

Laparoscopic Retrieval of multiple Sharp Foreign Bodies from Stomach in a Patient of Acuphagia – A Case Report

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ABSTRACT

Foreign body ingestion is a common clinical scenario encountered in the emergency room with commonest cases presenting among children and in psychiatric adults. The key principle of management is dependent upon appropriate diagnosis and exact localization of the foreign body ingested and its type. Once an appropriate characterization of the ingested foreign body is made, further decision about its retrieval is based on whether any complication related to the foreign body, such as peritonitis is present or not. The method of retrieval can vary from minimally invasive to open surgery mostly dependent on availability of instruments and surgeon's expertise. Unless any complication has occurred, surgeons in the current era are erring more towards minimally invasive methods. In cases where large or sharp foreign bodies are involved, that would demerit the use of endoscopy for its removal, surgeons are nowadays opting for laparoscopic removal instead of the traditional laparotomy. This case report highlights the use of laparoscopy for salvaging such foreign bodies especially when advantages such as, early post-operative recovery, less pain, minimal scar and decreased hospital stay over traditional laparotomy is involved

Keywords: Gastro-intestinal tract, stomach, Foreign body, Acuphagia, Laparoscopic retrieval, Complications

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INTRODUCTION

Ingested Gastrointestinal Foreign Bodies (FB) are one of the common clinical emergencies encountered in emergency room and in out-patients departments as an occult case of acute abdomen¹. It is also considered a disorder called "Acuphagia" when sufferer eats sharp metallic objects which is a part of obsessive-compulsive disorder^{2,3}. Although, almost 90% of FB pass spontaneously, but rarely this causes intestinal obstruction or Gastro Intestinal (GI) perforation^{1,2}. Moreover, Foreign Body (FB) ingestion is also a common cause of accidental death. It is

reported that approximately 1500-2750 patients die each year due to ingested foreign body in United States only³.

Foreign Body (FB) ingestion problem is encountered in all age groups, and at times the selection of most appropriate technique to retrieve FB, poses a dilemma to the treating doctor^{1,4}. Although, recent literature has suggested that majority of FB ingestion did not results in grave morbidity or mortality. Unusual FB, like pointed needles, fish bones, and button batteries etc., are dangerous and need to be removed because either they get stuck in the GI tract or have been reported to cause gut perforation, peritoneal infection, sepsis and even death^{2,5}. In this regard, evidence-based criteria should be used for its management to minimize the chances of potential adverse events. Importantly, patients who are planned for surgical removal of FB should be investigated and managed appropriately^{1,4}.

For retrieval of FB, the traditional surgical approaches often involved laparotomy that had its demerits of additional complications such as increased surgical trauma, prolonged hospitalization, problems with wound healing, etc.⁶. Currently, Endoscopic approach is usually used for retrieval of ingested FB where possible. With the advent of laparoscopy, surgeons are increasingly inclined to use laparoscopic approach in both emergency and elective scenarios, in lieu of the traditional laparotomy especially where sharp objects are involved or when the FB are stuck in the GI tract beyond the duodenum^{6,7}.

The potential advantages or benefits of a laparoscopic procedures in abdominal operations are well established like small incision, less pain, shorter hospital stay, less prevalence of post-operative ileus, better cosmesis, earlier return to work and

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a low incidence of post-operative hernias^{4,8}. With increasing competencies in laparoscopic procedures, these unusual FB can be retrieved easily by minimal access^{5,9}.

Keeping in view, the human inquisitive nature, a wide variety of FB presentations has been reported in literature across all age groups. In literature, the upper GI foreign bodies retrieval is a more described pathway, in comparison to rectal FB which often requires a wide variety of approaches and most of these are individualized^{1,4}.

Surgical management is rarely indicated in FB ingestion, because vast majority of these FBs passes through the GI tract uneventfully or can be retrieved successfully with endoscope. The surgical option is only considered when the endoscopic removal is unsuccessful or not possible, or in case of ingested FB complications^{4,6}.

CASE REPORT

A teenage girl reported to the Emergency Department, accompanied by her mother with complain of non-specific pain in the upper abdomen of one week duration. There was no associated history of dyspepsia, vomiting, altered bowels, fever or any such symptoms in the past. She denied intake of any non-steroidal anti-inflammatory drugs. There was no history of previous hospital admissions. On examination, her abdomen was soft but she had tenderness in the epigastrium. Percussion was resonant in the central abdomen and her bowel sounds were audible. Digital rectal examination was normal as well. Other than being hemodynamically stable, she had slight tachycardia and there were no signs of toxicity. Her ultrasound abdomen was performed in the emergency room that showed evidence of multiple foreign bodies in the stomach and small bowel. On the basis of abdominal sonography, X-rays of the abdomen were carried out that immediately confirmed the presence of numerous metallic foreign bodies within the stomach and at several locations within the small bowel as well. The shapes of the foreign bodies ranged from sharp needles and blades to blunt screws and coins (Fig. 1). The girl was admitted and immediately made nil per oral. Further probing into her history revealed that her parents had a troubled relationship and her father did not live with the family. Her infant sibling had congenital diabetes for which her mother spent most of the time visiting hospitals. The patient had to manage the household chores herself and also take care of her two other siblings while her mother was away along with her school work. She completely denied intake of any foreign objects at present or in the past. Her mother also refused of witnessing any such event and emphasized that such an incident was rather unlikely. Urgent psychiatric consultation was sought and she was diagnosed by the psychiatrist to be suffering with Acuphagia. Meanwhile, it was planned that emergent intervention in the form of laparoscopic retrieval of the foreign bodies will be performed since the patient was experiencing abdominal pain and on serial abdominal x-rays, the foreign matter seemed to have form a conglomerate mass in the stomach. After pre-anesthesia assessment, the patient underwent diagnostic laparoscopy. Gastrotomy was performed and it was found that

the stomach was full of numerous metallic and plastic objects that included, common pins, nails, screws, keys, pencil sharpeners and beads. All the objects in the stomach were retrieved with great care via the laparoscope and the procedure, even though cumbersome, did not had the drawbacks of a formal laparotomy. The remaining foreign bodies in the gastrointestinal tract appeared to have passed the ileocecal junction and were left to pass out naturally with bowel movements. Patient was managed in the surgical intensive care unit, post operatively, for twenty-four hours.



Fig-1: Plain radiograph shows multiple foreign bodies of various shapes and sizes within the lumen of gastrointestinal tract

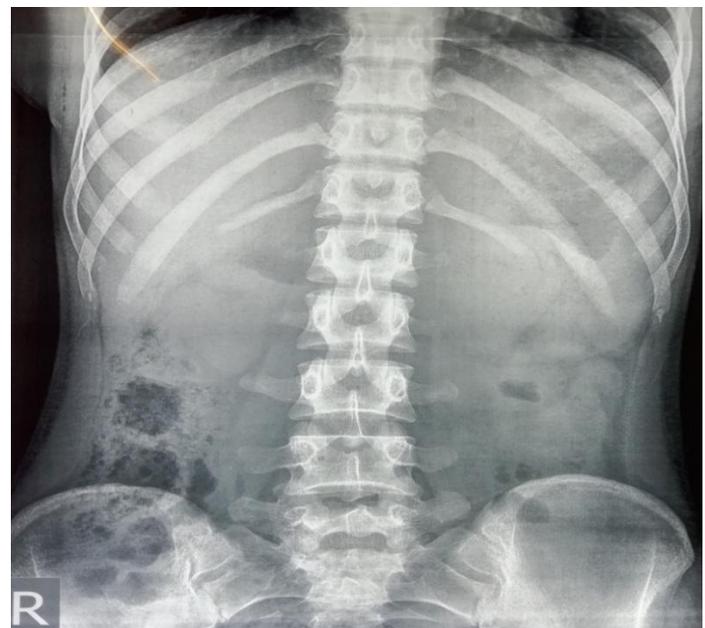


Fig-2: Plain X-ray erect abdomen taken after intervention showing complete evacuation of all types of metallic foreign bodies from the GIT



Fig-3: Foreign bodies of various types retrieved from the Stomach via laparoscopic gastrotomy

She made a rapid recovery and was shifted to the general ward the next day. Oral feeding was resumed after forty-eight hours. She had daily visits by the psychiatrist and the clinical psychologist who also developed a detailed plan of her counselling sessions that needed to be continued for Acuphagia and behavior therapy in the post-operative period.

DISCUSSION

Foreign body (FB) ingestion has been reported in patients of all age groups being most commonly encountered in toddlers⁵. Literature has reported that almost 90% of the ingested FBs easily pass through the GI tract without any concern or complications. However, up to 10% needs removal and majority of them can be retrieved successfully through endoscopic intervention. Only 1% of these FB may need some form of surgical intervention^{1,6}.

The peak incidence of FB ingestion occurs between 6 months and 6 years of age⁵. It is rarely reported in adults but when encountered, it is usually accidental, being commonly observed occurring during meals when small bones get stuck in the GI tract¹⁰. Among adult patients, FB ingestion is also commonly seen in drug abusers, edentulous persons, psychiatric or alcoholic individuals¹¹. High risk groups include patients with psychiatric disorders, prisoners and intoxicated individuals³. Some habitual individuals are observed to ingest common household items like toothbrushes, needles, pens, pencils, plastic spoons, batteries etc., while the accidentally ingested

objects usually comprise of bones or impacted food boluses^{7,8}. Since FB ingestion can be encountered in individuals of all age groups, the decision of an appropriate retrieval technique may, at times, pose a dilemma for the treating clinician. Although recent literature reports have suggested that in majority of FB ingestion cases, there is no significant morbidity or mortality or any significant clinical sequelae⁵. However, evidence-based criteria should be followed for the management of ingested FB to minimize the incidence of potential adverse events³.

It is crucial to maintain professionalism in obtaining history which should be accurate and detailed. In this regard, the events which lead to FB ingestion including timing, nature of ingested FB and onset of symptoms should be sought and recorded in detail^{12,13}. The clinician should keep in mind the medicolegal or psychological aspects such as whether FB insertion constitutes an assault, which requires medico-legal consideration, or presence of some psychiatric illness for instance obsessive compulsive disorder leading to acuphagia that would require psychiatric consultation afterwards. In adults, in case of small sized foreign body impactions, some pre-existing pathology should be kept in mind. Sung et al¹² has reported that in adult, strictures (37%), malignancy (10%), esophageal rings (6%), achalasia (2%) are usually responsible for impaction. During interview, patients can give precise information about the nature of ingested foreign body. Sometimes, the patients may also guide the clinician about possible location of the ingested foreign body^{4,14}. The clinical examination of the patient should not be restricted to the symptomatic area only. Sometimes the patient present late or the diagnosis of foreign body is made days or months after its ingestion. Moreover, it is also essential to keep the medical photographs of retrieved FB for clinical records in cases of psychiatric assessment, assault or abuse^{11,14}. The diagnosis is primarily made on history and during information gathering, the clinician can reach the nature of diagnostic evaluation, urgency, type and extent of a possible surgical intervention. Two plain radiographs of the affected body area have been recommended as a part of initial assessment and are very helpful if FB is radio-dense^{6,15}. Mosca et al¹⁴ reported confirmed diagnosis of ingested FB in 38% of their patients on basis of plain x-ray alone. Such images are also helpful to get information about the location, number, configuration, and size of the ingested FB. Moreover, they may indicate complications like pneumoperitoneum or pneumomediastinum after perforation.

The role of ultrasound in the diagnosis of ingested FB seems limited and uncommon. This is confirmed by the limited number of published case reports¹⁶. CT scan or MRI is are not commonly used in identification of FB, but can be used in localization or to rule out any complication of these objects¹⁴.

As majority of FBs pass through GI tract, complications are not commonly observed except when they penetrate, get stuck or cause obstruction. Most common of these complications is GI perforation that has a wide spectrum of clinical presentation, including localized or generalized peritonitis, abdominal wall abscesses, and intra-abdominal abscesses formation⁸.

Treating a patient with foreign body ingestion is not uncommon

in a clinical practice. Before treating these patients, a clear distinction should be made between intentional and accidental ingestion, to assess any secondary gain by the patient^{4,14}.

In the past, exploratory laparotomy was the mainstay of surgical management for FB ingestion, but it has become limited now a days. Open surgical intervention is usually required in less than 1% of cases⁴. Since endoscopic and laparoscopic techniques have developed more, open surgical retrieval has taken more of a background seat. The only absolute indication for open surgery, in literature, is when a FB perforates into the peritoneal cavity since this complication cannot be resolved laparoscopically or endoscopically. The other indication includes an unsuccessful attempt at laparoscopic or endoscopic retrieval of FB^{4,6}

For endoscopic or laparoscopic removal of FBs, the mainstay of successful surgery is pre-operative and intraoperative accurate localization of the FB. In this regard, the commonly used localization methods comprise of conventional X-ray fluoroscopy, computed tomography (CT) guidance and localization with intra-operative ultrasound guidance^{6,16}.

Although endoscopic removal of foreign bodies is the procedure of choice especially for needles, sharp foreign objects of small size which can be amicably retrieved¹⁵ in last decades, isolated cases have been reported in literature where complicated FB ingestion has been managed successfully with minimally-invasive surgery (MIS) instead of laparotomy⁸. With increase in competencies in Minimal Invasive Surgery, such cases are now being increasingly reported in the literature. This option is considered only when endoscopic retrieval is difficult or failed, or when complications of FB ingestion have occurred.

CONCLUSION

Although, recent literature has reported that most of the cases of foreign body ingestion do not result in significant clinical sequelae or mortality, even then evidence-based guidelines for their management should be followed to minimize the potential risk of adverse events. Importantly, in selected cases surgical removal or management by laparoscopy should be considered if endoscopic retrieval is difficult or not possible.

AUTHOR'S CONTRIBUTION

Samiullah: Conceived idea, Final approval of manuscript

Ishtiaq S: Literature search, Manuscript writing

Taimur M: Literature search, Proof reading, Critical review

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