

■ Original Article

## Approach to foreign bodies in the upper Gastrointestinal system

### Üst Gastrointestinal sistemdeki yabancı cisimlere yaklaşım

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#### ABSTRACT

**Objective:** The aim of this study is to reveal the clinical presentations and treatment approaches to the patients applied with foreign body ingestion and food residue accompanied by literature.

**Materials and Methods:** Patients who were admitted to the general surgery clinic of Ceylanpınar State Hospital between March 2018 and March 2019 with the suspicion of ingestion of foreign bodies in the upper gastrointestinal tract and food residue were evaluated retrospectively.

**Findings:** The mean age of our patients was 31.3 (min-max: 18-76). Endoscopy without sedation was performed to 3 patients (37.5%) due to the feeling of stuck. In 2 patients, the bone fragments detected in the esophagus were excised with the help of endoscopic forceps. One of the three endoscopic procedures have failed. Patient whose endoscopy was unsuccessful and five other patients were followed-up medically in order to let foreign bodies or food residues to leave the digestive tract spontaneously. None of the patients had esophageal disease or a known psychiatric disorder. The mean duration of admission to the hospital was 12.5 (min-max: 6-36) hours. Three patients (37.5%) had foreign body feeling and dysphagia. Four of the patients (50%) had foreign bodies and the rest of the patients had food residue. The localization of foreign bodies or food residues were detected as; stomach in 1 patient (12.5%), esophagus in 3 patients (37.5%) and intestines in other 4 patients (50%). None of the patients required surgical intervention.

**Conclusion:** In the early period, endoscopic procedures show a high success rate without complications in the treatment of foreign bodies in the upper gastrointestinal tract. However, it is an appropriate approach to wait for the spontaneous exit of the foreign body in cases that the foreign body have already passed the upper gastrointestinal system.

**Keywords:** endoscopy, foreign body, food residue

**ÖZ**

**Amaç:** Bu çalışma ile amacımız yabancı cisim yutulması ve gıda artığı ile başvuran hastalara kliniğimizin tedavi yaklaşımını ve klinik prezentasyonlarını literatür eşliğinde ortaya koymaktır.

**Gereç ve Yöntem:** Mart 2018 ve Mart 2019 tarihleri arasında Ceylanpınar Devlet Hastanesi genel cerrahi kliniğine üst gastrointestinal sistem yolunda yabancı cisim yutulması ve gıda artığı şüphesi ile başvuran hastalar retrospektif olarak değerlendirildi

**Bulgular:** Hastalarımızın ortalama yaşı 31,3 (min-max: 18-76) idi. 3 hastaya (%37,5) takılma hissi nedeniyle sedasyonsuz endoskopi yapıldı. 2 hastada özofagusta tespit edilen kemik parçası endoskopik foreps yardımıyla eksize edildi. Üç endoskopik işlemden biri başarısızlıkla sonuçlandı. Endoskopisi başarısızlıkla sonuçlanan hasta ile birlikte 6 hasta yabancı cisim veya gıda artıklarının sindirim kanalını spontan terk etmesi için medikal takip edildi. Hastaların hiçbirinde özofageal hastalık veya bilinen bir psikiyatrik hastalık yoktu. Hastaneye ortalama başvuru süresi 12,5 (min-max:6-36) saat olarak tespit edildi. 3 hastada (%37,5) yabancı cisim algısı ve disfaji mevcuttu. Hastaların 4'ünde (%50) yabancı cisim, geri kalanında ise gıda artığı izlendi. İlk başvuruda yabancı cisim veya gıda artıklarının lokalizasyonu 1 hastada midede (%12,5), 3 hastada özofagusta (%37,5), diğer 4 hasta ise bağırsaklarda (%50) tespit edildi. Hiçbir hastada cerrahi müdahale gerektirecek bir durum gelişmedi.

**Sonuç:** Erken dönemde başvurular endoskopik prosedürlerin, üst GI kanaldaki yabancı cisimlerin tedavisinde komplikasyonlar olmadan yüksek bir başarı oranı göstermektedir. Ancak üst gastrointestinal sistemi geçmiş olan yabancı cisim vakalarında yabancı cismin sponta çıkışını beklemek uygun bir yaklaşımdır.

**Anahtar kelimeler:** endoskopi, yabancı cisim, gıda artığı

**INTRODUCTION**

Foreign body ingestion and food residues (animal bones) are one of the conditions that will cause significant morbidity and mortality if not treated adequately. It is estimated that 1,500-1,600 patients die in the United States of America every year due to complications associated with ingestion of foreign bodies into the gastrointestinal tract [1]. The majority of ingested foreign bodies can pass spontaneously from the gastrointestinal tract, but 20% require endoscopic or surgical treatment [2,3]. The incidence of foreign bodies in the gastrointestinal tract is highest in the pediatric group, especially between 6 months and 6 years [4,5]. In patients with bowel malformations and gastrointestinal system surgery history, the incidence of foreign body complications is higher [6]. In adults, the majority of bones taken with food can be completely random; However, it may be associated with a number of factors such as mental or psychiatric disorders or alcohol intoxication. The need for radiological examination before endoscopy is determined according to the type, size and shape of the foreign body. The endoscopic method to be used to remove the foreign body is generally determined according to physical examination, symptoms and complications [7]. With the development of flexible endoscopy, the rate of successful removal of foreign bodies

in the upper gastrointestinal tract is over 95% [8-10]. In this study, we present our clinical experiences and analyzed the clinical presentation of the patients applied to the general surgery clinic of the Ceylanpınar State Hospital due to foreign body ingestion.

**MATERIALS AND METHODS**

Patients who were admitted to Ceylanpınar State Hospital General Surgery Clinic between March 2018 and March 2019 with suspicion of foreign body ingestion and food residue were evaluated retrospectively. The research was conducted in accordance with the principles of the World Health Organization Helsinki Declaration "Ethical Principles Regarding Medical Research Containing Human Issues". Corporate ethics committee approval was obtained for the study. Informed consent was obtained from all patients. 11 patients with suspicion of foreign body ingestion and food residue in the upper gastrointestinal tract were detected retrospectively, between March 2018 and March 2019. 8 cases were included in the study, patients with missing records were excluded. In 8 patient foreign bodies or animal bones taken with food were detected via x-ray or endoscopy. In 2 patients, food residues were removed with the aid of endoscopy, others were followed to allow the foreign bodies or food residue to leave the gastrointestinal



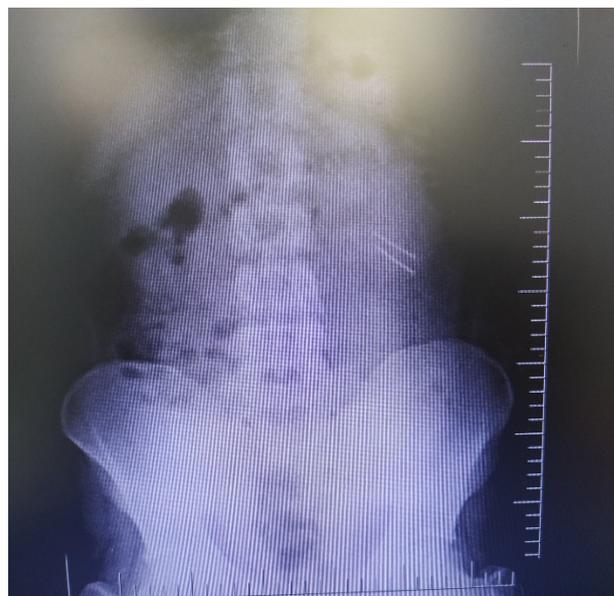
**Figure 1.** Endoscopic view of sheep bone in the proximal esophagus

tract spontaneously by providing pulpy food. X-ray images were performed in outpatient clinics controls. Demographic characteristics, presence of symptoms (no symptom, foreign body feeling, dysphagia, pain), history of esophageal disease (stenosis, rings), psychiatric status, type of treatment, type and location of foreign body were recorded. All endoscopies were performed by the same general surgeon and special endoscopy nurses without sedation.

Statistical Package for the Social Sciences (SPSS 21 Inc., Chicago, IL, USA) software was used for bio-statistical analysis. When the data were presented as mean values, standard deviation values were given, and when presented as median values, the minimum (min) -maximum (max) values were given.

## RESULTS

Our study included 8 patients applied to the general surgery clinic with suspicion of ingestion of foreign bodies and food residue in the upper gastrointestinal tract. 5 of our patients were male and 3 were female. Endoscopy was performed without sedation to 3 patients (37.5%) due to feeling of stuck. In 2 patients, the bone fragment detected in the esophagus was excised with the help of endoscopic forceps (**Figure 1**). In other patient, during endoscopy, the bone fragment in the esophagus hit to the esophagus mucosa



**Figure 2.** X-ray image of ingestion of nail

**Table 1.** Clinical and demographic variables

	Foreign body (n:4)	Food impaction (n:4)
Age, mean (SD)	22,7 (3,5)	40 (25,3)
Male gender	2 (%50)	3 (%75)
Symptoms (any)	1 (%25)	2 (%50)
Foreign body perception	1 (%25)	2 (%50)
Dysphagia	1 (%25)	2 (%50)
Pain	2 (%50)	2 (%50)
Application time/hour, mean (SD)	8 (2,8)	17 (12,7)
Psychiatric disorder	0	0
Oesophageal disease	0	0
Endoscopic treatment	0	2 (%50)

and then fell into the stomach. So, one of the three endoscopic procedures have failed. Six patients were followed-up medically in order to let foreign bodies or food residues to leave the digestive tract spontaneously. It was ensured that the patients consumed pulpy food. All foreign bodies were detected in x-ray imaging (**Figure 2**). None of the patients had esophageal disease or a known psychiatric disorder. Of the 4 patients who had swallowed bone, in 3 of them foreign bodies could not be visualized by x-ray imaging. The mean age was 31.3 (min-max: 18-76). The mean duration of admission to the hospital was 12.5 (min-max: 6-36) hours. 3 patients (37.5%) had foreign body feeling and dysphagia. In 4 (50%) of the patients, pain (retrosternal or non-specific pain in the abdomen) was observed. Four of the patients (50%) had foreign bodies and the rest of the patients had food residues. (**Table 1**). The localizations of foreign bodies or food residues were detected as; stomach in 1 patient (12.5%), esophagus in 3 patients (37.5%) and intestines in other 4 patients (50%). None of the patients required surgical intervention.



**Figure 3.** Sheep bone removed from the esophagus

## DISCUSSION

Foreign bodies may leave the digestive tract spontaneously or cause morbidity or mortality. Vesna et al. reported previous cardiac tamponade induced by a swallowed needle [11]. None of our patients developed any complications. In the literature, the rate of successful treatment of foreign bodies by endoscopy is 90%. In this study, endoscopic interventions in food residues like bone were successful in 2 patients and failed in 1 patient (**Figure 3**). This success rate was not consistent with previous studies in patients presenting with foreign bodies [6]. This was thought to be caused by the limited number of patients.

The removed various food residues seemed to be associated with the eating habits of different regions. In the United States, meat, especially beef, chicken or hot dog, are the most common causes of food effects [12]. In Asian and coastal countries, fishes are the most common food that causes trauma to the esophagus or oropharynx [13]. In our study, sheep bones were present in all cases of food residues due to the high consumption of sheep in the region.

It has been reported in European Gastrointestinal Endoscopy Association guidelines that endoscopy is not required in asymptomatic patients who swallowed blunt and small bodies (except batteries and magnets) [14]. Another study reported that upper gastrointestinal endoscopy may not be necessary in asymptomatic patients if more than 12 hours passed after food residues and foreign body ingestion [7]. In our study, if the bodies passed the stomach on the imaging methods, endoscopy was not performed to the patients who applied after foreign body ingestion. Esophageal motility disorder was the most common cause of foreign body ingestion [13]. In general, the underlying esophageal pathology causes deterioration

of the esophageal peristalsis and the stenosis of the lumen, thus increases the feeling of stucked food residue or foreign body in the esophagus [15]. None of our patients had a known esophageal disease.

Radiological procedures are important in determining the presence, location and type of the received foreign body, thus they help us to determine the most appropriate therapeutic approach [16]. In this study, most patients with suspicion of foreign body ingestion already had neck, chest or abdominal radiographs. This was useful in the detection of radiopaque foreign body ingestion. However, some bones were difficult to detect due to their radioactivity. In 3 patients (37.5%) with dysphagia and feeling of stuck, bones that could not be detected by direct radiography were seen endoscopically and two of them were treated endoscopically. In another study, only 47.1% of patients with foreign bodies suspicions had positive radiographic findings [16]. Therefore, negative radiographic findings do not exclude the foreign body definitely [17].

Consequently, ingestion of foreign bodies is a common clinical problem. The most common food residues encountered in this study were sheep bones and the most common foreign bodies were needles. In early period, endoscopic procedures show a high success rate without complications in the treatment of foreign bodies in the upper gastrointestinal tract. However, it is an appropriate approach to wait for the spontaneous exit of the foreign body in cases that the foreign body have already passed the upper gastrointestinal system.

## DECLARATION OF CONFLICT OF INTEREST

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