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Original Article

Upper Gastrointestinal Foreign Body, our Experience in Faridpur Medical College Hospital

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Abstract:

Accidental ingestion and impaction of food or non-food foreign body in upper GIT is not uncommon. This retrospective study was undertaken at Gastroenterology department of Faridpur Medical College Hospital, Bangladesh. Data were collected from endoscopy software by computer search among patients with foreign bodies in upper GIT from January 2012 to December 2018. Total 41 patients with endoscopically proved ingested with or without impacted foreign body in the upper GIT were studied. Of them, 28 were male and 13 were female with age ranges from 15 to 85 years with a mean age of 52.66 ± 19.7 years. Meat bolus was the commonest type (12; 29.3%), followed by dental prosthesis (9; 22%). Most of them (24; 58%) were impacted between 20 to 30 cm from incisor teeth. We could successfully remove 38 cases with a success rate of 92.7% with the help of dormia basket, polypectomy snare & rat tooth foreign body grasper. We found few erosions and superficial ulcerations at the impacted site among patients with dental prosthesis, pill with strip and chicken bone. One patient with sharp flat bone of hilsa fish was impacted at esophagus like sharp cutting blade and produced incised looking wound at both esophageal walls. In 19 cases (46.34%) we found definite anatomic abnormalities and 19 cases (46.34%) no abnormalities was found. Rest 3 cases, who were referred to surgeon we failed to know the underlying pathology. Sharp foreign bodies impacted at upper esophagus were difficult to remove endoscopically.

Key words: Upper GIT foreign body, Endoscopic removal.

Introduction:

In clinical practice, foreign body ingestion and food bolus impaction in Upper Gastrointestinal Tract (UGIT) are frequently found. Though majority of population belongs to the pediatric group, adult population with impacted food bolus or ingested foreign body is not uncommon. Majority of the ingested foreign bodies (80%-90%) pass through gastrointestinal tract spontaneously without any complication but approximately 10%-20% of cases require endoscopic removal, and less than 1% require surgery for extraction or to treat complications[1-7].

Ingested and/or impacted objects may be food bolus or nonfood objects (true foreign body). Swallowed foreign bodies can be classified as blunt objects (coin, button, toy batteries, magnets), sharp-pointed objects (needle, toothpick, bone, safety-pin, glass pieces), sharp irregular objects (partial denture, razor blade), long objects (string, cord, toothbrush, cutlery, screwdriver, pen, pencil), food bolus with or without bones & Others (packets of illegal drugs)[8].

True foreign body ingestion in adults, either intentional or unintentional, appears more often in the elderly population, in patients with psychiatric disorders, developmental delay, or alcohol intoxication, and in prisoners seeking secondary gain[1-7].

Once foreign bodies have traversed the esophagus, most objects pass within 4-6 days, or in rare cases in up to 4 weeks. Generally, objects greater than 2-2.5cm in diameter will not pass through the pylorus or ileocecal valve and objects longer than 5-6 cm will not pass through the duodenal sweep[8].

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Foreign bodies those are impacted, battery, sharp objects, larger (>2 cm) or longer (>5 cm) usually require endoscopic retrieval. In most patients, endoscopic therapy can be offered as outpatient basis. Admission is required for observation after technically difficult extraction, extensive mucosal injury due to the foreign body or endoscopic treatment, when there are multiple foreign bodies or associated with a high risk for complications (i.e., sharp-pointed objects, batteries, magnets, objects larger than 5-6 cm)[8].

Perforation requires surgery. Besides perforation; there are other indications for surgical treatment like; I) bleeding that cannot be resolved endoscopically, II) failure of endoscopic removal, III) impaction out of endoscopic reach and IV) small bowel obstruction by foreign body[8].

This study was undertaken among esophagogastroduodenoscopy proven patients with ingested foreign bodies to discuss about their demography, nature of foreign body, site of impaction, underlying anatomic abnormalities of UGIT and outcome of endoscopic removal.

Materials and Methods:

This retrospective study was undertaken at Gastroenterology department of Faridpur Medical College Hospital, Bangladesh. Data of patients with foreign bodies in upper gastrointestinal tract (UGIT) from January 2012 to December 2018 were collected from endoscopy software by computer search. Patient's demographic characteristics, type of foreign bodies, location of impaction, success rate of endoscopic retrieval, complication due to impaction or endoscopic retrieval and underlying anatomic abnormalities of UGIT were recorded and analyzed by computer-based software SPSS. Quantitative data were presented as mean ± standard deviation and qualitative data were presented as percentage.

Results:

Total 41 patients with endoscopically proved ingested with or without impacted foreign body in the UGIT were studied. Out of 41 patients 28 were male and 13 were female with a male to female ratio 2.15:1. Age of the studied subjects ranges from 15 to 85 years with a mean age of 52.66 ± 19.7 years.

According to nature of foreign body, meat bolus was the commonest type (12; 29.3%), followed by dental prosthesis (9; 22%) (Table I).

Table I: Distribution of patients according to nature of foreign body (n=41)

Type of Foreign body	Number (%)
Bezoar	6 (14.6)
Chicken bone	3 (7.3)
Dental prosthesis	9 (22)
Fish bone	5 (12.2)
Meat bolus	12 (29.3)
Pill strip	1 (2.4)
Pin	3 (7.3)
Seed of Hog Plum	1 (2.4)
Seed of jujube	1 (2.4)
Total	41 (100)

According to site of impaction, most of them (24; 58%) were impacted between 20 to 30 cm from incisor teeth (Table II). Among dental prosthesis, only one was found in the stomach and rest of them were impacted in esophagus. All meat bolus, chicken bone & fish bones were impacted in the esophagus. All of the three pins were found in stomach, of them two were free within the gastric folds and one with larger plastic bead at one end was impacted at the antrum. One patient had dementia, he swallowed a pill with plastic strip and was impacted at esophagus. We found six patients with long ribbon like phytobezoar traversing the pyloric orifice and deformed as well as narrowed bulb of duodenum. One patient had spiky seed of Hog Plum impacted at duodenal bulb and one had recurrent impaction of Jujubi seed at the site of congenital esophageal ring.

Table II: Distribution of patients according to site of impaction (n=41)

Site of impaction	Number (%)
Bulb of duodenum	1 (2.4)
Bulb of duodenum & pylorus	6 (14.6)
Stomach	4 (9.8)
Thirty cm from incisor teeth (esophagus)	8 (19.5)
Thirty-five cm from incisor teeth (esophagus)	6 (14.6)
Twenty cm from incisor teeth (esophagus)	9 (22)
Twenty-five cm from incisor teeth (esophagus)	7 (17.1)
Total	41 (100)

After confirmation by UGIT endoscopy, we tried to retrieve them endoscopically (or in few cases of meat bolus specially at lower end of esophagus, we gently pushed them into the stomach). Out of 41 foreign bodies we could successfully remove (or pushed into stomach in few cases of meat bolus) in 38 cases with a success rate of 92.7%. Three cases we couldn't retrieve endoscopically of them two were dental prosthesis & one was meat bolus with or without bone. All three of them were impacted at proximal esophagus (about 20 cm from incisor tooth), they were referred to ENT surgeon. For endoscopic removal we used only 10% lignocaine pharyngeal spray as local anesthetics, we didn't sedate any patient. We used dormia basket for removal of meat bolus, phytobezoar & seeds of fruits (Hog Plum & Jujubi), polypectomy snare for dental prosthesis & phytobezoar and rat tooth foreign body grasper for fish bone, chicken bone, pin & pill with strip. Of the three chicken bones, one impacted with meat. So, at first, we considered it as meat bolus, but during removal meat dislodged from bone and came out, then we found two ends of bone were impacted in both wall of esophagus. We referred him to surgeon but patient came back after one week and requested us to try again as he was unwilling to underwent surgery. We tried cautiously to dislodge relatively loose distal end by rat tooth foreign body forceps, after dislodgement we grasp the distal end and pushed toward distal esophagus to dislodge proximal end and finally removed it by holding proximal end.

After successful removal, we repeated UGIT endoscopy to all patients to see any foreign body or procedure related complications as well as to sort out primary anatomical abnormalities. We found few erosions and superficial ulcerations at the impacted site among patient with dental prosthesis, pill with strip, chicken bone. One patient with sharp flat bone of hilsa fish was impacted at esophagus like sharp cutting blade and produces incised looking wound at both esophageal walls, but other than minor bleeding no complication occurred. In one patient with big dental prosthesis we faced difficulty during retrieval, it was nearly lodged along with polypectomy snare at the level of cricopharynx but finally removed with gentle traction. In 19 cases (46.34%) we found definite anatomic abnormalities and 19 cases (46.34%) no abnormalities was found. Rest 3 cases, who were referred to surgeon we failed to know the underlying pathology. Most of the pathology were carcinoma esophagus (7; 17.1%) & pyloric stenosis (17.1%) (Table III). A young fellow of 19 years had congenital esophageal ring and suffering from recurrent foreign body impaction, we found him with impacted seed of Jujubi, after retrieval with dormie basket we dilated his ring with Savary-Gilliard dilator successfully.

Table III: Distribution of patients according to underlying pathology (n=41)

Underlying pathology	Number (%)
Carcinoma esophagus	7 (17.1)
Esophageal ring	1 (2.4)
Normal	19 (46.3)
Not known	3 (7.3)
Pyloric stenosis	7 (17.1)
Esophageal Stricture	4 (9.8)
Total	41 (100)

Discussion:

Patients with esophageal foreign bodies are almost always symptomatic (dysphagia, odynophagia, or retrosternal pain; sore throat, foreign body sensation, retching, vomiting etc). Respiratory symptoms (choking, stridor, dyspnea) can occur from aspiration of saliva or from tracheal compression by the foreign body[8].

Once foreign bodies have traversed the esophagus, most objects pass within 4-6 days. Foreign bodies those are impacted, battery, sharp objects, larger (>2 cm) or longer (>5 cm) foreign body usually require endoscopic retrieval. If not removed, impacted esophageal foreign body may cause, esophageal perforation, mediastinitis, subcutaneous emphysema, aorto-esophageal fistula etc[8].

Timing of endoscopic retrieval depends upon site of impaction and nature of foreign body. Battery, sharp pointed foreign bodies and food bolus with complete obstruction in the esophagus require emergent retrieval (within 6 hours, preferably within 2 hours). Not emergent but urgent retrieval within 24 hours is needed for battery in stomach and small bowel, magnet in esophagus, stomach or small bowel, sharp pointed objects in stomach or small bowel, food bolus in esophagus with no symptoms, blunt foreign body in esophagus (any size), larger blunt foreign body (>5cm) in stomach or small bowel. Whereas blunt, small foreign body (2-2.5cm) in stomach or small bowel requires non urgent retrieval (within 72 hours)[8].

In our study, among 41 foreign bodies 29.3% were meat bolus followed by 22% dental prosthesis and 14.6% phytobezoar. In different studies conducted worldwide found different types foreign bodies, Chaves DM et al[9] found 37.1 % of foreign body as food and 62.9 % were not food-related. Geraci G et al[10] stated that, foreign bodies were chiefly meat boluses, fishbones or cartilages, button battery and dental prostheses. Llompart A et al[11] found that most frequent type of foreign body was meat bolus (32.8%). According to Mosca S et al[12] foreign bodies were chiefly food boluses, bones or cartilages,

dental prostheses or fish bones. Geng et al[13] found majority were bony foreign body. Park YK et al[14] found fish bone fragment (36.9%) was the most common type of foreign bodies in adults. Hong KH et al[15] found fish bones, drugs, shells, meat, metal, and animal bones as upper GIT foreign bodies. Bezoar were not stated in above mentioned studies, probably they didn't considered them as impacted foreign body as it is long term sequalae of gastric stasis.

In our study, 30 patients had foreign bodies impacted in esophagus of them 24 were in upper & mid esophagus. Geng et al[13] found 86.9% of foreign bodies located in the esophagus. Zhou LQ et al[16] stated that, 75.1% of foreign bodies were located in the esophagus, especially in the upper esophagus (85.5%). According to Hong KH et al[15] 57.2% of impacted foreign bodies were in the upper esophagus, 28.4% in mid esophagus, 10.8% in stomach, and 3.6% were in lower esophagus. Mosca S et al[12] found almost all foreign bodies in the esophagus.

Regarding underlying pathology, in 46.34% cases we found definite anatomic abnormalities; of them 17.1% were carcinoma esophagus, another 17.1 % had pyloric stenosis (17.1%) & about 10% had esophageal stricture. An underlying esophageal pathology is found in more than 75% of patients presenting with food bolus impaction[8]. The most frequently associated abnormalities are esophageal (mainly peptic) strictures (more than 50%) and eosinophilic esophagitis (about 40%). Less frequently, esophageal cancer or esophageal motility disorders, such as achalasia, diffuse esophageal spasm, and nutcracker esophagus, are causes of food bolus impaction[8]. Llompart A et al[11] found underlying disease in 38.9% patients, and peptic stenosis was the most frequent.Geraci G et al[10] found 8.9 % had underlying esophageal disease, such as a narrowing, dismotility or achalasia. Underlying esophageal disease was found in 30.7 % and 35.2% patients by Mosca S et al[12] and Katsinelos P et al[17] respectively.

Out of 41 foreign bodies we could successfully remove in 38 cases (success rate of 92.7%). Three cases we couldn't retrieve endoscopically, all of them were impacted at proximal esophagus (about 20 cm from incisor tooth), they were referred to ENT surgeon. Study by Geraci et al[10] showed success rate 100% in endoscopic removal. According to other studies, successful endoscopic removal rate was 94.7%[18], (95.35%)[11], 96.6%[16], 97.4%[15], 98.0 %9, (98.6%)[17] and 98.9[12]. In above mentioned studies, remaining patients were managed surgically. In comparison to worldwide study, our success rate was a bit lower. As our center is relatively newer one and we didn't have thoracic surgery department here, so didn't take risk to retrieve difficult foreign body impacted at upper esophagus.

In all patients we used topical pharyngeal anesthesia. According to Geng C et al[13], endoscopic management under general anesthesia didn't improve the success rate or lower the complication rate compared with topical pharyngeal anesthesia.

We faced procedure related complication in 3 patients (7.3%), all were with dental prosthesis. Complications were ulcerations in esophageal mucosa with minor bleeding during retrieval through esophagus and all were resolved with conservative treatment. We didn't have endoscope overtube in our center. If we could manage overtube probably esophageal injury could be avoided. Study by Mosaca S et al[12] and Katsinelos P et al[17] faced no complications related to the endoscopic procedure, but other faced different rates of complications. According to Geng C et al[13], nearly half of the patients (49.9%) developed complications. Park YK et al[14] found complications among 8.3% patients and perforation was the most common. Zhou LQ et al[16] stated that, 18.9% developed complications, including ulcers and perforations. Complications related to the endoscopic procedure in studies done by Chaves DM et al[9] and Geraci G et al[10] were 8.6 % and 7% respectively.

Conclusion:

In conclusion, upper GIT foreign body is not uncommon in clinical practice. Endoscopic removal with local pharyngeal anesthesia is effective in most of the cases. Sharp foreign body located in the proximal esophagus are difficult to retrieve endoscopically and they may require surgery.

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