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review

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## Foreign bodies in the gastrointestinal tract : A report of 53 patients and a brief literature review

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### ABSTRACT

The management of 53 patients with foreign bodies in their gastrointestinal tract is herein reported. Twenty-four were located in the esophagus, 21 in the stomach, 5 in the small bowel, 1 in the large bowel and 2 is unknown. A flexible gastrointestinal endoscope was the instrument of choice in 36 patients (67.9%) and a flexible colonoscopy in 2 patients (3.8%). These 38 foreign bodies were all successfully managed endoscopically. The surgery rate was 3.8%. Twenty-six percent of the cases were managed under general anesthesia and no morbidity and mortality were observed. Coins lodged in the esophagus and meat impactions were removed promptly. Sharp-pointed foreign bodies, however, can be difficult to manage, and should be removed as soon as possible. Button batteries lodged in the gastrointestinal tract represent an emergency situation and should be removed endoscopically or surgically. The flexible endoscope has become the instrument of choice in managing foreign bodies in the gastrointestinal tract. *Ryukyu Med. J., 17(4)199~201, 1997*

Key words: foreign bodies, gastrointestinal tract, type of objects, appropriate management

### INTRODUCTION

Foreign body ingestion and food impaction occur commonly. Fortunately, the vast majority of foreign bodies in the gastrointestinal tract will pass spontaneously. However, the remaining 10% to 20% require nonoperative intervention, and about 1% will require surgery<sup>1-7)</sup>. The purpose of this report is to describe the management of 53 patients with foreign bodies in their gastrointestinal tract and discuss the appropriate management for such cases.

### METHOD AND RESULTS

From January 1981 to March 1997, 53 cases of foreign bodies in the gastrointestinal tract were treated at our University Hospital and the affiliated hospitals. Table 1 shows the age distribution of the patients. They consisted of 32 males and 21 females, and 25 (60.4%) were younger than 10 years of age. Table 2 shows the location of the objects, with 24 (45.3%) being in the esophagus, 21 (39.6%) in the stomach, 5 (9.4%) in the small bowel, and 1 (1.9%) in the large bowel. One of the remaining 2 cases was able to vomit out the foreign body while the other passed it out spontaneously. Table 3 shows

Table 1 Age distribution

Age (years old)	No. of patients
0 ~ 10	25
11 ~ 30	5
31 ~ 50	7
51 ~ 70	11
71 ~	5
Total	53

Table 2 Anatomic location

Location	No. of patients
Esophagus	24 (45.3%)
Stomach	21 (39.6%)
Small bowel	5 (9.4%)
Large bowel	1 (1.9%)
Unknown	2 (3.8%)
Total	53 (100%)

the method of diagnosis. Thirty-seven (69.8%) were diagnosed by chest and abdominal X-ray, 12 (22.6%) by endoscopy, 1 (1.9%) by a barium study and 1 by surgery.

Table 3 Method of diagnosis

Method	No. of patients
X-ray	37 (69.8%)
Endoscopy	12 (22.6%)
Barium study	1 ( 1.9%)
Surgery	1 ( 1.9%)
Vomiting	1 ( 1.9%)
Passing	1 ( 1.9%)
Total	53 ( 100%)

Table 4 Method of removal

Method	No. of patients
Conservative management	13 (24.5%)
Gastrointestinal endoscopy	36 (67.9%)
Colonoendoscopy	2 ( 3.8%)
Surgery	2 ( 3.8%)
Total	53 ( 100%)

Table 4 indicates the method of removal. The gastrointestinal endoscope was used in 36 (67.9%), a colonoscopy in 2 (3.8%), and surgery in 2 (3.8%). The remaining 13 (24.5%) were all treated conservatively. Regarding the correlation of the location of the objects with the method of removal, 22 (91.7%) foreign bodies in the esophagus were removed with a gastrointestinal endoscope, and 2 (8.3%) were treated conservatively (one vomited out the object while the other passed it out spontaneously). Fourteen (66.7%) foreign bodies in the stomach were removed with a gastrointestinal endoscope and 7 (33.3%) were managed conservatively. Regarding the foreign bodies in the small bowel, 2 (40%) were treated conservatively, 1 with a colonoscopy, and 2 by surgery. Three of the 5 foreign bodies in the small bowel were lodged in the terminal ileum proximal to the ileocecal valve. One of them (wrist watch) was removed with a colonoscopy, and the remaining 2 (a coin and a fish bone) were removed surgically. One (metal bottle cap and zipper) in the colon was removed with a colonoscopy. For discussion purposes, foreign bodies are generally divided into five types (food, blunt objects, long objects, sharp-pointed objects, and miscellaneous), while the patients are separated into two groups; young (from 4 months to 10 years of age) and older (from 11 to 91 years of age). Table 5 shows the relationship between the patient group and the type of object. The objects were 4 foods (3 pieces of meat and one piece of an orange), 17 blunt objects (15 coins, 1 button and 1 marble), 1 long object (a toothbrush), 27 sharp-pointed objects (9 fish or chicken bones, 4 toy parts, 2 pins, 2 dental prostheses, 2 pull-top cans, 1 tack, 1 needle, 1 zipper, 1

Table 5 Relationship between the patient group and the type of object

The type of object	Young group	Older group
Food	0	4
Blunt objects	14	3
Long objects	0	1
Sharp-pointed objects	8	19
Miscellaneous	3	1*
Total	25	28

\*Batteries and coin

drug packet, 1 bottle metal cap, 1 key holder, 1 wrist watch, 1 metal fragment) and 4 miscellaneous objects (2 disk batteries, one cigarette, and a gas lighter). Concerning the relationship between the type of object and the patient group, the young group had 25 patients, while the older group had 28. All food objects were found in the older group. A patient experiencing food (orange peel) impaction had previously undergone colonic reconstruction for esophageal carcinoma. The blunt objects, especially coins, were the most common foreign bodies in the young group (56.0% of young group and 26.4% of the total series). The sharp-pointed objects comprised many, divergent foreign bodies. Of these, bones (fish or chicken) were the most common and were specific for the older group. One patient had two foreign bodies (two batteries and a coin), and was a psychiatric patient. Of the 53 patients, 5 were psychiatric patients and 4 were mentally retarded. Fourteen (26.4%) of the foreign body removals were done with the patients under general endotracheal anesthesia, including infants, children and deliberate ingestors. The method of removal was 12 by endoscope and 2 by surgery with no morbidity or mortality.

## DISCUSSION

In general, 80% to 90% of foreign bodies in the gastrointestinal tract tend to pass spontaneously, but 10% to 20% will have to be removed endoscopically, and approximately 1% will require surgery<sup>1-4)</sup>. Eighty percent of foreign body ingestions occur in the young group, followed by edentulous adults, and psychiatric and mentally-retarded patients<sup>5)</sup>. In contrast, in this series, 47% of the foreign body ingestions occurred in the young group, and 72% of the ingestions were removed by endoscope. The higher occurrence of the ingestions in the older group in our report than in the literature is unclear, and thus requires further investigation. Once a foreign body ingestion is diagnosed, the physician must decide whether or not endoscopic intervention is necessary, what degree of surgery is required, and then quickly choose the most appropriate treatment method. Our policy for the treatment of foreign body ingestions is to

remove them by endoscope as soon as possible in order to avoid any serious complications, such as obstruction, fistula or perforation, that could result from a delay<sup>6,7)</sup>. Subsequently, about 72% of the ingested foreign bodies in our series were removed endoscopically. There was no morbidity and mortality. A study<sup>8)</sup> showed that the only factor consistently correlated with major complications was the presence of a foreign body in the gastrointestinal tract for more than 24 hours. Our results thus confirmed the policy to perform urgent endoscopic treatment of foreign body ingestion to be the most appropriate. Our physicians have two choices of instruments to use through the endoscope: the polypectomy snare or the grasping forceps. Using these devices, we never failed to remove the ingested objects with the endoscope. The decision to intervene endoscopically in the management of an ingested foreign body may depend on both the patient's age and the clinical condition; the size, shape and the type of the ingested material; the anatomic location in which the object is lodged; and the technical ability of the physician<sup>6,7)</sup>. Particularly sharp-pointed objects and batteries lodged in the gastrointestinal tract require urgent endoscopic removal. In this situation, flexible endoscopy is performed under conscious sedation or general anesthesia to retrieve these objects. To remove sharp-pointed objects, overtubes offer digestive tract protection during retrieval<sup>6,7,9)</sup>. In this report, these objects were removed endoscopically without overtubes, but without any complications. For the treatment of blunt objects (such as coins and buttons) lodged in the esophagus, extraction should be done as soon as possible. In the vast majority of patients in whom the blunt foreign body has entered the stomach, conservative outpatient management is indicated. Most objects are passed within 4 to 6 days<sup>6,7)</sup>. On the other hand, the majority of sharp-pointed objects that enter the stomach will pass through the remaining gastrointestinal tract without incident. However, the risk of complications due to a sharp-pointed object is as high as 35%<sup>4)</sup>. Therefore, the sharp-pointed objects that have passed into the stomach or proximal duodenum should be retrieved endoscopically. During conservative treatment, symptoms of abdominal pain, vomiting or fever are indications for immediate surgical evaluation. In this report, two patients underwent the surgical removal of ingested objects lodged in the terminal ileum. The ingested objects were a coin and a fish bone. The coin lodged in the terminal ileum was removed surgically because the patient began showing ileus symptoms of abdominal pain and vomiting. Concerning the patient with the ingested fish bone, although the preoperative diagnosis was acute appendicitis, the appendix was not found to be inflamed. The fish bone had perforated the terminal ileum. In conclusion, for all

foreign bodies in the esophagus, stomach or duodenum, the flexible endoscope is considered to be the best instrument of choice. The advantages of the flexible endoscope are numerous. It is safe to use by physicians of all abilities; it does not usually require general anesthesia; it allows for the easier examination of the stomach and at least part of the duodenum; and it is more cost-effective, since it requires no hospitalization of such patients.

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## REFERENCES

- 1) Webb W.A.: Management of foreign bodies of the upper gastrointestinal tract. *Gastroenterology*. 94: 204-216, 1988.
- 2) Henderson C.T., Engel J. and Schlesinger P.: Foreign body ingestion: review and suggested guidelines for management. *Endoscopy*. 19: 68-71, 1987.
- 3) Nandi P. and Ong G.B.: Foreign body in the oesophagus: review of 2394 cases. *Br. J. Surg.* 65: 5-9, 1978.
- 4) Vizcarrondo F.J., Brady P.G. and Nord H.J.: Foreign bodies of the upper gastrointestinal tract. *Gastrointestinal endoscopy*. 29: 208-210, 1983.
- 5) Webb W.A.: Management of foreign bodies of the upper gastrointestinal tract: update. *Gastrointestinal endoscopy*. 41: 39-51, 1995.
- 6) Ginsberg G.G.: Management of ingested foreign objects and food bolus impactions. *Gastrointestinal endoscopy*. 41: 33-38, 1995.
- 7) Stack L.B. and Munter D.W.: Foreign bodies in the gastrointestinal tract. *Emergency medicine clinics of north america*. 14: 493-521, 1996.
- 8) Chaikhouni A., Kratz J.M. and Crawford F.A.: Foreign bodies of the esophagus. *The american surgeon*. 51: 173-179, 1985.
- 9) Bortoni G., Pacchione D., Conigliaro R., Sassatelli R., Pedrazzoli C. and Bedogni G.: Endoscopic protector hood for safe removal of sharp-pointed gastroesophageal foreign bodies. *Surg Endosc.* 6: 255-258, 1992.