# Endoscopy for repeatedly ingested sharp foreign bodies in patients with borderline personality disorder: an international survey

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***Background*** **The general guidelines on the management of ingested foreign bodies (FBs) do not address specific aspects raised by psychiatric patients, particularly in patients with borderline personality disorders (BPD) who repeatedly ingest FBs. The aim of this survey was to collect data on experience and opinions on the management of FBs in psychiatric patients with BPD and to review the relevant literature.**

***Methods*** **A survey focusing on the indication and the timing of endoscopy for sharp FB removal in patients with BPD was e-mailed to 215 gastroenterologists, psychiatrists, and surgeons in Switzerland, Germany and Austria, discussing this clinical problem using a specific case vignette.**

***Results*** **Responses were received from 63 of 215 (29%) contacted physicians. Two-thirds of the respondents knew patients with BPD who had swallowed FBs repeatedly; 86% recommended removing sharp FBs endoscopically even in the case of repeated FB ingestion and 14% of respondents argued against emergent endoscopic FB removal in the case of repeated ingestions. Different specialities expressed partially divergent opinions regarding the management of these patients.**

***Conclusion*** **Repeated FB ingestions can be a problem in patients with BPD. Although published data show that the perforation risk of unremoved FBs is low, most clinicians support repeated endoscopies also in the case of repeated FB ingestions. Nevertheless, in selected cases, repeated endoscopies need to be discussed and an interdisciplinary consensus and/or the involvement of an ethical committee is advised.** ***Eur J Gastroenterol Hepatol*** **24:793–797 © 2012 Wolters Kluwer Health | Lippincott Williams & Wilkins.**

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## Introduction

Foreign body (FB) ingestion in adults occurs mainly in patients with psychiatric disorders or mental retardation, in prisoners or during alcohol intoxication. Current consensus agrees on emergent endoscopic intervention to remove sharp objects lodged in the esophagus. Once the esophageal passage is completed, the majority of ingested FBs pass through the alimentary tract uneventfully [1,2]. However, the risk of perforation seems to be higher when sharp or pointed FB is ingested [3–6]. Although the majority of sharp-pointed objects that enter the stomach will pass through the remaining GI tract without incidence, the risk of a complication caused by a sharp-pointed object can be as high as 35% [1,2]. Therefore, guidelines suggest that a sharp-pointed object that has passed into the stomach or the proximal duodenum should be retrieved endoscopically if it can be accomplished safely [1,2] or may be followed with daily radiographs to document their passage.

There are only scant data on the management of intentionally ingested FBs, with few retrospective case series in psychiatric patients [7–9] and prisoners [8,10,11]. There are no guidelines or studies on the appropriateness and the timing of repeated endoscopies in psychiatric patients with borderline personality disorder (BPD) who swallow sharp objects repeatedly. BPD is a psychiatric disorder with high rates of suicide, severe functional impairment, high rates of comorbid mental disorders, intensive use of treatment, and high costs to the health system [12]. According to the *Diagnostic and Statistical Manual of Mental Disorders, 4th ed.*, text revision, BPD is characterized by a pervasive pattern of instability of interpersonal relationships, self-image, and affect, with notable impulsivity that begins by early adulthood and is present in various contexts [13]. When these patients swallow FBs repeatedly, the main problem becomes not only the FB *per se*, but the risk of reinforcement of psychiatric symptoms and dysfunctional behavior through

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dedicated medical care, which thereby leads to further FB ingestions. Thus, deciding for or against endoscopic FB removal in this situation implies weighing endoscopic and psychiatric pros and cons for endoscopy.

The aim of this study was to collect data on the experience with and opinions on FB endoscopy in psychiatric patients with BPD with an international survey among clinicians involved in the management of such patients in the emergency room.

## Methods

### Survey

A survey on the utilization of endoscopy for sharp FB removal in patients with BPD was sent by e-mail to gastroenterologists, surgeons, and psychiatrists in Switzerland (the 36 largest hospitals), Germany (20 hospitals), and Austria (20 hospitals). In Germany and Austria, the 20 largest cities were chosen and one of the city hospitals was randomly selected. Whenever possible, the survey was sent to the Head of Departments of all three subspecialties within the same hospital, including 76 gastroenterologists, 74 surgeons, and 65 psychiatrists. At each hospital and department, only one specialist was invited to participate in the survey. Two reminder e-mails were sent to all specialists not responding initially. Surveys were sent in German language to German-speaking centers and in English to French-speaking or Italian-speaking centers in the western and southern part of Switzerland. An initially planned extension of the survey to other European countries was not carried out as a modest response rate was expected using a survey in English language in non-native English-speaking countries.

### Case vignette

A case vignette was presented and 10 questions were asked, including personal experience with and judgment of the appropriateness of repeated endoscopies in patients with BPD.

The case vignette presented was as follows: 'A 24-year old patient with BPD who swallows sharp metallic objects repeatedly (10 endoscopic FB removals until now) arrives at your interdisciplinary Emergency Department at midnight. She admits having swallowed a dozen open safety pins 2 h earlier. She has chosen your Emergency Department because the hospital closest to her home has refused to perform repeated endoscopies to retrieve foreign bodies. A radiograph confirms that she has swallowed 12 open safety pins more than 10 cm in length, all detectable in the stomach, but none lodged in the esophagus'.

The patient presented in this case vignette is a real patient who presented in our emergency room at the University Hospital Zurich because of repeated FB ingestions (Fig. 1), the first time after swallowing the dozen open safety pins mentioned in the case vignette and a second time only 6 days later with a plastic knife lodged at the duodenal sweep.

### Questions in the survey

We asked the following 10 questions regarding this case vignette (question 5 was only sent to endoscopists, not to surgeons or psychiatrists):

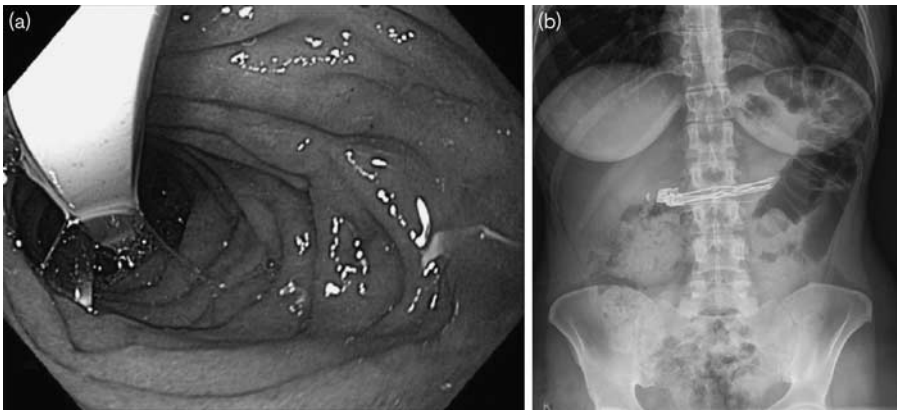
(1) Should a sharp-pointed object that has already passed into the stomach be retrieved endoscopically in a patient with BPD, if the patient has swallowed such an object for the *first time*? (yes/no)
(2) Should a sharp-pointed object that has already passed into the stomach be retrieved endoscopically in a patient with BPD, if the patient has swallowed such objects *repeatedly*? (yes/no)
(3) Should there be a limit of endoscopies for FB removal in the same patient at which one should decide not to remove the FB anymore? (yes/no)
(4) Doctors from another hospital who were in charge of this patient decided not to perform further endoscopies if the patient continues to swallow sharp-pointed objects. Would you still recommend/perform an endoscopy? (yes/no)
(5) If you performed an endoscopy, would you do it as an emergency during the night or wait until the next morning? (yes/no) (*this question was only sent to endoscopists*)
(6) What is your estimate of the risk of perforation if you do not retrieve the FB?
(7) Would you discuss this situation with a psychiatrist before an endoscopy? (yes/no) (*Psychiatrists were asked: Should this situation be discussed with a psychiatrist before an endoscopy?*)
(8) Do you remember a patient with BPD who has ingested FBs repeatedly? (yes/no; if yes, how many patients?)
(9) Do you remember a situation in your clinical practice where a repeated endoscopy to retrieve an ingested FB was refused in a patient with BPD? (yes/no)
(10) Do you have any comments or suggestions concerning the discussed case presentation and problem? (yes/no)

Questions 1 to 4 aimed at determining whether clinicians might be more aware of psychiatric cons in case of repeated endoscopic FB removals and whether this would influence their decision for or against endoscopic FB removal. Questions 5 and 6 focused on the perforation risk and decision for urgent endoscopy. Question 7 focused on the interdisciplinary nature of this clinical problem. Questions 8–10 aimed at collecting clinical experience with this topic.

### Data analysis

Descriptive statistics were calculated using Microsoft Office Excel 2007 and two-tailed $\chi^2$-tests for group comparisons were performed using free online calculators (*www.opus12.org*). $P$ values less than 0.05 were considered statistically significant.

**Fig. 1**




Radiologic and endoscopic images accompanying the case vignette included in the survey. (a) A plastic knife (10 cm length) lodged at the duodenal sweep. (b) The 12 open safety pins mentioned in the case vignette section.

## Results

### Response rate

The overall response rate after two reminders was 29.3% (63 of 215 surveys). Out of 63 responses, 57 were of sufficient quality to be included in the present analysis: 23 from gastroenterologists, 13 from surgeons, and 21 from psychiatrists. The response rate was better in Switzerland (35%) than that in Germany or Austria (20 and 17%, respectively). The six responses not included in the analysis contained general comments but not answers to the original questions.

### Endoscopy for intentionally swallowed foreign bodies – theoretical questions

Altogether, 55 of 57 (96%) surveyed physicians agreed that emergent endoscopy for the removal of sharp FBs should be performed during the first presentation. The two physicians not supporting endoscopy in this situation were a psychiatrist and a surgeon. The proportion of physicians supporting emergent endoscopy for subsequent FB ingestion decreased to 49 of 57 (86%) survey participants. The percentage of participants refusing repeated emergent endoscopy was equal among subspecialties (9% of gastroenterologists, 15% of surgeons, and 19% of psychiatrists; $P = 0.606$). In the scenario of repeated FB ingestions where another hospital refused to perform repeated endoscopic FB removals, most clinicians (46/57; 81%) would nevertheless support repeated endoscopic FB removals. Only 13% of gastroenterologists, 15% of surgeons, and 29% of psychiatrists stated that they would accept this earlier decision and not support an endoscopy (no difference between specialists, $P = 0.393$). Estimates of the perforation risk in this setting ranged from less than 1 to 100% (Fig. 2). The low number of response to this specific question did not allow a comparison of the estimated risk of perforation between those voting for and those voting against repeated endoscopic FB removal. Half of the gastroenterologists and surgeons would involve a psychiatrist before endoscopy, but 85% of psychiatrists replied that they should be involved before endoscopy. In the case of an emergency room visit at night-time, 52% of gastroenterologists would perform an endoscopy at night-time, 39% would not do so, and 9% were undecided.

### Endoscopy for intentionally swallowed foreign bodies – individual experience among surveyed physicians

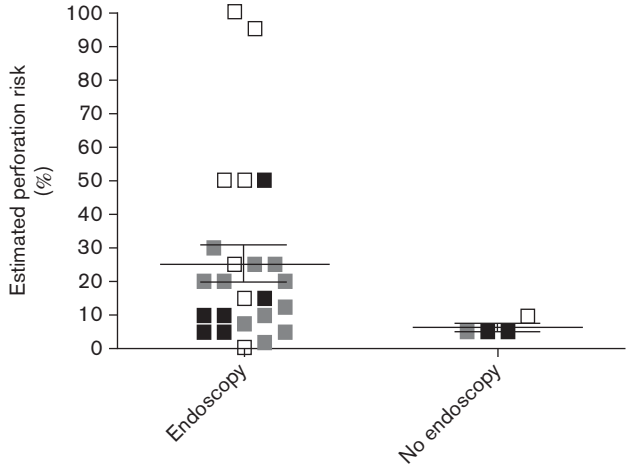
Among the respondents, 39 of 57 (68%) declared that they know at least one case of a patient with BPD who repeatedly ingested FBs. In contrast, 12 of 57 (21%) respondents stated knowing of patients where endoscopy was not performed in the situation of repeated FB ingestions (5/23 gastroenterologists, 2/13 surgeons, and 5/21 psychiatrists, no difference between specialists, $P = 0.838$). Six of these 12 participants would accept a nonendoscopy decision in a patient with repeated FB ingestion (1/5 gastroenterologists, 1/2 surgeons, and 4/5 psychiatrists).

## Discussion

Repeated ingestion of FBs by patients with BPD or other psychiatric disorders has been a clinical problem for decades [14,15]. Knowledge of the literature is important to decide for or against emergent endoscopic FB removal in these patients.

Guidelines do not state that every ingested FB (except those lodged in the esophagus) needs to be removed endoscopically, as most pass through the alimentary tract uneventfully [1,6]. Nevertheless, guidelines state that the complication risk of a sharp-pointed object is as high as 35% and that these FBs should be retrieved endoscopically if it can be accomplished safely [1,2,6]. However, only a few and old and sometimes very small case series support a high perforation risk of between 17 and 34% [3,16–18]. Published data on the need for surgical intervention and the risk of perforation are

**Fig. 2**




Estimated perforation risk of respondents who were for (endoscopy) and against (no endoscopy) the removal of sharp foreign bodies (FBs) upon repeated ingestion. Perforation risk estimated by psychiatrists (black dots), gastroenterologists (gray dots), and surgeons (white dots). The graph on the left side shows the perforation risk as estimated by survey participants voting pro repeated endoscopy. The graph on the right side shows the perforation risk as estimated by survey participants voting contra repeated endoscopy. In addition, means±SE are depicted.

clouded by reports including operative interventions indicated by 'impending' perforation [18]. Recently, some retrospective case series have been published addressing intentionally swallowed FBs in prisoners and psychiatric patients [7,9–11]. The proportion of FB allowed to pass spontaneously differed substantially between these studies. One of these studies showed that neither size nor shape or number of FBs were predictive of the ability to transit the gastrointestinal tract. Among patients managed conservatively, remarkably, 97% of the objects passed spontaneously [11]. These case series show that the risk of perforation even with a sharp FB is low.

The pros and cons of repeated endoscopies to minimize the documented low risk of perforation need to be discussed. Endoscopy is supported by a low interventional risk, but relevant endoscopic complications can occur [11,19]. Successful FB removal will probably reduce the risk of perforation under an expectative management. Arguments contra endoscopy are not primarily that repeated endoscopies are costly [7], but mainly that repeated endoscopies might have a negative impact on the course of psychiatric disease. As these patients have a secondary gain from being scoped, medical treatment should not intensify the dysfunctional behavior leading to repeated events. Making it clear to a patient that repeatedly ingested FBs will not be removed could prevent recurrent FB ingestions, which should be the focus of our attention [7]. Thus, it is justified not to remove each FB, as it is justified by good medical reasons, which is called the interpersonal justifiability test in emergency ethics [20].

The perforation risk in the setting of the case vignette was probably overestimated by many survey participants (Fig. 2). This might explain why most participants voted for repeated endoscopies. Somewhat in contrast, only half of the gastroenterologists voted for emergent endoscopy even during night-time probably to save personal resources. This is in agreement with the latest ASGE guidelines suggesting that sharp FBs in the stomach/duodenum or objects more than 6 cm at or above the proximal duodenum should be removed under urgent endoscopy within 24 h but not as emergent endoscopy within hours [1,2].

In clinical practice, we advise discussing an endoscopic FB removal first with a psychiatrist, which is suggested by 85% of psychiatrists participating in this survey. Psychiatrists should provide clear advice on how patients with BPD are best approached [21]. This allows discussing a nonendoscopy decision interdisciplinarily in the case of repeated FB ingestions. A nonendoscopy decision is occasionally made in this setting on the basis of the results of this survey. If FB removal is attempted, optimal settings have to be established, with an endoscopist experienced in FB removal. There is no evidence supporting emergent endoscopies to remove gastric or duodenal FB, which is nevertheless done by half of the gastroenterologists in our survey.

Our survey has several limitations. First, the response rate was quite low. However, this is a frequent problem in international surveys [22–24]. Second, our survey does not discuss legal aspects. We assume that many doctors are worried about legal prosecution if they decide against endoscopy and thus prefer to scope. Third, our survey with specific questions asked in relation to a concrete example of a BPD patient does not allow drawing of conclusions on all psychiatric patients or prisoners swallowing a FB. Similarly, the validity of our survey for other geographic regions can be assumed, but is not proven. The strength of this international survey is its approach to collect opinions and experience with this special topic from various specialities involved, in contrast to published retrospective single-center experiences or expert opinions.

## Conclusion

A significant number of clinicians have experience with repeated FB ingestion in patients with BPD, and several clinicians know cases of patients where repeated FB removals had been refused. There are conflicting opinions on repeated endoscopies in this patient group. Published evidence of the low perforation risk by FBs does not support an endoscopic FB removal in every situation. It is not necessarily unethical to decide against repeated endoscopies. For these difficult-to-treat patients with BPD, an interdisciplinary (and ideally interinstitutional) consen-

sus on the management of repeated FB ingestion is needed to optimize treatment and save costs and resources. This needs to be done for each BPD patient individually.

## Acknowledgements

### Conflicts of interest

There are no conflicts of interest.

## References


1 Eisen GM, Baron TH, Dominitz JA, Faigel DO, Goldstein JL, Johanson JF, *et al.* Guideline for the management of ingested foreign bodies. *Gastrointest Endosc* 2002; **55**:802–806.

2 Ikenberry SO, Jue TL, Anderson MA, Appalaneni V, Banerjee S, Ben-Menachem T, *et al.* Management of ingested foreign bodies and food impactions. *Gastrointest Endosc* 2011; **73**:1085–1091.

3 Carp L. Foreign bodies in the intestine. *Ann Surg* 1927; **85**:575–591.

4 Ricote GC, Torre LR, De Ayala VP, Castellanos D, Menchen P, Senent C, *et al.* Fiberendoscopic removal of foreign bodies of the upper part of the gastrointestinal tract. *Surg Gynecol Obstet* 1985; **160**:499–504.

5 Rösch W, Classen M. Fiberendoscopic foreign body removal from the upper gastrointestinal tract. *Endoscopy* 1972; **4**:193–197.

6 Webb WA. Management of foreign bodies of the upper gastrointestinal tract: update. *Gastrointest Endosc* 1995; **41**:39–51.

7 Huang BL, Rich HG, Simundson SE, Dhingana MK, Harrington C, Moss SF. Intentional swallowing of foreign bodies is a recurrent and costly problem that rarely causes endoscopy complications. *Clin Gastroenterol Hepatol* 2010; **8**:941–946.

8 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. *Ir J Med Sci* 1996; **165**:294–296.

9 Palta R, Sahota A, Bemarki A, Salama P, Simpson N, Laine L. Foreign-body ingestion: characteristics and outcomes in a lower socioeconomic population with predominantly intentional ingestion. *Gastrointest Endosc* 2009; **69**:426–433.

10 Bisharat M, O'Donnell ME, Gibson N, Mitchell M, Refsum SR, Carey PD, *et al.* Foreign body ingestion in prisoners – the Belfast experience. *Ulster Med J* 2008; **77**:110–114.

11 Weiland ST, Schurr MJ. Conservative management of ingested foreign bodies. *J Gastrointest Surg* 2002; **6**:496–500.

12 Leichsenring F, Leibing E, Kruse J, New AS, Leweke F. Borderline personality disorder. *Lancet* 2011; **377**:74–84.

13 American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders FE, Text Revision*. Washington, DC: American Psychiatric Association; 2000.

14 Carp L. Foreign bodies in the gastrointestinal tracts of psychotic patients. *Arch Surg* 1950; **60**:1055–1075.

15 Feder BH, Myers GG. Swallowed foreign bodies. *Calif Med* 1953; **79**: 293–296.

16 Barros JL, Caballero A Jr., Rueda JC, Monturiol JM. Foreign body ingestion: management of 167 cases. *World J Surg* 1991; **15**:783–788.

17 Grekin TD, Musselman MM. The management of foreign bodies in the alimentary tract. *Ann Surg* 1952; **135**:528–535.

18 Selivanov V, Sheldon GF, Cello JP, Crass RA. Management of foreign body ingestion. *Ann Surg* 1984; **199**:187–191.

19 Kaya E, Lenz P, Lebiedz P, Baumgarten K, Wessling J, Domagk D. Placement of covered self-expanding metal stent to treat razor blade-induced esophageal hemorrhage. *Endoscopy* 2010; **42 (Suppl 2)**: E201–E202.

20 Iserson KV, Sanders AB, Mathieu D. *Ethics in Emergency Medicine. Ethical statements – overview.* Tucson: Ariz Galen Press; 1995.

21 Little J, Little B. Borderline personality disorder: exceptions to the concept of responsible and competent. *Australas Psychiatry* 2010; **18**:445–450.

22 Yusuf TE, Baron TH. Endoscopic transmural drainage of pancreatic pseudocysts: results of a national and an international survey of ASGE members. *Gastrointest Endosc* 2006; **63**:223–227.

23 Yusuf TE, Harewood GC, Clain JE, Levy MJ. International survey of knowledge of indications for EUS. *Gastrointest Endosc* 2006; **63**: 107–111.

24 Goel A, Barnes CJ, Osman H, Verma A. National survey of anticoagulation policy in endoscopy. *Eur J Gastroenterol Hepatol* 2007; **19**:51–56.