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## – Foreign body ingestion in children(<12 >years) at a tertiary care hospital: a retrospective cohort study studying role of socioeconomic status and parental supervision.

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## – Foreign body ingestion in children(<12 >years) at a tertiary care hospital: a retrospective cohort study studying role of socioeconomic status and parental supervision.

### Abstract

Background- Foreign body ingestion is a long-standing problem concerning pediatric population. We aim to evaluate the correlation between the median time interval between ingestion of foreign body and arrival to the hospital with socioeconomic factors, effect of parental supervision and number of children in the family. We also aim to find out the deciding factors for proper selection of method of removal of ingested foreign bodies.

Methods- The data was collected from patient's admission files, medical and endoscopic records. Chi-square test was used to calculate the correlation of time since ingestion with the socioeconomic status of family, method of removal of foreign body with location of impaction, method of removal with time passed since ingestion and socioeconomic status with effect of parental supervision

Results- After analysing 104 cases of foreign body ingestion (FBI), a statistically significant association between difference of time interval of ingestion of foreign body and arrival to the hospital with socioeconomic status of the family was found, that is 100% patients belonging to upper class presented to the hospital within 0 to 24 hours of ingestion of foreign body. On the contrary, 71.5% patients belonging to lower class presented after 24 hours. In accordance to the statistically significant association between parental supervision and socioeconomic class, we established that 85.7% patients belonging to lower class had no parental supervision. Method of removal depends not on the time since ingestion rather on the level of impaction in the alimentary tract.

Conclusions- It is essential to keep foreign body ingestion as an important differential when young children from lower socioeconomic class who lack parental supervision present with a sudden onset of obstructive GI symptoms. Educational strategies regarding safe behaviour to alleviate myths and false beliefs have a pioneer role in FBI prevention.

### Keywords

Foreign body; ingestion; paediatric; coin; socioeconomic class; parental supervision;

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### **Introduction**

Foreign body ingestion is a common problem among children, especially those under the age of 5 years, most cases seen in 6 months to 3 years age group. There are many known reasons why younger children are more prone to FBI- their dentition is not yet complete, neuromuscular mechanisms related to swallowing and upper airway protection (cough reflex) are not yet fully developed and they lack the cognitive ability to distinguish between an edible object from an inedible one [1].

Another contributory cause is the tendency of this age group to be distracted and likely to perform activities like eating and playing simultaneously. As a result, they are at risk of ingesting a wide range of foreign bodies, including coins, small toys, magnets, and button batteries. Very few foreign bodies (about 1%) pose complications that require open surgery while most pass out on their own (about 80-90%). Remaining 10-20% foreign bodies are removed vis endoscopy [1]. These complications could be obstruction (due to large impacted objects), perforation (in cases of sharp and pointed objects), poisoning (due to button battery), bleeding, and infection. This necessitates prompt action and proper management of all such cases. Early intervention not only provides a favourable prognosis but also reduces the

overall cost of medical care [2]. In this research project, we aim to describe socioeconomic factors as well as other modifiable factors leading to causation and delay in detection of foreign body ingestion of patients treated at tertiary care hospital in Mumbai. By addressing this important issue, we hope to improve the health and well-being of children and reduce the burden of foreign body ingestion on families, healthcare providers, and society as a whole.

### **Objectives**

We aim to evaluate the correlation between the median time interval between ingestion of foreign body and arrival to the hospital with socioeconomic factors, effect of parental supervision and number of children in the family. We also aim to find out the deciding factors for proper selection of method of removal of ingested foreign bodies.

### **Materials and Methods**

An analytical retrospective study compiling medical records of 104 patients hospitalised for foreign body ingestion in Paediatric wards at a tertiary care hospital between February 2019 and March 2023 (4 years) in order to access various aspects of foreign body ingestion. The cases were identified using International Classification of Diseases (ICD) version 11 coding for foreign bodies in the oesophagus, stomach, small intestine, and colon. The data (age, sex, foreign body type, location of foreign body, clinical presentation, socioeconomic factors, time period between ingestion of foreign body and arrival to hospital and therapeutic methods) was collected from patient's admission files, medical and endoscopic records. All the patients underwent neck, thoraco-abdominal Xray notwithstanding

their time of ingestion and presenting symptoms within the first hour of their admission. We differentiated between stomach and transverse colon location using lateral view with radiologist's opinion. Some patients ingested non-radiopaque foreign bodies which were detected by diagnostic endoscopy after obtaining the respective informed consent. Chi-square test was used to calculate the correlation of time since ingestion with the socioeconomic status of family, method of removal of foreign body with location of impaction, method of removal with time passed since ingestion and socioeconomic status with effect of parental supervision.

Socioeconomic status was calculated using Modified Kuppuswamy scale (2022) assessing education, per capita income, and occupation of the head of the family and families were stratified in upper class, upper middle, lower middle, upper lower and lower class according to the same [3]. Parental supervision was determined by asking the parents if they witnessed their child ingesting the foreign body themselves and answer was recorded as yes or no.

Exclusion criteria- age more than 12 years, food bolus or any other edible substance, medication or chemicals, Genito-urinary tract foreign body, elimination prior to admission, children with structural or functional abnormalities that might interfere with normal feeding e.g., cleft lip, cleft palate, trachea-oesophageal fistula, diffuse oesophageal spasm and oesophageal strictures.

exclusion intervention criteria for OGDscopy. - all foreign bodies present beyond the ligament of Treitz.

Inclusion criteria- Age 0-12 years, foreign body in digestive tract, neurologically normal children

## Results

As described in table-1, 104 patients were included during the study period, 65.4% of whom were males [n=68] and 34.6% were females [n=36]. Male: female ratio is 1.9:1. Mean age was  $4.9 \pm 2.9$  years with a minimum age of 0.5 years and maximum age of 12 years. Majority of patients were between age group 3 to 6 years with 45.2% cases [n=47] followed by 0-to-3-year age group with 22.1% cases [n=23], 6 to 9 years with 18.3% [n=19] and 9 to 12 years with 14.4% [n=15]. A total of 72 patients [69.2%] presented with one or more symptoms at the time of evaluation whereas the remaining patients were asymptomatic [30.8%]. The most common symptom was vomiting (38.5 %, n=40) followed by abdominal pain (12.5%, n=13). Most frequent site visualised was lower oesophagus [42.3%, n=42] followed by upper oesophagus [17.3%, n=18] followed by ascending colon [13.5%, n=14]. Endoscopic removal of foreign body via esophagogastroduodenoscopy (OGDscopy) was done in 74% patients(n=77) while 27 patients (25.9%) were kept under observation.

The most common foreign body ingested was coin [69.3%, n=72] of which maximum cases were of 1 rupee coin of diameter 2.2cm [32.7%, n=24] followed by 2-rupee coin of diameter 2.7cm [21.2%, n=22]. Second most common foreign body was metallic object [6.7%, n=7] and battery [5.8%, n=6] as demonstrated in table-2.

Most common presenting symptom in patients with ingestion of coin was vomiting [43%, n=31], lower oesophagus being the most frequent site of impaction [41.7%, n=30] in the age group of 3 to 6 years [45.8%, n=33].

We observed the association between difference of time interval of ingestion of foreign body and arrival to the hospital with socioeconomic status of the family by Fisher's exact test (chi-square test) and found  $p=0.003129$  ( $p<0.05$ ) that is significant association. 100%(n=3) patients belonging to upper class presented to the hospital within 0 to 24 hours of ingestion of foreign body. 90.9% (n=10) patients belonging to upper middle class presented to the hospital within 0 to 24 hours of ingestion of foreign body and remaining 9.1% (n=1) patients presented within 24-48 hours of FBI. 79.3% (n=23) patients belonging to lower middle class showed up to the hospital within 0 to 24 hours of ingestion of foreign body. On the contrary, 42.5%(n=20) patients belonging to upper lower class presented to the hospital within 0 to 24 hours of ingestion of foreign body and remaining 57.5%(n=27) patients presented after 24 hours (maximum up to 222 hours post ingestion). 28.5%(n=4) patients belonging to lower class presented to the hospital within 0 to 24 hours of ingestion of foreign body and remaining 71.5%(n=10) patients presented after 24 hours (maximum up to 78 hours post ingestion) as described in table 3.

There was a significant association with p value of 0.001 ( $p<0.05$ ) between parental supervision at the time of foreign body ingestion and socioeconomic status of the family as elicited in table 4. 85.7%(n=12) patients belonging to lower class and 95.7% (n=45) patients belonging to upper lower class had no parental supervision. On the other hand, only 0.09% (n=1) patients belonging to upper middle class and



0% patients belonging to upper class had no parental supervision, thus concluding that 90.9% patients belonging to upper middle class and 100% patients belonging to upper class had parental supervision.

We found the association between location of foreign body impaction and method of removal by Fisher's exact test (chi-square test) and found  $p=0.001$  ( $p<0.05$ ) that is significant association. 100% foreign bodies found at the level of lower oesophagus(T10) (n=44), upper oesophagus(C7) (n=18) and in stomach (n=7) were removed by OGDscopy. On the contrary, 100% foreign bodies found in ascending colon(n=14) and descending colon (n=9) were kept under observation. All foreign bodies in terminal ileum and rectum were also removed via observation in stools. This proves that maximum 74% (n=77) foreign bodies above the level of jejunum are extracted endoscopically while those foreign bodies lower in the GIT that is 25.9% (n=27) passed out simply by observation in stool. This can be referred in table 5.

As per table 6, amongst all the 104 cases of foreign body ingestion in children that we studied, we found that 70.2% (n=73) cases belonged to families having more than 2 children and rest 29.8% (n=31) cases belonged to families with less than or equal to 2 children. This suggests that families with a greater number of children are at greater risk of foreign body ingestion.

## **Discussion**

Ingestion of foreign body pose an important public health issue and clinical predicament in emergency departments with up to 75% of cases occurring in children under 4 years of age out of which 98% of ingestions are accidental [4]. It is well known that incidence of foreign body ingestion is higher among younger children as compared to older children (above 6 years of age). The ingested foreign bodies

greatly differ as per areas and countries but the maximally recorded ingestion is of coins, which represents close to one-fourth of total cases [4]. This was in correspondence with the results of our study. Foreign bodies tend to be enormously distinct in structure and magnitude: they can be blunt or sharp like buttons, marbles, beads, needles, safety pins, blades, button batteries, food boluses, fish bones and more.

The presenting complaints show a predictable trend depending upon their location of impaction: oesophageal foreign bodies are symptomatic while gastric or intestinal foreign bodies are generally devoid of any presenting complaints [5]. Regardless of whether a patient is symptomatic or asymptomatic, it poses not only diagnostic but also therapeutic impediments.

The imaging modalities allow for the affirmation of diagnosis and the evaluation of the location of impaction, number, size and morphology of ingested foreign bodies. X rays detect most radiopaque foreign bodies but can miss radiolucent bodies. They exhibit a lesser negative predictive value which is why diagnostic endoscopy is the most dependable method of detection. It is a potent method for retrieval of foreign bodies lodged in upper GIT proximal to the ligament of Treitz. The radiolucent foreign bodies in our study ranged from size 8mm to 5cm and were removed by OGDscopy.

There exists an inconsistency in the recommendations proclaimed by various transnational societies, particularly when comparing ESGE (European Society of Gastrointestinal Endoscopy) to ASGE (American Society of Gastrointestinal Endoscopy) guidelines [6]. For illustration, ESGE recommends operation of oesophageal foreign bodies within 2 – 6hours as opposed to within 24 hours by ASGE. In addition, for gastric or proximal small bowel foreign bodies, ESGE

recommends endoscopic reclamation within 24 – 72hours. Still, ASGE suggests conservative management for the same [7]. As per ESGE, the size of object determines whether it will be able to pass through the pylorus or ileocecal valve; when size is more than 2–2.5 cm in diameter it becomes difficult to pass. Also, objects greater than 5–6 cm are unlikely to course through the duodenal sweep [8]. The NASPGHAN Endoscopy Committee recommends removal of button battery irrespective of the size, within 2 hours in a symptomatic child [9]. Early intervention will prevent development of serious complications as well as alleviate parental anxiety.

When we explored FBI in context with SEC of parents, we inferred that children of lower socioeconomic class have higher risk of FBI. This can be a consequence of one or more of the following factors: illiteracy of parents/guardian, incognizance about the seriousness of the problem as well as complications which can be as severe as death, harbouring myths, and false beliefs that foreign bodies can be passed out easily in stools just by consumption of bulky food items like banana, mashed potato and rice balls, inaccessibility to appropriate health care services and incapability to meet the cost of care. The percentagewise distribution of socioeconomic class of all the participants in our study is demonstrated in figure 1.

As demonstrated by the results of this analysis, lack of parental supervision in lower socioeconomic class is a major contributor for FBI in paediatric population owing to the fact that they lack the capacity to hire help from professional caretakers with the responsibility of attending to the younger children falling on the shoulders of the unqualified eldest sibling of the family [10]. This lack of supervision by parents or guardian poses a clinical dilemma about the cause of presenting chief complaint of the patients which in turn leads to delay in diagnosis and management.

Additionally, our statistics vindicated that families with more than 2 children are at a higher risk of FBI going undetected as compared to families with less than or equal to 2 children. This statement stands on the grounds that families belonging to lower SEC are negligent about proper family planning practices and cling to the belief that more the number of children, more will be the family income. Another problem seen is the low birth interval amongst these strata which leads to greater number of children belonging to the high-risk age group of FBI, restricting the ability of the parent/caretaker to pay undivided attention to one child at a time.

In recent times endoscopic removal of ingested foreign bodies has gained popularity due to its prevalent accessibility, diagnostic precision and experience [11]. In our cohort, we found that method of removal depends upon level of impaction of foreign body and not on the time since ingestion. According to table 7, an insignificant association ( $p=0.07$ ) between difference of time interval of ingestion and arrival to hospital with the method of removal was established proving the same. Also, majority of cases with foreign bodies impacted proximal to the ligament of Treitz (that is in upper GIT) were managed endoscopically (74% cases) while those below that level were kept under observation (25.9% cases) after which they passed via stool. Medical remedy can be relied upon for when endoscopy fails to retrieve objects; prokinetic agents and laxatives pose an acceptable second line treatment option, with a 100% success rate prior to open surgery [12].

Various modalities to decrease the burden of FBI in lower socioeconomic class need to be emphasised by the primary care providers. Risk directed counselling of parents/guardian plays a significant role in making their home a safe terrain for their child. Educating the parents about several aspects of FBI by health care workers during house visits and by doctors during immunisation visits is beneficial,

specifically in high-risk population. Prevention also includes manufacturing and legislative solutions to restrict access to dangerous foreign bodies by their intentional or compulsory elimination in products/toys for children as well as government restrictions on their distribution [13]. Early detection by scrupulous and prompt history taking, appropriate imaging modalities and rapid management forms the footsteps for obtaining favourable outcome in such cases.

## **Conclusion**

It is essential to keep foreign body ingestion as an important differential when young children from lower socioeconomic class who lack parental supervision present with a sudden onset of obstructive GI symptoms. A decline in FBI cases in lower socioeconomic class can be achieved if effective measures and early preventative strategies are adopted by parents/guardian. Educational strategies regarding safe behaviours to alleviate myths and false beliefs have a pioneer role in FBI prevention, especially for coin ingestions cases since they constitute the most frequently ingested foreign body. Proper family planning measures and round the clock caregiver attendance are a major modifiable risk factors for FBI.

## **List of abbreviations**

GI- gastrointestinal

FBI- foreign body ingestion

FB- foreign body

GIT- gastrointestinal tract

ICD- International classification of diseases

OGDscopy- esophagogastroduodenoscopy

SEC- socioeconomic status

ESGE- European Society of Gastrointestinal Endoscopy

ASGE- American Society of Gastrointestinal Endoscopy

## **DECLARATIONS**

### **ETHICS APPROVAL AND CONSENT TO PARTICIPATE**

The study was submitted and approved by the institutional ethics committee of Topiwala National Medical College and B.Y.L Nair charitable hospital, Mumbai, India and written informed consent was taken from parents to participate in the study.

### **CONSENT FOR PUBLICATION**

Written informed consent for publication of this study was obtained from the patient's parent/legal guardian.

### **AVAILABILITY OF DATA AND MATERIAL**

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request. This study adheres to CONSORT guidelines.

### **COMPETING INTERESTS**

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

### **FUNDING**

No funding was received from any source.

## **AUTHORS' CONTRIBUTIONS**

KG- Conception of study, design of study, collection of data, writing and conception of manuscript along with its substantive revisions.

GR- Collection of data, design of study, writing and conception of manuscript along with its substantive revisions.

AJ- collection of data

VDS- Design of work and interpretation of data regarding examination findings and investigations of the patient

SS- analysis and revisions in manuscript

All the authors have accepted responsibility for the entire content of this submitted manuscript and approved submission as well as agreed to be personally accountable for author's own contributions. The authors declare that all data were generated in-house and that no paper mill was used.

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Not applicable

Code availability

Not applicable

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## Figures and tables

### Demographic table [Table 1]

Table 1 describes demographic characteristics (sex, age group, presenting complaint, location of foreign body and method of removal).

|                      |                           | Frequency | Percent |
|----------------------|---------------------------|-----------|---------|
| Sex                  | Male                      | 68        | 65.4    |
|                      | Female                    | 36        | 34.6    |
| Age groups           | 0 to 3                    | 23        | 22.1    |
|                      | 3 to 6                    | 47        | 45.2    |
|                      | 6 to 9                    | 19        | 18.3    |
|                      | 9 to 12                   | 15        | 14.4    |
| Presenting complaint | vomiting                  | 40        | 38.5    |
|                      | Asymptomatic              | 32        | 30.8    |
|                      | Abdominal Pain            | 13        | 12.5    |
|                      | cough                     | 7         | 6.7     |
|                      | dysphagia                 | 5         | 4.8     |
|                      | throat irritation         | 4         | 3.8     |
|                      | constipation              | 1         | 1.0     |
|                      | foul smelling black stool | 1         | 1.0     |
|                      | pain in chest             | 1         | 1.0     |

|                          |                  |    |      |
|--------------------------|------------------|----|------|
| Location of foreign body | upper oesophagus | 18 | 17.3 |
|                          | lower oesophagus | 44 | 42.3 |
|                          | stomach          | 7  | 6.7  |
|                          | duodenum         | 8  | 7.8  |
|                          | terminal ileum   | 3  | 2.9  |
|                          | ascending colon  | 14 | 13.5 |
|                          | descending colon | 9  | 8.7  |
|                          | rectum           | 1  | 1.0  |
| Method of removal        | OGDscopy         | 77 | 74.0 |
|                          | observation      | 27 | 25.9 |

**TABLE-2**

Table-2 shows the various types of foreign bodies ingested in this study, coin being the most common. Battery size was diameter 20mm and height 2.5mm.

| Percentage distribution of Type of FB |           |         |
|---------------------------------------|-----------|---------|
|                                       | Frequency | Percent |
|                                       |           |         |

|                    |    |      |
|--------------------|----|------|
| coin 1<br>rupee    | 34 | 32.7 |
| coin 2<br>rupee    | 22 | 21.2 |
| coin 5<br>rupee    | 14 | 13.5 |
| metallic<br>object | 7  | 6.7  |
| battery            | 6  | 5.8  |
| fruit<br>seed      | 3  | 2.9  |
| magnet             | 3  | 2.9  |
| coin 10<br>rupee   | 2  | 1.9  |
| hair pin           | 2  | 1.9  |
| plastic<br>object  | 2  | 1.9  |
| candle             | 1  | 1.0  |
| iron nail          | 1  | 1.0  |
| marble             | 1  | 1.0  |
| needle             | 1  | 1.0  |
| portex<br>tube     | 1  | 1.0  |
| safetypin          | 1  | 1.0  |

|               |     |       |
|---------------|-----|-------|
| soap          | 1   | 1.0   |
| wooden pencil | 1   | 1.0   |
| zipper        | 1   | 1.0   |
| Total         | 104 | 100.0 |

**TABLE-3**

Table 3 shows the association between time interval between ingestion of foreign body and arrival to hospital with socioeconomic class.

| Association between time interval and Socio-Economic Class |          |            |       |              |       |             |              |        |                     |                         |
|--|----------|------------|-------|--------------|-------|-------------|--------------|--------|---------------------|-------------------------|
|  |          |            | SEC   |              |       |             |              | Total  | Fisher's Exact Test | Conclusion              |
|  |          |            | Lower | Lower Middle | Upper | Upper Lower | Upper Middle |        |                     |                         |
| Time Interval between ingestion and arrival                | 0 to 24  | Count      | 4     | 23           | 3     | 20          | 10           | 60     | 0.003129*           | Significant Association |
|  |          | percentage | 6.7%  | 38.3%        | 5.0%  | 33.3%       | 16.7%        | 100.0% |                     |                         |
|  | 24 to 48 | Count      | 5     | 2            | 0     | 14          | 1            | 22     |                     |                         |
|  |          | percentage | 22.7% | 9.0%         | 0.0%  | 63.6%       | 4.5%         | 100.0% |                     |                         |
|  | 48 to 72 | Count      | 3     | 2            | 0     | 6           | 0            | 11     |                     |                         |
|  |          | percentage | 27.3% | 18.2%        | 0.0%  | 54.5%       | 0.0%         | 100.0% |                     |                         |
|  | 72 to 96 | Count      | 2     | 0            | 0     | 3           | 0            | 5      |                     |                         |
|  |          | percentage | 40.0% | 0.0%         | 0.0%  | 60.0%       | 0.0%         | 100.0% |                     |                         |

|       |              |            |       |       |      |       |       |        |
|-------|--------------|------------|-------|-------|------|-------|-------|--------|
|       | more than 96 | Count      | 0     | 2     | 0    | 4     | 0     | 6      |
|       |              | percentage | 0.0%  | 33.3% | 0.0% | 66.7% | 0.0%  | 100.0% |
| Total |              | Count      | 14    | 29    | 3    | 47    | 11    | 104    |
|       |              | percentage | 13.5% | 27.9% | 2.9% | 45.2% | 10.6% | 100.0% |

\*p value < 0.05

**TABLE-4**

Table 4 shows the association between socioeconomic class and parental supervision.

| Association between SEC & parental supervision |    |            |       |       |       |       |       |        |                     |             |
|--|----|------------|-------|-------|-------|-------|-------|--------|---------------------|-------------|
|  |    |            | SEC   |       |       |       |       | Total  | Fisher's Exact Test | Conclusion  |
|  |    |            | lower | upper | lower | upper | upper |        |                     |             |
| supervision parents                            | no | Count      | 12    | 45    | 19    | 1     | 0     | 77     | 0.001 *             | Significant |
|  |    | percentage | 15.6% | 58.4% | 24.7% | 1.3%  | 0.0%  | 100.0% |                     |             |
|  |    | age        | %     | %     | %     | %     | %     | 0%     |                     |             |

|                 |         |         |      |      |      |      |      |      |                 |
|-----------------|---------|---------|------|------|------|------|------|------|-----------------|
|                 | ye<br>s | Count   | 2    | 2    | 10   | 10   | 3    | 27   | Associa<br>tion |
|                 |         | percent | 7.4  | 7.4  | 37.0 | 37.0 | 11.1 | 100. |                 |
|                 |         | age     | %    | %    | %    | %    | %    | 0%   |                 |
| Total           |         | Count   | 14   | 47   | 29   | 11   | 3    | 104  |                 |
|                 |         | percent | 13.5 | 45.2 | 27.9 | 10.6 | 2.9  | 100. |                 |
|                 |         | age     | %    | %    | %    | %    | %    | 0%   |                 |
| *p value < 0.05 |         |         |      |      |      |      |      |      |                 |

**TABLE-5**

Table 5 demonstrates the association between location of foreign body impaction and method of removal of foreign body.

| Association between location of FB and method of removal |                         |                             |                   |              |            |                               |                                |
|--|-------------------------|-----------------------------|-------------------|--------------|------------|-------------------------------|--------------------------------|
|  |                         |                             | Method of removal |              | Total      | Fisher'<br>s<br>Exact<br>Test | Conclusio<br>n                 |
|  |                         |                             | observatio<br>n   | OGD<br>scopy |            |                               |                                |
| Locatio<br>n   | upper<br>oesophag<br>us | Count                       | 0                 | 18           | 18         | 0.001*                        | Significant<br>Associatio<br>n |
|  |                         | %<br>within<br>Locatio<br>n | 0.0%              | 100.0<br>%   | 100.0<br>% |                               |                                |
|  |                         | Count                       | 0                 | 44           | 44         |                               |                                |



|  |                  |                   |        |        |        |
|--|------------------|-------------------|--------|--------|--------|
|  | lower oesophagus | % within Location | 0.0%   | 100.0% | 100.0% |
|  |                  | Count             | 0      | 7      | 7      |
|  | stomach          | % within Location | 0.0%   | 100.0% | 100.0% |
|  |                  | Count             | 0      | 8      | 8      |
|  | duodenum         | % within Location | 0.0%   | 100.0% | 100.0% |
|  |                  | Count             | 3      | 0      | 3      |
|  | terminal ileum   | % within Location | 100.0% | 0.0%   | 100.0% |
|  |                  | Count             | 14     | 0      | 14     |
|  | ascending colon  | % within Location | 100.0% | 0.0%   | 100.0% |
|  |                  | Count             | 9      | 0      | 9      |

|                 |                  |                        |        |       |        |
|-----------------|------------------|------------------------|--------|-------|--------|
|                 | descending colon | % within Location<br>n | 100.0% | 0.0%  | 100.0% |
|                 | rectum           | Count                  | 1      | 0     | 1      |
|                 |                  | % within Location<br>n | 100.0% | 0.0%  | 100.0% |
| Total           | Count            | 27                     | 77     | 104   |        |
|                 |                  | % within Location<br>n | 26.0%  | 74.0% | 100.0% |
| *p value < 0.05 |                  |                        |        |       |        |

**TABLE-6**

Table 6 shows the percentage and frequency distribution of number of children in each family in our study.

| Number of children      | Frequency | Percentage |
|-------------------------|-----------|------------|
| less than or equal to 2 | 31        | 29.80%     |

|             |     |        |
|-------------|-----|--------|
| more than 2 | 73  | 70.20% |
| total       | 104 | 100%   |

**TABLE-7**

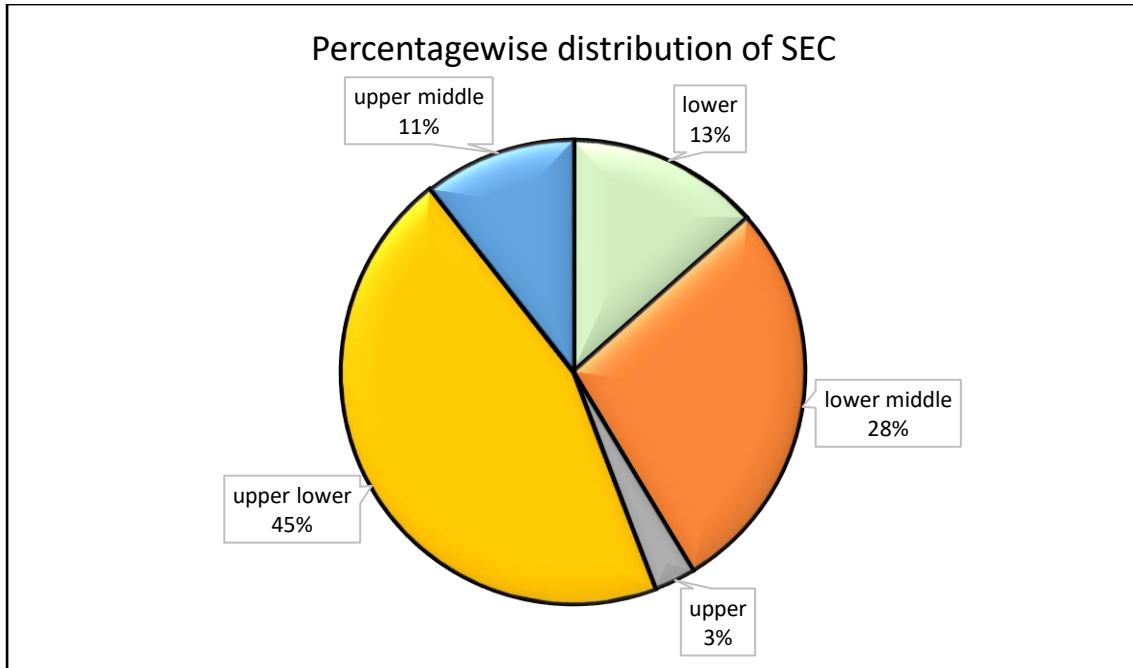
Table-7 shows the association between time interval of ingestion of foreign body and arrival to hospital with method of removal.

| Association between time interval and method of removal |             |                      |                   |              |        |                           |                              |
|---|-------------|----------------------|-------------------|--------------|--------|---------------------------|------------------------------|
|   |             |                      | Method of removal |              | Total  | Fisher's<br>Exact<br>Test | Conclusion                   |
|   |             |                      | observation       | OGD<br>scopy |        |                           |                              |
| Category  | 0 to<br>24  | Count                | 11                | 49           | 60     | 0.07                      | Insignificant<br>Association |
|   |             | % within<br>Category | 18.3%             | 81.7%        | 100.0% |                           |                              |
|   | 24 to<br>48 | Count                | 11                | 11           | 22     |                           |                              |
|   |             | % within<br>Category | 50.0%             | 50.0%        | 100.0% |                           |                              |
|   |             | Count                | 2                 | 9            | 11     |                           |                              |

|                 |          |          |       |        |        |
|-----------------|----------|----------|-------|--------|--------|
|                 | 48 to    | % within | 18.2% | 81.8%  | 100.0% |
|                 | 72       | Category |       |        |        |
|                 | 72 to    | Count    | 1     | 4      | 5      |
|                 |          | % within | 20.0% | 80.0%  | 100.0% |
|                 | 96       | Category |       |        |        |
|                 |          | Count    | 2     | 4      | 6      |
| more            | % within | 33.3%    | 66.7% | 100.0% |        |
|                 | than     | Category |       |        |        |
| 96              | Count    | 27       | 77    | 104    |        |
|                 | % within | 26.0%    | 74.0% | 100.0% |        |
| Total           | Category |          |       |        |        |
|                 | Count    | 27       | 77    | 104    |        |
| *p value > 0.05 |          |          |       |        |        |

**FIGURE-1**

Figure-1 shows percentagewise distribution of socioeconomic class of participants in our study.



| <b>Distribution of socioeconomic status</b> |               |                |
|---|---------------|----------------|
|   | Freque<br>ncy | Percenta<br>ge |
| Low<br>er                                   | 14            | 13             |
| Uppe<br>r<br>lower                          | 47            | 45             |
| Low<br>er<br>midd<br>le                     | 29            | 28             |
| Uppe<br>r                                   | 11            | 11             |

|            |     |       |
|------------|-----|-------|
| middl<br>e |     |       |
| Uppe<br>r  | 3   | 3     |
| Total      | 104 | 100.0 |