

FOREIGN BODIES IN THE UPPER DIGESTIVE TRACT

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SYNOPSIS

A random sample of 154 patients with a history of a swallowed foreign bodies referred to the ENT Department, Tan Tock Seng Hospital was studied. This included 10 children (6.5%). The commonest foreign body encountered was fish bones (86.3%). 93% of patients complained of pain or sensation of foreign body referable to the throat and 5 patients had dysphagia due to impacted oesophageal foreign bodies. 60% of the cases were seen within 24 hours of the incident. Tonsils (31.8%) and base of tongue (18.2%) are the commonest sites of foreign body impaction. In 36.7% no foreign body was found. Plain lateral neck x-rays showed high diagnostic accuracy for cervical oesophageal foreign bodies but of little value for those impacted at various sites in the pharynx. Only 13 patients (8.4%) required hospital admission for oesophagoscopy.

INTRODUCTION

Foreign body impaction in the upper digestive tract is the commonest urgent referral to the ENT specialist clinics locally. The sense of urgency with which our medical colleagues channel such cases to the ENT specialist demonstrates their awareness of the possible serious complications that may arise. Fortunately such serious complications are rare. For the majority of cases, the management is straightforward with a low incidence of complications. In this paper, an analysis of this clinical problem is made with regard to the clinical presentation, site of impaction, management complication. It is aimed to help provide a clearer perspective of this clinical problem in our local population.

MATERIAL AND METHOD

A random sample of 154 cases with a history of a swallowed foreign body referred to the Ear, Nose and Throat Department, Tan Tock Seng Hospital between 1984 and March 1986 was studied retrospectively. There were 75 males and 79 females. The racial distribution is as follows: Chinese 83.7%, Malay 7.1%, Indian 7.1%, Sikh 0.6% and Eurasian 1.3%. The age distribution is shown in Table 1. The relevant data were collected as follows: duration between incident and presentation, types of symptom, clinical findings, types of foreign body, radiological findings, management of cases and complications of foreign body impaction.

TABLE 1: AGE DISTRIBUTION OF 154 PATIENTS WITH FOREIGN BODIES OF UPPER DIGESTIVE TRACT

Age group (years)	No. of patients
1 to 5	3
6 to 12	7
13 to 20	26
21 to 40	65
41 to 60	41
61 to 80	9
> 80	1

RESULTS

A. Symptomology

The majority of adult patients and older children gave a definite or suspected history of swallowing a foreign body. The usual associated symptoms are throat pain (59%) and a sensation of a foreign body in the throat (34%). The 2 cases in the pre-school age group presented with refusal to take feeds. 5 cases presented with dysphagia and all these were later found to have a foreign body in the cervical oesophagus.

60% of the cases presented within 24 hours of the incident; 90% within the first 6 days. 4 out of 5 patients with dysphagia were seen within 6 hours of the incident. (The remainder 1 case presented after 2 days and was later found to have a localised abscess at the site of impaction at oesophagoscopy).

B. Types of foreign body

Fish bones comprise more than 85% of the causative foreign body. Table 2 gives a breakdown of the remainder.

TABLE 2: TYPES OF FOREIGN BODY

Type	No.	%
Fish bone	133	86.3
Chicken bone	5	3.2
Pig bone	2	1.3
Prawn shell	3	1.9
Crab Shell	2	1.3
Denture	2	1.3
Coin	1	0.6
Wire	1	0.6
Unknown	5	3.2

C. Clinical findings

The search for a swallowed foreign body is done in a systematic manner. Good lighting, preferably via a head mirror is vital. The site and side of the patient's symptom, provided this can be accurately pinpointed will give the doctor an idea the likely location of the foreign body. The oropharynx is then exposed with a tongue depressor and an appropriate instrument eg. Tilley's forceps is used to retract the anterior faucial pillar to expose the superior pole and anterior sulcus. The tonsil may be similarly retracted to uncover its posterior sulcus. Mirror examination is then carried out to inspect the rest of the pharynx. If no foreign body is found at this stage, the site of pain or sensation is palpated and the presence of tenderness alerts us to perform a more thorough inspection. Tenderness can be elicited if palpation causes a sharp end of an impacted foreign body to impinge on an adjacent mucosal surface. Two clinical tests are performed to determine the likelihood of a foreign body in the oesophagus:

- Laryngeal rocking test in which the larynx is rocked gently from side to side. The presence of a post-cricoid or an upper cervical oesophageal foreign body (commonest site of oesophageal foreign body) will result in pain. In this series, 11 out of 12 cases with a positive finding for this test eventually had a foreign body removed from the upper cervical oesophagus. This gave a true positive rate of 91.6%.
- Drinking test in which the patient is asked to swallow a glass of water; the doctor then takes note of any difficulty, hesitancy and pain that is experienced. A foreign body of adequate size and any resultant oesophageal muscle spasm and oedema will cause some degree of dysphagia. 11 out of 13 (84.6%) of cases with this clinical finding proved to have an oesophageal foreign body.

In 53 cases (34%), no foreign body was found after clinical examination and plain x-rays. All of them had symptoms of pain or sensations of foreign body referable to the throat; 4 cases showed mucosal ulcers, 3 had pharyngitis and 1 had tonsillitis.

D. Radiological tests

The basic radiological investigation for a swallowed foreign body is a plain lateral neck x-ray. Antero-posterior neck x-ray shows up bones (commonest foreign body) poorly and usually not requested unless a metallic foreign body is suspected.

In this series, x-rays were not done for every patient since an obvious foreign body found in the tonsils, base of tongue or vallecula could be immediately removed with alleviation of symptoms. However a certain number of patients referred by general practitioners already had an x-ray film taken before a proper assessment by the ENT doctor. This allows us to evaluate the accuracy of a plain lateral neck x-rays for foreign bodies impacted at different levels:

- Tonsils — all of 19 cases with proven foreign bodies were radiologically negative
- Base of tongue — all of 11 cases with proven foreign bodies were radiologically negative
- Vallecula — 2 out of 7 cases were radiologically evident
- Piriform fossa — all 3 cases with proven bodies were radiologically negative
- Cervical oesophagus —
 - 12 cases showed up as a radio-opaque foreign

body and 11 of these eventually had a foreign body removed at oesophagoscopy

- ii) 2 cases showed widening of prevertebral soft tissue shadow. Both underwent a barium swallow investigation; 1 case showed a positive finding and the other showed no foreign body.

The barium swallow examination was ordered in cases when clinical findings were indicative of an impacted oesophageal foreign body but plain x-rays were inconclusive. In this series, only 3 patients had barium swallow examinations: 2 of them because of a widened prevertebral soft tissue shadow on plain x-ray; the third patient had chest pain after swallowing a chicken bone, no foreign body was found and the patient was well subsequently.

E. Level of impaction

50% of the patients had a foreign body found in the tonsil or base of tongue. In more than one-third of the cases, no foreign body was found. Table 3 gives a breakdown of the sites of impaction in this series.

F. Management

Table 4 gives a summary of patient management encountered in this series.

G. Complications

1 patient developed a localised abscess at the site of impaction in the cervical oesophagus. The abscess was drained at oesophagoscopy and post-operative antibiotics given. Recovery was uneventful.

TABLE 3: LEVEL OF FOREIGN BODY IMPACTION

Site	No.	%
Tonsil	49	31.8
Base of tongue	28	18.2
Vallecula	7	4.5
Piriform fossa	3	1.9
Cervical oesophagus	11	7.1
Thoracic oesophagus	0	0
Undetermined	56	36.7

TABLE 4: MANAGEMENT OF 154 CASES

	No.	%
Foreign body removed from pharynx at first consultation	82	53.2
Foreign body missed at first consultation but removed on follow-up	5	3.2
No foreign body found, well on follow-up	21	13.6
No foreign body found, absconded follow-up	33	21.4
Oesophagoscopy and removal of foreign body	11	7.1
Oesophagoscopy done, no foreign body found	2	1.3

DISCUSSION

In this series, only 6.5% of the patients were in the paediatric age group. Most of the literature available for comparison confined their area of study to foreign bodies of the oesophagus alone. In Jackson's series (1) about half of the patients were children, while Bakara and Bikhazi (2) reported 83% of their patients to be children. The Hongkong study by Nandi and Ong (3) in which only 14.3% were children showed a much closer resemblance to our present results.

Bones, in particular fish bones are the commonest foreign body encountered (86.3%). This again mirrors the pattern found in the Hongkong study mentioned earlier where bones make up 84% of the cases. Again Jackson's series (1) showed marked difference in their results in which 32.2% were bones, 35.9% consisted of coins and pins. In Clerf's series (4) of 537 cases, 27.4% were bones and 28.7% were coins and pins. The most likely explanation for the similarity between our results and the Hongkong study is the almost identical dietary and cultural habits of their population, the majority consisting of Southern Chinese. Fish is usually eaten zealously with chopsticks, unfileted but children are not usually entrusted to savour a fish on their own until they are considered old enough by their parents.

The usual presenting complaint is a sensation of foreign body in the throat or pain in the throat (93%) after swallowing a bone at mealtime. Most of our patients would have tried to rid themselves of their symptoms by swallowing rice (a well known form of self remedy amongst the Chinese). If this fails to alleviate their symptoms or if more ominous symptoms are present (dysphagia, bloodstained saliva etc), medical advice is sought. It is therefore not surprising that in more than one-third of the cases, no foreign body could be found even after the most intensive search. In these patients, the symptoms are due to trauma to the pharyngeal mucosa before the foreign body dislodged further down the digestive tract. This leaves a raw area which sometimes can be seen as an ulcer on clinical examination.

As was elaborated earlier, the most meticulous examination of the pharynx under good lighting is essential. Knowing where to look is half the battle won. The results showed that 50% of cases have foreign bodies impacted in the tonsils and base of the tongue with an additional 7% found in the piriform fossa and vallecula. The site and side of the patient's symptom will also help in this process. The search and removal of a pharyngeal foreign body can be a straightforward process under favourable conditions. However even in skilled hands, certain patient factors can make such a process a difficult one. Tonsillar hypertrophy can hide a fish bone in its superior and inferior poles besides limiting visual access to the lower pharynx; prominent lingual tonsils obstruct inspection of the posterior third of the tongue and vallecula; a short lingual frenulum will limit tongue protraction and proper inspection of the pharynx. An overactive gag reflex can make this procedure a frustrating one, a topical anaesthetic spray should be used in such situations. One test which the author finds useful after a careful search fails to reveal a foreign body in a patient with definite symptoms: the patient is asked to use his cleaned index finger to locate the exact site of his symptoms in the pharynx; if he is able to locate the foreign body with his finger tip, the site is taken note of and a further search is made; if he is unable to locate any foreign body he will be more convinced that his symptoms are due to a traumatised raw mucosal

surface rather than a foreign body.

Plain x-rays of the neck cannot be relied upon to locate or exclude the presence of a pharyngeal foreign body. As was shown in the series, none of the foreign bodies impacted in the tonsils, base of tongue and piriform fossa could be seen on plain x-rays. Foreign bodies in the vallecula can sometimes be radiologically evident if they cast a shadow in an opened air-filled vallecula. Notwithstanding what has just been said, radiographic examination is of high diagnostic accuracy with respect to oesophageal foreign body. In a study by Haglund et al (5), plain x-rays together with a barium swallow gave a false negative result of only 1/243. In a plain lateral cervical x-ray, a calcified bone will show up as a radio-opaque foreign body. Opacification of the posterior laminae and cricoid cartilages can cause much confusion for the inexperienced doctor. Other features to look out for are widening of the prevertebral soft tissue shadow and a prevertebral air column. Widening of prevertebral soft tissue shadow may indicate distension of the cervical oesophagus by a non radio-opaque foreign body. Surgical emphysema caused by perforation of the oesophageal wall by a foreign body will be evident as a prevertebral air column. In this series, 11 out of 12 patients showing a radio-opaque foreign body were confirmed to have one at oesophagoscopy. In the remaining case, it is not unlikely that the foreign body has passed on into the stomach in the interim between radiographic examination and oesophagoscopy. In the paper by Haglund et al (5), this was proposed as the most likely factor for his false positive rate of 18%. Barium swallow is most helpful in situations when plain x-rays findings are inconclusive and when a thoracic oesophageal foreign body is suspected. Morioka et al (6) emphasized the value of this examination in verifying the presence of a foreign body and indicating its type and localisation.

In this series, only 13 patients (8.4%) required impatient management for oesophagoscopy. Oesophagoscopy is not without risk. This procedure per se is reported to be complicated by oesophageal perforation in about 0.2—2.0% of cases (7). This complication did not occur in any of our 13 patients because of the small number encountered. In view of this, oesophagoscopy should only be performed after proper radiographic confirmation of a foreign body. In the event when radiographic findings are equivocal, it is safer to perform a oesophagoscopy in view of the complica-

tions a retained foreign body can cause. These include oesophageal perforation, para- or retropharyngeal abscess with or without mediastinitis, and oesophago-aortic fistula. The last complication is fortunately rare. Nandi and Ong (3) found only 2 cases in their series of 2394 patients and both ended fatally. Other rarer complications include perforation and migration of foreign bodies to the subcutaneous tissue of the neck (8) and the thyroid gland (9). Perforation of the large arteries of the neck may occur (4). The only complication encountered in this series was a localised abscess of the oesophageal wall in a patient with a 2 day history of a retained cervical oesophageal chicken bone. This could have resulted in more serious consequences if there was a further delay in treatment.

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