

ESOPHAGEAL FOREIGN BODIES IN CHILDREN

Nader Saki¹, Soheila Nikakhlagh², Farnaz Safai³, Mehran Peyvasteh⁴

ABSTRACT

Objective: Foreign bodies occasionally become lodged in the esophagus because of the object's size or shape, narrowing of the esophagus lumen, or anatomic abnormalities. The objective was to review our experience with esophageal foreign bodies removal in Ahwaz Imam Khomeini Hospital, Ahwaz, Iran.

Methodology: A retrospective review was completed of the 240 charts of patients admitted with the final diagnosis of esophageal foreign body during 10 years (March 20, 1993 - March 21, 2002). Sex, age, diagnosis on admission, estimated duration and site of impaction, type and number of foreign body removed and complication were recorded.

Results: One hundred fifty six boys and 84 girls aged of 3 months and 14 years were admitted with the diagnosis of esophageal foreign body. Sixty- five percent of patients were four years or less in age, 2.9% had a history of esophageal anomalies requiring operation. The duration of impaction in 85.4% was less than 24 hours. Management consisted of rigid endoscopic removal in 238 patients and open surgical removal in two patients. Postcricoid area was the commonest site of impaction, and more than half (131 cases) of the foreign bodies were coins. Complications were noted in 10%.

Conclusion: Foreign bodies of the esophagus are common in young children and are likely to occur whenever a child puts an inedible object in the mouth. A foreign body is removed more safely with a rigid esophagoscope and under general anesthesia.

KEY WORDS: Esophageal foreign body, Children, Rigid endoscopy, management.

Pak J Med Sci October - December 2007 (Part-II) Vol. 23 No. 6 854-856

INTRODUCTION

Children often swallow foreign material or objects that pass through the gastrointestinal tract without problems.¹ Foreign bodies

occasionally become lodged in the esophagus because of the object's size or shape, narrowing of the esophagus lumen, or anatomic abnormalities.² Before the mid-1850, the most common management for suspected esophageal foreign body impaction was to attempt to push the object in to the stomach.³ The first esophagoscope used in 1890 by Mackenzie was later improved by Jackson, Ingal, and Mosher.⁴

The earliest rigid esophagoscopies for foreign body extraction by Jackson and Ingals were performed on awake patients in a sitting position.³ Because anesthesia risks have decreased and instrumentation for endoscopic removal of esophageal foreign bodies has improved, these procedures are performed with the patient on supine position under general anesthesia. We review our experience with esophageal foreign bodies.⁵

-
1. Dr. Nader Saki MD
 2. Dr. Soheila Nikakhlagh MD
 3. Dr. Farnaz Safai MD
- 1-3: Department of Otolaryngology and Head and Neck Surgery,
4. Dr. Mehran Peyvasteh MD
Department of Pediatric Surgery,
- 1-4: Imam Khomeini Hospital,
Ahwaz Jondishapour University of Medical Sciences,
Ahwaz - Iran.
- Correspondence
Dr. Mehran Peyvasteh
Department of Ahwaz Otolaryngology,
Imam Khomeini Hospital,
Ahwaz - Iran.
E-mail: mehran.peyvasteh@gmail.com

* Received for Publication: May 4, 2007

* Revision Accepted: September 10, 2007

PATIENTS AND METHODS

A retrospective review was completed of the charts of patients admitted in Imam Khomeini Hospital of Ahwaz University with the final diagnosis of esophageal foreign body during 10 years (March 20, 1993 to March 21, 2002). The following findings were recorded at the time of charts review: Sex, age, diagnosis on admission, history of preexisting esophageal disease, clinical symptoms on admission, type of radiographic investigation, estimated duration and site of impaction, type of management, duration of procedures under general anesthesia, status of the esophagus at the time of endoscopy, type and number of foreign body (ies) removed, complications and duration of hospital stay. The data from chart was initially collected and have been subjected to statistical analysis.

RESULTS

During the 10 year period to the end of March 21, 2002, 240 patients (156 boys and 84 girls) between the ages of 3 months and 14 years were admitted with the diagnosis of esophageal foreign body. Sixty five percent of patients were four years or less in age at the time of admission. Of the 10 patients under one year, three were under the age of 6 months. Seven patients (2.9%) had a history of esophageal anomalies requiring operation. Five patients presented for removal of esophageal foreign body on more than one occasion. The duration of impaction prior to admission was less than 24 hours in 205 patients (85.4%), greater than three days in 13 patients (5.4%). The patients presented with a wide variety of signs and symptoms (Table-I). Investigation consisted of an lateral neck study in 240 patients, Chest radiographic study in 182 Patients, contrast study in 22 patients and the findings were reported as abnormal in (73.7%), (90.3%), (81.8%) respectively. Management consisted of rigid endoscopic retrieval (238 patients) and open surgical removal (2 patients). Eight patients admitted with the diagnosis of esophageal foreign body spontaneously passed the

Table-I: Clinical symptoms

<i>Symptoms</i>	<i>%</i>
Vomiting	51.2
Odynaphgia	42
Drooling	35.8
Dysphagia	34.9
Choking	16.6
Cough	14.1
Anorexia	4.4
Stridor	4
Hematemesis	2

foreign body during a period of observation of 24 hours or less. Diagnosis was made clinically or radiographically, with the type of foreign body. One hundred fifty nine patients (66.2%) were discharged within 24 hours of admission, while 30 patients (12.5%) were discharged within the second 24 hours. Open surgical removal of esophageal foreign bodies was necessary in two patients. In five patients the foreign body was pushed into the stomach. The most common foreign bodies were coins, chicken bone, beef bone, fish bone, metal and plastic foreign bodies. More than half (131) were coins. The duration of the endoscopic procedure was 30 minutes in 167 patients. The postcricoid area was the commonest site of impaction. Complications were noted on 24 (10%) patients prior to, during and following the 240 endoscopic procedures. While some of these complications caused problems (accidental extubation, Respiratory distress, Ileus, laryngospasm at time of extubation, stridor), None were associated with any long-term morbidity. There were no deaths.

DISCUSSION

Foreign bodies of the esophagus are common in young children and are likely to occur whenever a child puts an inedible object in the mouth.⁵ Pre-existing esophageal disease, particularly strictures, predisposes to the retention of foreign bodies.⁶ Coins, buttons, bones, safety pins, toy jacks, plastic toys, clips, screw and boluses of meat are common foreign bodies. Disc batteries are particularly dangerous foreign bodies because of their tendency to leak potassium or sodium hydroxide when wet. It

is not surprising that there are many similarities between our series and other reports involving a significant number of children.

Boys are involved more often and the majority of patients three years or less in age. Aside from a report from Hong Kong in which fish bones were the commonest esophageal foreign bodies,⁷ coins are by far the most frequently found in our report. In most children, the ingestion of the foreign body is observed; thus the duration of impaction is usually less than 24 hours and management is usually straight forward and is associated with minimal morbidity, as we found and as has been previously reported, a number of esophageal foreign bodies will move along spontaneously during a period of observation. Complications were documented in 10% of patients. Foreign bodies of the esophagus can be prevented by careful food preparation, careful chewing, scrutiny of food in the mouth, particularly while eating chicken, fish, not putting inedible objects in the mouth, keeping safety pins closed while not in use, and keeping small inedible objects out of the reach of small children.⁸ Foreign bodies coming to rest just inferior to the cricopharyngeus muscle produce dysphagia and pain in the suprasternal area on swallowing.⁹ Rough and sharp foreign bodies may produce an abrasion or laceration or perforation of the pharynx or esophagus.⁷ The longer a foreign body is retained in the esophagus, the more likely is perforation of the esophagus to occur.¹⁰ Radiopaque foreign bodies can be identified in many instances with a lateral neck X-Ray, Evidence of nonopaque foreign bodies of the esophagus may also be found, such as an increase in the distance between the cervical vertebrae and the larynx and trachea or air in the cervical esophagus.¹¹

If the foreign body cannot be located on the lateral neck X-Ray, Posterior – anterior and

lateral chest X-Ray may demonstrate a radiopaque foreign body. If the foreign body cannot be located in this manner, a contrast study of the esophagus with radiopaque solution may demonstrate the foreign body.⁹ A small piece of cotton saturated with a radiopaque fluid may hang on a sharp foreign body. A foreign body of the esophagus is removed more safely with a rigid esophagoscope and under general anesthesia.⁸ After the foreign body has been removed, the esophagus is re-entered to make sure there is no second foreign body and to inspect the esophagus for trauma and predisposing factors such as stenosis.¹⁰

REFERENCES

1. Bonadio WA, Jona JZ, Glicklich M, Cohen R. Esophageal bougienage technique for coin ingestion in children. *J Pediatr Surg* 1998;23:917-8.
2. Bailey P. Pediatric esophageal foreign body with minimal symptomatology. *Ann Emerg Med* 2003;12:452-4.
3. Crysedale WS. Esophageal foreign bodies in children; 15 year review of 484 cases. *Ann Otol Rhinol Laryngol* 1999;100:329-30.
4. Giordano A, Adams G, Boies L, meyerhoff W. Current management of esophageal foreign bodies. *Arch Otolaryngol* 2001;107:249-51.
5. Kraemer TA, Riding KH, Salkeld LJ. Tracheobronchial and esophageal foreign bodies in the pediatric population. *J Otolaryngol* 1998;15:355-8.
6. Jackson RM, Hawkins DB. Coins in the esophagus . what is the best management? *Int J Pediatr Otorhinolaryngol* 1998;12:127-35.
7. Nandi P, Ong GB. Foreign body in the oesophagus: review of 2394 cases. *Br J Surg* 1988;65:5-9.
8. Nahoman BY, Mueller CF. Asymptomatic esophageal perforation by a coin a child. *Ann Emerg Med* 2000;13:93-5.
9. Rubin SP, Maeller DL. Removal of esophageal foreign bodies under fluoroscopic control. *Can Med Assoc J* 2003;137:125-7.
10. Spits L. Management of ingested foreign bodies in childhood. *BMJ* 2003;4:469-72.
11. Schunk JE, Corneli H, Bolte R. Pediatric coin ingestions. *Am J Dis Child* 2001;143:546-8.