Esophageal Foreign Bodies

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Abstract

A retrospective study of 310 patients with foreign bodies in the esophagus was analyzed. The most common age of the esophageal foreign body patients was between 0 to 9 years old (32.6%), and a coin was the most common foreign object in children. Bone, fish bone and bolus of meat were found commonly in adults, while dentures were encountered in the old age group. History of foreign body ingestion, dysphagia and odynophagia were usually presented by the patients. Roentgenographic study was useful in diagnosis and plan of management. Rigid esophagoscopy under general anesthesia is recommended in all patients with suspected history of foreign body, even though plain films of the chest and neck failed to demonstrate any significant findings. Complications can be reduced if the treatment is conducted within 24 hours of foreign body impaction.

Key word : Esophageal Foreign Body, Rigid Esophagoscopy

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J Med Assoc Thai 2000; 83: 1514-1518

Although esophageal foreign bodies seem less dangerous than tracheobronchial foreign bodies, inadequate management can also result in serious complications including death[1]. Most authorities recommend prompt removal of esophageal foreign bodies and correct decision making in the management is at times difficult[2,3]. In order to clarify the guidelines for the management of esophageal foreign bodies, we reviewed 310 consecutive cases admitted to Maharaj Nakorn Chiang Mai Hospital from 1989 to 1998. Review of other reports was also done, with emphasis on methods of diagnosis and treatment.

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MATERIAL AND METHOD

Three hundred and ten patients with documented foreign body ingestion treated in our hospital from January 1989 to December 1998 were included in this retrospective study. General anesthesia and rigid esophagoscopy was used in all patients. Patient age, sex, time of ingestion, symptom, result of roentgenographic study, location of impacted foreign body, type of foreign body, treatment and complication were reviewed and also compared with previous reports.

RESULTS

During the 10-year study period, 310 consecutive cases of esophageal foreign body were evaluated. The patient ages ranged from 7 months to 85 years. The peak age incidence was between 0 and 9 years (32.6%). (Table 1) Fifty-three per cent of the patients were male and 47 per cent were female. Symptoms at time of presentation were dysphagia, odynophagia, dyspnea, choking or gagging and vomiting, no symptoms were reported in 16 per cent of the patients. The most common presenting symptoms in young children were drooling and vomiting. A 3-year-old child who had a large piece of meat in his upper esophagus came with symptoms and signs of upper airway obstruction.

Two patients had underlying esophageal abnormalities prior to the retention of foreign body which were esophageal stricture from caustic ingestion and previous esophageal surgery. One patient was found to have esophageal carcinoma at the time of foreign body removal.

Most of the patients (87.8%) came to the hospital after foreign body ingestion within 24 hours, the rest (41 cases) came after 24 hours. Four of the latter group had complications from prolonged foreign body impaction causing retropharyngeal abscess.

Plain films of the chest and neck were done in all patients. The foreign body was demonstrated in 255 patients (82.3%), while it failed to demonstrate in 55 patients (17.7%).

All the patients underwent rigid esophagoscopy under general anesthesia and the foreign bodies were identified in 285 cases (91.9%). The majority of objects were found in the upper third of the esophagus (81.3%). (Table 2) The removal of the foreign body was successful in nearly all the patients except a 7-year-old girl who had a needle buried in the esophageal wall. The needle was removed *via* transcervical esophagotomy.

In twenty-five patients, no object was found during esophagoscopy even though signs of the impacted foreign body were noted in the roentgenographic study. The signs of the foreign body had disappeared in the postoperative chest X-ray and all these patients had clinical improvement without any complications.

Table 1. Distribution of patient number by age.

Age group (years)	Number	%
0 - 9	101	32.6
10 - 19	20	6.5
20 - 29	28	9.0
30 - 39	43	13.9
40 - 49	27	8.7
50 - 59	39	12.6
60 - 69	22	7.1
> 70	31	9.6
Total	310	100

Table 2. Distribution of patient number by location of foreign body in the esophagus.

Location in the esophagus	Number	%
Upper part	252	81.3
Middle part	28	9.0
Lower part	5	1.6
No foreign body found	25	8.1
Total	310	100

Coins were the most common foreign body (32.3%) and all were found in the age group of 0-9 years old. Bone, fish bone and meat were found to be the next common objects in order which were distributed equally in the older age groups. (Table 3)

Four patients had retropharyngeal abscess which resulted from impacted bone or fish bone in the upper esophagus for more than 24 hours (between 4-10 days). All these patients had abscess drainage at the same time as esophagoscopy for foreign body removal with an uneventful postoperative period.

Table 3. Distribution of patient number by type of foreign body.

Type of foreign body	Number	%
Coin	92	32.3
Bone	85	29.8
Fish bone	38	13.3
Meat	33	11.6
Denture	22	7.7
Seed	9	3.2
Needle	1	0.3
Botton	1	0.3
Hook	1	0.3
Key	1	0.3
Plastic object	2	0.7
Total	285	100

Most patients were discharged after a postoperative one night stay in the hospital. The patients with mucosal tear from instrumentation or mucosal edema had to stay for 2 to 5 days. Two patients had aspiration pneumonitis after foreign body removal and were discharged on the eighth and fourteenth postoperative days. These patients with prolonged hospitalization were mainly (83%) those with impacted foreign bodies for more than 24 hours. No other major complication was found in our patients.

DISCUSSION

The esophagus is a vulnerable site for retention of swallowed material because of its weak peristalsis and three anatomic narrowings. The first is at the cricopharyngeus muscle. The second corresponds to anterior compression by the aortic arch and left mainstem bronchus. The third is at the gastroesophageal junction[4].

Children make up the majority of patients with impacted esophageal foreign bodies as clearly demonstrated in our series and in other reports[5-6] because swallowing objects is part of the process of maturation[7]. There is no significant difference in the incidence related to sex. Adult patients usually give a history of foreign body ingestion or stuck food material, sometimes with a background of alcohol intake, improper chewing or history of underlying esophageal disease. History is usually not as clear as in children. This sometimes leads to unusual presentation and delayed diagnosis. High index of suspicion is very important in the management of these patients and esophageal disease should always be suspected in children with unexplained wheezing, recurrent pneumonitis or upper airway obstruction[8] as found in one of our patients.

Physical examination is usually negative except in complicated conditions such as airway obstruction, subcutaneous emphysema or retropharyngeal abscess. Plain films of the chest and neck are very useful in visualizing the foreign body and its location. However, if the object is not seen on the radiographs, treatment should still be considered in the patient with a suspicious history because all of our patients with negative study were found to have foreign bodies during the esophagoscopic procedures.

Coins in children, food materials in adults and dentures in the old people are most commonly encountered. Type, specific feature and location of the foreign body are very important for treatment planning and can be discovered by history taking, physical examination and roentgenographic study[9].

Some authors have suggested a 24-hour-safety period of observation in an asymptomatic child with esophageal coin but the number of patients enrolled in this aspect of the study was too small to draw a conclusion[10]. The esophageal bougienage technique for dislodging and passing an ingested coin located in the esophagus is not without complication and has to be used in many specific criteria[11]. Balloon catheter extraction of smooth-round surface radiopaque objects from the cervical esophagus has been recommended and there are reports of complications such as esophageal perforation and aspiration of the objects[12]. The use of papain (a proteolytic enzyme) to dissolve meat impaction in the esophagus is another means of foreign body management that should not be done. Its use has resulted in fatalities due to necrosis of the esophagus and rupture of a major vessel [13]. Glucagon has also been used because of its potential for relaxing the lower esophageal sphincter. Its success rate is limited, because it has little or no effect on the motor function of the esophagus[12].

All of our patients were treated with rigid esophagoscopy under general anesthesia

with minor morbidity and without mortality. Only one unsuccessful case of buried needle in the cervical esophagus was treated successfully with an open surgical procedure. Complications seem to correlate with the duration of impaction of the foreign body in the esophagus. Eighty-three per cent of the patients with prolonged hospitalization including those who had aspiration pneumonitis and retropharyngeal abscess had foreign body impaction for more than 24 hours. Minor mucosal laceration or edema was found in only 17 per cent of the patients with foreign body impaction for less than 24 hours.

SUMMARY

Esophageal foreign bodies are most commonly found in children and coins are the only foreign objects ingested in this age group. Parental awareness should be one of the important counseling subjects to prevent this problem. In a patient with a suspected history, early diagnosis should be made by roentgenographic study or esophagoscopy. We recommend a rigid esophagoscopy under general anesthesia for esophageal foreign body removal and this procedure should be done within 24 hours of foreign body impaction to decrease any possible complications.

(Received for publication on January 10, 2000)

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สิ่งแปลกปลอมในหลอดอาหาร

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ได้ศึกษาย้อนหลังผู้ป่วย 310 รายที่มีวัตถุแปลกปลอมในหลอดอาหาร ช่วงอายุที่พบได้บ่อยที่สุดคือ อายุน้อยกว่า 9 ปี เหรียญคือสิ่งแปลกปลอมที่เป็นสาเหตุสำคัญในผู้ป่วยกลุ่มนี้ ขณะที่กระดูก ก้างปลา และชิ้นส่วนของเนื้อสัตว์พบได้บ่อยในผู้ใหญ่ ผู้ป่วยสูงอายุมักมีปัญหาจากฟันปลอมหลุดลงคอ อาการสำคัญที่ทำให้มาพบแพทย์คือ มีวัตถุแปลกปลอมติดคอ กลืนลำบาก และกลืนเจ็บ ภาพถ่ายรังสีของทรวงอก และคอจะช่วยการวินิจฉัยรวมทั้งบ่งบอกถึงลักษณะ และตำแหน่งของสิ่งแปลกปลอม ผู้ป่วยที่ให้ประวัติสงสัยจะมีสิ่งแปลกปลอมในหลอดอาหาร แม้ว่าการตรวจทางรังสีวิทยาจะให้ผลลบ ก็ควรให้การรักษาทุกราย การรักษาที่แนะนำคือ ทำ rigid esophagoscopy ภายใต้การดมยาสลบ และพบว่าถ้าสามารถนำสิ่งแปลกปลอม ออกจากหลอดอาหารภายใน 24 ชั่วโมงหลังมีสิ่งแปลกปลอมติดอยู่ จะลดโอกาสเกิดภาวะแทรกซ้อนแก่ผู้ป่วยได้

คำสำคัญ : สิ่งแปลกปลอมในหลอดอาหาร

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จดหมายเหตุทางแพทย์ ฯ 2543; 83: 1514-1518

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