

## CASE REPORT

# Endoscopic treatment of pharmacobezoar caused by slow-release clomipramine and quetiapine overdose

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**Keywords** - slow-release clomipramine, intoxication, pharmacobezoar, endoscopy**Abstract**

A pharmacobezoar is a rare entity characterised by an accumulation of undigested pills in the gastrointestinal tract. It is often induced by massive drug consumption, especially slow-release tablets. We describe an 18-year-old female with a pharmacobezoar after taking an overdose of slow-release clomipramine and slow-release quetiapine. Because of a decline in her level of consciousness, she was intubated. As standard treatment with activated charcoal, gastric lavage and laxatives was insufficiently effective, it was decided to remove the tablets endoscopically. The patient did not have any post-procedural complications and showed a full recovery. Endoscopic removal of a pharmacobezoar should be considered in case of severe intoxication.

**Introduction**

A bezoar is a hard mass or concretion in the gastrointestinal tract resulting from accumulation of ingested material.<sup>[1]</sup> In the Middle Ages, it was considered to be an antidote and to possess magic properties. In fact, the term bezoar is derived from the Persian word *pādzahr*, meaning protection against poison.<sup>[1,2]</sup> Later on, bezoars were demystified and nowadays it is known that bezoars are potentially hazardous and even lethal.<sup>[3]</sup>

A specific type of bezoar is the pharmacobezoar, a rare entity that is composed of medication that has not resolved. It is difficult to know whether a pharmacobezoar has formed, but it should always be considered in cases of massive drug consumption, especially with slow-release tablets.<sup>[3,4]</sup>

Pharmacobezoars can cause prolonged toxicity and persistently elevated drug levels.<sup>[5]</sup>

We present a case of a patient with a pharmacobezoar after taking an overdose of slow-release clomipramine and slow-release quetiapine, and demonstrate that endoscopic treatment may be beneficial.

**Case report**

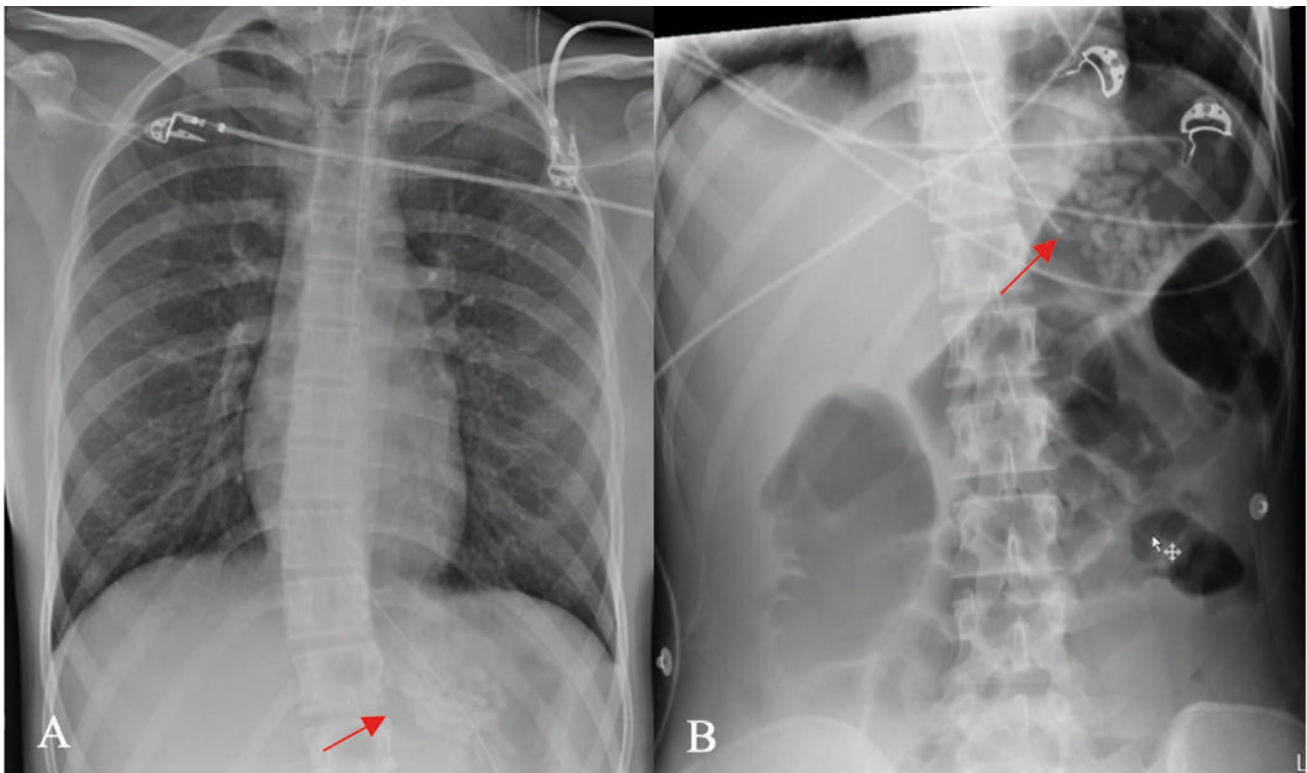
An 18-year-old female known with chronic depression was admitted to our hospital approximately two hours after taking an overdose of tablets. She supposedly ingested 50 tablets of slow-release clomipramine 75 mg (3.75 g total) and 100 tablets of slow-release quetiapine 25 mg (2.5 g total). She was found in a state of reduced responsiveness by her mother who called the emergency services.

On examination at the emergency department, a very thin patient with a body weight of 50 kg (body mass index of 17.3 kg/m<sup>2</sup>) was seen. Glasgow coma scale (GCS) was E3-M5-V3. Her pupils were slightly, equally dilated and responsive to light. She was agitated and anxious, but was not perspiring or shivering. The heart rate was 113 beats/min, other vital signs were normal. Basal body temperature was 37.2 °C. Her muscle tone was hypotonic without asymmetry. Tendon and plantar reflexes were normal.

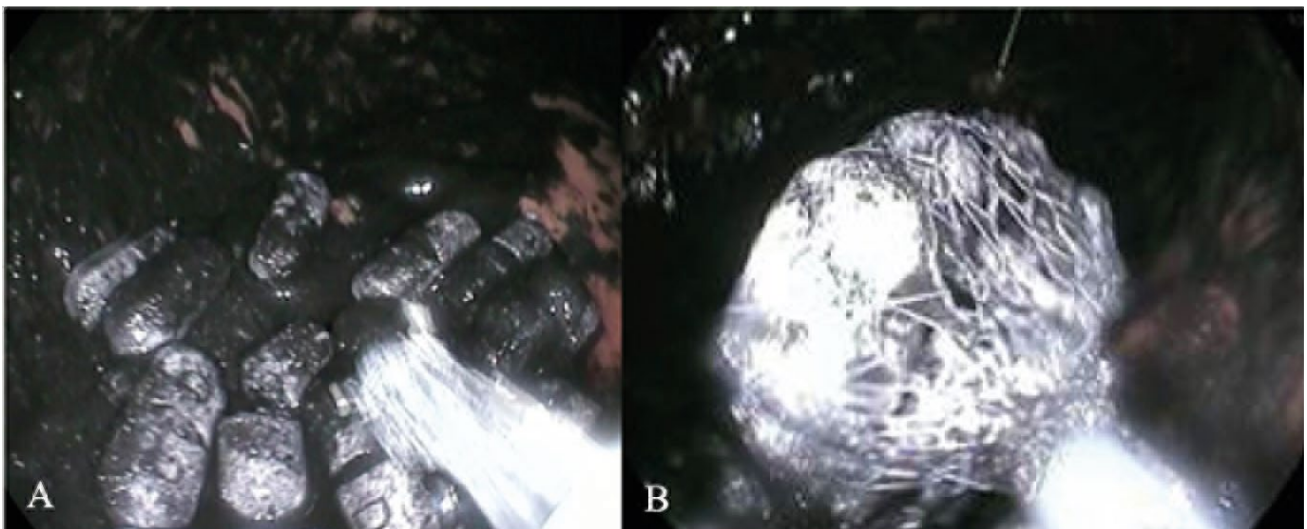
The ECG showed sinus tachycardia with a normal PR interval of 160 ms, and normal QT and QTc times, 293 ms and 383 ms, respectively. Arterial blood gas analysis and laboratory results for blood count, glucose, electrolytes, creatine kinase, and renal and liver function were normal. The serum level of clomipramine was 0.70 mg/l (normal range 0.05-0.15 mg/l). The combined serum level of clomipramine plus desmethylclomipramine (metabolite) was 0.82 mg/l (normal range 0.20-0.40 mg/l).

About two hours after admission, the GCS dropped to E2-M5-V2 and a short-lasting supraventricular tachycardia of 160 beats/min occurred. The patient was intubated and treated with activated charcoal and laxatives through a nasogastric tube. The blood was alkalisied by administrating an infusion of sodium bicarbonate 1.4%.

Post-intubation chest X-ray showed a large number of tablets in the stomach (*figure 1A*). Gastric lavage with 5-6 litres of water was performed, but no tablets were retrieved. Therefore,



**Figure 1.** Radio-opaque tablets in the stomach. A) Post-intubation chest X-ray; B) Abdominal X-ray 20 hours after ingestion



**Figure 2.** Endoscopic procedure. A) Intra-gastric presence of tablets; B) Roth Net Retriever with tablets

we continued treatment with activated charcoal and laxatives, but 20 hours after ingestion the tablets were still visible on X-ray (*figure 1B*). At that moment the patient's condition was stable but considered at high risk for developing toxic complications. We therefore tried to remove the tablets endoscopically. The endoscopy was performed through an overtube (outer diameter 19.5 mm) to protect the throat and oesophagus from damage in case the endoscope would have to be introduced several times to remove the tablets. Due to

the presence of activated charcoal the visibility was impaired. Several gastric lavages were performed after which 30-40 whole and fragmented tablets were removed using the Roth Net Retriever (*figures 2A and B*).

No complications occurred during the procedure. Afterwards, she showed a good recovery regaining a normal level of consciousness. She was extubated 12 hours later and was discharged home 48 hours after endoscopic treatment. Further follow-up was organised by the consulted psychiatrist.

## Discussion

Our patient presented with severe autointoxication with slow-release clomipramine and slow-release quetiapine. The calculated ingested dose for slow-release clomipramine was 75 mg/kg (severe toxicity: >10 mg/kg), and for slow-release quetiapine 50 mg/kg (severe toxicity: >30 mg/kg), implying that clomipramine was the most important intoxication.<sup>[6]</sup> As the serum level of clomipramine is an unreliable predictor for the clinical severity of intoxication, the combined serum level of clomipramine and desmethylclomipramine was assessed, showing a level of 0.82 mg/l (severe toxicity: >0.6 mg/l.)<sup>[6]</sup> Moreover, this was a mixed-drug overdose implying a complex and unpredictable intoxication.

The patient was treated according to our national guidelines for intoxication with tricyclic antidepressants and antipsychotic drugs.<sup>[6]</sup> However, despite this management a large number of tablets were still clearly visible in the stomach 20 hours after ingestion. Slow-release clomipramine as well as slow-release quetiapine have previously been described to cause an accumulation of undigested tablets in the gastrointestinal tract, also called a pharmacobezoar.<sup>[4,7,8]</sup> The massive intake of tablets, cellulose coating and anticholinergic properties reducing gastrointestinal motility probably contribute to pharmacobezoar formation.<sup>[3,4]</sup>

Both clomipramine and quetiapine intoxication can lead to severe clinical complications such as central nervous system depression, seizures and cardiovascular instability with dysrhythmias.<sup>[6,7,9]</sup> Moreover, clomipramine can induce serotonergic syndrome.

Our patient only showed a disturbance of consciousness (GCS 9) and a transient supraventricular tachycardia, but was considered at high risk for developing more toxic complications. As hyperthermia, diaphoresis, hyperreflexia, hypertonia and tremor were lacking, she did not yet have any clear signs of serotonergic syndrome.

Maximum serum levels of slow-release quetiapine and slow-release clomipramine will usually be reached after six hours and 12-18 hours, respectively.<sup>[6]</sup> However, in case of pharmacobezoar formation, active substances may be released from the bezoar causing persistent or recurrent intoxication and could therefore lead to a further increase of the serum level.<sup>[10]</sup> Therefore, it was decided to remove the pharmacobezoar endoscopically, after which our patient made a full recovery. It is plausible that the endoscopic procedure contributed to the shortened ICU stay without further toxic complications, as also previously described by Höjer et al.<sup>[7]</sup> Although endoscopic removal of pharmacobezoars seems logical, published recommendations on this subject are inconclusive and it is not advised in international guidelines.<sup>[4,7,8]</sup> Severe complications such as gastric haemorrhage have been reported relatively frequently and multiple introductions of the endoscope could increase the risk of airway injury and aspiration of gastric content.<sup>[7,8,11]</sup> It must be stated that the procedure should be performed by an experienced gastroenterologist.

In conclusion, pharmacobezoars can pose an important threat in case of slow-release clomipramine and/or slow-release quetiapine intoxication. Endoscopic removal has to be considered, but should only be performed in selected cases and by a skilled gastroenterologist.

## Disclosures

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