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Orijinal Araştırma / Original Article

Detection and Endoscopic Treatment of Foreign Bodies in the Upper Gastrointestinal System of the Geriatric Patients

Geriatrik Hastalarda Üst Gastrointestinal Sistemdeki Yabancı Cisimlerin Tespiti ve Endoskopik Tedavisi

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Abstract

Introduction: Ingestion of foreign bodies is a worldwide problem associated with severe morbidity and mortality. The incidence of foreign body ingestion increases in the elderly population due to impaired intraoral sensitivity and swallowing reflex, visual problems, tooth loss, and mental disorders.

Material and Method: All patients admitted with foreign body ingestion were retrospectively screened between January 2016 and May 2020. The patients over 65 years of age were included for the study. All patients were managed by a flexible endoscope.

Results:49 patients referred with the diagnosis of foreign body ingestion Geriatric population consisted of 24 (49%) patients, mean age was 77.4±7.8 years and 15 (62.5%) were male. The most common symptom at admission was dysphagia in 41.7% of patients. The most common ingested foreign bodies are meat and food in 58.3% of the patients ($p<0.01$). Foreign bodies were most often stuck at the upper esophageal sphincter level (50%). Our average time to perform endoscopic intervention was approximately 3 hours after patients were admitted to the emergency room. Perforation due to chicken bones was detected in 2 patients, and both patients recovered after follow-up without the need for surgical intervention, and additive endoscopic intervention. Our success rate is 100% after endoscopic procedures, and no complications or death secondary to the procedure were observed in none of the patients.

Conclusion: Endoscopic foreign body removal is a highly effective procedure with relatively low complication and mortality rates. Immediate endoscopic intervention should be performed in patients who ingest foreign body to reduce the risk of complications.

Keywords: Elderly, foreign bodies, endoscopy, upper gastrointestinal tract

Öz

Giriş: Yabancı cisimlerin yutulması, ciddi morbidite ve mortalite ile ilişkili olup, dünya çapında bir sorundur. Yaşlı popülasyonda ağız içi hassasiyet ve yutma refleksinin bozulması, görme sorunları, diş kaybı ve ruhsal bozukluklar nedeniyle yabancı cisim yutma insidansı artmaktadır.

Gereç ve Yöntem: Yabancı cisim yutulması ile başvuran tüm hastalar retrospektif olarak Ocak 2016-Mayıs 2020 tarihleri arasında tarandı ve 65 yaş üstü hastalar çalışmaya dahil edildi. Tüm hastalara fleksibl endoskopi uygulandı.

Bulgular: Yabancı cisim yutulması tanısı ile başvuran 49 hasta tarandı. Geriatrik popülasyon 24 (%49) hastadan oluşmaktaydı, ortalama yaş 77.4±7.8 yıl ve 15'i (%62.5) erkekti. Hastaların en sık başvuru semptomu disfaji (%41.7) idi. sık yutulan yabancı cisimler et ve yiyeceklerdi (%58.3, $p<0.01$). Yabancı cisimler en sık üst özofagus sfinkter seviyesinde (%50) sıkışmıştı. Endoskopik müdahale için ortalama süremiz, hastaların acil servise başvurusundan yaklaşık 3 saat sonradır. İki hastada tavuk kemiğine bağlı perforasyon saptandı ve her ikisi de cerrahi müdahaleye ve ilave endoskopik müdahaleye gerek kalmadan düzeldi. Endoskopik işlemler sonrası başarı oranımız %100 olup, hiçbir hastada işleme bağlı komplikasyon veya ölüm görülmedi.

Sonuç: Endoskopik yolla yabancı cisim çıkarılması, nispeten düşük komplikasyon ve mortalite oranları ile oldukça etkili bir işlemdir. Yabancı cisim yutan hastalarda komplikasyon riskini azaltmak için acil endoskopik müdahale yapılmalıdır.

Anahtar Kelimeler: Yaşlı, yabancı cisim, endoskopi, üst gastrointestinal sistem

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INTRODUCTION

Ingestion of foreign bodies (FB) is a worldwide problem associated with severe morbidity and mortality.[1] The most (80%-90%) ingested FB pass through the esophagus easily and come out from the gastrointestinal (GI) system spontaneously in less than 7 days.[1,2] However, an endoscopic procedure is required to remove FB in 10% to 20% of cases, and a surgical procedure is required in less than 1% of cases. Severe complications may occur due to FB ingestion. Approximately 1500 deaths/year occur in USA due to foreign body ingestion.[1]

FB are common in children, mentally retarded people, alcoholics, obese people who swallow food without chewing, and especially geriatric patients using dental prosthesis.[3] The incidence of FB ingestion increases in the elderly population due to impaired intraoral sensitivity and swallowing reflex, visual problems, tooth loss and mental disorders. In the pediatric group and in the patients with psychiatric disorders, metallic objects (safety pins, coins, and disc batteries) are commonly ingested as foreign bodies. FB ingestion often occurs during meals in the geriatric group. Therefore, fish bones, chicken bones, and impacted foods are commonly found in this group.[2,4]

The esophagus is the narrowest part of the upper gastrointestinal system. Therefore, FBs are most commonly detected in the esophagus, especially at the level of cricopharyngeal muscle.[2,5] Diagnosis of FB in the esophagus by physical examination is difficult. The sudden onset of complaints in a patient who was normal before is the most important sign to consider foreign body ingestion. Symptoms generally vary by the shape, size, stuck location, local complication of the FB, and the age of the patient. [5] The complaints are variable; however, the most common symptoms are dysphagia and odynophagia.[3,5]

In most of the cases, ingested foreign bodies are radio-opaque, and may be detected radiologically. Two-way cervical X-ray, lung X-ray, and direct abdominal X-ray should be applied for diagnosis. However, absence of FB in direct radiography does not rule out the diagnosis. Therefore, asymptomatic patients with suspected FB should be evaluated by endoscopic examination even if the radiological findings are normal.[6] In these patients, endoscopic examination of the esophageal lumen is recommended in order to evaluate the mucosal damage and underlying predisposing factors (i.e. malignancy, eosinophilic esophagitis) after FBs are removed.[3]

The best treatment method to remove FB is controversial. The treatment option is associated with several factors including the patient's age, clinical condition, anatomical location of the foreign body, the size and sharpness of the FB, and the experience of the physician.[5,7] The success rate of flexible endoscopes in the management of FB in the upper GI system is over 95% with minimal incidence of complication. Therefore, the flexible endoscope is the ideal choice for both diagnosis and treatment.[4] Because of the risk of severe complications, European Gastrointestinal Endoscopy Association (ESGE) recommends immediate therapeutic esophagogastroduodenoscopy (EGD) for pointed objects, batteries, and FBs causing complete esophageal obstruction (preferably within 2 hours to most lately within 6 hours). For other esophageal FBs which do not cause complete obstruction, therapeutic EGD is recommended within 24 hours.[8] Different endoscopic methods (removing out or pushing distal) and equipment are used depending on the type and location of the FBs.[2,4] Prolonged stuck of FB in esophagus or difficult esophagoscopy procedure increases the risk of esophageal perforation. Life-threatening complications including sepsis, retropharyngeal abscess, tracheoesophageal fistulas, and mediastinitis secondary to perforation may develop.[3,9] The scientific studies reported that the incidence of complications is 1-5% during removal of FB or in prolonged cases.[10]

There is limited number of studies on FB ingestion in the geriatric population in the literature. Predisposing factors (i.e. malignancy, stricture, and motility disorder) that may cause FBs to be stuck in the esophageal lumen are common in geriatric patients with FB obstruction. Therefore, these conditions should be considered very carefully in the endoscopic examination and management of geriatric patients.[2] In our study, we evaluated the outcomes of geriatric cases that were admitted to our emergency outpatient clinic, and then examined and treated by flexible endoscope because of FB ingestion.

MATERIAL AND METHOD

The study was conducted in accordance with the principles of the Helsinki Declaration. This retrospective study was approved by the institutional review board and ethics committee (Number: 15386878-044) of Amasya University Sabuncuoğlu Şerefeddin Training and Research Hospital.

Patients

The patients who were admitted to our hospital (emergency room, outpatient clinic or inpatients) due to the complaint of FB ingestion between January 2016 and May 2020, and underwent endoscopic examination were screened retrospectively. Among 49 patients with the complaint of FB ingestion, 24 patients over 65 years of age were included in the study. Written informed consent was obtained from the geriatric patients with good cognitive functions, and from first-degree relatives of patients with impaired cognitive functions before endoscopic interventions. Patients with FB ingestion were examined radiologically through plain X-ray or computed tomography (CT) methods before the digital esophagogastroduodenoscopy (EGD) examination by a flexible endoscope (Fujinon VP-4450HD video-endoscope ve FujinonEG-590WR fiber-endoscope). In addition, patients were examined by an otolaryngologist. Depending on the nature and location of FB, several endoscopic devices (Medwork BAS1-A2-30-23200 retrieval baskets, Medwork

GmbH BIO1-c4-23-230 biopsy forceps, Medwork pol2-B1-30-23-220-OL polypectomy snare, Galena FG-28U-30D2 endoscopic foreign body forceps, and Foreign Body Retrieval Hood 40mm at Distal end, 8.3mm at proximal end, length of 75mm) were used for the procedures.

The clinical variables analyzed included the age, sex, type and location of the FB, relevant upper gastrointestinal diseases, endoscopic methods, accessory device usage, symptoms, and intervention and complications during the procedure. The mean duration of endoscopic intervention for FBs was defined as the period from the moment when the patients were admitted to the emergency service or outpatient clinics to the moment when the endoscopy procedure was performed.

Statistical Evaluation

NCSS (Number Cruncher Statistical System) Statistical Software (NCSS LLC, Kaysville, Utah, USA) program was used for statistical analysis of the data. Descriptive statistical methods (mean, standard deviation, median, frequency, and ratio) as well as the one-eye chi square test, and Fisher Freeman Halton test were used to compare qualitative data when the study data were evaluated. A p value below 0.05 ($p < 0.05$) value was considered as statistically significant.

RESULTS

In our study; geriatric patients who were are admitted with the diagnosis of FB ingestion and were treated by flexible EGD between January, 2016 and May, 2020 were analyzed retrospectively. Among 49 patients evaluated by endoscopic examination for FB ingestion, 24 (49%) patients were in the geriatric population. The time from admission to the emergency room to endoscopic intervention is between 40 minutes and 22 hours and 50 minutes; the average time is 2.55±4.5 hours. The most common symptom at admission is dysphagia in 10 (41.7%) patients. Besides, 7 (29.2%) patients developed aphagia, 5 (20.8%) patient developed odynophagia, 1 (4.2%) patient developed vomiting, and 1 patient (4.2%) was asymptomatic. When they were examined according to the ingested FBs, a statistically significant difference was found ($p < 0.01$). Most common FBs detected by endoscopic examination were meat and food with an incidence of 58.3% (n:14), followed by bone with an incidence of 29.2% (n:7). Furthermore, herbal substance was detected in 8.3% (n:2) and drug in 4.2% (n: 1) of the patients. The endoscopic examination performed to remove FB showed that the foreign body stuck in the upper esophagus in 50% (n:12), in the middle esophagus in 16.7% (n: 4), and in the distal esophagus in 20.8% (n: 5) of the patients. In addition, foreign body was detected in the stomach in 1 (4.2%) patient, and in the duodenum in 1 (4.2%) patient; no foreign body was detected in 1 (4.2%) patient. Detection of FB in the upper esophagus was found to be statistically significant ($p < 0.01$). The results of the endoscopic examination of the patients are presented in **Table 2**.

Table 1. Demographic data of geriatric patients ingesting foreign body

Age (years)	Median (Min-Max)	71 (66-93)	
	Mean±Sd	77.4±7.8	
Sex, n (%)	Female	9	(37.5)
	Male	15	(62.5)
Personal history, n (%)	none	4	(16.7)
	Dementia	3	(12.5)
	CVA*	2	(8.3)
	Parkinson	1	(4.2)
	İHD¥, HT£	5	(20.8)
	Asthma – COPD**	2	(8.3)
	Malignancy	4	(16.7)
	Other	3	(12.5)
Endoscopy time	Min - Max (hours)	40 min-22 hrs 50 min	
	Mean±Sd	2 hrs 55 min ±4 hrs 54 min	
Symptoms, n (%)	Asymptomatic	1	(4.2)
	Aphagia	7	(29.2)
	Odynophagia	5	(20.8)
	Dysphagia	10	(41.7)
	Vomiting	1	(4.2)

*CVA: Cerebrovascular accident, ¥,İHD: İschemic Heart Disease, £HT: Hypertension, **COPD: Chronic obstructive pulmonary disease

Table 2. Endoscopic findings of patients ingesting foreign body

		n	%	p
Foreign body	Meat, Food	14	58,3	0,001**
	Bone	7	29,2	
	Medicines	1	4,2	
	Herbal	2	8,3	
	None	1	4,2	0,001**
Stuck location	Upper Esophagus	12	50	
	Middle Esophagus	4	16,7	
	Distal Esophagus	5	20,8	
	Stomach	1	4,2	
	Duodenum	1	4,2	
Foreign body intervention	No foreign body was detected	1	4,2	
	Removed	21	87,5	
	pushed into the stomach	2	8,3	
Esophageal injury	No Damage	16	66,7	0,001**
	Laceration	3	12,5	
	Perforation	2	8,3	
	Erosion	3	12,5	
Predisposing pathology of the esophagus	Normal	20	83,3	
	Malignancy	2	8,3	
	Achalasia	1	4,2	
	Benign stenosis	1	4,2	

The endoscopic examination of a patient who has consistently ingested olive seed and was referred from the emergency department with a hematemesis pre-diagnosis revealed 33 olive seeds obstructing the duodenal lumen completely (**Figure 1**).

The FBs detected by endoscopic examination were removed from GI system in 21 (91.3%) of 23 patients, and were pushed into the stomach in 2 (8.7%) patients. After FBs were removed, endoscopic investigation of esophageal mucosa showed no injury in 16 (66.3%) patients, mucosal erosion in 3 (12.5%) patients, laceration in 3 (12.5%) patients, and perforation in 2 (8.3%) patients (**Figure 2**). There was not any statistically

significant association found between esophageal injury and ingested FBs (p> 0.05) (**Table 3**). However, the incidence of esophageal injury induced by FBs such as bone is remarkable, and it is suggested that larger series would yield significance. We had two cases with perforation on computerized tomography (CT) before the procedure, and the FB were chicken bones in both cases. One of these patients had ingested the FB 3 days ago, and the ingested chicken bone was stuck perpendicular to the lumen at the level of the upper esophageal sphincter, and ulcers developed on both walls of the lumen (**Figure 3**). Endoscopic hemoclips was inserted in 3 (12.5%) patients with lacerations in the esophageal wall secondary to FB. Two patients with perforation were consulted with thoracic surgery. These patients were hospitalized in the gastroenterology department since surgical intervention was not considered to be required. Oral nutrition of the patients was discontinued; total parenteral nutrition and broad-spectrum parenteral antibiotic treatment were initiated. Both patients recovered without the need for surgical intervention and additive endoscopic procedure after follow-up. Our success rate was 100% after endoscopic procedures. No complications or mortality was observed associated with the procedure (**Table 4**).

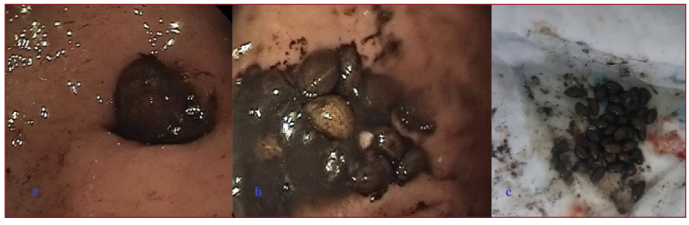

Figure 1: Olive seeds stuck in the pylorus (a), pulling olive seeds into the gastric corpus (b), removing out olive seeds (c)

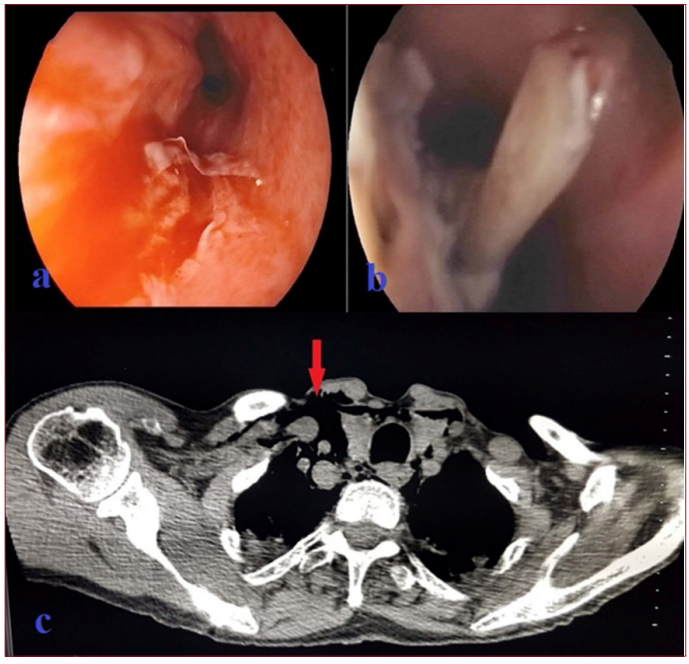

Figure 2: Endoscopic image of chicken bone stuck in the mucosa in the esophageal lümen and damage to the mucosa (a, b), appearance of free air secondary to perforation in the mediastinum by CT (c) (red arrow)

Table 3: Relationship between damage status and ingested foreign body

		No Esophageal Injury; n (%)	Esophageal injury is present; n (%)	P
Foreign body	Meat, Food	10 (62,5)	4 (50)	> 0.05
	Bone	3 (18,8)	4 (50)	
	Medicines	1 (6,3)	0	
	Herbal	2 (12,5)	0	

Fisher Freeman Halton Test

Table 4: Findings after endoscopic intervention

		n	%
Endoscopic intervention	None	21	87,5
	Hemoclips	3	12,5
Hospitalization	None	22	91,7
	Yes	2	8,3
Success rate	None	0	0
	Yes	24	100
Complications secondary to procedure	none	24	100
	Present	0	0
Mortality	None	24	100
	Present	0	0

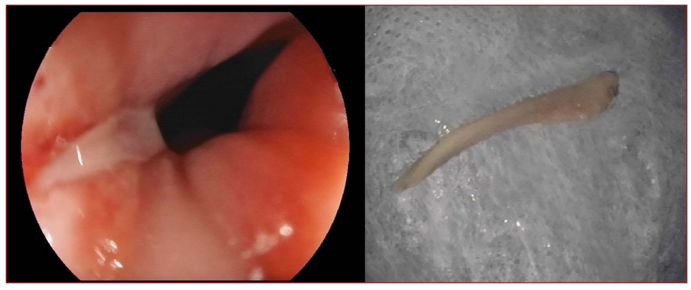

Figure 3: Foreign body and ulcer secondary to FB waited for a long time (3 days) in esophagus.

Figure 4: Foreign body swallowed at higher density than bone structures on x-ray. In the endoscopic examination, it was seen that the stone found by the patient on the ground was stuck at the level of the upper esophageal sphincter.

DISCUSSION

Geriatric age is a life period associated with multiple pathologies and relevant common signs and symptoms.[11] Ingestion of FB is a common global problem. Older people frequently ingest foreign bodies due to decreased intraoral sensitivity, swallowing disorders, visual and mental disorders, tooth loss, and problems with dental prostheses.[2] If ingested FBs are not managed promptly, severe complications including mucosal inflammation, deep neck abscess, mediastinitis, and esophageal perforation may occur.[12] Therefore, these complications may be prevented by early diagnosis and effective treatment of patients admitted to hospital due to FB ingestion.[2]

In the study of Yao et al.[4] the most common symptoms after FB ingestion were odynophagia (36.5%) and dysphagia (27%). They detected FBs in the stomach and duodenum in most of asymptomatic patients. The most common symptoms in our study were dysphagia (41.7%), aphagia (29.2%), and odynophagia (20.8%), respectively.

Most of the FBs are stuck in the upper esophagus in most of the studies.[1] In the study of Yao et al.[4] FBs were mostly detected in the esophagus (75.6%). Other locations included the stomach (12.5%), pharynx (8.3%), anastomoses (2.4%), and duodenum (1.2%). In our study, 87.5% of foreign bodies were detected in the esophagus, 4.2% in the stomach, and 4.2% in the duodenum. In a study on geriatric patients performed by Hsin-Chang et al.[2] 51.1% of foreign bodies were detected in the upper esophagus, 13.3% in the middle esophagus and 28.9% in the lower esophagus. In line with the literature, 50% of foreign bodies were detected in the upper esophagus, 16.7% in the middle esophagus, and 20.8% in the distal esophagus in our study; and a statistically significant difference was found ($p < 0.01$).

Several ingested FBs may be detected through cervical and lung X-rays. CT is much more sensitive than plain X-rays to detect any foreign bodies before endoscopic interventions.[4] The role of CT scanning does not aim to localize esophageal foreign bodies only, but also to evaluate relevant local complications including perforation, fistulization, and pleural empyema.[13] In our study, 14 (58.3%) patients had undergone cervical and lung X-rays before endoscopic intervention. FBs were detected in 4 (16.7%) patients through X-ray (**Figure 4**). The CT was performed on 4 patients in total; 3 of them had no visible object by X-ray and 1 patient had suspected perforation. FBs were detected in all of these patients through the CT.

The most common FBs detected in the studies of Wu[4] and Yao[14] were food-meat boluses (64.3%, 41.6%, respectively). In the study conducted by Hsin et al.[3] the most common FBs in the geriatric population were chicken and fish bones (37.8%); however, the most common FBs in our study were food-meat bolus (56.5%), and bone by 30.4%. When they were examined by the type of ingested foreign bodies, a statistically significant difference was found ($p < 0.01$). Hsin et al. also found dental prostheses by 17.8%, and drug packages by 8.8% in geriatric patients. The use of dental prostheses due to tooth loss and visual impairment in the elderly may be the reason of this condition.[2] However, in our study, endoscopic intervention was performed due to the use of herbal substances (garlic and olive seed) in 2 patients (8.7%), and due to drug misuse in 1 patient (vitamin D ampoule was ingested).

The success rate of FB removal from the esophagus by flexible endoscope was 83.8% in the study performed by Wu et al., 94.1% in the study performed by Li et al.[8,14] In the study performed by Hsin-Chang et al.[2] FBs were removed by primary method in 88.8% (40/45) of the patients. FBs were removed by alternative methods in 5 patients (4 patients by rigid endoscope under general anesthesia, and 1 patient by surgical method). In our study, the foreign body was removed in 21 (87.5%) patients; FB was pushed into the stomach from the esophagus in 2 (8.3%) patients. Our success rate was 100%.

The total incidence of complications induced by foreign bodies in the upper GI system is 15% to 42%.[14] These are localized complications such as erosions, superficial lacerations, edema, hematoma, and mild respiratory complications in general. The incidence of severe complications such as perforation or bleeding is 0.5-7.5%, and the mortality rate is 0-3.5%.[14] In our study, the incidence of complications due to foreign body was 20.8% during endoscopic procedures (mucosal laceration in 3 (12.5%) patients, perforation in 2 (8.3%) patients. Endoscopic hemoclips was inserted in 3 patients with deep esophageal lacerations. The chicken bone caused perforation in both cases. Two patients with perforation were consulted by thoracic surgery. Surgical intervention was not considered in these two patients, and conservative treatment was planned. Oral nutrition of the patients was discontinued; total parenteral nutrition and broad-spectrum parenteral antibiotic treatment were initiated. Both patients recovered without the need for surgical intervention and additive endoscopic procedure after close follow-up. No statistically significant association was found between the incidence of esophageal injury and type of ingested foreign bodies ($p > 0.05$). However, the incidence of esophageal injury induced by foreign bodies such as bone is remarkable, and it is suggested that the larger series would yield significance.

In the study of Hsin-Chang et al.[2] the initial success rate in FB removal was approximately 88.8%, and no mortality was found. Our success rate after endoscopic interventions was 100% in our study, and no complications or mortality due to endoscopic interventions were observed. After FB removal, routine endoscopy control is recommended in order to detect predisposing factors (i.e. malignancy, benign stenosis, achalasia, eosinophilic esophagitis) that may cause stuck in the GI system.[8] The studies performed by Yao et al.[4] found underlying predisposing pathologies in 29.2% of the patients. In the study conducted by Hsin et al.[2] on geriatric patients,

a predisposing pathology was found in the esophagus in 26.6% of the patients. In our study, an underlying pathology (malignancy, achalasia and stricture) was found in 16.7% of the patients.

Endoscopic strategy in the management of FB ingestion varies by FB type, symptoms, and ingestion duration. The timing of endoscopic management after FB ingestion is an important factor affecting the outcome.[1] Because of the possible severe complications, ESGE recommends immediate therapeutic EGD (preferably within 2 hours, latest within 6 hours) for pointed objects, batteries and FBs causing complete esophageal obstruction, and recommends therapeutic EGD within 24 hours for other esophageal foreign bodies that do not cause complete obstruction.[10] Wu et al.[14] reported in their study that esophageal ulcerations and odynophagia were more common if endoscopic intervention was delayed more than 24 hours from the ingestion moment in adult patients with suspected FB ingestion or food-meat bolus effect. In our study, endoscopic intervention was performed as soon as possible (mean endoscopy time is approximately 3 hours) after the patients were admitted to the emergency department. Only one patient was admitted to our hospital after 3 days following the FB ingestion. Endoscopic intervention was performed in a short time (40 minutes) following his admission to emergency department. However, chicken bone stuck for a long time in the esophageal lümen caused ulceration and microperforation in the upper esophagus. This finding supports the importance of timing for endoscopy.

Hsin et al.[2] followed up the patients who underwent endoscopic intervention due to FB for at least 3 days (2). However, the ESGE guidelines state that the patient may be discharged after successful and uncomplicated endoscopic removal of the ingested FBs.[10] Therefore, 22 patients without complications in our study were discharged after the endoscopic procedure.

Limitations of our study were the retrospective design and limited number of the cases. However, this kind of study is difficult to be conducted prospectively, and there are few studies on FB ingestion in geriatric patients. In addition, the age range of geriatric patients was considered to be 60 years in the studies.[2]

Patients in the geriatric population have multiple chronic diseases, and therefore use multiple drugs. Elderly people also commonly use over-the-counter medicines and herbal preparations. In the literature, the most common herbal preparations were reported as gingko biloba and garlic.[15] Furthermore, folkloric beliefs suggest that ingestion of olive seeds improves gastric disorders and stomach wounds, so this method is frequently used by patients in our country.[16] However, obstruction developed in 2 patients due to the use of herbal substances in our study, and endoscopic intervention was performed. One of the patients tried to ingest a whole piece of garlic with approximately 25x20 mm diameter, and it was stuck at the level of the upper esophageal sphincter. Another patient was admitted to our emergency department due to black colored vomiting. Endoscopic examination revealed 33 olive seeds were stuck between the duodenal bulbus and the pylorus. Olive seeds were initially pulled into the stomach from the duodenum and then completely removed out in a single session. Anamnesis of the patient revealed that the patient always ingested olive seeds for stomach complaints, and an obstruction due to an ulcer scar in the duodenal bulbus was detected by the endoscopic examination after removing out all the seeds.

Akan et al.[11] pointed to studies on drug use in geriatric patients that, the physician should instruct the details of the treatment to the patient not only verbally, but also in a written document. It is necessary to instruct prescriptions to the relatives or caregivers of the patients with cognitive impairment. Besides, it is recommended that the elderly patients with dementia or previous cerebrovascular disease should be closely followed up by their caregivers, ground/puree food should be given to patients with chewing problems; and if not contraindicated, the drug tablets or capsules should be crushed and mixed with sufficient drinking water.[2] In our study, a patient whom vitamin D ampoule was for oral use has ingested the ampoule directly. The ampoule was removed from the stomach by endoscopic procedure in this patient.

CONCLUSION

Endoscopic FB removal is a highly effective procedure with relatively low complication and mortality rates. Immediate endoscopic intervention should be applied in patients who ingest FB in order to reduce the risk of complications. Caregivers of geriatric patients with cognitive disorders should be warned and trained to be cautious about FB ingestion..

ETHICAL DECLARATIONS

Ethics Committee Approval: This study was approved by the institutional review board and ethics committee (Number: 15386878-044) of Amasya University Sabuncuoğlu Şerefeddin Training and Research Hospital.

Informed Consent: Because the study was designed retrospectively, no written informed consent form was obtained from patients.

Referee Evaluation Process: Externally peer-reviewed.

Conflict of Interest Statement: The authors have no conflicts of interest to declare.

Financial Disclosure: The authors declared that this study has received no financial support.

Author Contributions: All of the authors declare that they have all participated in the design, execution, and analysis of the paper, and that they have approved the final version.

REFERENCES

1. Lee CY, Kao BZ, Wu CS, et al. Retrospective analysis of endoscopic management of foreign bodies in the upper gastrointestinal tract of adults.J Chin Med Assoc 2019; 82(2):105-109.
2. Lin HC, Chen CJ, Lin HH, Huang JT, Chen MJ. Endoscopic Treatment of Esophageal Foreign Bodies in the Elderly. Int J Gerontol 2013; 7:35-39.
3. Craig RM, Vanagunas AD. Foreign bodies in the eosophagus. In: Shields TW, ed. General Thoracic Surgery. 5th eds Lippincott Williams & Wilkins, Philadelphia, USA 2000; p.1763-7.
4. Yao CC, Wu IT, Lu LS, et al. Endoscopic management of foreign bodies in the upper gastrointestinal tract of adults. Biomed Res Int. 2015: 658602.
5. Çobanoğlu U, Asker S, Sayır F. Esophageal Foreign Bodies. J Clin Anal Med 2014; 5 (suppl 2): 234-9.
6. Ali A. Review of esophageal foreign bodies in Harare central hospital. Eat Afr Med J 1999; 76 :355-7.
7. Stevoff CG, Craig RM. In Foreign Bodies in the Esophagus. In Shields TW, Locicero J, Ponn RB, Rusch VW (eds). General Thoracic Surgery, vol 2, 6th edition, Lippincott Williams and Wilkins, Philadelphia, USA 2005, p.2095-100.
8. Li ZS, Sun ZX, Zou DW, Xu GM, Wu RP, Liao Z. Endoscopic management of foreign bodies in the upper-GI tract: experience with 1088 cases in China. Gastrointest Endosc 2006; 64: 485-92.
9. Sayır F. Esophageal Foreign Bodies: Analysis of 329 Cases. Eurasian J Med 2007; 39:112-114 .
10. Birk M, Bauerfeind P, Deprez PH, et al. Removal of foreign bodies in the upper gastrointestinal tract in adults: European Society of Gastrointestinal Endoscopy (ESGE) Clinical Guideline. Endoscopy 2016; 48:489- 496.
11. Akan P, Erdinçler D, TezcanV, Beğer T. Drug use in elderly. Turk J Geriatr 1999;2 (1): 33-38.
12. Swan MP, Bourke MJ, Hopper AD, Moss A, Walker SL. Endoscopic treatment of a transversely impacted perforating fish bone in the esophagus with pneumomediastinum. Endoscopy. 2010; 42:E75eE76.
13. Liu J, Zhang X, Xie D, et al. Acute mediastinitis associated with foreign body erosion from the hypopharynx and esophagus. Otolaryngol Head Neck Surg 2012 Jan;146(1): 58- 62.
14. Wu WT, Chiu CT, Kuo CJ et al. Endoscopic management of suspected esophageal foreign body in adults. Dis Esophagus. 2011; 24:131–7.
15. de Souza Silva JE, Santos Souza CA, da Silva TB, et al. Use of herbal medicines by elderly patients: A systematic review. Arch Gerontol Geriatr. 2014;59(2):227-33.
16. Kaplan M, Arıhan S.K. A healing source of antiquity to the present: Us age of olive and olive oil in folk medicine. Ankara University the Journl of the Faculty of Languages and History-Geography. 2012; 52(2):1-15.