Case Report

Pulse oximeter ingestion in a psychotic patient

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Abstract

Psychotic conditions such as schizophrenia, bipolar disorder, major depressive disorder, and polysubstance abuse are risk factors for foreign body ingestion. A foreign body can include sharp objects that lead to serious complications. In this case report, we present a patient with a history of psychosis who ingested a pulse oximeter in a suicidal attempt. The pulse oximeter passed uneventfully with no interventions needed, and was followed by a serial of abdominal imaging.

Introduction

Foreign body ingestion has been reported in some psychotic patients [1], leading sometimes to severe complications [2,3]. Some of the ingested foreign bodies include: Tooth brush, metal tuna can, nails, screws, door-latches, parts of a bullock cart, parts of a spoon, razors, blades, and metallic skewer [4–7]. The ingestion of large and sharp foreign bodies can lead to severe gastrointestinal complications such as perforation, ulceration, or bleeding necessitating certain interventions [8]. Pulse oximeter ingestion has never been reported in the literature so far. We report a case of a 25-year-old schizophrenic patient who ingested a pulse oximeter in a suicidal attempt. The pulse oximeter passed spontaneously with no complications or interventions.

Case report

A 25-year-old man with a past medical history of schizophrenia, bipolar disorder, and polysubstance abuse was brought to the emergency room after impersonating military personnel, and threatening police officers. Upon presentation, he was displaying homicidal and suicidal ideation, prompting
Fig. 1 – Similar model to the pulse oximeter ingested.

Fig. 2 – (A) Sagittal CT scan of the abdomen performed upon presentation showing the pulse oximeter in the intragastric region. (B) Axial CT scan of the abdomen performed upon presentation showing the pulse oximeter in the intragastric region.

Fig. 3 – Abdominal radiograph showing a pulse oximeter in the right upper quadrant after 2 hours of initial presentation.

sedation and one to one observation. While awaiting transfer to a specialized facility, he was seen to be chewing a pulse oximeter that was detached from its wire. The pulse oximeter was $4.5 \times 2.5 \times 1$ cm, and had no sharp edges or toxic materials (Fig. 1).

When confronted, he swallowed the object, acknowledging that this action was purposeful in a suicidal attempt. After ingestion of the pulse oximeter, he started complaining of a diffuse epigastric discomfort. There were no signs of impaction or intestinal obstruction on physical exam.

The initial abdominal CT scan performed at presentation confirmed placement in the intragastric position (Fig. 2A and B). The device was followed by serial abdominal radiographs at 2 and 4 hours after presentation which showed a movement of the ingested body from the right upper abdominal quadrant to small bowels (Figs. 3 and 4).

Because the patient did not deteriorate clinically, no endoscopic or surgical interventions were performed. The foreign body passed spontaneously after 7 hours of presentation, and required no further interventions. Follow-up abdominal and pelvic imaging revealed no visible foreign body (Fig. 5). He had an uneventful hospital course, tolerated oral diet, denied any abdominal pain, and offered no further complaints.

Discussion

Foreign body ingestion is an event that commonly occurs in children who constitute about 75%-85% of foreign body
In adults, true foreign body ingestion is present in psychiatric patients, developmental delayed, alcohol intoxication, and incarcerated individuals seeking secondary gain via release to a medical facility [10].

The clinical approach to the problem depends on the type of material ingested, and on the patient’s symptoms and physical findings. The ingestion of a pulse oximeter is uncommon and has never been reported in the literature based on our review.

Attempted suicide has been reported with ingestion of unusual objects by schizophrenic patients [11]. Some other cases have reported the ingestion of foreign bodies as directed by command hallucinations [12]. Patients in such cases have ingested the foreign bodies as a result of delusional beliefs that these objects contain nutrients that they lack or as the result of communications with God [13]. In the presented case, the patient didn’t report any delusions or hallucinations. His attempt was a suicidal one. Table 1 lists the case reports of psychotic patients who ingested foreign bodies along with a follow-up.

In about 80% of cases, the ingested material passes uneventfully through the gastrointestinal tract; endoscopy is performed in about 20% of cases, and surgery in less than 1% [9].

The first-line recommended therapy after foreign body ingestion is to perform endoscopic removal of the object; however, surgical treatment is necessary when the object is sharp or is not removable by endoscopy, or when the patient develops an acute abdomen with bowel perforation [4]. Our patient did not report any sign of complication, and passed the pulse oximeter with no intervention.
Table 1 – List of case reports that discussed foreign body ingestions in psychotic patients

| Case report          | Foreign body                                      | Course                                                                 |
|----------------------|--------------------------------------------------|------------------------------------------------------------------------|
| Fishbain et al [12]  | Coins                                            | No interventions.                                                     |
| Klein et al [14]     | Pens, pencils, plastic knives, a toothbrush holder, paper clips, a broken CD, and pieces of plastic | Endoscopic removal.                                                  |
| Klein et al [14]     | Metal wire                                        | Surgical removal.                                                    |
| Di Nunno et al [2]   | Nonorganic foreign bodies                        | Aorto-esophageal fistula and intestinal infarction secondary to volvulus. Referred to surgery. The patient died secondary to cardiac arrest in delayed shock after massive purulent peritonitis caused by 2 gastric perforations combined with obstruction of the airways by aspirated foreign bodies. Removal by laparotomy. |
| Jacob et al [3]      | Metallic foreign bodies                          | The patient died because of zinc intoxication. Endoscopic removal.     |
| Abraham et al [7]    | Metal can lid                                     | Removal by laparotomy.                                               |
| Basu et al [6]       | Nails, screws, door-latches, parts of a bullock cart, parts of a spoon, razors, and blades | Aggressive gastrointestinal decontamination with calcium EDTA and Succimer administration successfully treated the ingestion. |
| McNutt et al [15]    | Lead bullets                                      | Surgical management after endoscopy failed. The patient developed an acute intestinal perforation, and underwent surgery. |
| Bennet et al [16]    | 461 coins                                         |                                                                        |
| Gitlin et al [17]    | Ballpoint pen, plastic pen, pencils, and 4 razor blades |                                                                        |
| Rasheed et al [5]    | Toothbrush                                        |                                                                        |
| Zarei et al [4]      | Metallic skewer                                   |                                                                        |

Conclusion

This is the first case to report the ingestion of a pulse oximeter. As observed in the psychotic patient presented, a pulse oximeter tends to pass spontaneously. Serial follow-up with abdominal imaging is recommended to check on the movement of the foreign body within the bowels.

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