A novel approach to removal of ingested sharp objects in a 25-year old patient with 23 prior procedures

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Abstract

Recurrent ingestion of sharp foreign body ingestion is a rare phenomenon but it challenges the surgeon since the patient often has been operated on several times before, making a simple gastrotomy a high risk procedure. Here we report a patient with 23 prior procedures due to foreign body ingestion of which 15 were knives. In the case presented she had an 18 cm long steak knife embedded in the esophageal mucosa. An overtube was not available why a rigid endoscope was successfully used in combination with a colon polypectomy snare.

Introduction

Foreign body ingestion (FBI) is often accidental ingestion of teeth, dentures, plastic, fish- or chicken bones in the elderly population (>65 years) [1]. However, in a study of Palta et al they investigated an adult population with a mean age of 45 years and found that 92% of the cases were intentional. Eightyfive percent suffered from a psychiatric disease and 84% were recurrent cases [2]. Zamar, *et al.* included 1,164 patients with gastrointestinal FBI in a retrospective study. Of these, 169 were sharp foreign bodies. The study concluded, that upper gastric sharp foreign bodies should be removed endoscopically when possible, and the size of the ingested object correlated with the need of a surgical approach [3].

Intentional FBI is a rare phenomenon, but cases are usually observed in inmates, substance abusers and mentally ill patients [4,5]. Recurring incidences complicate surgery due to increased risk of formation of adhesions and ileus. Palta et al. reported 262 cases of gastric foreign body ingestion with a success rate of 90% with endoscopic extraction and a need for surgical intervention in 11% of the cases [2].

Here we report an extreme case of a 25-year old woman with 25 prior admissions (23 procedures) due to intentional ingestion of foreign bodies, of which 14 were knives or other sharp instruments. An explorative laparotomy would have been a high risk procedure due to numerous previous surgeries. An overtube was not available and therefore as a last resort the knife was removed with a rigid endoscope and a colon polypectomy wire snare.

Case Presentation

A 25-year old woman was admitted to our institution due to ingestion of a 18 cm long knife 2-4 hours previously (Figure 1). She had a history of paranoid schizophrenia, borderline personality disorder

and an unspecified eating disorder. Over the past four years she had been admitted 25 times due to ingestion of foreign bodies in attempts of suicide. Of these, 11 incidences were ingestion of knives (Figure 2). She had undergone 16 endoscopies and 12 laparotomies (six conversions from endoscopy to laparotomy). Besides this her medical history was trivial.

Figure 1: Thoracic x-ray of 25-year old woman obtained during her 26th admission due to intentional ingestion of an 18 cm long knife located in the upper half of her esophagus

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Keywords: Foreign body ingestion; Endoscopy, Esophagus

Received: February 25, 2019; **Accepted:** March 06, 2019; **Published:** March 08, 2019

Figure 2: Compilation of x-rays from 15 admissions due to ingestion of knives. The case reported here is depicted as 'Ev. No 26'. Beside knives the patient has had 11 ingestions of toothbrushes, pens and lighters (not shown here)

On admission she was stable and x-ray showed an 18 cm steak knife located in the upper half of her esophagus with the wooden shaft leading (Figure 1). Due to 12 previous laparotomies it was decided she was not a good candidate for laparotomy and several attempts to remove the knife with a flexible endoscope were made. However, the tip of the knife was embedded in the esophageal mucosa, just below the upper esophageal sphincter, which further complicated mobilization of the knife. Finally, a rigid endoscope was introduced operated by an ear-nose-throat specialist. The tip of the rigid scope was retracted on the tip of the knife and pressed down by which the tip of the knife slipped out of the mucosa and was captured by the rim of the rigid scope. A colon polypectomy wire snare was introduced through the rigid endoscope and placed around the tip of the knife (Figure 3). The knife could then safely be extracted with the tip embedded in the rim of the rigid scope.

Figure 3: A: overview of the procedure with the patient prone on the back with rigid endoscope and a flexible small endoscope in the esophagus. The knife was placed with the tip upwards embedded in the mucosa. B: Golden standard of removal of sharp foreign objects with an overtube. The flexible endoscope is inserted through the overtube, the foreign object is grasped and inserted into the overtube before retraction

Discussion

Cases of intentional sharp FBIs are uncommon and are often patients suffer from mental illness or are inmates with a wish to be transferred to a hospital facility [1,2,6]. So far, our case has 29 admissions due to intentional foreign body ingestions, of which 15 were sharp objects (the incident described being nr. 26).

Use of a colon polypectomy wire snare to remove foreign bodies in the upper gastrointestinal canal has been described earlier and has a high success rate, also with larger objects [2]. It can provide a very strong traction force, but for objects embedded in mucosa, correct placement of the sling can be extremely difficult. Applying a colon polypectomy wire snare through the working channel of a flexible endoscope in the area just below the upper esophageal sphincter is challenging because of loss of vision and the space needed to open the snare. At our institution rigid endoscopy of the esophagus has been

abandoned as a routine procedure due to risk of perforations [7-9]. Therefore use of a rigid endoscope is not recommended since use of an overtube most often will solve the issue. Our standard procedure for cases like this is always use of an overtube (Figure 3B). However, in extreme cases like the one described above, or where an overtube is not available, careful use of a rigid endoscope in the hands of a specialist and a polypectomy wire snare therefore must be kept in mind as an absolutely last resort.

Acknowledgements

None

Funding Statement

None of the authors received any funding for this project

Conflict of Interest

The authors declare that they have no conflicts of interest to disclose.

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