

Foreign body in the upper airway and oesophagus: A seven years study from Iran

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Abstract

Objective: To determine the frequency of foreign body, its location and clinical symptoms in patients with symptoms or positive history of foreign body swallowing and to assess the role of endoscopy in the management of foreign body removal.

Methods: All patients referred to the Ear, Nose, Throat emergency ward of a general hospital in Kerman-Iran with a positive history of swallowing foreign body and presence of clinical symptoms and/or a suspicious radiological findings in favour of esophages foreign body in the period between April, 2001 and September, 2008 were evaluated. Patients undergoing esophagoscopy were 160. Data was analyzed by t test and spearman correlation coefficient.

Results: Among 160 participants in this study, 82(51.3%) were male. The patients' mean age was 36 ± 21.7 years. Among all the participating patients, 39(24.4%) were below 18 years age. There was no history of foreign body being swallowed in 37 cases. A total number of 123 cases had foreign bodies, the most commonly found foreign body was bone which was found in 46 patients (37.4%). While, the most common object swallowed in children was coin. Symptoms in all age groups was pain and audinophagia and second was dysphagia. Most of foreign bodies were stuck in the pharynx (50.6%) and the commonest place was 5cm below the cricopharyngeals junction (33%). There was no significant difference in the location of foreign bodies in males and females. The period between swallowing foreign body and referring to the hospital was less than a day in 115 cases (72%). There was no significant difference between the time taken to refer to the hospital and patients' sex, location and type of foreign body ($P > 0.05$). The mentioned gap increased with age $r = 0.21$ $p = 0.007$.

Conclusion: The most common foreign body found in adults was bone and in children it was a coin. The most frequent site where the foreign body was lodged was 5cm below the cricopharyngeal junction.

Keywords: Foreign bodies, Child, Esophagoscopy (JPMA 61:859; 2011).

Introduction

Swallowing foreign bodies is one of the common problems and of course life threatening in certain cases. Swallowing foreign bodies or big food pieces mostly happens in children and old people. Accumulation of big meat pieces and other foreign bodies which usually occurs in physiologic strictures and esophageal webs may cause esophageal obstruction in adults.

On the other hand, infants may put anything in their mouth and children eat everything, as a result, of swallowing a foreign body is more frequent among children compared to food pieces.^{1,2} A history and carefully performed physical examination are keys to diagnosis and prevention of complications in such patients.

Clinical skepticism about the presence of foreign body considering history and clinical symptoms especially in cases with uncommon symptoms is of utmost importance. No treatment is needed if a patient is diagnosed by radiography and no object is found, because in these cases foreign body

passes easily through esophagus. In case that foreign body is a sharp object or a battery or if the patient has been referred due to drooling, emergency endoscopy is essential.³

The most common foreign body found in adults was bone and in children it was a coin. The most frequent site where the foreign body was lodged was 5 cm below the cricopharyngeal junction.

Realizing this fact that what sort of foreign bodies are stuck in the esophagus and what symptoms may be expected, is important to know the culture of each region so that complications could be prevented by prompt interventions.

The aim of the current study was to determine the frequency of swallowed foreign bodies in adults and children, its location and clinical symptoms in patients who were referred to Shafa Hospital due to a positive history or positive symptoms of foreign body swallowing and were evaluated by endoscopy in a seven-year study in Iran.

Methods

In this descriptive study, all patients who had been

referred to the ENT Emergency Ward in Shafa Hospital in Kerman city with a positive history of swallowing foreign body and presence of clinical symptoms and/or suspicious radiologic findings in favour of esophagus foreign body in the period between April, 2001 and September, 2008 were evaluated. This center is the only emergency center of ENT in the city. All the participating patients in this study had the indication and hence underwent rigid esophagoscopy which were a total of 160. Information was registered by ENT residents in special notebooks, which included the patient's age, sex, date of referral, the gap between the start of symptoms and time of referral, and clinical symptoms at the time of referral. Endoscopic data included the place and type of the foreign body, mucosal bleeding, inflammation, and swelling, presence of ulcer, stricture and mass. In the next step, all symptoms, clinical and endoscopic findings, demographic information were registered on separate forms for each patient by the researcher.

On completion, data were analyzed using SPSS, version 15. After describing the data, chi-square, T test and spearman were used for comparison.

Results

Among 160 participants in this study, 82(51.3%) were male and 78(48.8%) were female. The patients' mean age was 36 ± 21.7 years. Among all the participating patients, 39(24.4%) were below 18 years old who were considered as children and teenagers and 121(75.6%) were above 18 years.

No history of foreign body swallowing was present in 37 patients but clinical presentations suggested foreign body swallowing. Among them, in 12 cases, there was no endoscopic finding in favour of foreign body swallowing, 16 had evidences of ulcer or regional inflammation and 9 had post laryngectomy stricture. Among 123 cases who were detected to have foreign bodies, the most commonly found substance was bone which was found in 46 patients (37.4%). Twenty-three cases with foreign body included "other items" such as spring, pin, nuts, opioid drug bag, magnet, key, razor

Table: Frequency of different types of foreign bodies and endoscopic findings among the patients who have referred to Shafa teaching hospital in Kerman city, 2001 to 2008.

Foreign body or endoscopic finding	number	percentage
Bone	46	37.4
Coin	23	18.7
Meat	10	8.1
False teeth	7	5.7
Mass	7	5.7
Leech	3	2.5
Fruit seed	2	1.6
Bullet	2	1.6
Others	23	18.7
Total	123	100

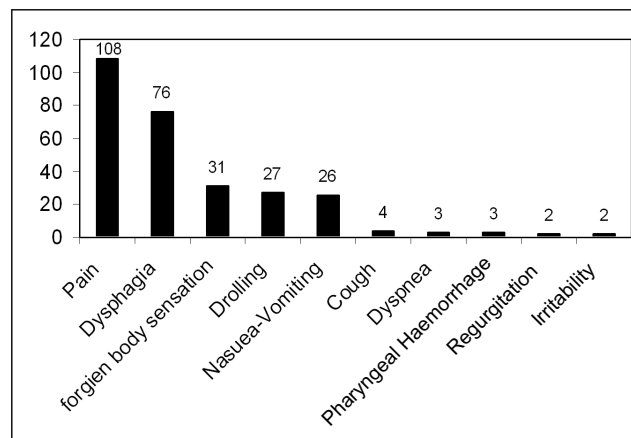


Figure-1: Frequency of swallowing foreign body symptoms in patients referred to Shafa teaching hospital in Kerman city, 2001 to 2008.

blade, washer, walnut, needles, coke bottle top (Table-1). The most common object swallowed in children was coin (65%) and bone 6.5%. Clinical presentations at the time of referral are shown in Figure-1. The most common symptom in all ages was pain and audinophagia which was seen in 67.3% of patients and dysphagia was placed after that (37.5%). It is necessary to mention that many patients reported several symptoms at the same time.

Most of the foreign bodies were stuck in the pharynx (50.6%) and the commonest place was 5cm below the cricopharyngeal junction (33%). The most frequent place in esophagus was in the upper third (25%). Chi-square test showed, there was no significant difference in the location of foreign bodies in men and women ($P > 0.05$).

The duration between swallowing a foreign body and referral to the hospital was less than a day in 115 cases (72%),

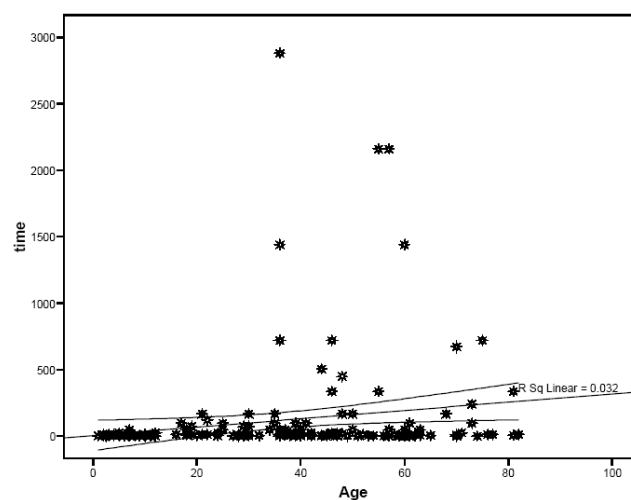


Figure-2: The relationship between age and time taken to refer to hospital after the start of symptoms in patients who have referred to Shafa teaching hospital in Kerman city, 2001 to 2008.

one to seven days in 28 patients (18%) and more than seven days in 17 cases (10%).

T-test was used for comparison of time taken to refer to the hospital, between males and females and location, type of foreign body. There wasn't any significant difference between the time taken referring to the hospital and patients' sex, location and type of foreign body ($P>0.05$).

Spearman correlation test showed that, the mentioned gap would increase as age increases $r=0.21$ $p=0.007$ (Figure-2).

Discussion

The aim of this study was to evaluate the frequency of foreign body in adults and children, its location and clinical symptoms in patients referred to Shafa Hospital due to a positive history or positive symptoms of foreign body swallowing and role of esophagoscopy in these patient.

In 77% of the esophagoscopies, foreign bodies were detected and in the rest inflammation, ulcer, and stricture was obvious. In a similar study, 77.8% were detected to have foreign bodies and in the others, mass, bleeding, ulcer, oedema, and abscess was reported.⁴ On the other hand, people who were referred due to foreign body symptoms reported history of swallowing whereas such history was absent in children and mentally retarded persons.⁵

In this study, there was no significant difference in the location of foreign bodies and frequency of swallowing foreign bodies in male and female patients. In other studies, there was a difference between men and women that was considered to be a more jerky motion in males, their eating habits and taking bigger food pieces morsels.^{4,6-8}

In our study, children were less than adults which was the same as another study conducted in Iran⁴ but in other countries children undergoing this situation are more.^{1,6-12} It seems that this fact arises from differences in the ways of cooking, taking food and more care given to children in Iran.

The most common foreign body in this study was reported to be bone which was similar to the findings of another study in Iran.⁴ Other, studies in different countries have shown that the most common foreign bodies are big food pieces.^{1,6,7} This difference could be due to the way of cooking in Iran in which meat is usually cooked with its bones and served together. In case of careless eating, bone can be stuck in hypo pharynx or oesophagus.

In children below 18, the most common object was coin which was the same as other countries.¹³⁻¹⁶

Unlike other similar studies, ours revealed that the most common place for foreign body was the upper part of esophagus and here the most frequent part was 5cm below the cricopharyngeal junction.

The most frequent complaint was pain and

audinophagia which was followed by dysphagia whereas in other studies dysphagia was the most common symptom. This fact was of a little different with the findings of other published studies.^{5,6}

The gap between swallowing a foreign body and time of referring to hospital was less than a day in most cases which was similar to other studies.^{4,6} Patients referred to hospital for diagnosis and treatment in less than a day was due to multiple problems including pain, audinophagia, and dysphagia. In older people, the time taken to refer to hospital after swallowing foreign body increased. This could be due to more sensitivity of parents towards their children and also children's narrower gastro intestinal tract, difference in the type of foreign body, and its location.

A quicker referral prevents complications caused by esophageal rupture and other complications. Less complication is seen in those patients who have been referred to hospital in less than a day compared to those patients who were referred after a day since having swallowed the foreign body.

Different food habits, ways of swallowing, and food intake are the factors affecting the type of foreign bodies in different countries. In case of sharp objects like bone, the complications will be magnified. In adults these objects are mostly food stuff while in children most of the objects which cause esophageal obstruction are inedible things that they put in their mouths and then swallow them.¹

One of the limitations of this study was that most of the patients' visits and esophagoscopies were carried out by residents who were prone to making diagnostic errors due to lack of good history taken from the patient, appropriate physical examination, and knowledge about esophagoscopy. There was also probability of making mistakes while registering the data.

Conclusion

Different food habits, ways of swallowing, and food intake are the factors affecting the type of foreign bodies in different countries but complications are dependant on the time interval for referral to hospital and correct management in hospital. So increasing level of community awareness regarding risks and complications of swallowing a foreign body, quicker referral to hospital are effective in decreasing complications.

References

1. Webb WA. Management of foreign bodies of the upper gastrointestinal tract: update. *Gastrointest Endosc* 1995; 41: 39-51.
2. Tokar B, Cevik AA, Ilhan H. Ingested gastrointestinal foreign bodies predisposing factors for complications in children having surgical or endoscopic removal. *Pediatr Surg Int* 2007; 23: 135-9.
3. Kay M, Wyllie R. Pediatric foreign bodies and their management. *Curr*

- Gastroenterol Rep 2005; 7: 212-8.
4. Hashemi BS, Gandomi B, Hesamzade L .Evaluation of the Incidence and Complications of Foreign Body Ingestion in the Patients Referred to Shiraz Khalili Hospital. *Armaghan Danesh* 2005; 32: 42-8.
 5. Nandi P, Ong GB. Foreign bodies in the esophagus: review of 2394 cases. *Br J Surg* 1978; 65: 5-9.
 6. Singh B, Kantu M, Har-El G, Lucente FE. Complications associated with 327 foreign bodies of the pharynx ,larynx an esophagus. *Ann Otol Rhinol Laryngol* 1997; 106: 301-4.
 7. Paul RI, Christoffel KK, Binns HJ, P Jaffe DM. Foreign body ingestion in children: risk of complication varies with site of initial health care contact. *Pediatrics* 1993; 91: 121-7.
 8. Messner AH .Pitfalls in the diagnosis of aerodigestive tract foreign bodies. *Clin Pediatr (Phila)* 1998; 37: 356-66.
 9. Yang CY. The management of ingested foreign bodies in the upper digestive tract: a retrospective study of 49 cases. *Singapore Med J* 1991; 32: 315-7.
 10. Wyllie R. Foreign bodies in the gastrointestinal tract. *Curr Opin Pediatr* 2006; 18: 563-4.
 11. Waltzman ML, Baskin M, Wypij D, Mooney D, Jones D, Fleisher G. A randomized clinical trial of the management of esophageal coins in children. *Pediatrics* 2005; 116: 614-9.
 12. Little DC, Shah SR, St Peter SD, Calkins CM, Morrow SE, Murphy JP, et al. Esophageal foreign bodies in the pediatric population: our first 500 cases. *J Pediatr Surg* 2006; 41: 914-8.
 13. Ba?er M, Arslantürk H, Kisli E, Arslan M, Oztürk T, Uygan I, et al. Primary aortoduodenal fistula due to a swallowed sewing needle: a rare cause of gastrointestinal bleeding. *Ulus Travma Acil Cerrahi Derg* 2007; 13: 154-7.
 14. Dahshan AH, Kevin Donovan G. Bougienage versus endoscopy for esophageal coin removal in children. *J Clin Gastroenterol* 2007; 41: 454-6.
 15. Waltzman ML. Management of esophageal coins. *Curr Opin Pediatr* 2006; 18: 571-4.
 16. Al Qudah A, Daradekh S, Abu-Khlaf M. Esophageal foreign bodies. *Eur J Cardiothorac Surg* 1998; 13: 153-7.
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