Management of Foreign Bodies in the Upper Gastrointestinal Tract

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Abstract

Records of 55 consecutive patients who had ingested foreign bodies were reviewed retrospectively. Foreign bodies were located in the esophagus, stomach and duodenum in 25, 27 and 3 patients respectively. Eleven of these passed through the entire gastrointestinal tract spontaneously and uneventfully. Endoscopic extraction was successful in 36 patients while 8 needed surgical removal of the ingested object. Only one death was encountered. We conclude that using simple guidelines, foreign body ingestion can be managed with a low incidence of complications and mortality.

Key words: Therapeutic endoscopy.

Introduction

Foreign body ingestion is a common clinical problem in children and adults. Some of these foreign bodies lodge in the esophagus, especially in the presence of a luminal narrowing, while others pass into the stomach. Approximately 80 percent of ingested foreign bodies reaching the stomach pass spontaneously through the entire gastrointestinal (GI) tract uneventfully. During their passage, a few produce complications like impaction, obstruction, mucosal ulceration, hemorrhage, perforation or fistula formation.

Till a couple of decades ago, surgery was the only therapeutic modality available for these patients. With the advent of therapeutic endoscopy and technologic improvements in the equipment, endoscopic removal of ingested foreign bodies has proved to be a valuable and less invasive therapeutic option. We describe here our experience with upper GI foreign bodies and their removal in a gastroenterology unit over a period of 5 years (1984-89). This includes the experience reported earlier on children and with some unusual foreign bodies.

Material and Methods

Fifty five patients (aged 9 months to 68 years) presented to us in the last 5 years with an ingested foreign body lying in the upper GI tract. None of the patients suffered from psychosis or any other mental aberration. Of these foreign bodies, 25 were lodged in the esophagus, 27 in the stomach and three in the duodenum. Flat, round objects (coins) comprised the largest group (19 patients). Sharp and/or long objects were present in 15 patients and consisted of pins and needles (6), screws (2), dental reamers (2), bones (2), a pair of forceps, a hairpin and part of a blade. Food bolus (6) and fruit seed (3) impaction was seen in 9 patients, all with pre-existing esophageal benign strictures or malignancy. Seven patients had swallowed rounded or irregular shaped objects (dentures 3, whistles 3, metallic ring 1). Five patients had swallowed long but blunt objects, including tooth brushes (2), datums (neem sticks: 2) and a 5 cm long pencil piece (1). Only 3 patients presented more than 48 hours after the ingestion of the foreign body. Two of them had swallowed dentures 2 weeks and 2 years ago, while one had swallowed a tooth brush 3 months ago.

The diagnosis was based either on a history of witnessed ingestion of a known foreign body or observation during investigation for dysphagia or retrosternal pain. Metallic objects and bones were visible on plain films while the diagnosis of impaction of food bolus or seed on a pre-existing stricture needed contrast studies of the esophagus.

All foreign bodies with local complications were managed surgically irrespective of location and type of foreign body. Management of all other foreign bodies was decided based on the nature, size and shape of the foreign body, its location and time since ingestion. All uncomplicated foreign bodies lying in the esophagus at presentation were taken up for endoscopic removal, except 2 dentures impacted for a prolonged period which were taken up for primary surgical extraction. Regarding foreign bodies in the stomach and duodenum, those which were round and blunt were allowed a trial of spontaneous passage under fluoroscopic monitoring every 24 hours. Larger coins, objects larger than 3 cm in any dimension, and most of the sharp objects were taken up for endoscopic removal. Two screws and one pin in the stomach were small in size and were allowed to pass spontaneously in spite of being sharp. In the case of a long (approximately 6 cm) pin in the second part of the duodenum, endoscopic extraction was thought to be difficult and hazardous and surgical removal was undertaken at the first instance. Wherever endoscopic extraction failed, surgery was resorted to.

Results

In 11 patients, foreign body removal by endoscopic or surgical means was thought to be unnecessary by the above criteria, and all these objects (7 coins, 2 screws, 1 pin, 1 small piece of pencil) passed spontaneously through the entire GI tract as confirmed by serial radiography. All these objects were located in the stomach or duodenum at presentation. Forty
patients (8 children, 32 adults) underwent an attempt at endoscopic extraction using Olympus endoscopes and grasping devices. After a mock rehearsal, to test the grasping efficacy of the device chosen for the particular type of foreign body, endoscopy was performed and pins, needles and the dental reamers were grasped with the forceps which was then withdrawn till the objective lens of the endoscope. The endoscope was then removed with the forceps in position. A sewing needle could be pulled back with a forceps into the biopsy channel of a pediatric colonoscope. In one patient, who had ingested one-fourth part of a shaving blade, an overtube was used. No complications were encountered during or after endoscopic removal, which was successful in 36 of 40 (90%) patients.

Eight patients underwent surgical removal of the foreign bodies. In 4 patients, this was done as a primary procedure. Of these, one patient had a long sharp needle lying in the third part of the duodenum and 3 had dentures impacted in the esophagus at presentation. In one of them, a full denture had produced a tracheoesophageal fistula and in the other two, parts of the dentures had been present for long duration (two weeks and 2 years) and were impacted. Surgery was uncomplicated except in the patient with tracheoesophageal fistula who died of respiratory complications. In another 4 patients, surgery was resorted to as endoscopic extraction failed. Three of these foreign bodies (2 tooth brushes, 1 impacted needle) were in the stomach and the fourth one was an impacted bone in the esophagus. In these cases, impaction was detected only at endoscopic examination. Surgical extraction was uneventful in all of them.

Discussion

Foreign body ingestion is more common in children, prisoners, psychotic patients and alcoholics. Esophageal strictures may predispose to food bolus obstruction as happened in 9 of our patients. Esophageal foreign bodies have a low probability of spontaneous passage, and carry a risk of aspiration into the respiratory tract. They must, therefore, be removed at the earliest. Once the foreign bodies reach the stomach, most (80-90%) will pass out spontaneously. Of the 30 patients with foreign bodies in the stomach or duodenum, we attempted endoscopic removal in 18 and surgical extraction in one. Endoscopic removal failed in only 10% of patients and these foreign bodies were either impacted or were long. Small, rounded or blunt objects should be allowed to pass spontaneously while long or sharp objects should be removed, if possible endoscopically. All foreign bodies with local complications like impaction, ulceration or fistula formation should preferably be removed surgically irrespective of their location and type.

During endoscopic removal of foreign bodies, care should be taken not to cause injury to the gut mucosa. The foreign body should be so grasped that its sharp end is towards the endoscope. Overtubes may be required for removal of blades or other sharp objects. Use of an endoscope with a larger working channel may at times be more rewarding as the grasping device with the held foreign body can be withdrawn into the endoscope, avoiding injury to the gut. Performance of a mock rehearsal can also help in planning the retrieval. We have earlier shown that children may require special attention. General anesthesia is usually needed for small children who are uncooperative or in pain. In our experience, older children and adults can be managed with the usual premedication used for routine endoscopic procedures i.e. intravenous hydroxyzine butyl bromide and pentazocine/diazepam.

References