

A STUDY OF FOREIGN BODIES IN THE CRICOPHARYNGEAL REGION AND OESOPHAGUS IN A TRIBAL REGION OF CHHATTISGARH

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ABSTRACT

BACKGROUND

Foreign body in the food passage is a common problem; but piercing foreign bodies in the food passage may cause fatal complications like retropharyngeal abscess, pneumothorax, ulcerative oesophagitis, pneumonitis and stricture formation.

METHODS

The present study is a retrospective analysis including 40 patients of foreign bodies in food passage in a tribal region of Chhattisgarh who presented to the Department of E.N.T., Lt. B.R.K.M. Medical College and associated hospital Jagdalpur (C.G.). Data was collected and analysis was done on the basis of age and sex distribution, type, location, duration, clinical presentation, radiological findings, management and complications.

RESULTS

About 40 patients had evidence of foreign body in food passage with age ranging from 3 months to 70 years. The most common presentation was dysphagia i.e. in 21 (52.5%) patients, followed by pain in throat. Maximum number of patients i.e. 15 (37.5%) belonged to 0-10-year age group. Radiological evidence was found in 32 (80%) patients. Maximum cases showed chicken bone as foreign body followed by coin. The crico-pharynx (57.5%) was the commonest site of lodgement.

CONCLUSIONS

Early detection by meticulous history, imaging modalities and prompt management remains the basis for favourable outcome and prevents any future complications.

KEYWORDS

Foreign Body, Food Passage, Oesophagoscopy

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BACKGROUND

Foreign bodies in the cricopharyngeal region and oesophagus are very common but less dangerous than those in the respiratory passages. However, foreign body lodgement especially sharp foreign bodies for long time can cause complications such as retro-pharyngeal abscess, ulcerative oesophagitis, recurrent pneumonitis, stricture formation and impaction. In adults, food is the commonest foreign body in the aerodigestive tract.^{1,2} Foreign bodies in food passage may cause a lot of symptoms ranging from dysphagia to complete oesophageal obstruction with pooling of secretions. Sometimes respiratory distress may occur due to compression of the trachea wall by large objects lodged in the oesophagus.

During the time, many treatments for removal of foreign bodies in food passage have been proposed but rigid endoscopy has proven to be the most efficient therapy. Flexible endoscopes represent the best method for finding objects that have passed into the stomach and halted in progression, but the limitation is for the types of instruments available to grasp the foreign body.

METHODS

The present study is a retrospective review of 40 patients of foreign bodies in food passage enlodged in the cricopharyngeal region and oesophagus in a tribal area of Chhattisgarh treated at the Department of E.N.T. in a tertiary care hospital in Chhattisgarh, over a period of 4 years. The relevant data were collected with regards to age and sex distribution, type, location, duration, clinical presentation, radiological findings, management and complications. All patients underwent X-rays of soft tissue neck and upper chest in anteroposterior and lateral view for determining the location of foreign body. X-ray abdomen was performed in patients with no radiological evidence of foreign body in neck and chest.

RESULTS

The ages ranged from 3 months to 70 years. The incidence was highest in the first decade of life (Table 1). At all age

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groups, there was male predominance seen as compared to female. Thirty-two cases presented within 48 hours of onset of symptoms, 6 came to hospital after 72 hours and only 2 cases gave a history of more than a week's duration. The longest duration of enlodgement was 12 days.

Types of Foreign Bodies

Organic foreign bodies were found in 24 (60%) cases; chicken bone impaction 18 (45%) being the commonest followed by coin in 12 (30%) cases. Inorganic foreign bodies were the frequent offending agents in the paediatric age group with coins featuring predominantly among them (Table 2).

Clinical Features

The patients presented with various signs and symptoms, the most common complaint being dysphagia in 21 (52.5%) followed by pain in throat in 9 (22.5%) cases and other complaints were of a foreign body sensation in 7(17.5%), vomiting in 2 (8%) and dyspnoea in 1 (2.5%) patient. In 1 case, an impacted foreign body was the symptom of an underlying disease in the oesophagus in the form of benign strictures.

Management

Routine cervical and thoracic X-rays in the antero-posterior and lateral positions were obtained in most of the cases. The foreign bodies were visualized on plain X-rays in 32 cases (80%) and by using oesophagoscopy and upper gastrointestinal endoscopy rest of the cases were diagnosed. Depending on the site of impaction of the foreign body, a short rigid oesophageal speculum or a 45 cm long oesophoscope was used for endoscopy in 34 cases. Direct laryngoscopy alone was performed in 6 cases, whereas both procedures were carried out in 3 cases. Flexible upper gastrointestinal endoscopy was carried out in 3 cases. During endoscopy, the foreign body was removed at the first attempt in 34 cases and at the second attempt in 2 cases. The foreign body was advanced into the stomach in one case while it slipped into the stomach during endoscopy in 2 cases. No foreign body was found in 1 case. Spontaneous passage in stools was noted in 4 cases which were not included in this study. A middle-aged male who presented with a history of meat impaction when under the influence of alcohol, refused oesophagoscopy and was left against medical advice which was also not included in study. Twenty three (57%) foreign bodies were enlodged in the cricopharyngeal region, while oesophageal foreign bodies were found in 16 cases (13 in the upper third, 3 in the middle third).

Complications

2 cases presented with a retropharyngeal abscess while 1 case presented with retropharyngeal abscess with unilateral pneumothorax, in all cases foreign body was a sharp bone piercing the mucosa and duration of impaction was more than a week. The duration of hospitalization was less than

48 hours in 37 patients, 2-7 days in 1 patient and more than 7 days in 1 patient.

DISCUSSION

Cricopharyngeal and oesophageal foreign bodies are potentially hazardous and may pose problems regarding their diagnosis and management. They may sometimes, produce fatal complications or may be indicative of an underlying disease.³ It is generally accepted that oesophageal and cricopharyngeal foreign bodies are more common among adults than children.⁴ However, Brooks⁵ and Baraka and Bikhazi⁶ have reported paediatric age group preponderance. In our series, majority of the patients were adults; however, study shows the hyper frequency in the first decade of life (Table 1). This concurs with the findings of Giordano et al.⁷

Age Group	0-10 Yrs.	11-20 Yrs.	21-30 Yrs.	31-40 Yrs.	41-50 Yrs.	51-60 Yrs.	61-70 Yrs.	Total
Male	12	01	06	03	04	03	02	31(77.5%)
Female	03	01	00	01	01	03	00	09(22.5%)
Total	15 (37.5%)	02 (5%)	06 (15%)	04 (10%)	05 (12.5%)	06 (15%)	02 (5%)	40 (100%)

Table 1. Age and Sex Wise Distribution of Case Study

		Foreign Body	Number	Total
01.	Organic Foreign Body	Chicken bone	18 (45%)	24 (60%)
		Mutton piece	03 (7.5%)	
		fish bone	02 (5%)	
		Food bolus	01 (2.5%)	
02.	Non-Organic Foreign Body	Coin	12 (30%)	16 (40%)
		Battery	01 (2.5%)	
		Hair pin	01 (2.5%)	
		Needle	02 (5%)	

Table 2. Distribution of Cases as Per Type of Foreign Body

Children are more often affected because of having tendency to put anything in mouth while playing. Foreign body ingestion is a frequent occurrence in children, especially in their first 5 years of life as observed in present study. Various reasons for this event can be pointed out, emphasizing that all the characteristics such as sex, age, socioeconomic level and parent's influence are closely interrelated.⁸

Small objects left within a child's reach may often be swallowed. Children belong to low socioeconomically status who are left to feed themselves at an early age are more likely to swallow a foreign body.⁹ Such a situation however, rarely occurs below the age of one year and hence, in our, series, only 2 cases were recorded in the first year of life. In elderly edentulous patients, inadequate mastication leads to impaction of a bolus of food. An ill-fitting or broken denture may be accidentally swallowed during a meal or an epileptic seizure.

An artificial upper denture may prevent tactile sensation in the roof of the mouth, so that the patient fails to detect a fish or meat bone in the mouth. It has been observed that males with a history of foreign body often indulge in heavy drinking followed by a meal consisting predominantly of meat. In this intoxicated state, food is improperly masticated and gulped down resulting in impaction of a bolus of meat. It is tempting to attribute the higher frequency among males

to the fact that the population which consumes alcohol is predominantly male. In children, ingestion of coin was seen more as compared to females. A possible explanation provided by Gupta et al¹⁰ is that male children are, by nature, more curious than female children. Meat and chicken bones were the commonest foreign bodies followed by coins. This agrees well with the published literature.^{7,9} 80% foreign bodies are coins were found in children who have a tendency of putting coins in the mouth which may be unintentionally swallowed. In the lower socio-economic strata, a common tendency is to pacify children by giving them coins which contributes to the high incidence in this age group. The frequency of foreign bodies in the cricopharyngeal and oesophageal regions in this series agrees with the findings of Nandi and Ong. Most of the foreign bodies were arrested at a distance of a few centimeters below the cricopharyngeal sphincter. An explanation forwarded by Nandi and Ong for this phenomenon is that the strong propulsive pharyngeal muscles force an object this far while the less active oesophageal musculature cannot carry it further. The mobile redundant mucosa of this region, perhaps, adds to the hazard.

Oesophageal foreign bodies may cause a lot of symptoms ranging from complete oesophageal obstruction with drooling of saliva and aspiration, to mild odynophagia or dysphagia. These symptoms are caused by the compression of the posterior wall of trachea by large objects lodged in the oesophagus. In the pharyngoesophagus, the most common symptoms were dysphagia and foreign body sensation. Among the signs, odynophagia and pooling of saliva were most frequently associated with a retained foreign body.¹¹ In most instances, patients are able to provide history of foreign body accident, but children are often unable to give such detail due to their too small age. When any patient has a history of ingested foreign body, investigations are mandatory regardless of the age or obvious absence of signs and symptoms.¹²

In patients suspected of having ingested a foreign body, plain, two dimensions lateral and posteroanterior view radiographs of the neck and chest must be taken for pre-operative diagnosis and evaluation. Often, for radio-opaque foreign body a radiograph should be taken in the greatest diameter of the object which helps in defining the anatomy prior to its removal. If the history of ingestion of a foreign body which is likely to be radio-opaque is given but it is not noted on x-ray films of the neck and chest, a radiograph of the abdomen may reveal its progression into the stomach or beyond. The coin in the oesophagus occupies a classical position in coronal plane due to the fact that it is anteroposteriorly flattened. Therefore, on an anteroposterior view of neck–chest radiograph, the whole coin can be seen showing a totally radio-opaque round shadow. On a lateral view a vertical slit like structure is seen (Figure 1). A detailed examination including intra-oral examination and indirect laryngoscopy helps to detect many foreign bodies and spares the patient for further interference. Negative radiological findings do not rule out the possibility of a foreign body in the crico-pharynx and oesophagus.

Persistence of symptoms even in the absence of positive clinical or radiological signs warrants an endoscopic examination.

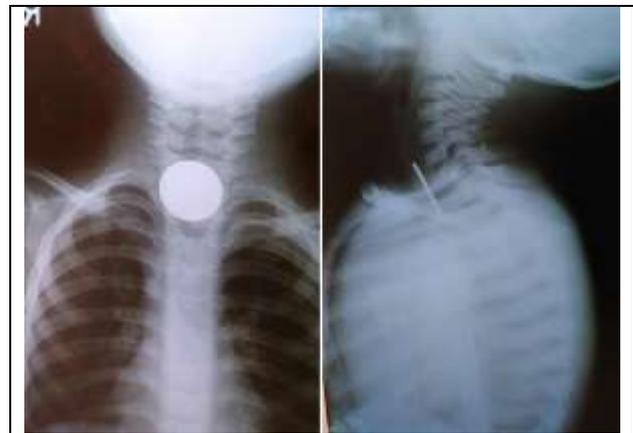


Figure 1. X-Ray Neck Soft Tissue Anteroposterior and Lateral View Showing FB (Coin) in Cricopharynx



Figure 2. X-Ray Neck Soft Tissue Anteroposterior and Lateral View Showing FB (Safety Pin)

In our series, endoscopy by means of a rigid scope under general anaesthesia, was carried out in all cases except those where the foreign body had passed spontaneously. After removal of the foreign body was achieved, the scope was passed again in all cases and intrinsic pathology was detected in two cases. During the removal of sharp and pointed foreign bodies, such as denture with protruding hooks, shaving blades, and open safety pins, special precautions should be taken, since it increases the danger of perforation of the oesophageal wall, setting up mediastinitis, pericarditis or empyema. Nandi and Ong have reported 9 cases of carcinoma of the oesophagus in a review of 2394 cases while according to Baraka and Bikhazi,⁶ 88% of the adults in their series revealed a

predisposing disease in the form of an oesophageal stricture, myasthenia gravis or ankylosing spondylosis. However, it should be noted that the number of adults in their series was only nine. Giordano et al⁷ have reported a perforation rate following oesophagoscopy of 9 in 2650 (0.34%) and mortality secondary to oesophagoscopy as 0.05%. According to Nandi and Ong, 2.82% of the cases developed complications in the form of oesophageal perforation, subcutaneous emphysema, retroesophageal abscess, oesophgo-aortic fistula, mediastinitis and lung abscess. Injury to wall of oesophagus by sharp foreign bodies and impaction of foreign body for a long duration may lead to development of complications.

In our series, 2 cases presented with a retropharyngeal abscess following foreign body impaction while 1 case developed retropharyngeal abscess with unilateral pneumothorax. Incision and drainage done for retropharyngeal abscess; while for pneumothorax conservative treatment was employed resulting in complete recovery. Details of foreign body characteristics and the dynamics of the traumatic events involved in foreign body ingestion are important to estimate the injuries caused by foreign bodies. The procedures should be attempted after the completion of the appropriate radiological examination, the assembly of experienced personnel, the location and arrangement of the proper equipment, and proper preparation of the patient. If areas cannot be visualized indirectly, then direct (endoscopic) examination must be done when a foreign body is suspected.

CONCLUSIONS

This study gives an insight into prevalence of foreign body in digestive tract in a tribal area of Chhattisgarh. Patients who say that a foreign body is present are right until it is overwhelmingly clear that there is no foreign body. The examination must be thorough. Negative radiological evidence does not rule out a foreign body. Radiological evaluation is the single most important diagnostic tool, but does not preclude endoscopy. Rigid endoscopy with forceps removal under general anaesthesia is the preferred management modality. Early detection by meticulous history, imaging modality and prompt management remains basis for favourable outcome. Prompt endoscopic

intervention is the gold standard for all complicated or high-risk situations, with particular relevance to sharp and pointed foreign bodies, such as denture with protruding hooks, shaving blades, and open safety pins, which increase the danger of perforation.

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