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Food bolus obstruction:
incidence, management and follow-up

How common is FBO?

Food bolus obstructions are an increasingly frequent event in the everyday clinical practice of emergency physicians, gastroenterologists, and ENT specialists.[1]

With an incidence estimated at 25 people per 100,000 per year, FBOs are the most common gastrointestinal emergency after GI bleeding.[2,3]

While most will resolve without medical intervention, recent publications suggest that the number of food impactions seen in hospitals is rising.[4,5]

How do patients present?

Generally speaking, patients immediately recognise an FBO, experiencing a sensation of squeezing in the chest.[4]

Typically, they will try to wash the food down into the stomach with water or attempt to regurgitate the ingested contents.[6]

If that fails and symptoms of obstruction persist and/or are accompanied by substantial chest discomfort, patients will seek medical attention.[4]

Most will present to an emergency department within four hours of the impaction, and much sooner if symptoms are causing severe distress.[3,7,8]

The food type most often involved in impactions is meat.[2,3,9]

Approximately 80% of patients are unable to manage their own secretions at presentation, with excessive salivation and an inability to swallow saliva raising suspicion for complete oesophageal obstruction.[3,10]

ENT:
ear, nose and throat
FBO:
food bolus obstruction
GI:
gastrointestinal

What is the underlying cause of FBO?

Eosinophilic oesophagitis, a chronic inflammatory disorder that leads to fibrosis, is now the most common underlying aetiology in patients presenting with FBO.[11,12]

FBOs are often the first presentation for patients with EoE, and one in three diagnosed patients may have experienced oesophageal impaction requiring extraction at some point in the past.[13,14]

The prevalence of EoE is rapidly growing and, with it, EoE-related food impaction.[5,15]

Multiple episodes of FBO may occur more frequently in those with EoE – hence the importance of establishing the underlying diagnosis.[3,16]

How is EoE diagnosed?

While symptoms point to EoE, it requires upper GI endoscopy and biopsies to confirm the diagnosis.[11,17]

EoE is diagnosed when the number of eosinophils in the oesophageal epithelium is ≥15 per 1/3 square mm (equivalent to a standard size high power field or ≥48 eos per mm^2 hpf).[18]

Multiple biopsies are taken (upper, mid and lower with ≥6 biopsies) even if the oesophagus looks normal.[19]

The ability to correctly identify those with EoE is nearly 100% when taking the six biopsies, but only 55% when taking a single biopsy.[20]

Each year EoE goes undiagnosed, the risk of strictures increases by 9%, predisposing patients to recurrent FBO and increasing the need for oesophageal dilatation.[21,22]

Establishing the diagnosis is important as the inflammatory changes in EoE may be amenable to treatment, with, for example, topical corticosteroids.[22]

Where are FBOs typically located?

Impaction of a food bolus commonly occurs in the upper third of the oesophagus.[10]

Localisation of symptoms is, however, of limited usefulness since referred pain may bear no relation to the position of the obstruction.[23,24]

In non-food bolus dysphagia, for example, as many as 30% of symptoms perceived by the patient as being in the neck will in fact originate in the oesophagus.[23]

The sensation of a retained foreign body can also last for several hours after a large food bolus has cleared the oesophagus.[10]

Timing of regurgitation in FBO can be a useful diagnostic aid; immediate coughing and choking following water is suggestive of laryngeal penetration secondary to obstruction at the level of the cricopharyngeus, while delayed regurgitation suggests obstruction lower down.[23]

EoE:
eosinophilic oesophagitis
eos:
eosinophils
FBO:
food bolus obstruction
GI:
gastrointestinal
hpf:
high power field

What are the aims of FBO management?

The first aim in the management of FBO is to treat patients in an effective and timely manner to relieve symptoms and prevent aspiration of gastric contents and oesophageal perforation.[3,25]

A second, but similarly important priority is to identify the underlying pathology in order to inform future management.[3,25]

Flexible endoscopy is recommended as first-line management for FBO; it is not only highly effective (OGD has a success rate in excess of 95%), but serious complications are also rare, and the procedure additionally allows for identification of any predisposing pathological process.[3,10]

Who manages FBOs?

With limited data and few guidelines governing FBOs, patients may be managed in a number of ways by a number of specialities including emergency medicine, gastroenterology, otolaryngology or general surgery.[12,13,23,26,27]

There are wide variations in practice between admitting specialties, even within the same hospital.[12,13]

For most FBO patients, urgent referral to gastroenterology for flexible OGD is the preferable course of action.[12,26]

In a retrospective analysis of 310 acute FBO episodes at a university hospital in Scotland, 46.8% of admissions were managed by ENT, 43.5% by general surgery, and only 9.7% by general medicine (the obvious choice for OGD performed by gastroenterologists).[12]

Although frequently treated by ENT surgeons, there are good reasons for FBO to be managed by gastroenterologists, as long as the patient's airway is not compromised.[7]

FBO presents a unique opportunity to diagnose, treat and establish care for patients with EoE.[28]

Given up to 50% of FBO cases are associated with EoE, the total incidence of food bolus obstruction may decrease as more patients with the disorder are discovered and treated.[29]

Which endoscopic removal technique should be employed?

The use of the endoscopic "push" technique has been subject to debate due to concern that it might increase the risk for oesophageal laceration or perforation, particularly if EoE is suspected.[30,31]

Recent studies, however, have found no difference in complications between push and retrieval techniques in oesophageal food impactions.[30,32]

The 2016 European Society of Gastrointestinal Endoscopy guidelines recommend gently pushing the bolus into the stomach or retrieval if this fails, while the American Society of Gastrointestinal Endoscopy suggest that acceptable methods for the management of FBOs include en bloc removal, piecemeal removal, and the gentle push technique.[31,33]

ENT:
ear, nose and throat
EoE:
eosinophilic oesophagitis
FBO:
food bolus obstruction
OGD:
oesophagogastroduodenoscopy

How quickly should FBOs be removed?

As well as causing distress and discomfort to patients, being unable to swallow can quickly lead to dehydration as secretions are not reabsorbed and normal food intake is prevented.[34]

The patient is also at risk of aspirating saliva or food particles into the tracheobronchial system, placing them at risk of pneumonia.[34,35]

The bolus itself may also cause local trauma to the adjacent oesophageal mucosa resulting in inflammation with potential to progress to ischaemia, perforation, and mediastinitis.[34,36]

While many patients tolerate temporary FBO over a number of hours, and there is no clear definition of when emergency treatment is necessary, the ASGE recommends definitive management within 24 hours wherever possible, to prevent complications from delayed disimpaction.[7,31]

Are non-endoscopic, conservative treatments effective?

Several approaches to clearing FBOs without having to resort to endoscopy have been tried, including muscle relaxants and antispasmodics, effervescent drinks and pineapple juice (which contains a proteolytic enzyme that aims to soften and dissolve the food bolus).[7,34]

A recent Cochrane review concluded that there is inadequate data to recommend the use of any enteral or parenteral treatments in the management of FBOs; data regarding adverse events with use of these methods are also lacking.[34]

Despite little therapeutic evidence, a multicentre retrospective analysis conducted in New Zealand found that 41% of patients received medical therapies prior to referral to the general medical or endoscopy service.[10]

Since trials of medical therapy have been found to delay definitive endoscopic treatment – the impact of which has yet to be established – caution should be exercised using any conservative management strategies in FBO patients.[3,34]

Should dilatation be performed if stricture is identified?

Most people with FBO do not require dilatation; of 204 patients who underwent OGD at a US academic institute, for example, 68% did not require the procedure, while 9% underwent dilatation during treatment for their food impaction.[30]

UK guidelines on oesophageal dilatation in clinical practice state that it can be considered as first-line treatment in patients with FBO and daily dysphagia.[37]

Immediate dilatation after disimpaction may, however, be underutilised in practice, and patients may be reluctant to return for another procedure after resolution of their FBO.[38]

ASGE:
American Society of Gastrointestinal Endoscopy
FBO:
food bolus obstruction
OGD:
oesophagogastroduodenoscopy

Should diagnostic biopsies be taken at the therapeutic endoscopy?

European Society of Gastrointestinal Endoscopy guidelines recommend FBO patients undergo diagnostic biopsies at the index endoscopy.[33]

Unfortunately, lack of knowledge of EoE as the most common cause of FBO means that in many cases biopsies are not taken leading to lengthy delays in initiation of therapy and recurrence in many patients.[5,7,12,28,30,39]

Even if biopsies are taken, the number may be insufficient; only 2 in 5 patients who underwent OGD for FBO at a UK hospital were biopsied, and, of these, fewer than 10% had ≥6 biopsies.[12]

It is recommended that at the index endoscopy, biopsy above, below and at the site of obstruction should be performed to avoid diagnostic failures.[7]

When biopsies cannot be obtained during initial FBO treatment, empiric PPI medications should be avoided due to the potential risk of masking EoE at later biopsy.[13]

What follow-up of FBO is required?

It is likely that a proportion of FBO can be prevented by focusing on appropriate patient diagnostic work-up after the first episode of impaction, even if the episode was transient and self-resolving.[1]

Yet a survey of US gastroenterologists found that 72% did not routinely follow-up patients after FBO.[26]

Another study demonstrated that fewer than half of FBO patients presenting in the emergency department had adequate outpatient follow-up.[39]

The picture appears to be similar in the UK; at one district general hospital, only 1 in 3 patients had diagnostic follow-up post FBO removal.[40]

Even in patients with endoscopic features of EoE, follow-up can be poor.[13]

Failure to follow up, particularly in those who have never been biopsied, may delay the time to diagnosis and appropriate medical and endoscopic therapy; it is also a predictor of recurrent impactions.[10,13]

At a UK university hospital, 38% of patients newly diagnosed with EoE had received up to 3 OGDs for prior episodes of food impaction before their diagnosis.[12]

Too many opportunities to diagnose EoE are therefore being missed with a delay in the commencement of effective treatment.[12]

EoE:
eosinophilic oesophagitis
FBO:
food bolus obstruction
OGD:
oesophagogastroduodenoscopy
PPI:
proton pump inhibitor

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