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Foreign Body Ingestion in Children: Our Experience in a Tertiary Care Hospital in Bangladesh.

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Abstract

Introduction: *Ingestion of foreign body (FB) is a major problem, as it is reported to be associated with high morbidity rates. Recommended modality is daily observation with abdominal X-Ray and control of faeces. But sharp foreign bodies which can infiltrate or perforate the bowel wall; must be removed before passing the stomach, as it is reported that 15–35% of them will perforate the bowel, usually around the ileocecal valve. Different factors can be enrolled in the ingestion of FBs. In most cases, the accident could be a result of the tendency to oral exploration and to play as they eat due to natural propensity in young children. Children who after the age of 6 months can put objects into their mouth due to oral orientation. This retrospective study aimed to report our experience of foreign body ingestion in pediatric patients.*

Methods: *This retrospective observational study was conducted from January 2018 to December 2021. All the children below 10 years of age with a history of ingestion of foreign body and confirmation on imaging were included. The demographic and clinical details like Age, Sex, Clinical features, anatomical location, type, management, complications, and outcome were recorded.*

Results: *During this study period, 48 children of foreign body ingestions fulfilling the inclusion criteria were included. The age of the children ranged from 4 months to 10 years, with a mean age of 5.1years. In this study, 29 were boys (60.42%), and the remaining 19 were girls (39.58%). In our study,35 children were completely asymptomatic (72.92%),7 children presented with abdominal pain (14.58%), 5 children with vomiting (10.42%), food refusal 2 (4.17%), and foreign body feeling 7(14.58%). After foreign body ingestion, 36 children (75%) presented to the hospital within the first 24 hours, 7 children (14.58%) presented within 24–48 hours, 3 (6.25%) presented to the hospital after 72 hours of ingestion and only 2(4.16%) patient came after one week of ingestion. Foreign bodies that were ingested were needles, nails, coins, button batteries, safety pins, hijab pins, small keys, small locks. Imaging with plain X-ray radiography identified all the ingested foreign bodies (100%) in our study.*

An upper GI endoscopy was performed in 3 children in whom foreign bodies were present in the upper GI tract on radiography within 24–72 hours from ingestion. Out of the 3 children who underwent endoscopy, foreign bodies were removed including 1 child with a button battery, 1 child with a coin, 1 child with a hijab pin. All were removed from the stomach. Operative intervention was required in 2 (4.17%) children with foreign bodies, one child with sharp needles two in number in which one perforated jejunum and attached with omentum and another one entered into the ileocecal junction and placed obliquely, which was removed by laparotomy and enterotomy. In others, 1 child, the button battery was found impacted at the Meckel's diverticulum and causes micro-perforation and present with peritonitis. Operative intervention was indicated if a foreign body not passed beyond 7 days or foreign body caused peritoneal signs or foreign body perforated the gastrointestinal tract. Thus, 3(6.25%) foreign bodies were removed with endoscopy, 2(4.17%) foreign bodies require operative intervention and the remaining 43(89.58%) foreign bodies were passed naturally without intervention. No mortality was seen in our series.

Conclusion: *Most of the children with foreign body ingestion are asymptomatic and ingested foreign bodies are pass through faeces spontaneously without any complication. Early recognition can reduce parental anxiety and complications.*

Keywords: *Foreign body ingestion, Endoscopic removal of foreign body.*

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I. Introduction

Ingestion of foreign bodies (FB) is a common issue and a major problem in the pediatric age group and associated with high morbidity rates.[1] The common tendency of children is to put any object to their mouth and a few of these objects are swallowed accidentally. This global problem is also the cause of parental anxiety. Most of the foreign body ingestion occurs between six months to three years of age.[2, 3] Most of the ingested FB passes through the gastrointestinal (GI) tract and gets discharged with the faeces. Recommended modality is daily observation with abdominal X-Ray and control of faeces. But sharp foreign bodies which can infiltrate or perforate the bowel wall; must be removed before passing the stomach, as it is reported that 15–35% of them will perforate the bowel, usually around the ileocaecal valve.[4] Different factors can be enrolled in the ingestion of FBs. In most cases, the accident could be a result of the tendency to oral exploration and to play as they eat due to natural propensity in young children.[5] Children who after the age of 6 months can put objects into their mouth due to oral orientation and the type of ingested FBs varies between communities according to feeding habits and sociocultural features.[6] Children with foreign body ingestion are purely accidental and mostly involve items found lying down at home. The commonly ingested foreign bodies are coins, button batteries, needles, magnets. Coins are the most frequent foreign body ingested by children, along with toys, button batteries.[7-10] Ingested foreign bodies can be found anywhere in the gastrointestinal (GI) tract from the esophagus to the anus. The lodging positions, type, size, shape of the foreign bodies can cause different complications.[11] This retrospective study aimed to report our experience of foreign body ingestion in pediatric patients.

II. Methodology & Materials

This was a retrospective observational study conducted in the pediatric surgery division, Bangladesh Shishu hospital & institute. The study period was 4 years from January 2018 to December 2021. All the children below 10 years of age with a history of ingestion of foreign body and confirmation on imaging were included. The demographic and clinical details like age, sex, anatomical location, clinical features, type of foreign body, management, complications, and outcome were recorded. All the patients were subjected to plain X-ray thoracoabdominal region at the time of hospital arrival to find their presentation, irrespective of the clinical symptoms and the time of ingestion.

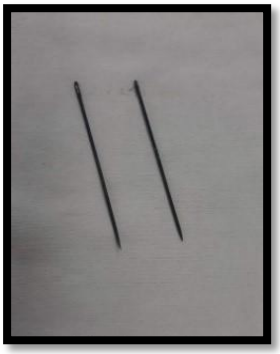
III. Results

During this study period, 48 children of foreign body ingestions fulfilling the inclusion criteria were included. The age of the children ranged from 4 months to 10 years, with a mean age of 5.1 years. The children with a mean age of 3.8 years were most prone to ingestion of foreign bodies. In this study, 29 were boys (60.42%), and the remaining 19 were girls (39.58%). In our study, 35 children were completely asymptomatic (72.92%), 7 children presented with abdominal pain (14.58%), 5 children with vomiting (10.42%), food refusal 2(4.17%), and foreign body feeling 7(14.58%). After foreign body ingestion, 36 children (75%) presented to the hospital within the first 24 hours, 7 children (14.58%) presented within 24-48 hours, 3(6.25%) presented to the hospital after 72 hours of ingestion and only 2(4.17%) patient came after one week of ingestion. Foreign bodies that were ingested were coins, needles, nails, button batteries, safety pins, hijab pins, small keys, small locks, magnetic balls. Imaging with plain X-ray radiography identified all the ingested foreign bodies (100%) in our study. An upper GI endoscopy was performed in 3 children in whom foreign bodies were present in the upper GI tract on radiography within 24-72 hours from ingestion. Out of the 3 children who underwent endoscopy, foreign bodies were removed including 1 child with a button battery, 1 child with a coin, 1 child with a hijab pin. All were removed from the stomach. Operative intervention was required in 2(4.17%) children with foreign bodies, one child with sharp needles two in number in which one perforated jejunum and attached with omentum and another one entered into the ileocecal junction and placed obliquely, which was removed by laparotomy and enterotomy. In others, 1 child, the button battery was found impacted at the Meckel's diverticulum and causes micro-perforation and present with peritonitis. Operative intervention was indicated if a foreign body not passed beyond 7 days or foreign body caused peritoneal signs or foreign body perforated the gastrointestinal tract. Thus 3(6.25%) foreign bodies were removed with endoscopy, 2(4.17%) foreign bodies require operative intervention and the remaining 43(89.58%) foreign bodies were passed naturally without intervention. No mortality was seen in our series.

X-ray shows two FB

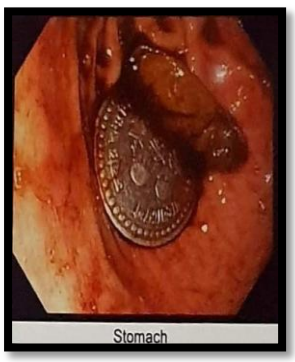
Per-operative picture

Per-operative picture



Removed FB

Spontaneous Removal of FB



Endoscopic Removal of FB

Endoscopic Removal of Coin

IV. Discussion

Incidences of foreign body ingestion in children are very common and a major problem in our society. Foreign body ingestion events mostly occur in children with an age range from 6 months to 3 years, but in our study mean age was 5.1 years, which is slightly higher than in other studies.[2, 3] Our study shows males are predominance, consistent with gender distribution findings in other reports.[12, 13] However, few studies reported relatively equal gender distribution.[14] In most of the related studies, foreign body ingested children presented with abdominal pain, vomiting, drooling, dysphagia, the sensation of foreign body feeling, hematemesis, and history of ingestion of foreign body.[15-17] In our study, the majority of patients were asymptomatic (72.92%) whereas other reports show 50% to 55% of children were asymptomatic after foreign body ingestion.[13, 18, 19] Other patients were presented with abdominal pain (14.58%) followed by vomiting in 10.42%, food refusal in 4.17%, and foreign body feeling in 14.58%. We included patients of foreign body ingestion, which were confirmed on X-ray radiography. Hence plain X-ray radiography detection rate of foreign bodies was 100% in our study, which is higher than the detection rates reported by similar studies, Shastri et al. and Litovitz et al.

that varies from 64% to 96.04%. This difference could be due to our standardized inclusion criteria and the nature of the ingested foreign bodies.[13, 20, 21] In our study, 6.25% of foreign bodies were removed with endoscopy, 4.16% of foreign bodies require operative intervention and the remaining 89.41% of foreign bodies were passed naturally without intervention. However, in other studies, 10%-20% of foreign bodies are removed with endoscopy, 1% requires open surgery and 80%-90% of ingested foreign bodies are spontaneously passed from the gastrointestinal (GI) tract without complications.[22, 23] However, more than 90% of foreign bodies pass safely, without complications through the oesophagus; however, few do not pass safely through the pylorus, duodenum or ileocecal valve and thus, 10% of ingested foreign bodies get impacted and may retain in the intestines and requires intervention.[22-24]

Limitations of the study:

This was a hospital-based study and does not give a complete idea of the community at large. Further, follow-up studies are necessary to have a better understanding of thelong-term outcome among the survivors.

V. Conclusion And Recommendations

Most of the children with foreign body ingestion are asymptomatic and ingested foreign bodies are pass through faeces spontaneously without any complication. Early recognition can reduce parental anxiety and complications.

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Conflict of interest: *None declared*

Ethical approval: *The study was approved by the Institutional Ethics Committee.*

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