

Ingestion of foreign bodies among prisoners: a ten years retrospective study at University Hospital of Southern Italy

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SUMMARY: Ingestion of foreign bodies among prisoners: a ten years retrospective study at University Hospital of Southern Italy.

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Introduction. We studied 21 episodes of ingestion of foreign bodies (IFO) among 15 prisoners.

Patients and Methods. Retrospective research in pts admitted to emergency from June 2005 to May 2105. Ingestion, management and pts outcome were analyzed. Prisoners with previous esophagogastro-duodenal disease were excluded.

Results. All pts were males and ingestions were intentional.

Esophagogastroduodenoscopy (EGDS) was performed in 10pts (8 cases with successful removal, 1 case we did not find anything e 1 of unsuccessful EGDS, that required emergency surgery. 9 pts rejected EGDS: in 2 pts were not necessary. Among the 9 pts that rejected EGDS, 5 discharged voluntarily. No mortality neither morbidity. Only 1 pt required surgery. The IFO were 34 (23 sharp, 6 flat, 5 indefined). We did not observe any food bolus impaction. Multiple ingestion was found in 11 pts. Recurrent episodes were found in 4 pts.

Discussion. Almost all episodes can be treated conservatively with observation and endoscopy but the management of this pts has a financial impact on healthcare cost and on security costs. Prevention strategies are important to predict patient group at high risk for recurrent IFO.

KEY WORDS: Foreign object - Ingestion - Prisoners - Surgery - Endoscopy - Emergency.

Introduction

Foreign body ingestion is a common condition, especially in pediatric age, when it represents 80% of emergencies. Accidental ingestion is also common in adults, especially in patients with dental implants, mental disability, drug addiction and it occurs while eating except for prisoners (1). Indeed in this population, intentional ingestion of foreign objects (IIFO) is described more commonly than in general population and this is one of the most important reason for surgical consultation with abdominal traumas and proctological diseases. These pts are usually male, aged 15-44 years and often have a hi-

story of smoking, alcoholism, drug addiction, mental disorders and chronic diseases (2). In these pts surgery should be performed only in cases of complications. Despite of the ingestion of dangerous objects, most of these cases require only observation or endoscopy. The most important outcomes to achieve are prevention of recurrence, prompt diagnosis, reducing complications and consequently to clear healthcare costs. The aim of our retrospective observational study is to compare and review our experience with IFO among the prisoners and to study management and outcome of these patients in Surgical Emergency Unit in University Hospital of Bari, Southern Italy.

Patients and methods

Bari county consists in 1,290,000 residents (320,000 from Bari and the rest from surroundings): in this area 3 penitentiary institutes are located with a population about 450 inmates (3, 4). The largest prison is in Bari and has a population of 360 inmates. Moreover, in Bari

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there is an Identification and Expulsion Centre – CIE with a population of irregular migrants and clandestines.

From June 2005 to June 2015, we enrolled in our Unit 202 patients with the diagnosis of ingestion of foreign objects (IFO). 21 episodes occurred in 15 inmates (13 in local prison, 2 in CIE). Patient demographics data including age, gender, type, size and location of FB, purpose of introduction, diagnostic tools, length of hospital stay and treatments were collected in a database. 13 pts were Italians and 3 were extra EU patients (2 illegal migrants). The mean age was 33,9 years and range 19-48 and median was 35. All prisoners were firstly admitted to emergency and then to a surgical consultation. Exclusion criteria included patients under 18 years old and patients with another upper gastrointestinal tract disease that required endoscopy. We usually follow a management of IFO that can be appreciated in Table 1 and it is recommended by the American Society for Gastrointestinal Endoscopy (ASGE) (5). All patients were admitted at triage nurse of the Emergency Department, then they underwent a surgical consultation, and consequently radiographic identification and localization of

IFO. Therefore, surgical consultation decided for endoscopic and/or surgical procedure.

The esophagogastroduodenoscopy (EGDS) was performed by emergency Endoscopy Service (7 endoscopists) under local pharyngeal anaesthesia, sedation using midazolam or general anesthesia in some patients. All examinations were undertaken by using flexible endoscopes. Written informed consent for EGDS was obtained from all patients. Endoscopic devices used for the removal of foreign bodies included alligator forceps, biopsy forceps, rat-tooth forceps, Dormier-type stone retrieval baskets and a net.

Results

194 patients were admitted with diagnosis of IFO, with a total of 202 episodes. 15 of those patients are inmates with 21 episodes of IFO. All prisoners are male and all the ingestions were intentional. 8 prisoners reported previous diagnosis of psychiatric illness (4 anxiety depressive disorders and 4 behaviour disorders). The median age was 35. All the pts underwent physical

TABLE 1 - MANAGEMENT OF INGESTED FOREIGN BODIES AND FOOD IMPACTIONS (ASGE).

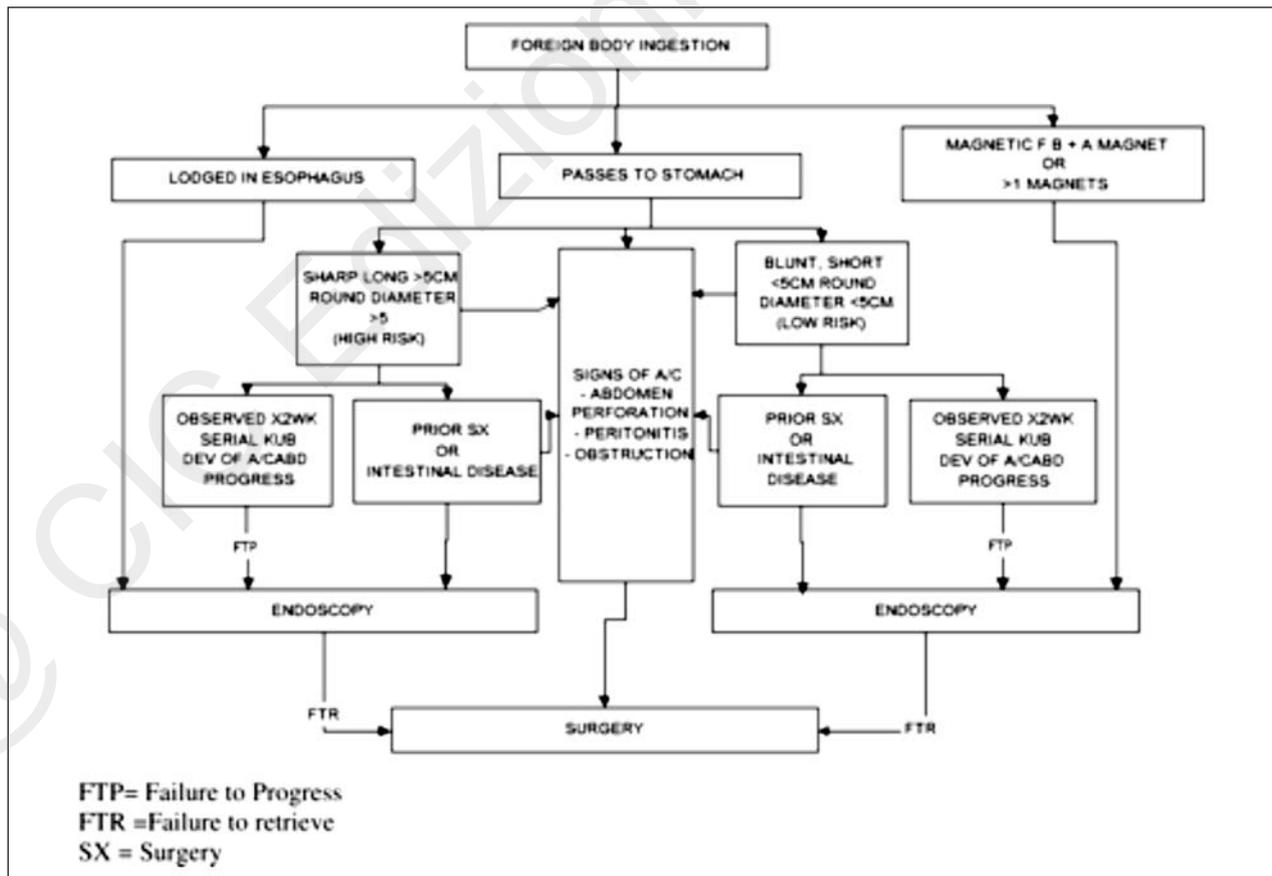
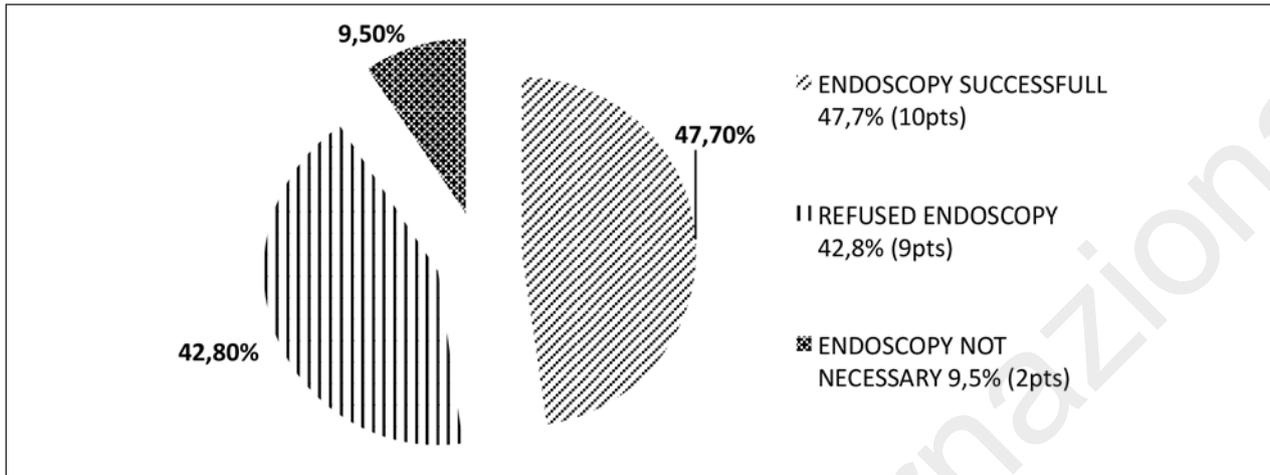


TABLE 2 - ENDOSCOPIC PROCEDURES.



examination at the ER and at the surgical consultation. Endoscopy (Table 2) was performed only in 10 pts (47,7%): 8 cases of removal, 1 case of not found IFO and another case of unsuccessful EGDS followed by surgical emergency procedure. For what concerns other 11 ones (52,38%), 9 rejected endoscopy (42,8%), whose 5 discharged voluntarily; in 2 cases EGDS was not necessary (9,5%) because IFO impacted at ileum and it was checked radiologically.

Foreign objects removed were illustrated in Table 3. Total number is 34, divided into different shapes: 6 flat and 23 sharp ones, while 5 IFO are still undefined. No food bolus impaction was found. The mean number of items per episode was 1,62. Multiple item ingestion was found in 11 patients (52,38%) (Figure 1). Recurrent episodes of IFO occurred in 4 pts. Surgery was performed only in one pt, whereas endoscopy was unsuccessful to remove IFO. This patient, with a clinical history of psychiatric disorder, showed recurrent episodes of ingestion also with multiple items. No morbidity neither intraoperative mortality. Data collection was complicated by many reasons: multidisciplinary team (surgeons, endoscopists, etc), most of reports were in paper and written in pen.



Figure 1 - Multiple ingestion of various type of foreign objects in a young prisoner with psychosis.

TABLE 3 - TYPE OF IFO.

IFO	TYPE	N.
SHARP	12 razor blades, 1 spike, 2 metal screws, 1 crucifix, 3 pieces of glass, 2 metal items, 2 parts of nail clipper	23
FLAT	4 button batteries, 1 piece of porcelain, 1 chain	6
UNDEFINED		5

Discussion

IFO is more common in prisoners than in normal population and despite ingestion of a dangerous objects (razor blades, etc) most episodes can be treated conservatively with observation and endoscopy. Secondary gain or undiagnosed psychiatric disease can explain the ingestion among prisoner population (6). Surgery is a very rare option. Epidemiological reports of IFO in in-

mates are very few, such as a literature especially risk factors; on the contrary there are many anecdotic articles about type and location of foreign bodies. Also in our experience, all patients are males and about 38% with a psychiatric illness, sometimes associated to drug addiction. In these patients IFO can be due to malingering, personality disorders, pica and psychosis. The most frequent is malingering and the ingestion is always intentional, and often repetitive and sometimes ingestion of multiple items is associated to other autolesionistic behaviours (7). The percentage of pts who rejected endoscopy is higher in prisoners such as voluntary discharges without any diagnostic or therapeutic procedures. Flexible endoscopic treatment is a safe and reliable procedure with a high success rate, low morbidity and no mortality. In our experience 42,8% of pts rejected endoscopy. The most common complication after IFO seems to be the perforation of upper GI tract, but it is not always complicated by generalized peritonitis. Surgery was necessary only in one pt (5,9%) and that is a very low rate compared to international literature that reports 15-30%. Also in our database, surgery is related to escalation in number of items ingested and associated to higher morbidity, significant healthcare and security costs (8). Prison population have risen significantly during the last decade and, at the moment, we don't know the financial impact of this problem on healthcare costs. Hospital charges consist in various costs: medical and surgical con-

sultation, laboratory, nurse staff, radiological and endoscopic examinations, pharmacy, hospital room charges, anaesthesiology charges, surgery. In addition, we must consider the cost of prisoners' transfer from prison and the cost of prison guards. For these reasons in prisoner population it is very important to focus on prevention of recurrence recognizing early self-destructive (9).

Conclusions

There is a very few literature about successful prevention strategy but it is important to identify high risks patient groups and to avoid recurrence: male prisoners with psychiatric illness. Prevention strategies includes prediction of high risk patients for recurrent IFO, decrease the access to objects and in psychiatric pts to change medical regimen and/or increasing psychotherapy. All these strategies are very important to reduce health and security cost.

Conflict of interest statement

All authors declare that there are any conflicts of interest or financial ties to disclose. All authors haven't got any financial relationships with any pharmaceutical or device company. No funds were involved in raising money for profit.

References

1. Smit SJ, Kleinhans F. Surgical practice in a maximum security prison - unique and perplexing problems. *S Afr Med J*. 2010;100:2436.
2. Narjis Y. Surgical digestive emergencies in prisoners, about a prospective study. *J Emerg Trauma Shock*. 2014 Jan-Mar;7(1):59-61.
3. Italian Ministry of Justice sources/www.giustizia.it/
4. <http://www.interno.gov.it/it/sala-stampa/dati-e-statistiche/presenze-dei-migranti-nelle-strutture-accoglienza-italia>.
5. Ikenberry SO, Jue TL, Anderson MA, Appalaneni V, Banerjee S, Ben-Menachem T, Decker GA, Fanelli RD, Fisher LR, Fukami N, Harrison ME, Jain R, Khan KM, Krinsky ML, Maple JT, Sharaf R, Strohmeyer L, Dornitz JA. ASGE Management of ingested foreign bodies and food impactions. *Standards of Practice Committee*. *Gastrointest Endosc*. 2011 Jun;73(6):1085-91.
6. Evans DC, Wojda TR, Jones CD, Otey AJ, Stawicki SP. Intentional ingestions of foreign objects among prisoners: A review. *World J Gastrointest Endosc*. 2015;7(3):162-168.
7. O'Sullivan ST, Reardon CM, McGreal GT, Hehir DJ, Kirwan WO, Brady MP. Deliberate ingestion of foreign bodies by institutionalised psychiatric hospital patients and prison inmates. *J Med Sci*. 1996 Oct-Dec;165(4):294-6.
8. Grimes Ic1, Spier Bj, Swize Lr, Lindstrom Mj, Pfau Pr. Predictors Of Recurrent Ingestion Of Gastrointestinal Foreign Bodies. *Can J Gastroenterol*. 2013 Jan;27(1):E1-4.
9. Narjis Y. Surgical digestive emergencies in prisoners, about a prospective study. *J Emerg Trauma Shock*. 2014 Jan-Mar;7(1):59-61.