



Research Article

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An Overview of 11-year experience on Opaque Esophageal Foreign Bodies in Adults

Nader Saki and Soheila Nikakhlagh*

Associate professor, Hearing and Speech Research Center, Ahvaz Jundishapur University of Medical Sciences,
Ahvaz, Iran

*Email: nikakhlagh.s@gmail.com

ABSTRACT

Foreign body in the esophagus is a common emergency presentation. We reviewed and analyzed our experiences on removing esophageal impactions in patients referred to Ahvaz Imam Hospital during 1994 to 2005 to assess our success rates in using esophagoscopy and related treatments for removing esophageal foreign bodies. Seven hundred and five adult patients with suspected impaction of esophageal foreign bodies from 1994 to 2005 at Ahvaz Imam Hospital were reviewed. Plain films were performed in every patient with a suspected esophageal foreign body (EFB). In all patients, rigid esophagoscopy was done under general anesthesia once the diagnosis of impacted EFB is made. The following findings were determined at the time of review: Sex, age, diagnosis on admission, history of preexisting disease, clinical symptoms on admission, type of radiographic investigation, estimated duration and site of impaction, type of management, status of the esophagus at the time of esophagoscopy, type and number of foreign body(ies) removed, complication and duration of hospital stay. Chicken bones were the most frequently responsible foreign body and the area just below the cricopharyngeus muscle was the most frequent level of impaction. Radiographic studies gave false positive and false negative information in 17% of the cases. Rigid esophagoscopy was used successfully for foreign body removal in 99.3%. Foreign body ingestion represents a frequent reason for emergency endoscopy. The endoscopic procedure is a successful technique which allows the removal of the foreign bodies in almost all cases without significant complications.

Keywords: Esophageal foreign body, Adults, Radiologic studies, Rigid esophagoscope

INTRODUCTION

Foreign body (FB) ingestion is an everyday occurrence and a common emergency presentation. Many ingested FBs become impacted, often in the esophagus, and have the potential to cause serious complications, apart from significant distress to the patient and family(1, 2). Although several non-invasive techniques have been developed for the treatment of various diseases and cancers, surgery is the gold standard option for most of life-threatening diseases. When an esophageal foreign body is suspected by history and physical examination, a radiologic evaluation is performed to assess its location and size and to anticipate the possibility of multiple foreign bodies(3-6). Despite the frequency and seriousness of this issue, there is considerable argument in the literature regarding the best possible approach for dealing with patients with an FB in the esophagus. It is imperative to devise uniform guidelines. This review aims to develop an approach along these lines by taking into account the recent findings in the literature. It begins with an overview of the types of objects usually encountered and their usual impaction sites at the time of presentation, and then formulates an approach towards such patients(4, 7-9). The basic principles of endoscopic foreign body removal have not changed since the days of Chevalier Jackson. The first esophagoscope used in 1890 by Mackenzie was later improved by Jackson, Ingals, and Mosher. The earliest rigid esophagoscopies

for foreign body extraction by chevalier- Jackson were performed on awake patients in a sitting position(4, 7).Because anesthesia risks have decreased and instrumentation for esophagoscopy removal of foreign bodies has improved, these procedures are performed with the patient supine under general anesthesia (8).The type and size of endoscope depend on the age of the patient and the location of the object(10, 11). In this study, we review 705 esophagoscopies performed on patients suspected of having foreign body impaction in the esophagus. This study evaluates the clinical history, physical examination, radiographic studies, and management of adult esophageal foreign bodies in Imam Hospital of Ahvaz Jundishapur University.

MATERIALS AND METHODS

Seven hundred and five adult patients who required esophagoscopy for suspected impaction of esophageal foreign bodies were admitted and treated at the Imam Khomeini Hospital of Ahvaz Jundishapur University from March 1994 to June 2005. The following findings were reviewed: Sex, age, diagnosis on admission, history of preexisting disease, clinical symptoms on admission, type of radiographic investigation, estimated duration and site of impaction, type of management, status of the esophagus at the time of esophagoscopy, type and number of foreign bodies removed, complication and duration of hospital stay. When the index of suspicion of an esophageal foreign body is quite low, a small sip of barium may be given to rule out esophageal lodgment of a nonradiopaque object. All patients underwent esophagoscopy under general anesthesia and full relaxation. For examination of the upper and middle third of the esophagus, we use a 30 cm long rigid esohagoscope. If sharp points were found, an attempt was made to dislodge them from the esophageal mucosa and ensheath them inside the endoscope before removal. Another esophagoscopy was then performed to evaluate mucosal damage and ensure that no foreign bodies remained. The data was collected and have been subjected to statistical analysis.

RESULTS

Of the 705 patients who had esophagoscopy, 88% had a foreign body. Most patients (75%) were male and 60% had full dentures. Chicken bone were the most frequently encountered foreign body, followed by beef bone, meat, fish bone, metallic objects, dentures, coins, glass (Fig. 1).The periods of impactions is presented in Figure 2. Two patients received radiation for an esophageal carcinoma. Nine patients had history of esophageal foreign body impaction, four of them had a history of caustic ingestion, and one was a laryngectomized patient.

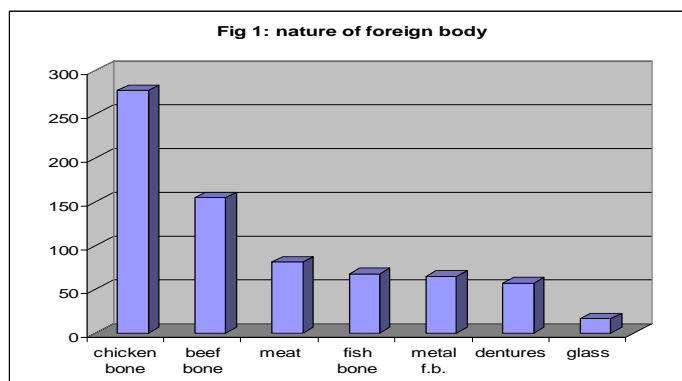
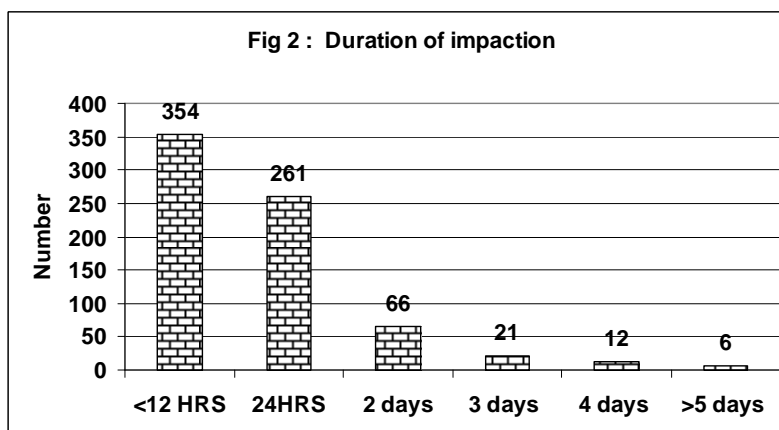


Fig. 1. Types and distributions of foreign bodies



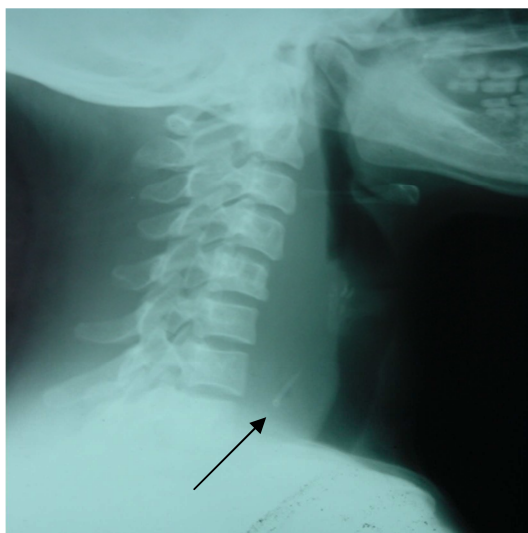


Fig 3. Chicken Bone

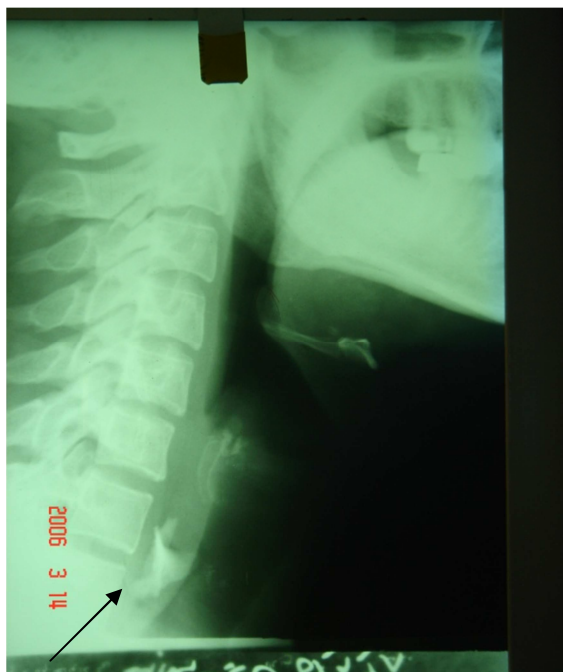


Fig 4. Beef Bone

Odynophagia was the commonest symptom, followed by dysphagia (Fig.1). In patients with history of foreign body ingestion and chief symptom of dysphagia and odynophagia, foreign bodies were found more frequent (70%), whereas in patients with retrosternal pain or pharyngeal discomfort, esophageal foreign bodies were found about 40%. Odynophagia was the main symptom in patients with bone impaction, whereas complete dysphagia was the main symptom in 92% of the cases involving meat impaction. Complete esophageal obstruction will cause secretions to overflow into larynx, producing symptoms of laryngeal obstruction. Barium impregnated cotton pledget swallow studies were carried out in 124 patients. Radiographic studies gave false positive and false negative information in 17% of the cases. All patients had a thorough clinical history and examination, indirect laryngoscopy, Chest X-Ray film and lateral neck X-Ray (Figs 3-6). Some patients had barium impregnated cotton pledgets studies, which were examined by the radiologist on duty. Impactions were most common in the cervical esophagus just below the cricopharyngeus muscle (84%), followed by the middle third (4%), piriform sinus (10%) and distal third of the esophagus (2%). Bones from chicken or meat were usually surrounded by soft tissue and had sharp edges; their average length was 4 cm, meat without bones was also found as a bolus with an average size of 2 cm × 4 cm. All foreign bodies were removed by rigid esophagoscopy except five cases that required left lateral cervicotomy to remove a denture four cases and one walnut lodged in the cervical esophagus. After esophagoscopy, esophageal mucosa showed no damage in 344 cases. Edema, abrasion or bleeding was found in 320 cases. Most patients

reported relief of symptoms after esophagoscopy, even those in whom no foreign body was found. Eighty five percent of the patients initiated oral intake in the first 48 hours after foreign body removal and 78% were discharged by the third day. Average hospital stay was 2.5 days. Of total, 1.41% complications were found and no deaths occurred.



Fig 5. Metal foreign body (AP view)



Fig 6. Metal foreign body (lateral view)

DISCUSSION

Foreign bodies of the esophagus are common in young children and are likely to occur whenever a child places an inedible object in the mouth. Foreign bodies are also common in the older age group, particularly in edentulous individuals who appear to be less proprioceptive to the presence of bones and other inedible objects in their food(7, 12, 13).When an esophageal foreign body is suspected by history and physical examination, a radiologic evaluation is performed to assess its location and size and to anticipate the possibility of multiple foreign bodies(4, 7, 12, 14). The history is of paramount importance. The patient who presents with a history of the ingestion of an inedible substance places the physician in a position of having to prove whether or not a foreign body is retained. 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. 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 is needed(8, 12, 15, 16).

There is no rule of thumb to determine whether a foreign body is present or even more difficult to rule out its presence, but in our experience, presenting symptoms have been the most accurate indicators of foreign body impaction(17, 18). As in other series, odynophagia and dysphagia have been associated with a higher incidence of foreign body impaction, pharyngeal discomfort were associated with a higher incidence of negative esophagoscopy. It may be difficult to differentiate the foreign body from ossification in the laryngeal cartilages. Air in the soft tissues or in the esophagus, held open by a non- opaque foreign body , is an important sign(19, 20). Most of our patients initially try to dislodge their impaction by drinking water or eating a small bolus of bread. Foreign bodies coming to rest just inferior to the cricopharyngeus muscle produce dysphagia and pain in the suprasternal area on swallowing (7, 16, 18). Rough and sharp foreign bodies may produce an abrasion or laceration of the pharynx or esophagus and pass on through the gastrointestinal tract, in which case the pain on swallowing subsides within 24 hours. Persistent pain on swallowing , which the patient localizes to the suprasternal area, suggests a foreign body(12-14). If after careful clinical history and physical examination an esophageal foreign body impaction is suspected, esophagoscopy should be performed as soon as possible because: (a) Once impaction occurs, the chance of spontaneous passage is small; (b) edema from local trauma tends to grip the object more firmly, making later manipulation increasingly difficult, and (c) perforation of the esophagus is much more serious than perforation of any part of the gastrointestinal tract(17, 20). Most esophageal foreign bodies in adults are of considerable size, with cutting borders and sharp points. We find rigid esophagoscopy a safe, reliable technique for removing foreign bodies that has great advantages over blind methods. The method allows direct visualization of the foreign body and its possible damage to the esophageal mucosa and allows esophagus re-exploration to confirm that no foreign bodies remain. Perforation risks are low and about 0.6%. Forcing the foreign body into the stomach by eating bread, use of the probing or forceps are condemned because of foreign bodies are often multiple, a smooth, opaque foreign body may be accompanied by a nonopaque sharp foreign body,(21-23). Age and sex, as well as the nature of the foreign bodies, has changed in the different series. Coins, fish bones and safety pins are no longer the most frequently found foreign bodies, but in our study chicken bones are the most frequent. We agree with Phillips and patel that the main reasons for people ingesting a foreign body are either sheer misfortune or sheer carelessness through people bolting food(2, 13, 24).

CONCLUSION

We find clinical history and patient symptoms the most valuable elements in deciding whether a patient suspected of having foreign body impaction should have an esophagoscopy. We find rigid esophagoscopy the method of choice for esophageal foreign body removal.

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