  |
| 9. Hepatomegaly  |
| 10. Splenomegaly   |

#### **Case Report:**

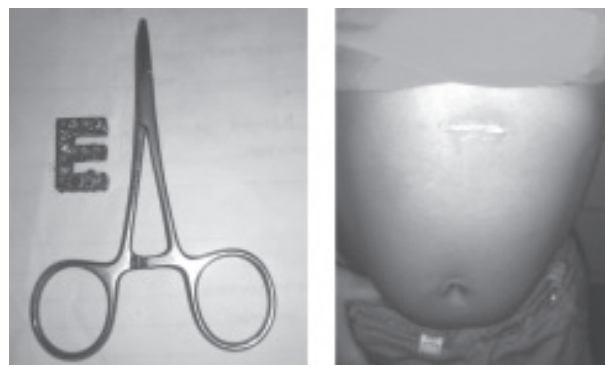
Master Mobin, 1.5years of age, weighing 10 kg admitted in DMCH with complaints of ingestion of

foreign body 23 days back. The child is apparently healthy and playful with no abdominal pain and distension, vomiting or constipation. Physical examination revealed no abnormality. In serial chest and abdominal X-ray the FB appeared to be a metallic alphabet E and did not pass the pylorus. Routine investigations were done and all findings were within normal limit. On 12th September, 2017 patient was planned for endoscopic removal of gastric FB. After proper sign in and time out, pediatric upper gastrointestinal endoscope was introduced. During procedure the FB was found near antrum along greater curvature. The FB was having multiple angles and large enough to cause longitudinal oesophageal tear. There was chance of breaking the FB during procedure and broken margins would be sharp. As there was risk of esophageal injury in endoscopic removal of FB, PEG principle was applied. Stomach was inflated with air and a small 2.5 cm left upper

transverse incision made under endoscopy light projected through anterior abdominal wall in a dark OT room enhancing illumination. Abdomen was opened and stomach wall was identified just behind the incision. Two stay sutures applied on the stomach wall and stomach wall was incised. A swab holding forceps introduced inside the cavity to grasp the FB under endoscopic guidance. Whole FB was removed intact and endoscopic re-examination was done to exclude any gastric erosion, ulcer or perforation. Stomach and anterior abdominal wall closed in layers with 4/0 polyglactin. Incision was injected with 2% Lidocaine. Recovery from general anaesthesia was smooth. His immediate post operative period was pain free and uneventful. Patient started liquid diet after 12 hours. He resumed his normal diet after 24 hours of the procedure and was discharged on the next day. On follow up after 7 days, the wound was healed with no other complaints.



**Fig.-2:** Serial abdominal X-ray showing retained gastric FB in the shape of E; A was taken On 23/08/2017 and B&C was taken on 08/09/2017



**Fig.-3:** Retrieved Gastric FB

**Fig.-4:** Mini laparotomy wound on 9<sup>th</sup> POD

#### Discussion:

According to Lewis Spitz, Operative intervention for removal of the foreign object was performed on 18-9% of pediatric patients in whom it had entered the stomach (43 out of a total of 227). The remaining 184 cases were successfully managed conservatively. There are two indications for operative intervention, danger of perforation and failure of progression. A minimum period of 10-12 days' observation before surgery is recommended. It is of paramount importance that an x-ray film be taken immediately before operation<sup>15</sup>. Our patient had both indications for surgical intervention. Laparoscopic

could be an option but the port sites would not permit the FB removal so it was not performed.

### Conclusion:

Endoscopic assessment during retrieval of FB is crucial. Adventurous endeavour taken for risky removal could be deleterious. On the other hand, endoscopy guided removal by mini laparotomy prove to be safe, painless, early recovery and with short hospital stay. This hybrid procedure can reduce risk of injury and less tissue trauma during surgery. References:

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