



## Foreign Body (FB) Insertion is a Common Presentation in Emergency Surgery and Gastroenterology

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### Abstract

**Background:** Foreign Body (FB) insertion is common presentation in emergency surgery and gastroenterology; there are guidelines available for management of accidental insertion of FB. The primary aim of this study was to look at demography, common site of insertion, common operation for retrieval of FB and documentation of mental health diagnosis in patients admitted with FB insertion on surgical ward. We also looked at the literature and discussed most common psychiatric diagnosis and there presentation in these patients.

**Method:** We retrospectively analyzed data for all the patients admitted with diagnosis of FB in our hospital. The admission under general surgery, pediatrics, ENT and urology subspecialties were all included. Children with genital FB were excluded as they were transferred to pediatric surgery due to safeguarding issues. Retrospective data for last 4 year from January 2014 to January 2017 was collected using hospital electronic record system. Online e discharge summaries, operation theatre record and PACE radiology system was used to collect the date. Number of episodes of admission for each patient was recorded using online system. Patients were divided into accidental and MHI groups. MHI subgroup analysis was done to identify above mention characteristics.

**Results:** A total of 146 patients with diagnosis of FB were admitted in above mentioned period. 57% (84) were with a diagnosis of accidental ingestion out of which 70% ( 54) were under the age of 16 years predominantly male with most common site of insertion was ENT. The commonest cause of accidental FB in adults was food bolus followed by fish bone. MHI group made 43% (63) of all the patients admitted with diagnosis of FB insertion. We recorded 257 episodes for these 63 patients, with maximum of 21 episodes in one patient. Mean age was 25 ± 21. Female sex and younger age group were at higher risk of ingestion. Oesophagus, stomach and skin were most common site of insertion in female patients with MHI while Stomach followed by rectum was most common site of insertion in male patients with MHI. AXR was most common investigation in these patients. Endoscopic retrieval was successful in 85% of patients with FB in GI, Urinary and respiratory track. Most of the patients with diagnosis of MHI were either under psychiatric care or were referred during their admission. Surprisingly Patient with rectal FB were not referred or seen by psychiatric services. Three deaths were recorded one in accidental and two in MHI secondary to complications arising from FBs ingestion.

**Conclusion:** MHI patient are frequent attenders with recurrent presentations with FB ingestion in surgery or gastroenterology ward, their basic epidemiology and common presentation should be understood. Basic knowledge of common psychiatric problems among surgeons/medics can help during their acute admission on general ward. Early recognition and referral to mental health services can help and reduce future presentations.

**Keywords:** Foreign body; Mental health illness; Deliberate self-harm

### Introduction

Patients with foreign bodies are common presentation to gastroenterology and surgical ward [1-2]. Patients with severe mental illness can be admitted on surgical ward with variety of presentation ranging from foreign body ingestion, subcutaneous insertion, and introduction of FBs into natural orifices like vagina, urethra or rectum. Foreign body ingestions into the gastrointestinal tract can lead to serious consequences with significant morbidity and mortality, eighty percent of ingested foreign bodies which reach to stomach will pass uneventfully through the Gastrointestinal Tract (GI) the

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Received Date: 13 Mar 2019

Accepted Date: 17 Apr 2019

Published Date: 22 Apr 2019

#### Citation:

Qureshi A, Cunningham J, Naz S.  
Foreign Body (FB) Insertion is a  
Common Presentation in Emergency  
Surgery and Gastroenterology. Clin  
Surg. 2019; 4: 2407.

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**Table 1:** The common causes of FB ingestion in the cohorts.

Common causes of FB Insertion.	
Psychiatric Disorders	Non Psychiatric
<ul style="list-style-type: none"> <li>Deliberate self-harm (DSH)</li> <li>Compulsive sexual behaviour (CSB)</li> <li>Borderline personality disorder (Eating disorders)</li> <li>Delusion or command hallucination (schizophrenia)</li> </ul>	<ul style="list-style-type: none"> <li>Accidental</li> <li>Sexual Gratification</li> <li>Dementia</li> <li>Cognitive problems</li> <li>Sexual assault or prank</li> <li>Drug concealment ("body packing")</li> <li>Malingering</li> </ul>

one which can't pass through the GI track require either endoscopic or surgical intervention. It is important to understand that what are common psychiatric condition leading to foreign bodies ingestion or insertion and which patients are more likely to ingest complex foreign bodies. Inedible substance ingestion increases the risk of ileus, poisoning, and suffocation. Prevention is especially important in a psychiatric setting. Long term consequences of ingestion of substances like detergents, acids etc are very poor especially in patients with mental illness. Similarly higher complications should be expected in patient repeatedly introducing FB under the skin or in rectum or vagina, ranging from damage to surrounding structure to intestinal fistulae and peritonitis.

Most of these patients are frequent attenders and are either in psychiatric institution or under direct psychiatric observation. The literature consistently shows that medical-surgical nurses frequently lack the knowledge, skills, and attitudes necessary to provide nursing care to patients with severe mental illness [3].

Most of these patients need special attention. There are studies which clearly show underestimation of psychiatric morbidity by all the clinicians and a general reluctance to refer patients to a psychiatrist for varied reasons [4]. The negative perceptions often portrayed by medical-surgical staff towards these patients with comorbid medical-surgical disorders must be addressed.

We reviewed data of all the patients who were admitted in our institute with FB diagnosis which required surgical or endoscopic intervention for retrieval. Especially looking at FB in patient with mental health illness.

## Materials and Methods

We retrospectively analyzed data for all the patients admitted with diagnosis of FB from January 2014 to January 2018. Electronic discharge summaries, online PACE system for radiological investigations and operation notes were reviewed.

### Inclusion criteria

- All patients with a diagnosis of mental health illness with FB from January 2015 to January 2018.

### Exclusion criteria

- Genital FB in children under the age of 18 years.

Beside demography, history of FB ingestion i.e. accidental, self-harm or sexual gratification, was noted, most common presentation i.e. ingestion, subcutaneous insertion etc. was also noted. We also looked at common investigations for diagnosis and common methods of retrials.

Length of hospital stay and number of repeated admissions for psychiatric patients were also noted. Documentation of mental illness diagnosis on presentation was also reviewed.

**Table 2:** Shows the common site where FB were found in both subgroups.

Site of Ingestion	Paediatrics (n=59)		Adults (n=25)	
	Male (n=38)	Female (21)	Male (n=16)	Female (n=9)
ENT	22(57%)	13(62%)	2(13%)	2(22%)
GI	10(26%)	6(28%)	11(69%)	6(67%)
Skin	6(15%)	1(2%)	3(19%)	1(11%)

## Results

We retrospectively analyzed all the patients admitted under general surgery with diagnosis of foreign body over the last 4 years. Online e-discharge system was used to analyze the discharge summaries, which include details of presentation, investigations, management and documentation of any mental health problems.

We analyzed the electronic discharge letters of 146 patients admitted with diagnosis of FB during above mentioned period. For the sub group analysis these patients were dived in two cohorts, accidental and patients with Mental Health Problems (MHI), 43% (63) had a diagnosis of mental health problems. While rest of the patient had accidental FB. The common causes of FB ingestion in these cohorts are shown in Table 1.

Accidental sub-group was further dived into paediatric and adult sub-groups. Interestingly 70% (58) of these patients were in pediatric age group. In accidental group M: F was 1.8:1 mean age at presentation was 24.5 ± 22 while **Figure 1** show the distribution in to age groups.

The most common site of foreign body insertion in paediatric age group was ENT followed by oesophagus. In adults sub group males have slightly more predominance with ratio of 1:1.7. The most common site of FB in this group was Oesophagus i.e. Food bolus (Table 2).

It was noted that there were no paediatric patient with genital FB which was admitted under surgical care possibly due to safe guarding issue. These patients are normally looked after by paediatric team with involvement of sub-specialty i.e. gynaecology. Only one paediatric patient was found in system with diagnosis of FB rectum i.e. a Toy car under general surgeons.

In sub group of 63 psychiatric patients a total of 257 episodes for removal of foreign body were recorded i.e. on average more than four procedures per patient. While total number of procedure on individual patient's range from 1 to 21. Male to Female ratio was 1:1.2 which slight female predominance. Mean age at presentation was 25 ± 2. The **Figure 2** shows over all comparison of M: F in accidental and MHI groups. Where male predominance in accidental and female predominance in MHI group can be noted.

**Figure 1** explains the higher incidence of FB insertion in younger population both in accidental and MHI patients. The incidence of FB

**Table 3:** Risk factor associated with DSH.

Risk factor associated with DSH	
1: Low stress tolerance	5: Family History of self-harm
2: Perfectionist	6: Family History of psychiatric disorders
3: Impulsivity	7: Dysfunctional Back ground
4: History of Violence problems	8: Social isolation

Insertion in older age in MHI group is very small and is limited to learning disability patients only. While the FB insertion in accidental group start increasing in old age due to poor cognitive dysfunction.

Where **Figure 3** shows the sex distribution of common mental health diagnosis in our data which shows female predominance toward deliberate self-harm i.e. 60%, followed by personality disorder 20%. Other diagnosis in female subgroup were psychosis (8%), PTSD (6%), HSB (6%). While in male most prominent diagnosis was Sexual gratification 50%, followed by DSH only 17%. Other mental health diagnosis in males was personality disorder (11%), psychosis (8%), schizophrenia (7%) and learning disabilities (7%).

The common sites of FB in patients with MHI were oesophagus, stomach followed by subcutaneous tissue which is shown in **Figure 4**. In sub group analysis most common site for FB in female was Oesophagus 43% and skin 41% and in male patients was stomach 49% and rectum 31%.

We noted with interest that about 36 (14%) of the episode no psychiatric diagnosis was given on the discharge letter. Mostly in patient with FB in rectum and urethra so their psychiatric assessment were missed. There were two mortalities reported in MHI group due to complication of repeated insertion of sharp objects subcutaneously leading to small bowel fistula. Only one mortality was reported in accidental group.

## Discussion

FB insertion is a common presentation on surgical and gastroenterology ward. Majority of foreign bodies would pass spontaneously (90%) only 10% to 20% would require endoscopic and less than 1% surgical removal [5]. Endoscopic removal is the procedure of choice and is successful in most of patients [6] as shown in our study. FB ingestion in mental health is normally in young adults as shown in our study. These patients have multiple mental health diagnosis ranging from DSH to personality disorder [7], as the approach to these patients should be multidisciplinary all the member of teams should be aware of basic knowledge and treatment of these patients. Most of the MHI patients admitted on general wards are frequent visitors, the attitude of medical staff toward their care is not ideal. These patients should be referred to psychiatric services during their index admission and help should be sorted. There is no guideline for referral of this patient to psychiatric services although some evidence suggests referring those patients who have history of psychiatric problems [8] or for cases involving unusual foreign objects or a history of foreign object insertion [9].

However, psychiatric problems associated with insertion behavior may go unidentified without routine psychiatric consultation, leading to the recommendation for prompt psychiatric evaluation for all who self-insert foreign objects [10]. We here discuss few common mental illnesses leading to FB insertion basic knowledge of which is essential for medical and surgical team dealing with these patients.

## Deliberate self-harm

Deliberate self-harm refers to an intentional act of causing physical injury to oneself without lethal intention. Deliberate self-harm behaviors most commonly include cutting (with a knife or razor), scratching or hitting oneself, and intentional drug overdose or foreign body ingestion. Most patients have risk taking behavior like inflicting foreign body under the skin and in open wound is second most common presentation. Many patients who self-harm use more than one method of self-injury most of them do it on regular basis, while others do it only once or a few times.

A typical pattern of onset of this syndrome is in late adolescence as shown in our study, characterized by relapsing episodes with low lethality and harm deliberately inflicted upon the body. Mostly there is a long standing history for this behavior.

The four most predominant psychological symptoms for this syndrome are despair, anxiety, anger, and cognitive constriction [11]. Deliberate Self-Harm (DSH) patients are most common to present in A&E and on surgical ward with FB ingestions etc. The diagnosis is well understood but the psychiatric management and needs of these patients, when on acute general ward should be understood to deal with these patients.

The back ground history of lack of social support, homosexuality, drug and alcohol abuse, and suicidal ideation can be there which make them very complex patients to manage on general ward which can present with recurrent attempts. Table 3 shows the risk factors for these patients. DSH can sometime be associated with depression and psychoses which are aggravated after general anaesthetics and morphine like pain killers. So surgical attempts and sedation should be best avoided in these patients where possible.

Deliberate self-harm as an attempt to cope with intense emotional states. Most patients have reported feeling extremely tense, anxious, angry or fearful prior to the act of self-harm, and the self-harm behavior is positively reinforced through feelings of relief, satisfaction and decreased tension. There are multiple models to explain the DSH most common presentation of which is self-punishment, sensation and intension seeking and anti-dissociation. When dealing with these patients their background should be kept in mind, most of them have good insight and should be offered psychiatric help and assessment by psychiatric crisis team.

The general behavior of medical team to condemn and stopping these acts should be best avoided as deliberate self-harm is a coping method, focusing solely on condemning or stopping the act can be detrimental [12]. Empathic listening encouraging them to talk and advice on harm minimization is more helpful. Providing a brief problem solving advice is all that is needed. The often impulsive nature of these acts means that prevention should focus on encouraging alternative methods of managing distress, problem-solving, and help-seeking before thoughts of self-harm develop.

Although lot had been discussed to minimize their access to self-harm object is a question commonly asked by surgeons. These are complex patients and unfortunately there is no quick fix solution. When their coping mechanisms are taken away they develop more high risk behaviors' leading to strong suicidal intent or plan or psychosis or can develop more intensity and lethality of self-harm acts.

### Sexual gratification and Compulsive sexual behavior

Foreign body insertion into rectum, vagina and urethra is a common presentation and described as the reason for autoerotic or consensual sexual act for sexual gratification. There is a lack of definition in literature on Compulsive Sexual Behavior (CSB) that's why most of these patients are never diagnosed with CSB. CSB implies repetitive, continued sexual activities that can cause clinical distress and impairment which can lead to wearied presentation of foreign bodies in urogenital or rectal orifices. Keeping in mind that hypersexuality is not diagnostic of CSB but can present as a part of behavior.

CSB can present in a variety of forms and degrees of severity, fundamental hallmarks of CSB are continued engagement in sexual activities despite the negative outcomes. Psychologically, sexual behaviors serve to escape emotional or physical pain or are a way of dealing with life stressors [13].

CSB is divided into paraphilic and non-paraphilic subtypes, explanation of which is beyond the scope of this paper. The patient who present with foreign bodies in urogenital and rectum are mostly from Non paraphilic group. Normally these disorder start in late adolescence and peak in the mid-20s. There is a male predominance. Their repeated presentation signals the need of screening these patients. Themes of shame, avoidance, anger, and impaired self-esteem and efficacy are common [14,15]. There are both psychosocial and pharmacological treatment available for CSB.

The common aetiology of rectal foreign body insertion can be sexual gratification, self-injury to inflict pain, embarrassment, punishment, psychosis, to relieve anxiety and factitious illness. Most of these patients are reluctant to seek mental health advice due to embarrassment, these patient need special attentions on medical ward. A mental health evaluation can prevent future presentation.

### Eating and feeding disorder

Very few patients among eating and feeding disorder present to hospital with foreign body ingestion unless associated with mental retardation or chromosomal deletion e.g. Prader-Willi syndrome. The International Classification of Diseases (ICD) has clear distinction between eating disorder i.e. Anorexia Nervosa, bulimia Nervosa etc. from feeding disorders specify pica, regurgitation disorder etc. very few patients with Anorexia nervosa do present with missing toothbrush in upper GI track which is used to induce vomiting. Where pica describes persistent eating of non-food substances. Such as earth, chalk, metal or plastic objects, hair or faces. It mostly Pica which present with ingestion of non-food substances including metal, biscuits rapiers, pins and needles etc. A well-known to surgical presentation is Trico-bazar.

Pica only requires a diagnosis if it is severe, leads to adverse consequences. Mostly common presentation is in adulthood although there is no age restriction for diagnosis 76 [7].

### Conclusion

Foreign body insertion is common presentation on general i.e. surgical and medical ward. These are mainly young patients with a significant MHI the main aim of early psychiatric referral is to establish diagnosis and to minimize harm to the patient during the

hospital stay can help and reduce future presentation. Psychiatric referral also help in risk assessment for future or imminent insertion in the inpatient setting and help and identify any underlying syndrome psychiatric illness.

Their treatment is aimed toward; minimize harm to the patient after discharge and to minimize anxiety and shame associated with the experience of being exposed. Inpatient psychiatric help can avoid serious injuries in these high risk behavior patients.

We recommend that awareness among general medical staff, early psychiatric referral and knowing the demography and common MHI diagnosis can help in more effective management of these patients.

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