XLIX.

FOREIGN BODIES IN THE ESOPHAGUS—AN ANALYSIS OF FIFTY CASES.*

BY STANTON A. FRIEDBERG, M. D.,

CHICAGO.

The symptoms caused by the presence of a foreign body in the esophagus vary to a great degree. Inasmuch as the accident occurs most frequently in young children, the difficulty of eliciting a definite history is obvious. As is to be expected, the most prominent symptom is the difficulty in swallowing. This may be so slight as to almost pass unnoticed, or, conversely, so marked that even fluids will not pass through the esophagus. In some patients, after the first irritation has subsided, the symptoms almost entirely abate, and doubt may arise as to whether or not a foreign body is present.

In other instances, symptoms persist after the foreign body has been removed or has passed into the stomach. In young children, if the obstruction is at all marked, there is a continual drooling of saliva, with an excess of secretion in the mouth. The child may hold its hand to the neck or incline the head to one side. Shortly after swallowing there is regurgitation of food. In taking the history this is usually improperly called vomiting. In patients in whom an indirect examination can be made, the pyriform fossæ are seen to be filled with secretion. When the esophageal obstruction is marked, this usually amounts to a considerable quantity, and by trickling into the larynx and trachea may excite cough. Large foreign bodies by their pressure on the tracheoesophageal wall produce respiratory disturbances to such an extent as to lead to the suspicion that the foreign body is in the air passages. Pain is intense, according to the nature of the foreign body

*Read before the Chicago Laryngological and Otological Society, May 22, 1917.

and the local reaction which it has brought about. It may be referred to the seat of the foreign body, to the posterior cervical region, if the latter is high up, or along the vertebral column, if it is in the region of the hiatus. It may be present constantly or only on attempted deglutition. From its location and its interference with swallowing, it is difficult to tell whether the foreign body is located in the upper portion of the esophagus or the pyriform sinus.

The systemic effect of the presence of foreign bodies depends upon their nature, the time they have been present, the amount of obstruction they are causing, and the local changes or reaction they have produced. A careful observation of the temperature will usually show a slight elevation, even in those cases in which the symptoms are few or indefinite. The complications that may ensue from their presence are esophagitis, periesophageal abscess, mediastinitis, or ulceration and perforation of the tracheoesophageal wall. The long continued presence of a foreign body will lead eventually to contractures and stricture of the esophagus.

One of the most important aids in diagnosis is the roentgenograph. For large foreign bodies the single picture is satisfactory. For smaller ones, when there is a doubt as to whether the foreign body is in the esophagus or trachea, stereoscopic plates are of greater value. The angle at which pictures are taken is important. I have seen pictures of the same patient made by different roentgenologists in which there was a variation of at least an inch in the apparent location of the foreign body, one plate showing it lower than it actually was. The necessity for having the clothing completely removed from the field cannot be too strongly emphasized. Otherwise, one may spend considerable time looking for an imaginary foreign body. The absence of a shadow does not eliminate the presence of a foreign body. In adults, fish or meat bones high up in the esophagus are almost impossible to interpret on a plate, on account of the impossibility of eliminating areas of ossification in the laryngeal cartilages. Certain types of large buttons, reputed to be made of vegetable ivory, do not give a shadow. The following description will illustrate the above point:

A young child was said to have swallowed a large button. There was considerable difficulty in swallowing. The roentgen-

ogram showed a fair sized button in the region of the hiatus. Esophagoscopy failed to reveal the foreign body. Immediately following the examination another roentgenogram showed that the button had disappeared. Although not quite satisfied that the trouble was over, I allowed the child to go home with instructions as to the necessary observation. The original symptoms persisted, and a few days later the child was returned to the hospital. The second examination showed the button in the usual location, whence it was easily removed. It was of vegetable ivory and did not give a shadow. The button that was visible in the plate, and which I had looked for the first time, was of bone and was attached to the waist.

The question of anesthesia is an important one. While there are not the same contraindications to the use of general anesthesia for work in the esophagus as in the trachea or bronchi, it may be said that this is only occasionally necessary. Cocain may be used quite satisfactorily in adults, but should not be employed in children. In operating the patient should be in the recumbent position. It is well to have the table arranged so that the head can be lowered quickly in case the forceps slips off the foreign body. By doing this we are able to have the benefit of the influence of gravity, the foreign body remaining in the esophagus and not passing into the stomach. Foreign bodies that have lodged in the upper portion of the esophagus may easily traverse the remaining part, if they have been loosened.

The problem connected with the extraction of foreign bodies is almost entirely a mechanical one. It is well to have as definite an idea as possible as to the size and composition of the object that has been swallowed. This may usually be obtained from the patient or parents, or from a careful study of the roentgenogram. A comparison with an object of similar nature is advisable. This was of much value in one patient with a jackstone in the esophagus. Much difficulty was encountered by reason of the forceps repeatedly slipping off one of the prongs. By questioning the mother of the patient it was found that the ends of some of the prongs were smooth while the others were knobbed. By turning the jackstone a knobbed end was seized and the foreign body brought up to the lower border of the cricoid cartilage, where it held. It

was impossible to bring it out without using enough force to bring the cricoid with it. By keeping a firm hold with the forceps and introducing my finger into the mouth of the esophagus, the jackstone was rotated and removed.

Several years later, an infant with a similar foreign body came under my care, and I anticipated having the same difficulty. However, on seizing the foreign body, it came out so easily that I lost it in the mouth. On recovering and examining it, I found that several of the prongs had been greatly worn down and that none of them was knobbed.

In the case of sharp pointed objects, such as common or safety pins, irregular or jagged pieces of bone or metal, extreme caution must be used in order not to perforate or tear the esophagus. One must resist the temptation to seize and remove the foreign body as soon as found, regardless of what damage may be done. It is much better to work slowly and carefully, planning definitely the procedure to be followed, even though another examination may be necessary. When traumatism has resulted from ill advised attempts at removal, the operation is made much more difficult. Inflammatory swelling, edema, transfixion or impaction of the foreign body also add to the difficulties.

The danger attached to the removal of foreign bodies by any other means than under direct vision cannot be too strongly emphasized. The use of probangs or umbrella bougies is rarely justified. With pointed, rough, or jagged obstacles the possibilities for harm are infinite. Even with smooth articles there is considerable danger, as is illustrated by the following instance:

A very young child was admitted to my service at the County Hospital, with a history of having gotten a piece of pig's knuckle in the throat. A physician who was called was unable to remove it, and under the theory of what would not come up must go down, he pushed it, as he thought, into the esophagus. The result was the foreign body went through the esophageal wall, infection was set up and the child was in a serious condition at the time of admission. The bone could be felt in the tissues of the neck and was removed by an external incision. Death resulted from the infection which was present.

I have outlined below an analysis of some fifty cases of foreign body in the esophagus. The following table gives the age of the various patients:

7 months to 1 year.....	5
1 to 2 years.....	13
2 to 3 years.....	6
3 to 4 years.....	9
4 to 5 years.....	2
5 to 10 years.....	4
10 to 15 years.....	2
15 to 20 years.....	1
20 to 30 years.....	2
30 to 40 years.....	2
40 to 60 years.....	3
63 years	1
Total	50

The character of the foreign bodies was as follows:

Coins or disc shaped objects.....	29
Bone	6
Pins	6
Metallic substances	6
Animal matter	2
Marble	1
Total	50

Location of foreign bodies:

Below plica cricopharyngeus.....	40
Hiatus	4
Above plica.....	4
Middle third esophagus.....	2
Total	50

Results:

Dislodged and passed into stomach.....	2
Partial removal.....	1
Extraction	47
Total	50

The problems connected with this series of foreign body cases briefly were, first, those with points, in which it was necessary to avoid injuring or perforating the esophageal wall; secondly, those in which there was considerable reaction with impaction of the foreign body; third, one in which the foreign body could not be brought out except by the aid of the finger, on account of its size; and lastly, one in which a stricture had to be dilated before the foreign body could be found. One patient, a child, had two operations, six months apart, for the same kind of a foreign body. Another patient, a hysterical girl, with a pin swallowing habit, was examined four or five times, and altogether about seven pins were removed from the pharynx and hypopharynx. Radiographs showed the presence or absence of pins with such monotonous regularity that our suspicions were at last aroused, and the girl confessed that her accidents were entirely voluntary. The only fatal case was in a child with a coin in the esophagus. There had been considerable traumatism, and death resulted from infection following a tracheoesophageal fistula.

FIFTY CASES OF FOREIGN BODY IN THE ESOPHAGUS

Age	Foreign Body	Location	Anesthetic	Problem	Point of Seizure	Result	Remarks
10 months	Ring.....	Hooked over arytenoid and projecting into mouth of esophagus..	Ether.....	.....	Presenting edge.....	Extraction; cure.....	Symptoms absent.
2 years	Belgian coin.....	Below plica cricopharyngeus, five days....	Ether.....	Unable to locate.....	Presenting edge.....	Extraction; death.....	Marked traumatism. Death from tracheoesophageal fistula.
5 years	Marble.....	At hiatus, five days...	Ether.....	Difficulty in grasping....	.....	Extraction; cure.....	
1 year	Penny.....	Below plica cricopharyngeus, one day....	Ether.....	.....	Presenting edge.....	Extraction; cure.....	
17 months	Penny.	Below plica cricopharyngeus, four days....	None.....	.....	Presenting edge.....	Extraction; cure.....	

2 years	Nickel....	Below plica cricopharyngeus.....	None.....	.....	Presenting edge.....	Extraction; cure.....	
13 months	Penny.....	Below plica cricopharyngeus.....	Ether.....	.....	Presenting edge.....	Extraction; cure.....	
5 years	Whistle....	Below plica cricopharyngeus, four days...	Ether.....	.....	Presenting edge.....	Extraction; cure.....	
30 years	Meat bone	In right pyriform sinus, one day.....	Ether, Cocain...	Marked edema right half of hypopharynx....	Presenting part.....	Extraction; cure.....	Overlooked, on account of edema at first examination.
14 months	Metal toy .	Below plica cricopharyngeus, several days .	Ether.....	.....	.....	Dislodged; passed two days later....	
17 years	Meat bone.	Below plica cricopharyngeus, one day.....	Ether.....	.....	Presenting edge.....	Extraction; cure.....	
3 years	Brass button.....	Below plica cricopharyngeus, two days....	None.....	.....	Presenting edge.....	Extraction; cure.....	

Age	Foreign Body	Location	Anesthetic	Problem	Point of Seizure	Result	Remarks
18 months	Part of watch movement	Below plica cricopharyngeus, one and one-half days.....	Ether.....	To avoid tearing wall on account of projecting pinions.....	At pinion.....	Extraction; cure.....	
8½ months	Open safety pin....	Below plica cricopharyngeus, four days...	Ether.....	Point up.....	.....	Extraction; cure.....	Pin closed with Arrowsmith forceps.
3 years	Nickel, two pennies...	Below plica cricopharyngeus, three days...	Ether.....	.....	Presenting edge.....	Extraction; cure.....	
2 years	Telephone slug.....	Below plica cricopharyngeus, seven days...	Ether.....	.....	Presenting edge.....	Extraction; cure.....	
20 months	Quarter....	Below plica cricopharyngeus, several days..	Ether.....	.....	Presenting edge.....	Extraction; cure.....	
19 months	Button....	Below plica cricopharyngeus, six days.....	Ether.....	.....	Presenting edge.....	Extraction; cure.....	

3 years	Telephone slug.....	Below plica cricophar- yngueus, two and one- half days.....	None.....		Presenting edge.....	Extraction; cure.....	Pin closed with Arrowsmith for- ceps.
19 months	Telephone slug.....	Below plica cricophar- yngueus, five days....	None.....	.....	Presenting edge.....	Extraction; cure.....	
2 years	Button....	Below plica cricophar- yngueus, thirteen days	None.....	.....	Presenting edge.....	Extraction; cure.....	
7 months	Open safe- ty pin....	Below plica cricophar- yngueus, several days.	None.....	Point up.....	.....	Extraction; cure.....	
48 years	Chicken bone.....	Hiatus, three days....	Cocain....	Transfixed. Rotation....	Grasped near end and withdrawn...	Extraction; cure.....	
3 years	Two pen- nies.....	Below plica cricophar- yngueus, thirteen days	None.....		Presenting edge.....	Extraction; cure.....	
16 months	Metal toy goat.....	Below plica cricophar- yngueus, three days...	None.....	Rotation.....	Head.....	Extraction; cure.....	

Age	Foreign Body	Location	Anesthetic	Problem	Point of Seizure	Result	Remarks
48 years	Part of fish fin.....	Above bronchial crossing, one day.....	Cocain....	Impaction....	Presenting edge.....	Extraction; cure.....	
26 years	Picture button....	Below plica cricopharyngeus, three hours...	Cocain....	Pin portion partly open. Rotation....	Presenting edge.....	Extraction; cure.....	
2 years	Button....	Below plica cricopharyngeus, four and one-half months.....	None.....	.....	Presenting edge.....	Extraction; cure.....	Symptoms respiratory. Diffuse bronchitis.
7 months	Open safety pin....	Middle third of esophagus, seven days.....	None.....	Point down closed by drawing into tube.....	Ring portion.	Extraction; cure.....	
4 years	Iron washer.....	Middle third of esophagus, a number of months.....	Ether.....	Dilatation of stricture before foreign body could be found.....	Presenting edge.....	Extraction	

35 years	Bone.....	Hiatus.....	Cocain.....	Transfixed...	Grasped and drawn up- ward. Slip- ped off for- ceps.....	Dislodged, passed into stomach....
4 years	Quarter....	Below plica cricophar- yngueus, two and one- half days.....	None.....	Impacted....	Presenting edge.....	Extraction; cure.....
3½ years	Nickel.....	Below plica cricophar- yngueus, one day....	None.....	.....	Presenting edge.....	Extraction; cure.....
62 years	Meat.....	Below plica cricophar- yngueus, three days...	Cocain....	Impacted, irritable.....	.....	Extraction; cure.....
12 years	Pin.....	Above plica, two days.	Cocain....	Point in tis- sues.....	At head....	Extraction; cure.....
3½ years	Penny.....	Below plica cricophar- yngueus, two and one- half days.....	None.....	.....	Presenting edge.....	Extraction; cure.....
3 years	Pearl but- ton.....	Below plica cricophar- yngueus, six hours....	None.....	.....	Presenting edge.....	Extraction; cure.....

Six months before
had similar acci-
dent.