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Management of foreign body ingestion and food impaction: A case series

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الملخص:

المقدمة: يُعَدُّ ابتلاع الأجسام الغريبة وانحشار الطعام لدى البالغين من المشاكل الشائعة بقسم الطوارئ التدخل بالمنظار يُعَدُّ ضرورياً للعلاج والتقليل من خطر حدوث مضاعفات.

الهدف: وصف النتائج والتدخلات العلاجية بالمنظار للمرضى البالغين الذين لديهم تاريخ من ابتلاع غير مقصود لأجسام غريبة وانحشار الطعام، والذين أحيلوا إلى قسم مناظير الجهاز الهضمي للبالغين.

المنهجية: استرجعت تقارير التنظير لجميع المرضى البالغين المحولين إلى قسم مناظير الجهاز الهضمي جراء تناول غير مقصود لجسم غريب، أو انحشار للطعام، من السجلات الإلكترونية في قسم المناظير، مركز بنغازي الطبي، من مارس 2010 إلى ديسمبر 2019 باستخدام الكلمات الرئيسة ذات الصلة.

النتائج: تمت إحالة ما مجموعة 20 مريضاً (7 ذكور و13 أنثى) إلى قسم مناظير الجهاز الهضمي للبالغين جراء انحشار الطعام أو ابتلاع غير مقصود لجسم غريب، خلال الفترة من مارس 2010 إلى ديسمبر 2019.

لدى 11 مريضاً ممن ابتلعوا أجسام غريبة، حدد الجسم الغريب وإزالته في 6 (54.5٪) مرضى.

تسعة مرضى عانوا انحشار للطعام، وعلى الرغم من ذلك، حددت بلعة الطعام ومعالجتها في 7 فقط (77.7٪) منهم.

كان النوع الأكثر شيوعاً من الأطعمة التي لوحظت في الدراسة هو قطعة لحم عالقة في المريء (4 مرضى). أزيلت في ثلاثة مرضى وفي الرابع دفعت إلى المعدة.

الاستنتاجات: عدد الحالات المحالة إلى قسم المناظير لدينا بسبب بلع جسم غريب وانحشار الطعام صغير نسبياً. في أكثر من نصف المرضى، يمكن التعرف على جسم غريب أو بلعه أو مادة غذائية، وفي كل منهم، كانت العلاج بمنظار الجهاز الهضمي ناجحاً مع عدم وجود أي مضاعفات.

الكلمات المفتاحية: تنظير الجهاز الهضمي، انحشار الطعام، ابتلاع جسم غريب، الجهاز الهضمي.

Abstract

Background: Foreign body ingestion, and food impaction, in adults are common emergency department problems. Endoscopic intervention is required for potential therapy to minimize the risk of complications

Aim: To describe the endoscopic findings and interventions for patients with a history of unintentional foreign body ingestion, and food impaction, referred to the adult gastrointestinal endoscopy service.

Methods: Endoscopy reports for all patients referred to adult gastrointestinal service with a history of non-intentional foreign body ingestion, or food impaction were retrieved from the electronic records in the Endoscopy Department at the Benghazi Medical Center, from March 2010 to December 2019, using relevant keywords.

Results: A total of 20 patients (7 males and 13 females), were referred to the adult endoscopy service with a history of either food impaction or non-intentional foreign body ingestion, during the period from March 2010 to December 2019.

Eleven patients had a history of foreign body ingestion, with a foreign body identified and removed in 6 (54.5%) patients.

Nine patients presented with a history of food impaction, while a food bolus was identified and managed in 7 (77.7%) of them.

The most common type of impacted food in the study series was a piece of meat stuck in the esophagus (4 patients). In three patients, the piece was removed and in the fourth, it was pushed into the stomach.

Conclusions: The number of referred cases to our Endoscopy Department is relatively small. In more than half of the patients, foreign body or food bolus or material could be identified, and in all of them, endoscopic management was successful with no reported complications.

Keywords: endoscopy, food impaction, foreign body, gastrointestinal.

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1. INTRODUCTION

Foreign body ingestion and food impaction are common Emergency Department issues, that usually require urgent endoscopic intervention. [1]

In the literature, the term "foreign body" can also be used to denote both true foreign body and impacted food material (e.g., fish bone). In this case series, these are described separately.

Most of the cases of intentional foreign body ingestion are in the pediatric age group especially from 6 months to 3 years of age, while in adults, it's usually seen in patients with psychiatric disorders, mental retardation, or drug intoxication. [2]

In contrast, food impaction is more common in elderly people or in the presence of underlying gastrointestinal abnormality [3-5]

Food boluses or foreign bodies usually pass throughout the gastrointestinal tract and are excreted with feces, without complications. Only 10-20% of ingested foreign bodies require intervention to avoid complications (ulceration and/or perforation), while the majority will pass through the gastrointestinal tract without any complication. [6]

The most common site where foreign bodies or food boluses are stuck is the esophagus. It's rare for them to lodge in other parts of the gastrointestinal tract. [6]

Endoscopic intervention is the definitive diagnostic and therapeutic option, with different endoscopic techniques available for safely retrieving foreign bodies and impacted food in the upper gastrointestinal tract. Laryngoscopy may be indicated in some patients, and only a minority will require surgical intervention. [7-10]

Foreign bodies or impacted food are usually found in 50-90 % of patients with relevant history during an upper endoscopy. [11-15]

Although asymptomatic patients with a history of non-sharp or non-threatening foreign body ingestion can be observed for up to 24 hours, an upper gastrointestinal endoscopy is generally recommended for most cases with a history of foreign body ingestion. [9,11,12,16–20]

The main types of foreign bodies and food boluses reported in the literature were coins, fish or chicken bones, or dental prostheses. [12]

In this case series, we described the endoscopic findings and interventions for patients with a history of unintentional foreign body ingestion, and food impaction referred to the adult gastrointestinal endoscopy service and their management.

2. MATERIALS AND METHODS:

Endoscopy reports were retrieved from the electronic records in the Endoscopy Department at the Benghazi Medical Center, from March 2010 to December 2019. Data are stored in Endobase software and a search was made by using relevant keywords.

Inclusion criteria were all patients referred to the adult gastrointestinal service with a history of non-intentional foreign body ingestion or food impaction.

The following data were collected from endoscopy reports: age, sex, indication for endoscopy, findings, and any interventions.

3. RESULTS:

A total of 20 patients (7 males and 13 females) were referred to the adult endoscopy service with a history of either food impaction or non-intentional foreign body ingestion, during the period from March 2010 to December 2019.

The age range of patients was 14-84 years, with a mean of 37.8 years.

Eleven patients had a history of foreign body ingestion, with a foreign body identified and removed in 6 (54.5%) patients.

Nine patients presented with a history of food impaction, while a food bolus was identified and managed in 7 (77.7%) of them.

The most common type of impacted food in the study series was a piece of meat stuck in the esophagus (4 patients). In three patients, the piece was removed and in the fourth, it was pushed into the stomach.

Metallic needles were the most commonly observed type of foreign body and were identified and endoscopically removed in 5 patients, all females.

The endoscopic findings of the study series, and endoscopic intervention, are shown in the table.

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Endoscopic Findings and Intervention

Patient №	Age (years)	Sex	History	Endoscopic findings	Procedure
1	44	M	Food impaction	Piece of meat found obstructing the distal esophagus	Cut into small particles by biopsy forceps, and pushed into the stomach, although a large particle was removed by grasping forceps.
2	76	M	Food impaction	Impacted food bolus in the upper esophagus	removed by endoscopy, pushed to the stomach with biopsy forceps.
3	14	F	Foreign body ingestion	A pin needle was found in the prepyloric area, with mild erythematous antral gastritis.	Removed by polypectomy snare
4	20	F	Foreign body ingestion	No foreign body found	
5	16	F	Foreign body ingestion	A pin was found in the prepyloric area.	Removed by polypectomy snare
6	48	F	Food impaction	No food bolus found	
7	46	F	Food impaction	A peach seed was found in the stomach.	The patient missed a second arranged endoscopy
8	15	F	Foreign body ingestion	A pin was found at the gastric body, with erythematous pangastritis.	Removed by polypectomy snare
9	26	F	Foreign body ingestion	Normal	
10	61	M	Food impaction	A piece of meat stuck at GEJ	Pushed into the stomach with biopsy forceps
11	23	F	Foreign body ingestion	A sewing needle, in the second part of the duodenum.	Removed using rat tooth forceps
12	21	F	Foreign body ingestion	Normal	
13	19	F	Foreign body ingestion	Normal. Examination was done under X-ray. The needle was seen at the level of the mid-esophagus but outside the esophageal lumen bronchial	Follow-up with X-ray, and after one month it was removed by colonoscopy.
14	30	F	Foreign body ingestion	Superficial erosion beyond cricopharyngeum	
15	53	M	Food impaction	A food bolus found below the upper esophageal sphincter	Pushed into the stomach with biopsy forceps
16	43	M	Foreign body ingestion	Single erosion in the middle third of the esophagus	
17	84	M	Food impaction	A piece of meat stuck at GEJ	Removed in pieces by dormia basket
18	24	F	Food impaction	A piece of peanut stuck at 30cm from incisor teeth due to tight esophageal stricture.	Removed by snare
19	20	F	Foreign body ingestion	A pin stuck at the pyloric ring.	Removed by oval snare
20	73	M	Food impaction	A piece of meat stuck at GEJ. The esophagus was full of liquids and food particles.	Removed by snare

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4. DISCUSSION

Sites of impaction:

In this case series, foreign bodies or impacted food were identified in 13 cases.

Eleven patients with a history of foreign body ingestion were endoscoped, and foreign bodies were detected in five of them. Most of the foreign bodies were found in the stomach (4 patients).

Out of the 9 patients with a history of food impaction, a food bolus or particle was found in 8 patients and was endoscopically managed in 7 patients. The most common site for impacted food was the esophagus (7 patients), mostly in the lower third (4 patients).

This is in comparison to other reports where most of the foreign bodies and food materials lodged in the esophagus were found in the lower esophagus (69.4% in one study). [15]

In another observation, half of the patients with a history of foreign body ingestion, objects were seen by endoscopy. [21]

It was shown that up to 90% of foreign bodies will pass spontaneously through the gastrointestinal tract, and at least 10% may require endoscopic intervention. Only 1% or less may need surgical intervention. [22]

In one of our cases, a needle that was not detected by an upper endoscopy was traced by serial X-ray imaging until localized in the colon and removed by colonoscopy.

In five patients with a history of foreign body ingestion, no foreign body could be identified during endoscopy. Although no imaging studies were done, none were referred back for a second endoscopy.

In two of the patients with a history of foreign body ingestion and negative endoscopy, mucosal erosions were noted (one below the cricopharyngeal level and the other in the mid-esophagus), which were thought to be due to injury from a sharp foreign body.

Endoscopic management:

Endoscopy is the main diagnostic and therapeutic tool, given the high rate of detecting foreign bodies or impacted food and the low rate of complications. [21]

Food boluses or particles are the commonest types of objects lodged in the upper gastrointestinal tract reported in the literature (68.8%).

Most of the foreign bodies can be removed endoscopically. The success rates of 95.5%, 94.1%, and 99.9% were observed by Skok P et al, Li Z-S, and Nandi P et al, respectively. [12,13,23]

Older age, location (in the esophagus), larger size, and longer impaction time were significant risk factors predicting conversion to surgery due to the inability to remove the foreign body endoscopically. [24]

All foreign bodies retrieved in our patients were pins, (except in one case who ingested a sewing needle), and all the subjects were females. This can be explained by the habit of holding the blunt tip of the pin between lips while wrapping the headscarf before fixing the scarf with the pin, then accidentally the pin may fall in the mouth and gets unintentionally swallowed. No other types of foreign bodies were seen in our patients' group. Endoscopic intervention was performed in all patients, as there was a risk of perforation without intervention. [16,25,26]

Among the commonly reported foreign bodies in the literature are dental prostheses, while food materials included food boluses, and chicken and fish bones. Other reported foreign bodies include hooks, batteries, coins, keys, screws, razor blades, lighters, buttons, toys, toothbrushes and safety pins. [11,23]

Endoscopic management of foreign bodies is preferably done with forceps, while food impaction is usually managed with a retrieval basket or mobilization (push technique). [21]

The endoscopic management of esophageal foreign bodies or impacted food is either by push or pull techniques. [10–12,15,18,27]

In our cases, the most commonly used device accessories for foreign body removal were rat-tooth forceps and snares. [12]

Successful endoscopic management was achieved in 12 cases (92. 3%), a figure that is similar to others reported in the literature. [9–12,17,18]

One of the study patients was found to have a large peach seed in the stomach that couldn't be retrieved, and the patient missed a second endoscopy appointment for another attempt.

The most common type of impacted food in our cases was a piece of meat, mostly stuck at the gastroesophageal junction. This is in comparison to other food materials reported more frequently in many studies, where fish bones were more common. On the contrary, meat (beef and poultry) is the most common type of obstructive food in the esophagus according to Weinstock LB et al and Okan İ et al . [28,29]

Soft food impaction in the esophagus is associated with a lower risk of serious adverse effects. [30]

Four patients in this case series had meat bolus lodged in the esophagus. The choice of accessory device used was variable. The bolus was removed in three patients using a different accessory in each: a snare, a basket, and grasping forceps. In the fourth patient, the bolus was pushed into the stomach, by biopsy forceps.

In general, soft food material (i.e., excluding bones) is safely managed by pushing down into the stomach using biopsy forceps, with or without prior cutting into fragments.

Underlying esophageal disease:

About 30% of patients with food impaction (particularly with meat and fish bones) have an underlying esophageal disease [11]

Food impaction may be due to upper gastrointestinal pathology, like benign or malignant esophageal strictures, or esophageal dysmotility. [5,11,18,31]

Other underlying conditions include also carcinoma, diverticulum, post gastrectomy, hiatus hernia, or achalasia. [12]

In cases of food impaction, benign strictures are common. In a small number of patients, the cause can be tight fundoplication or no abnormality. [28]

We had one case (a 24-year-old woman) with a lower esophageal benign stricture. A peanut was found stuck at the gastroesophageal junction and was successfully retrieved by a snare. A net basket is ideal for the endoscopic removal of impacted soft or non-sharp food particles in the esophagus.

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Because of the unavailability of net baskets, the use of other endoscopic accessories (snare, biopsy forceps, and dormia baskets), in the study patients was a second option.

None of the remaining patients had an underlying esophageal abnormality that may contribute to food or foreign body ingestion, but in patients with a history of foreign body ingestion and negative endoscopy, mucosal erosions were detected.

Complications:

Endoscopic removal of foreign bodies generally carries low risk of complications.

We didn't report any complications from endoscopic management of foreign body or food impaction, probably because of the small number of patients in this case series.

Complications related to foreign body or impacted food were reported in many observations (<5%), and they included: lacerations, bleeding, and perforation (with pneumomediastinum, mediastinitis, or abscess). [9,10,12,32]

Esophageal perforation (rarely other parts of the gastrointestinal tract) and subsequent fatal complications may occur with ingested foreign objects or impacted food, and the outcome depends on the site of impaction, the duration before treatment, and the type of ingested object. [32]

5. CONCLUSION:

Unintentional foreign body ingestion and food impaction in adults, despite being common the number of referred cases to our endoscopy department is relatively small. In more than half of the patients, foreign body or food bolus or material could be identified, and in all of them, endoscopic management was successful with no reported complications.

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