INGESTED FOREIGN BODIES IN PHARYNX AND OESOPHAGUS: COMPARISON BETWEEN ADULT AND PAEDIATRIC POPULATION

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ABSTRACT: AIMS: To determine the frequency of swallowed foreign bodies in adults and children, its location and symptoms and treatment options for removal of foreign body in those who were presented in our Department of ENT at Tertiary Health Care Hospital. STUDY **DESIGN:** It was a Prospective Study. **SETTING**: This study was done in ENT OPD at Tertiary Health Care Institute of Central India. **DURATION:** 2 Years. **MATERIALS AND METHODS:** The study was conducted from March 2012 to Feb 2014. Total 36 patients with history of foreign body ingestion were included in the study. Patients were evaluated clinically, radiologically and endoscopically. All foreign bodies were removed endoscopically. Data was analysed statistically with respect to age of the patient, kind and location of foreign body, length of retention and management of patient. **RESULTS:** Out of total 36 patients, 17 were of paediatric age group and 19 were adults. Coin was the most common foreign body in paediatric group (76.47%) while fish bone was the common foreign body in adults (47.37%). Upper oesophagus was the commonest site of impaction of foreign body in paediatric patients (94.12%) and in adults it was commonly found in oropharyx (47.37%). Most of the patients (69.44%) presented to the hospital within a day of ingestion of foreign body. CONCLUSION: There are differences in various aspects of impacted foreign bodies in pharynx and oesophagus in paediatric and adult population. Impaction of foreign body mandates immediate extraction.

KEYWORDS: Foreign bodies, Oesophagus, Pharynx, Endoscopy. **MeSHTerms:** Foreign bodies, Endoscopy.

INTRODUCTION: Foreign body in oesophagus is one of the common problems. Although it appears less dangerous than those in the respiratory passages, failure to treat them immediately can cause various complications and can be life threatening in certain cases. Ingestion of foreign body most commonly happens in two extremes of life & poses diagnostic & therapeutic challenges to Otorhinolaryngologists.

As children explore and interact with the world, they will inevitably put foreign bodies into their mouth. They are naturally susceptible to be involved in foreign body injuries due to lack of molar teeth, the tendency to oral exploration and to play during the time of ingestion and the poor coordination of swallowing. Foreign bodies in adults are mainly accidental or may be in those with thoracic neurological disease, decreased gag reflex, oesophageal web, oesophageal strictures due to different causes. Patients with deranged mental status are also prone for foreign body ingestion.

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Coin is the commonest foreign body in children while bone of food piece is more common in adult population. A history and careful clinical examination are keys to diagnosis and prevention of complications. All patients with a history of foreign body ingestion should be evaluated with radiographs of the neck, chest and abdomen. Radiolucent objects require direct visualization or contrast radiography. Management depends on the nature of the foreign body, its anatomic location, duration of impaction and body reaction to that foreign body. Over the past decade, the flexible fibreoptic oesophagoscope has gained great popularity, mainly owing to its safety. However till date, the rigid oesophagoscope is more effective than flexible fibreoptic oesophagoscope in foreign body removal and is equally safe. Oropharyngeal and laryngopharyngeal foreign bodies are removed with Direct-laryngosopy.

The aim of this study was to determine the frequency of swallowed foreign bodies in adults and children, its location and symptoms and treatment options for removal of foreign body in those who were presented in our department of ENT.

MATERIAL AND METHODS: This was a prospective study of two years from March 2012 to Feb. 2014. Every consecutive patient with a history of foreign body ingestion, patients with doubtful history or no history of foreign body ingestion (as in children) but presence of clinical symptoms, clinical, radiological or endoscopic examination indicating foreign body in pharynx or oesophagus were included in the study. Approval to conduct the study was sought from Institutional Ethical Committee.

Detail history was asked to all patients with a particular note of age, sex, area of residence, chief complaints such as definitive history of foreign body ingestion, type of foreign body, duration after foreign body ingestion, dysphagia, regurgitation, respiratory distress, attempts of removal. Detail clinical, radiological and endoscopic examination was carried out to know the location and type of foreign body. Depending upon the site of foreign body, Endoscopic removal foreign body was done under required anaethesia. All the information was registered in the proforma. Data was analysed statistically using SPSS computer software version 15.

RESULTS: Total 36 patients were included in the study during March 2012 to Feb 2014. Out of which, 21(58.33%) were males and 15 (41.66%) were females with male: female ratio of 1.4:1. Amongst all 17(47.22%) were paediatric patients with age below 18 years and 19(52.77%) were adults. There was no history of foreign body swallowing in 5 cases and all these patients were of age below three years.

Commonest presenting symptom was odynophagia in 27(75%) patients followed by dysphagia in 17 (47.22%) patients. Foreign body sensation in throat was the symptom mainly in those who had foreign body in oropharynx (27.78). Most of the patients (69.44%) presented to the hospital within a day after ingestion of foreign body. 25% patients presented between 1 day to 7 days after foreign body ingestion (Table 1).

Out of 17 paediatric patients, coin was the most common foreign body found i.e. in 13 patients (76.47%). In adults, out of 19 cases, fish bone was the common foreign body seen in 9 patients (47.37%), followed by meat bone in 5 cases (26.32%), Fruit seed and stapler pin were found in 2 adults each while 1 adult had artificial denture as a foreign body (Table 2).

As shown in Table 3, only one paediatric patient had foreign body stuck in oropharynx at vallecula. In adults, commonest location of foreign body got stuck was oropharynx (9 patients, 47.37%). Of these, 5 had foreign body in tonsil, 2 in vallecula and 2 in base tongue. This difference in two groups was statistically significant (p value = 0.03). In paediatric population, most of the foreign bodies i.e. 94.12% were stuck in upper oesophagus of which 64.71% were at the cricopharyngeal sphincter and 29.41% were just blow this sphincter. No adult had foreign body in cricopharyngeal sphincter, but 6 adults (31.58%) had it in upper oesophagus, the difference is statistically significant (p value= 0.027). None of paediatric case had foreign body in mid or lower oesophagus, while 3(15.89%) adults had it in mid oesophagus and 1 adult (5.26%) had it in lower oesophagus at lower oesophageal sphincter and that foreign body was the artificial denture. But the difference between two groups with respect to Foreign body at these two sites was insignificant. Two adults who had foreign body in mid oesophagus found to have stricture from which biopsy was taken after removal of foreign body.

The duration between the ingestion of foreign body and presentation in hospital was less than 1 day in 25 patients (69.44%) and between 1 day to 7 days in 9 patients (25%). 2 patients (5.56%) presented in hospital after 7 days of swallowing foreign body. The most common reasons behind delay in presentation were lack of money for transport and treatment, delay in diagnosis at peripheral health centre.

All the foreign bodies were removed successfully endoscopically. Foreign bodies in tonsil (5 patients) were removed in the OPD only. Foreign bodies in valleculla (3 patients), base tongue (2 patients) and at cricopharyngeal sphincter (11 patients) were removed by Direct Laryngoscopy while those in oesophagus (15 patients) were removed with Rigid Oesophagoscopy. No serious complications were observed in any patient due to impacted foreign body or the procedure. Impaction of foreign bodies caused oedema in all cases and ulceration of mucosa in 12 cases (33.33%). In 2 patients who had foreign body in mid oesophagus, we could diagnose underlying cause of impaction of foreign body and that was a stricture secondary to malignancy which was confirmed histopathologically.

DISCUSSION: Foreign bodies in cricopharyngeal region and oesophagus appear less dangerous than those in respiratory passages.¹ But they are potentially hazardous and may pose problems regarding their diagnosis and management. They may, sometimes produce fatal complications or may be indicative of disease.² Foreign bodies in adult and paediatric population differ in various aspects like type of foreign body, its lodgment site, difficulties in removal.

There was higher frequency of foreign bodies among males than in females (1.4:1) in our study. This might be due to the fact that alcohol consumption in adults is more in males and male children by nature are more curious than female children. Positive history of foreign body ingestion was there in 86.11% cases in our study. Cohen³ strongly suggested that all patients presenting with positive history of foreign body in the aerodigestive tract, even if physical finding and radiological examination is negative must be subjected to endoscopic examination.

Children usually swallow rounded objects than sharp ones. Coin makes most common ingested object in children. In our study it was seen in 76.47% children. Same was the observation in many paediatric studies with the range from 76%- 88%.⁴⁻⁶ In our study, bones were the most common foreign bodies in adults of which fish bones stuck in oropharynx and

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meat/ Chicken bones in oesophagus. This finding is consistent with studies of Athanassaiadi et al⁷ and Sittiratrai P et al⁸. On the contrary, meat and fish bones were the commonest foreign bodies followed by coins in the study of Giordano et al.⁹

There was also difference in the site of impaction of foreign body between paediatric and adult population. Majority of foreign bodies in paediatric cases stuck at upper oesophagus (94.12%). Koirala K et al¹⁰ found 92.8% foreign bodies in upper oesophagus in paediatric cases. In our study commonest site of impaction of foreign body (fish bone and stapler pin) in adults was in oropharynx (47.37%), followed by upper oesophagus (31.58%), mid oesophagus (15.89%), lower oesophagus (5.26%) respectively. No such incidence was found in paediatric age group. In the studies of Athanassiadi K et al⁷ and Koirala K et al¹⁰, upper oesophagus was the commonest site of impaction of foreign body in paediatric group and mid oesophagus was in adults.

Oropharyngeal and cricopharyngeal foreign bodies are easier to remove than those at lower level in oesophagus and sharp objects. Endoscopic removal of foreign bodies in digestive tract using rigid scope is a gold standard procedure. Rigid endoscope has larger lumen than fibre optic endoscope, allows better visualization of anatomic site of impaction of foreign body but has a risk of complications especially perforation of oesophagus with a high morbidity. In our study, foreign bodies were removed without complications. Impaction of foreign bodies had caused some mucosal oedema in all cases (100%) and ulceration of mucosa in 33.33% cases.

CONCLUSION: There are differences in various aspects of impacted foreign bodies in pharynx and oesophagus in paediatric and adult population. Different food habits, ways of swallowing also affect the type and location of foreign body. In children coin was the commonest foreign body and cricopharynx was the commonest site of impaction. While bone was the most common foreign body in adults and oropharynx was the common site of its impaction. Increasing awareness among community regarding risk and complication of ingestion of foreign body, quicker referral to the hospital are effective in decreasing mortality.

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Interval between ingestion of foreign body and presentation in Hospital	Number of Patients	Percentage (%)
< 1 day	25	69.44%
1day to 7 days	9	25%
>7 days	2	5.56%

Table 1: Interval between ingestion of foreign body and presentation in Hospital (n=36)

Type of Foreign Body	Paediatric Patients (n=17) No. (%)	Adults (n=19) No. (%)		
Coin	13(76.47%)	0		
Fish Bone	1(5.88%)	9(47.37%)		
Meat/ chicken bone	0	5(26.32%)		
Piece of Plastic toy	2(11.76%)	0		
Stapler pin	0	2(10.53%)		
Fruit seed	1(5.88%)	2(10.53%)		
Artificial denture	-	1(5.26%)		
Table 2: Type of foreign body in paediatric and adult population				

Type of Foreign Body		Paediatric Patients(n=17)		Adults(n=19)		Fischer Exact
		No.(%)	Total	No.(%)	Total	Test (p value*)
	Tonsil	0		5(26.31%)		
Oropharynx	Vallecula	1(5.88%)	1(5.88%)	2(10.53%)	9(47.37%)	0.03
	Base tongue	0		2(10.53%)		
Upper Oesophagus	At Cricopharyngeal Sphincter	11(64.71%)	16(94.12%)	0	- 6(31.58%)	0.027
	Below Cricopharyngeal sphincter	5(29.41%)		6(31.58%)		

Mid Oesophagus	0	0	3(15.89%)	3(15.89%)	0.29
Lower Oesophagus	0	0	1(5.26%)	1(5.26%)	1
Table 3: Site of impaction of foreign body in paediatric and adult patients					

* P value < 0.05- statistically significant.

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