CASE REPORT

Foreign bodies in the abdomen: self-harm and personality disorders

Louise Dunphy, Farah Syed, Mazhar Raja

Department of Surgery, Milton Keynes University Hospital, Buckinghamshire, Milton Keynes, UK

Correspondence to

Dr Louise Dunphy,
dunphyimb@yahoo.com

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SUMMARY

A 52-year-old woman presented to the accident and emergency department 5 h after deliberately stabbing herself with two pens through her midline laparotomy scar. Her medical history included an emotionally unstable (borderline) personality disorder and she was currently an inpatient in a psychiatric hospital. She had multiple accident and emergency attendances with previous episodes of self-harm. Clinical examination revealed evidence of trauma to her midline laparotomy scar with congealed blood covering the puncture site. Her abdomen was soft and non-tender on palpation. A chest radiograph revealed no air beneath her diaphragm and her abdominal radiograph identified a radiopacity in her upper right abdomen and dilated loops of small bowel. CT of the abdomen and pelvis confirmed two pens, with the lower pen tip reaching the pancreas. A midline laparotomy was performed and both foreign bodies were extricated unremarkably. The patient's postoperative recovery was uneventful. The second case involves a 22-year-old woman, a psychiatric hospital resident, presenting to the accident and emergency department 5 h after deliberately inserting the metal nib and inner plastic ink containing tube of a pen through her umbilicus. Her medical history included an emotionally unstable (borderline) personality disorder and paranoid schizophrenia. She had multiple accident and emergency department attendances with previous episodes of self-harm. Clinical examination revealed a soft, non-tender abdomen. Her chest radiograph was unremarkable and her abdominal radiograph identified a radiopaque foreign body at the right upper quadrant of the abdomen. CT of the abdomen and pelvis confirmed a metallic foreign body in the small bowel mesentery. An exploratory laparotomy converted to a midline laparotomy was performed and the foreign body was extricated. The patient's postoperative recovery was uneventful.

BACKGROUND

LD encountered both patients during her surgical on-call as a Foundation Year 1 doctor. As it was her first clinical experience of patients presenting with polyembolokoilamania, she felt it prudent to report it.

CASE PRESENTATION

Insertion of foreign bodies into one body orifice or more, otherwise known as polyembolokoilamania, occurs as a result of a variety of psychosocial and psychiatric states. It is common in those with a history of self-harm, personality disorders, schizophrenia and alcohol intoxication, and also among

prison inmates. This case series discusses two patients, both with an emotionally unstable (borderline) personality disorder, presenting to the accident and emergency department, following the deliberate insertion of a foreign body through an intact midline laparotomy scar and the umbilicus, respectively. This paper discusses the psychological profile of this patient cohort and underlines management strategies. As repeated foreign body insertion in the abdomen is a rare clinical entity in the literature, the authors felt it prudent to report it.

Case 1

A 52-year-old woman, a psychiatric hospital resident, presented to the accident and emergency department at 17:00 following an unwitnessed episode of self-harm. She admitted stabbing herself via her midline laparotomy incision with two plastic, metallic pens 5 h earlier. Her medical history included an emotionally unstable (borderline) personality disorder, asthma and type 2 diabetes. She had multiple accident and emergency attendances with episodes of self-harm. Furthermore, she underwent an emergency laparotomy 9 days previously for extraction of a foreign body from her abdominal cavity. Her current medications included clonazepam 500 µg once daily, venlafaxine 375 mg once daily, procyclidine 5 mg and haloperidol 5 mg once daily. She was allergic to penicillin and diazepam. She smoked 10 cigarettes/day and did not consume alcohol. She reported being upset by the recent bereavement of her mother. This was an impulsive act during an episode of emotional upset. She regretted inserting the pens and denied any suicidal ideation. She immediately informed the nursing staff in her psychiatric unit and requested medical review.

On examination, her body mass index (BMI) was 40 kg/m² and her baseline observations were stable: temperature 36.9°C, blood pressure (BP) 129/83 mm Hg, heart rate (HR) 93 bpm, SpO₂ 93% on air and respiratory rate (RR) 16 breaths/min. She reported no abdominal pain, nausea or vomiting. Abdominal examination confirmed evidence of trauma to her midline laparotomy incision, with congealed blood covering the puncture site (figure 1). No foreign body was clinically evident. Excess scar tissue was observed in her epigastrium. Her abdomen was soft and non-tender on palpation and a large reducible paraumbilical hernia was noted. Bowel sounds were present on auscultation. Cardiovascular, respiratory and neurovascular examinations were unremarkable. The psychiatric liaison team was contacted, specialised nursing was instituted and the

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Figure 1 Abdominal examination confirmed evidence of trauma to the patient's midline laparotomy incision, with congealed blood covering the puncture site.

patient's mental capacity was assessed. She was referred to the surgical team for further management.

Investigations

Serological investigations revealed the following: white cell count (WCC) $13.7 \times 10^9/L$, haemoglobin (Hb) 113 g/L and C reactive protein (CRP) <2 mg/L. The patient's urea and electrolytes (U+Es) and liver function tests (LFTs) were normal. An erect chest radiograph ([figure 2](#)) identified atelectatic changes in the lung bases but no free subdiaphragmatic gas was noted. However, her abdominal radiograph ([figure 3](#)) demonstrated a radiopaque foreign body (pen) in her upper right abdomen. Small bowel dilated loops were observed and the appearances were in keeping either with an ileus or an obstruction. Further investigation with CT of the abdomen and pelvis ([figure 4](#)) with contrast confirmed the presence of two ballpoint pens, one of them with a metallic body in the upper portion of the casing. This pen was inserted from the left subcostal space anteriorly, going horizontally through the left upper abdominal fat above the left side transverse colon and below the left hepatic lobe. The tip reached between the transverse colon and the stomach without causing major injury to the gut or other organs. The tip

Figure 2 An erect chest radiograph. No free air was evident beneath the diaphragm, but several metallic densities were seen overlying the left chest wall and axilla.

Figure 3 An abdominal radiograph. A radiopaque foreign body is seen in the right upper abdomen.

of the lower pen, which had a plastic body only, appeared in the pancreatic body and virtually abutted the left side wall of the lower portal vein. No haemorrhage, or leakage of fluid or air from the site was identified.

Treatment

The patient was started on intravenous antibiotics, fluids and analgesia, and a laparotomy was scheduled. Under general anaesthesia, an upper midline "T" incision was created and dense adhesions were observed. Two foreign bodies, a fountain roller pen and a biro, were visualised lying in the mesentery of the transverse colon and lower border of the pancreas ([figure 5](#)). It

Figure 4 CT of the abdomen and pelvis with contrast confirmed the presence of two ballpoint pens, one of them with a metallic body in the upper portion of the casing.

Figure 5 Two foreign bodies, a fountain roller pen and a biro, were visualised lying in the mesentery of the transverse colon and lower border of the pancreas.

was difficult to confirm any injury to the pancreas due to dense adhesions. However, both foreign bodies were extricated unremarkably ([figure 6](#)). The abdomen was irrigated with 0.9% normal saline and a redivac drain inserted. Wound closure was performed with 1/0 ethilon to the fascia and 3/0 monocryl to skin.

Outcome and follow-up

Postoperatively, the patient continued intravenous fluids for 24 h and her drain was removed after 48 h. She was discharged uneventfully to the psychiatric hospital. No further episodes of self-harm have been reported and she is currently receiving cognitive-behavioural therapy.

CASE 2

A 22-year-old woman, a psychiatric hospital resident, presented to the accident and emergency department 5 h after inserting the inside of a pen (metal nib and plastic ink containing tube) into her umbilicus. She denied any pain, nausea or vomiting. Her medical history included an emotionally unstable (borderline) personality disorder and paranoid schizophrenia. Her current medications included procyclidine 5 mg two times per day, citalopram 10 mg once daily, amisulpride 250 mg once

Figure 6 Both foreign bodies were extricated unremarkably.

Figure 7 An erect chest radiograph revealing no air beneath the diaphragm.

daily, clonazepam 1.5 g once daily and clozapine 275 mg once daily. She had a history of self-harm including several accident and emergency presentations following the intentional insertion of foreign bodies (beads) into her nostrils. She admitted feeling upset following a visit from a friend. It was an impulsive act, which she regretted.

On examination, her BMI was 40 kg/m² and her baseline observations were stable: temperature 36.8°C, BP 135/90 mm Hg, HR 85 bpm, SpO₂ 97% on air and RR 15 breaths/min. Abdominal examination revealed no scars, masses or hernias. Congealed blood was evident on assessment of her umbilicus. Her abdomen was soft and non-tender on palpation and bowel sounds were present on auscultation. Cardiovascular, respiratory and neurovascular examinations were unremarkable. The psychiatric liaison team was contacted, specialised nursing was instituted and the patient's mental capacity was assessed.

Investigations

Serological investigations revealed the following: WCC $11.7 \times 10^9/L$, Hb 143 g/L and CRP <2 mg/L. The patient's U+Es and LFTs were normal. An erect chest radiograph ([figure 7](#)) was unremarkable. However, her abdominal radiograph ([figure 8](#)) demonstrated a radiopaque foreign body in her upper right abdomen, most likely representing the terminal part of writing pen. No dilated bowel loops were seen. Further investigation with CT of the abdomen and pelvis ([figure 9](#)) with contrast identified a 1.5 cm metallic foreign body in the small bowel mesentery, adjacent to the pancreas, superior mesenteric artery and superior mesenteric vein in the upper right/mid abdomen. No free fluid was observed.

Treatment

The patient was started on intravenous antibiotics, fluids and analgesia, and surgical exploration was scheduled. Under general anaesthesia, an exploratory laparotomy was performed with a number 4 trocar. Initially, the foreign body, a ball-point cartridge, was visualised at the root of the mesentery, but its retrieval proved futile. As a result, a midline laparotomy was performed and the foreign body was identified in the omentum. It was retrieved uneventfully ([figure 10](#)). The patient's abdomen was irrigated with 0.9% normal saline. A loop polydioxanone was utilised for closure and the umbilical wound was closed with 2/0 vicryl and 3/0 monocryl.

Figure 8 An abdominal radiograph demonstrating a radiopaque foreign body in the patient's upper right abdomen, most likely representing the terminal part of a writing pen.

She was discharged to the psychiatric hospital and remains under review. No further episodes of self-harm have been reported.

DISCUSSION

Self-mutilation is self-infliction of bodily injury without a conscious suicidal intent, and it may evolve into a repetitive behavioural pattern.¹ According to Elhams *et al*,² introduction of foreign bodies can be voluntary and related to a psychiatric disorder or can occur by accidental penetration of objects or iatrogenic trauma due to firearms. Self-mutilation often raises questions about the psychological profile of the patient. In adolescents, intentional foreign body insertion often reflects risk-taking, attention seeking or poor judgement while under the influence of drugs or alcohol. Augusto *et al*³ aptly describe conditions associated with self-mutilation including the following psychiatric disorders: personality disorders, acute or chronic psychotic disorders, major affective disorders, delirium and gender identity disorder. According to Gitlin *et al*,⁴ the psychological profile of this patient cohort can be categorised into four distinct subgroups: (1) malingering, often occurring in prisons and psychiatric institutions, where the act benefits the individual, (2) psychosis, as a result of their delusional beliefs or command hallucinations, (3) *picca*, frequently associated with mental retardation and (4) personality disorders. Self-mutilation may also be a component of factitious disorders and it can be observed in certain medical disorders such as Lesch-Nyhan syndrome, Cornelia de Lange syndrome and Gilles de la Tourette's syndrome. Foreign body insertion may play an emotional role for those with mental retardation or developmental disorders such as Smith-Magenis syndrome. Indeed, some cases have also occurred secondary to Munchausen's syndrome or may be attributed to secondary gain. Alcohol and drug use also increase the probability of such behaviour. In addition, adult patients

Figure 9 CT of the abdomen and pelvis with contrast identified a 1.5 cm metallic foreign body in the small bowel mesentery, adjacent to the pancreas, superior mesenteric artery and superior mesenteric vein in the upper right/mid abdomen.

may derive sexual pleasure from it or harbour lingering curiosities that manifest as experimentation. However, repeated self-inflicted abdominal stab wounds with insertion of foreign bodies into the abdominal cavity is an uncommon entity.

So, what are the theoretical psychiatric explanations underpinning borderline personality disorder (BPD)? BPD is characterised by pervasive instability of affect, self-image, behaviour

Figure 10 The pen was retrieved uneventfully.

and relationships.⁵ Its prevalence is estimated to be between 0.7–1.8% and it usually begins in adolescence. About 80% of patients are female. Multiple risk factors, which can be biological, psychological or social, play a role in its aetiology. The biological factors consist of inborn temperamental abnormalities with intense impulsivity and emotional instability. On reviewing the literature, several explanatory hypotheses have been suggested for the aetiology of BPD. Indeed, the most widely accepted theories are psychogenic. Otto Kernberg championed one of the initial explanations based on the object relations theory, stating a “history of extreme frustrations and intense aggression during the first few years of life”.⁶ In recent years, John Bowlby’s attachment theory has provided further insights on the possible underlining mechanisms.⁷ The importance of emotional dysregulation and a history of “invalidating environments” have been emphasised by Linehan *et al.*⁸ Young describes a schema-focused approach for personality disorders and suggests that cognitive theories highlight dysfunctional thinking patterns learnt in childhood, which are maintained in adulthood.⁹ Zanarini *et al.*¹⁰ reported pathological childhood experiences (trauma, sexual abuse, prolonged separations and neglect) associated with the development of BPD. This theory was further reinforced by the findings of Golier *et al.*,¹¹ in 2003, in their paper exploring the relationship of BPD to post-traumatic stress disorder and traumatic events. Herman *et al.*¹² have suggested sexual or physical abuse, particularly before the age of 15 years, as an indicator of developing BPD.

The International Classification of Diseases, 10th edition (ICD-10), places BPD within the “emotionally labile personalities” that include an impulsive and borderline subtype (box 1). Both classifications require the behaviour pattern to be

pervasive, to begin in adolescence or early adulthood and to cause significant impairment in functioning. According to the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision (DSM-IV-TR), personality disorders are grouped into three clusters:¹³

1. Cluster A: paranoid, schizoid and schizotypal personality disorders;
2. Cluster B: antisocial, borderline, histrionic and narcissistic personality disorders;
3. Cluster C: avoidant, dependent and obsessive-compulsive personality disorders.

This group of patients are likely to present to the accident and emergency department or the psychiatric services in crisis, usually with suicidal or self-harming intent. Patients with BPD are exposed to physical complications ensuing from self-harm behaviour and also risks due to their impulsivity. Presentations are often prompted by other psychiatric problems, for example, substance misuse or self-harm. BPD is often comorbid with Axis 1 disorders: depression, anorexia, bulimia and alcohol abuse. In patients with personality disorders, high rates of self-harm have been reported, accounting for a significant proportion of all psychiatric admissions. BPD may be complicated by psychotic episodes.

Furthermore, a review of the literature on personality disorders and self-mutilation described an array of self-injurious behaviour, with objects not just swallowed but inserted into the rectum, abdomen, fistulas, osteotomy sites, heart, bladder, ear, legs and arms.⁴ The most commonly reported inserted objects include common household objects such as beads, plastic toys, keys, paperclips, tooth picks, razor blades and glass bottles. The prevalence of foreign body insertion remains unknown. Interestingly, the literature is bereft of reports and discussions of the associated psychiatric aspects, with surgical and *gastroenterology journals* focusing on surgical techniques required to remove the foreign body and associated morbidity. As recently as 1985, RJ Watson¹⁴ described the first case of intraperitoneal foreign bodies passed via the umbilicus. He reported the case of a 22-year-old man with a severe personality disorder who pushed two ballpoint pens deep into the skin by his umbilicus, creating an opening into the abdominal cavity through which he then inserted matches. He underwent a laparotomy.¹ In 1999, Bharath stated that the “introduction of foreign bodies into one’s own body is one of the uncommon types of self-mutilation. Published psychiatric literature on this is meagre.”¹⁵ Indeed, he reported an unusual case of self-mutilation involving the introduction of 40–50 needles of various types (injection needles, sewing needles, paper pins) by a 53-year-old single man suffering from paranoid schizophrenia.² Several case reports have described recurrent ingestion of foreign bodies and abdominal self-injury with multiple paperclips and needles embedded in the abdominal wall, as a form of attempted suicide.^{16 17} In addition, Vela *et al.*¹⁸ described the case of a 32-year-old man with associated psychopathology who had 35 operations for self-inflicted wounds. Augusto *et al.* also described a case involving a 35-year-old prison inmate, with a history of swallowing razor blades and self-inflicted abdominal wounds, who committed suicide by hanging. At autopsy, a midline laparotomy scar was noted and on sectioning the liver, four metal probes and a 10 cm metal rod in the paraduodenal soft tissue were observed. All foreign bodies were covered by fibrous tissue and no infection was noted.³

Furthermore, complications associated with foreign body insertion include bowel obstruction or perforation,

Box 1 The International Classification of Diseases, 10th edition, criteria for emotionally labile personality

F60.3 Emotionally unstable (borderline) personality disorder

A personality disorder in which there is a marked tendency to act impulsively without consideration of the consequences, together with affective instability. The ability to plan ahead may be minimal and outbursts of intense anger may often lead to violence or “behavioural explosions”; these are easily precipitated when impulsive acts are criticised or thwarted by others. Two variants of this personality disorder are specified and both share this general theme of impulsiveness and lack of self-control.

Impulsive type

The predominant characteristics are emotional instability and lack of impulse control. Outbursts of violence or threatening behaviour are common, particularly in response to criticism by others.

Borderline type

Several of the characteristics of emotional instability are present: in addition, the patient’s own self-image, aims and internal preferences (including sexual) are often unclear or disturbed. There are usually chronic feelings of emptiness. A liability to become involved in intense and unstable relationships may cause repeated emotional crises, and may be associated with excessive efforts to avoid abandonment, and with a series of suicidal threats or acts of self-harm (although these may occur without obvious precipitants).

haemorrhage, abscess formation, sepsis or distant embolisation. So, what are the management strategies for polyembolokoilamania? The underpinnings were aptly described by Unruh *et al.*,¹⁹ and involve deciphering the aetiology for foreign body insertion, thus enabling the motivation for the behaviour to be targeted. This is further reinforced by the illustrative clinical vignettes from forensic practice, presented by Klein,²⁰ of deliberate insertion of foreign objects. According to the National Institute for Health and Clinical Excellence (NICE) 2009, drug treatment should not be used specifically for BPD or for the individual symptoms or behaviour associated with the condition.²¹ The psychosocial model has dominated management. Several small, retrospective studies have reported improvements in affective and psychotic symptoms, global functioning and self-harm behaviour with clozapine.²² Psychotherapy, dialectical behavioural therapy, schema-focused therapy, cognitive-behavioural therapy, mentalisation based treatment and transference focused therapy have all been suggested. A collaborative approach is often required involving physicians, surgeons and psychiatrists. As already mentioned, it is important to elucidate the motivation for the behaviour and associated psychological circumstances, as this will ultimately guide management.

This case report highlights the importance of a multidisciplinary approach in the management of polyembolokoilamania. Prompt psychiatric evaluation is required to optimise patient care.

Learning points

- ▶ The management of patients presenting with a psychiatric history, including an understanding of the theoretical psychiatric explanations underpinning borderline personality disorders.
- ▶ Assessment of foreign bodies in the abdomen.
- ▶ The importance of a multidisciplinary approach including psychiatric follow-up in this patient cohort.

Competing interests None declared.

Patient consent Obtained.

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