

# RELATIONSHIP BETWEEN FOREIGN BODY INGESTION AND CULTURE

Ramazan KARABULUT, Kaan SÖNMEZ, Zafer TÜRKYILMAZ, Billur DEMİROĞULLARI, I.Onur ÖZEN, Meral GÜÇLÜ, A.Can BAŞAKLAR, Nuri KALE

**Aim:** Evaluation of the results of our experiences with foreign body (FB) ingestion in this country.

**Patients and methods:** The medical records of 73 patients treated for FB ingestion between January 1985 and December 2003 were evaluated retrospectively.

**Results:** Fifty-nine percent of the patients were boys, and the majority of them had ingested coins and safety pins. The age of 41% of the patients ranged from 1.5 months to 2 years. Rigid esophagoscopy was performed to remove the FBs. Laparotomy was required in 2 patients with safety pin ingestion.

**Conclusion:** Coins were the most commonly ingested FBs. In addition to surgical and medical aspects, cultural differences should also be considered in FB ingestion as the type of ingested object varies in different populations.

**Key Words:** Foreign-Body Ingestion, Children, Cultures

## KÜLTÜR VE YABANCI CİSİM YUTULMASI ARASINDAKİ İLİŞKİ

**Amaç:** Kliniğimizde yabancı cisim yutulmasına bağlı olarak tedavi edilen hastaların sonuçlarını bildirmek.

**Materyal ve metod:** Ocak 1985 - Aralık 2003 yılları arasında yabancı cisim yutulmasına bağlı tedavi edilen 73 hastanın kayıtları retrospektif olarak incelendi.

**Bulgular:** Hataların %59'u erkek olarak bulunurken en sık yutulan yabancı cisimler sırasıyla demir para ve çengelli iğne olarak bulundu. Hastaların %41'inin yaşı 1.5 ay ile 2 yaş arasında toplanmaktaydı. Yabancı cisim çıkarılması için tüm hastalara rijid özefagoskopi yapılırken sadece çengelli iğne yutan iki hastada laparotomi gerekti.

**Sonuç:** Kültürel fark gözetmeksizin en sık yutulan yabancı cisim demir paradır. Diğer sıklıkta yutulan yabancı cisimler ise kültürel farklılıklar göstermektedir.

**Anahtar Kelimeler:** Yabancı Cisim Yutulması, Çocuk, Kültür.

Ingestion of foreign bodies (FBs) is a relatively common problem in the United States, with an estimated incidence of 120 per 1 million population, and is the cause of almost 1500 deaths each year. Swallowed objects may be true FBs such as coins, plastic toys, bones, pins, disc batteries and food bolus that impact in the esophagus (1). Toddlers are the most affected. Self ingestion usually starts after 6 months of age as the child puts objects in the mouth. Before that the infant cannot grasp objects; an older child or an adult is the one who puts the object in the baby's mouth (2).

Although ingested FBs usually pass through the gastrointestinal tract without any problem, intestinal obstruction and, in less than 1%, perforation may occur (3,4). The clinical presentation of FB ingestion and the type of FB ingested may vary in different ethnic populations as well as in different age groups (5).

In this study, our purpose was to evaluate the results of our experience with FB ingestion.

## PATIENTS AND METHODS

Between January 1985 and December 2003, 73 FB ingestion patients were included in the study. Their medical records were analyzed retrospectively. Their demographic data and the surgical complications were noted. Chest and/or cervical X-rays were used to radiologically assess the patients. Removal of the FB from the esophagus was performed by rigid esophagoscopy.

## RESULTS

The ages of the children ranged from 1.5 months to 15 years (mean, 4 years), and 59% of them were boys. Of all the children, 41% were between 1.5 months and 2 years of age, 21% were between 2 and 5 years of age, and 38% were older than 5 years.

The majority of the FBs swallowed were coins and safety pins, accounting for 75% and 13% of all FBs, respectively (Table 1). Rigid esophagoscopy was performed in all patients, and no complications were encountered except for in two patients who ingested safety pins. In these two cases surgery was performed 3 months after ingestion because the safety pins did not change position in the stomach.

**Table 1. The nature of the foreign bodies is summarized all for patients.**

Types of Foreign Body	Number	Age Range
Coin	55	1.5 months-9 years
Safety Pin	10	3-10 months
Pin	3	14-16 years
Ear Ring	2	5-8 months
Ring	1	16 month
Plum Stone	1	8 year
Button	1	15 month

## DISCUSSION

FB ingestion is a common clinical problem in both adults and children. The rate of FB ingestion ranges from 6.5% to 80% in children, with a marked ethnic variation between Eastern and Western populations (6,7). In Oriental populations there is a lower incidence of FB ingestion in children compared to adults. The mean annual incidence of pediatric FB ingestion is 4.55 per 10.00 of the population (5).

Given a child's natural propensity to place objects in its mouth, most of the objects will pass into the stomach and then will be passed uneventfully in the stool (8).

Rigid esophagoscopy in the hands of experienced surgeons is a safe and effective treatment. Chaikhouni et al. and Berggreen et al. successfully treated 96% to 100% of their patients using rigid esophagoscopy, respectively (1,9). The morbidity rate is less than 1% with esophagoscopy (10). Published perforation rates for rigid esophagoscopy suggest an average of 0.34% morbidity and 0.05% mortality rate (11).

Management depends on the size and nature (smooth or sharp) of the FB. Smooth FBs usually pass through the gastrointestinal tract once they have descended below the esophagus. For this reason, these cases are observed clinically using radiographic examinations with radio-opaque materials as indicated. Watchful waiting for up to one week is usually possible, and this period may be prolonged up to 3 to 4 weeks if the child is asymptomatic. Sharp objects are more alarming and should be removed urgently as there is a failure of progression of the FB (2). The overall rate of perforation due to FB is less than 1% (12). However, when only sharp FBs were taken into account, the incidence of perforation increased to 15-35% (13,14).

Coins are the most commonly ingested FB (2). The second most common object encountered as a FB shows cultural variation (Table 2). In a study performed in the USA, the most frequently ingested FBs were coins (35.2%) with the second being meat (9). According to Chaikhouni et al., surgery is needed in 3.4% of FB cases (9). In another study, in South Africa, coins were the most frequently ingested FBs (28%) and balls the second (20%)(15). Except for Hong Kong, in Eastern and Southeastern countries like China, Taiwan and India the most

commonly ingested FBs are coins, followed by fish bones, food remains and sharp toy parts (5,16,17,18). In European countries like Belgium, coins, followed by toy parts, are the most frequently found FBs in the esophagus (19). In Middle East countries like Jordan, bones are the second most frequently encountered FB (20). In this country, blue beads or golden amulets that are believed to protect people from the evil eye are ingested frequently. These are generally attached to clothes by safety pins in children younger than 1 year of age. These objects are ingested generally with the safety pins in the open position. This could be the cause of high incidence of perforation or injury. In this country, surgical intervention was performed in 20% to 30.5% of cases of safety pin ingestion (21).

**Table 2. Demonstration of the frequency of ingested objects in different countries.**

Countries	Most Frequent FB	Second Frequent FB
Current study	Coin	Safety pin
Turkey(21)	Coin	Safety pin
USA(9)	Coin	Meat
South Africa(15)	Coin	Balls
China(16)	Coin	Fish bone
Hong Kong(5)	Fish bone	Coin
Taiwan(17)	Coin	Sharp objects
India(18)	Coin	Food
Belgium(19)	Coin	Toy parts
Jordan(20)	Coin	Bones

The ingested FB varies according to the culture. The urgency of the situation caused by ingestion of FBs is therefore in some respect dependent on the cultural constituency of the society that a patient lives in, a fact that a physician should consider when dealing with ingested FBs.

### Correspondence Address

Ramazan KARABULUT, M.D.

Gezegen Sokak No:1/10 06670, Ankara-Türkiye

e-mail: karabulut@yahoo.com

Tel: 312 2026210

Fax: 312 2026213

## REFERENCES

- Berggreen PJ, Harrison ME, Sanowski RA, Ingebo K, Noland B, Zierer S: Techniques and complications of esophageal foreign body extraction in children and adults. *Gastrointestinal Endoscopy* 1993; 39: 626-630.
- Rajagopal A, Martin J, Matthai J. Ingested needles in a 3 month old infant. *J Pediatr Surg* 2001; 36: 1450-1451.
- Steenvoorde P, Moues CM, Viersma JH. Gastric perforation due to the ingestion of a hollow toothpick: report of a case. *Surg Today* 2002; 32: 731-733.
- Verstocken A, Himpens J, Leman G. An unusual case of small bowel obstruction. *Acta Chir Belg* 1996; 96: 168-169.

5. Pak MW, Lee WC, Fung HK, van Hasselt CA. A prospective study of foreign body ingestion in 311 children. *Int J Pediatr Otorhinolaryngol* 2001; 58: 37-45.
6. Nandi P, Ong GB. Foreign body in the esophagus: review of 2394 cases. *Br J Surg* 1978; 65: 5-9.
7. Crysdale WS, Sendi KS, Yoo J. Esophageal foreign bodies in children. 15 year review of 484 cases. *Ann Otol Rhinol Laryngol* 1991; 100: 320-324.
8. Kelly JE, Leech MH, Carr MG. A safe and cost effective protocol for the management of esophageal coins in children. *J Pediatr Surg* 1993; 28: 898-900.
9. Chaikhouni A, Kratz JM, Crawford FA. Foreign bodies of the esophagus. *Am Surgeon* 1985; 51: 173-179.
10. Web W. Management of foreign bodies of the upper gastrointestinal tract. *Gastroenterology* 1988; 94: 204-216.
11. Giardino A, Adams G, Bois L Jr, Meyerhoff W. Current management of esophageal foreign bodies. *Arch Otolaryngol* 1981; 107: 249-251.
12. Bertoni G, Pacchione D, Sassatelli R, Ricci E, Mortilla MG, Gumina C. A new protector device for safe endoscopic removal of sharp gastroesophageal foreign bodies in infants. *J Pediatr Gastroenterol Nutr* 1993; 16: 393-396.
13. Carp L. Foreign bodies in intestine. *Ann Surg* 1927; 85: 575-591.
14. Rosch W, Classen M. Fiberendoscopic foreign body removal from the upper gastrointestinal tract. *Endoscopy* 1972; 4: 193-197.
15. van As AB, Toit N DU, Wallis L, Stool D, Chen X, Rode H. The South African experience with ingestion injury in children. *Int J Pediatr Otorhinolaryngol* 2003; 67S1: 175-178.
16. Cheng W, Tam PKH. Foreign body ingestion in children: experience with 1265 cases. *J Pediatr Surg* 1999; 34: 1472-1476.
17. Lin MT, Yeung CY, Lee HC, Sheu JC, Wang NL, Lee KS. Management of foreign body ingestion in children: experience with 42 cases. *Acta Pediatr Taiwan* 2003; 44: 269-273.
18. Nijhawan S, Shimpi L, Mathur A, Mathur V, Rai R. Management of ingested foreign bodies in upper gastrointestinal tract: report on 170 patients. *Indian J Gastroenterol* 2003; 22: 46-48.
19. Arana A, Hauser B, Hachimi-Idrissi S, Vandenplas Y. Management of ingested foreign bodies in childhood and review of literature. *Eur J Pediatr* 2001; 160: 468-72.
20. Mahafza T, Batiha A, Suboh M, Khrais T. Esophageal foreign bodies: a Jordanian experience. *Int J Pediatr Otorhinolaryngol* 2002; 64: 225-227.
21. Gün F, Salman T, Abbasoglu L, Çelik R, Çelik A. Safety pin ingestion in children: a cultural fact. *Pediatr Surg Int* 2003; 19: 482-484.