Recurrence of food bolus impaction of the oesophagus: A retrospective observational study

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Abstract

Background: Most cases of oesophageal food bolus impactions (FB) are one-off events, but recurrence is recognised. The aims of this study are to establish the recurrence rate of food bolus impaction and to identify features associated with recurrence.

Methods: Clinical records of all FB cases were reviewed and the following information was recorded (patient identifier, age, gender, dates of admission, history of oesophageal pathologies). Results of investigations were also recorded (contrast swallow, endoscopies, oesophageal manometry and pH studies). Cases were coded according to the most common oesophageal pathologies.

Results: 99 patients fulfilled inclusion criteria and consisted of 65 males and 34 females. Recurrence was noted in 9 patients who did not demonstrate any statistical significance difference compared with cases suffering a single episode of FB in terms of age (Median 61 years IQR 49–79 years, Mann-Whitney U test 374.5, p = 0.71) or gender (recurrences in 3/34 females and 6/65 males, Pearson chi-square test 0.004, p = 0.99). 86 patients had investigations performed. Logistic regression demonstrated that hiatus hernia was the only oesophageal pathology demonstrating statistical significance in its association with FB recurrence (odds ratio 4.77 95% CI 1.15–19.82, p = 0.032). All other variables (oesophageal pathologies, age and gender of patients) were not statistically significant (p > 0.35).

Conclusion: The rate of recurrence of FB in our study group was 9%. Hiatus hernia was the only oesophageal pathology associated with recurrence of FB. It is not possible to draw any conclusions regarding the role of hiatus hernia in the causation of recurrence of FB.

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1. Introduction

Food bolus impaction of the oesophagus (FB) may be encountered by otolaryngologists, gastroenterologists, general surgeons and thoracic surgeons.1 The estimated incidence rate is 13 per 100,000 persons.2 The management of FB is highly variable, not only between medical specialties but also within them.1 FB that include bone are disimpacted by rigid pharyngo-oesophagoscopy as soon as possible to minimise the risk of perforation.3 It has been reported that up to 54% of cases of soft FB resolve spontaneously within 24 h.4 Cases that do not include bone can therefore be managed conservatively in the first instance. Hyoscine butylbromide (Buscopan) and diazepam are commonly used for soft FB despite an absence of evidence.1,4,5 Other agents are also used including carbonated drinks, enzymes, glucagon and nifedipine.1

Cases that fail to resolve can be treated by flexible or rigid endoscopy.

A small number of studies have previously reported on the recurrence rates of food bolus impaction ranging from 19% to 30%.5,6 The aim of this study is to establish the recurrence rate of FB in our patient population and identify any characteristic features or predictors.

2. Method

We conducted a retrospective observational study of patients aged 16 years or older who were admitted with a first episode of soft FB between January 2002 and December 2007 to our institution. The definition of FB in this study was an admission to hospital due to absolute dysphagia of sudden onset upon ingestion of food. As the nature of the study necessitated a period of follow up, we excluded patients based outside of the hospital catchment area who were visiting the region when they suffered FB.

Patients’ clinical records were reviewed and relevant information was extracted (patient identifier, date of birth, gender, dates of admission for all episodes of FB, dates and causes of death, history of oesophageal pathologies). This included the results of radiological investigations (barium or other contrast swallow) and non-radiological investigations (endoscopies, oesophageal manometry and pH studies).

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Cases were coded according to the most common oesophageal findings/pathologies (stricture/web, oesophagitis/reflux, hiatus hernia, dysmotility, cricopharyngeal hypertrophy, achalasia and pharyngeal pouch).

Statistical analysis was performed using SPSS 13 (SPSS Inc., Chicago, IL). Patients with and without recurrences were compared for differences in age and gender using the Mann-Whitney U test and chi-square test respectively. In order to identify any variables predictive of FB recurrence, logistic regression was performed considering recurrence as the dependent variable. Patient demographics and oesophageal pathologies were considered as independent variables.

The study design was discussed with the institutional research and development department. As this was a retrospective observational study it was deemed that ethical approval was not required.

### 3. Results

108 patients were admitted with a first episode of FB to our institution during the study period. 9 patients were excluded as they were based outside of the hospital catchment area therefore no information regarding long-term outcomes was available. The composition of the remaining 99 patients was 65 males (median age 59 years, interquartile range 47–74 years) and 34 females (median age 71.5 years, interquartile range 53–81 years). The number of patients admitted under the care of ENT, general medicine, general surgery and other specialties was 80, 13, 4 and 2 patients respectively. 22 patients died between their first presentation with FB and the time of this study being conducted. For these patients, the duration of follow up was the time elapsed between the date of admission with FB and the date of death (mean 34 months +/- 17, range 6–74 months). None of these patients had a recurrence of FB. 2 patients had recurrences but died before the study date (Table 1 and 2). For all other patients without recurrences, the duration of follow up was the time elapsed between the date of admission with FB and the 1st of September 2010 as this was when the study was conducted (mean 68 months +/- 20, range 32–98 months). The management of these patients for their first bolus was as follows: 54 were managed conservatively; 24 underwent rigid endoscopy; 18 underwent flexible endoscopy oesophagoscopy; 3 underwent both rigid and flexible endoscopy.

In total, there were 9 (9.1%) patients who subsequently had a recurrence of FB (8 patients with a single recurrence, 1 patient with 2 recurrences). Details of the 9 patients who had recurrences are shown including the length of time to recurrence is shown in Table 1. Patients with and without recurrence did not differ significantly in terms of age (Median 61 years interquartile range 45–79 years, Mann–Whitney U test 374.5 p = 0.71) or gender (recurrences in 3/34 females and 6/65 males, Pearson chi-square test 0.004, p = 0.99).

In terms of investigations, 58 patients had an endoscopy at some point and 72 patients had a barium swallow at some point. 13 patients did not have any investigations, of which 5 patients were recommended to have investigations but either declined, cancelled or did not attend their appointments for investigations. Further analysis therefore only included the 86 patients who had investigations performed. Logistic regression demonstrated that the only oesophageal pathology demonstrating statistical significance in its association with FB recurrence was hiatus hernia (odds ratio 4.77 95% CI 1.15–19.82, p = 0.032). All other variables (oesophageal pathologies, age and gender of patients) were not statistically significant (all p > 0.35).

### 4. Discussion

The results of our study show that approximately 9% of patients admitted to our hospital with FB impaction went on to develop further episodes. The presence of a hiatus hernia was the only statistically significant risk factor in determining recurrence of FB. The recurrence rate in our series is smaller than previously reported. Longstreth et al. reported on a series of 194 adults with 223 episodes of FB, in which an underlying cause was identified in 88% of patients, with 78% having a Schatzki ring or peptic stricture and only 4% with a diagnosis of hiatus hernia.2 Lacy et al. reported on 17 consecutive patients with FB, 59% of whom had previous episodes of significant oesophageal obstruction.3 86% of these patients had evidence of oesophageal pathology: 24% had hiatus hernia; 24% had strictures/web; 53% had gastroesophageal reflux.4 Tsikoudas reported on a series of 33 patients with FB of which 58% reported similar previous episodes.4 To our knowledge, the only study other than ours that has investigated the characteristics of recurrent cases of food bolus obstruction was by Prasad et al. They demonstrated a 30% recurrence rate of oesophageal FB in their series of 176 cases during a minimum 5-year follow up period.5 Interestingly, they also identified a statistically significant increase in the risk of FB in the presence of a hiatus hernia (OR 2.65, 95% CI 1.19–5.89). The prevalence of hiatus hernia in patients with and without recurrence was 73% and 52% respectively.5 In our study population, 21% had a hiatus hernia, rising to 56% in those with recurrence of FB.
Whilst the role of oesophageal pathologies such as strictures, webs and Schatzki rings in the aetiology of FB is understandable, the role of hiatus hernia in the aetiology of recurrent FB is not known, so it is not possible to draw conclusions about this. In the context of the findings of this study, hiatus hernia is most likely an indicator of oesophageal dysfunction.

There are several limitations to this study as with any retrospective study. The data we extracted from clinical records was dependent on what was recorded. It was therefore not possible to look at other features that have previously been implicated in the aetiology of food bolus impaction such as the use of dentures, as this was not reliably recorded, nor was it possible to compare patients according to BMI. It is possible that some patients will suffer FB but this will resolve spontaneously at home without requiring hospital admission. Patients that are admitted to hospital are likely to be more severely affected.

5. Conclusion

The rate of recurrence of FB in our study group was 9%. Hiatus hernia was the only oesophageal pathology associated with recurrence of FB. It is not possible to draw any conclusions regarding the role of hiatus hernia in the causation of recurrence of FB.

Conflict of interest

No conflicts of interest to declare.

Funding

No sources of funding.

Ethical approval

Study reviewed by the institutional research and development department. As this was a retrospective observational study it was deemed not to require ethical approval.

References