

CASE REPORT

Presence of Ghost Capsules in Stool Mimicking Parasites due to Extended Release Metformin

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SUMMARY

Background: This case report presents the history, findings, and diagnostic workup of a 28-year-old woman who presented to the hospital with a yellowish, parasite-like structure in her stool.

Methods: The patient had no significant gastrointestinal complaints other than weight loss and decreased appetite, and no parasites or leukocytes were detected on direct examination of the stool.

Results: No eosinophilia, elevated C-reactive protein or leukocytosis was detected in laboratory tests. It was suggested that the structure in the stool of the patient whose symptoms occurred after taking extended-release metformin could be a ghost tablet, and further investigation was not considered necessary.

Conclusions: The report emphasizes the importance of considering drug-related side effects, especially ghost pills, in patients with atypical stool findings to avoid unnecessary investigations and anxiety.
(Clin. Lab. 2025;71:xx-xx. DOI: 10.7754/Clin.Lab.2024.241019)

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KEYWORDS

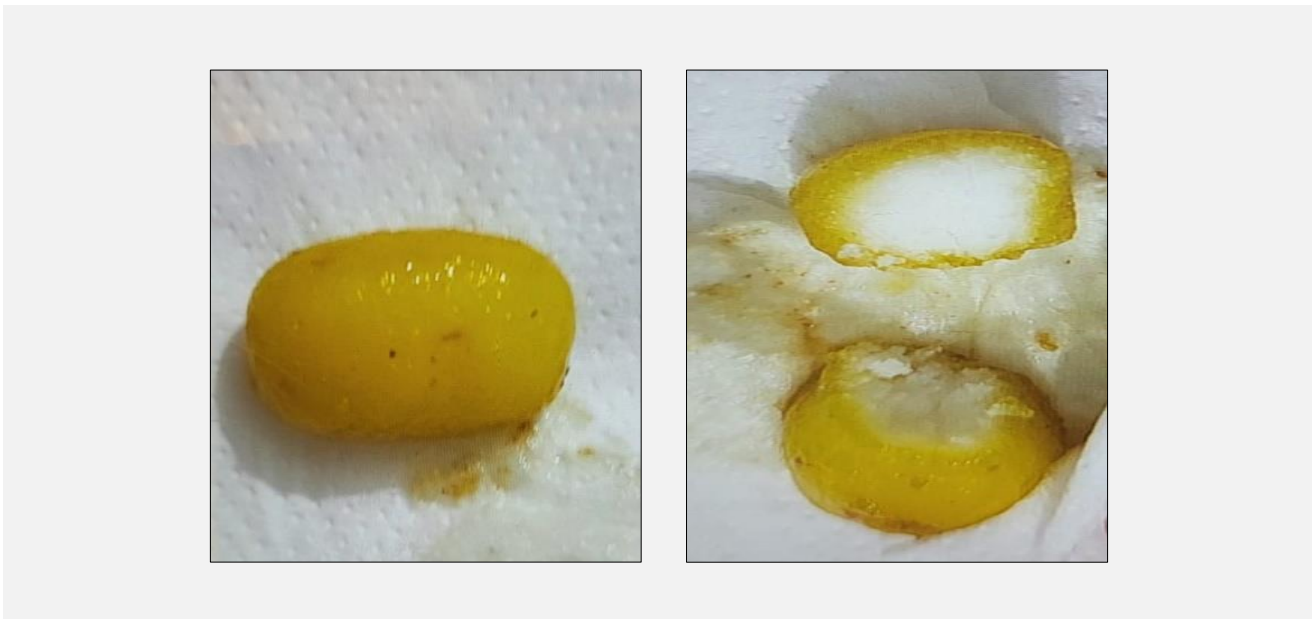
Ghost pill, metformin, extended release

CASE PRESENTATION

A 28-year-old female patient presented to the Infectious Diseases Clinic complaining of multiple yellow oval formations with a white interior in her stool for about a month and a fear of having intestinal parasites. The patient had no gastrointestinal complaints such as diarrhea, constipation, abdominal pain, anal itching or anal bleeding. She stated that she had lost 2 to 3 kilograms within a month and had less appetite. On physical examination, she weighed 90 kg, was 160 cm tall, had a body mass index of 35.15 kg/m², and was obese. No pathological findings were detected during her examination. No parasites or leukocytes were detected on direct examination of the stool. A yellowish oval formation of about 2 x 1.0 x 1.0 cm in size was observed in the stool samples (Figure 1). No eosinophilia was detected in the laboratory values, and the white blood cell count and C-reactive protein (CRP) were normal (Table 1). She had a history of taking levothyroxine for the

Table 1. Laboratory results of the patient.

White blood cells ($10^3/\mu\text{L}$)	6.7
Red blood cells ($10^6/\mu\text{L}$)	4.62
Hemoglobin (g/dL)	11.8
Platelets ($10^3/\mu\text{L}$)	220
Neutrophils (%)	53.5
Lymphocytes (%)	34.5
Eosinophil (%)	3
Glucose (mg/dL)	89
BUN (Blood Urea Nitrogen) (mg/dL)	24.8
Creatinine (mg/dL)	0.88
Aspartate aminotransferase (IU/L)	21
Alanine aminotransferase (IU/L)	38
Hb A1c (glycated hemoglobin) (%)	5.3
(mmol/mol)	34.4
Insulin ($\mu\text{u}/\text{mL}$)	16.6
Stool smears	No parasite, no leukocyte

**Figure 1. Ghost tablets in fecal samples.**

treatment of hypothyroidism for three years and metformin extended release (XR) 1,000 mg twice daily for one month. Until a month ago, she had been taking 500 mg metformin to treat obesity and prediabetes and had switched to the 1,000 mg XR formulation a month ago. After reviewing the literature, it was determined that the object in the stool could be a ghost tablet. The patient was informed of this. However, she returned to her pre-

vious treatment because she was suffering from anxiety. These symptoms did not recur at follow-up when she switched to her previous treatment (immediate-release metformin).

DISCUSSION

The case presented shows that with certain XR drug formulations, the insoluble components of a tablet can pass into the stool, which is a cause for concern and could lead to unnecessary investigations. Metformin is an oral medication commonly used to treat type 2 diabetes [1]. Patients taking this medication may lose some weight and appetite may be affected. In addition, patients may also develop gastrointestinal symptoms such as diarrhea and dyspepsia [1]. The purpose of the XR formulation with a shell or coating is to provide a constant and sustained effect by controlling the release of the active ingredient over a period of time [2]. If the shell surrounding the active ingredient is not digested, it is excreted intact in the stool as a "ghost tablet" [2]. The macroscopic appearance of these structures can mimic intestinal parasites [3]. Ghost pills are a common side effect of metformin XR, and the study by Levy J et al. shows that more than half of patients (54.1%) reported the presence of ghost pills in their stool while taking metformin XR [4]. Patients may express concern that the metformin XR tablet is excreted in the stool and is not sufficiently effective. Informing patients of this expected situation would prevent unnecessary patient concerns and medical investigations [5,6].

CONCLUSION

This case demonstrates the importance of considering drug side effects such as ghost pills in patients with atypical stool findings. Appropriate patient education can help reduce unnecessary anxiety, avoid unnecessary investigations, and increase patient satisfaction. Metformin can inhibit appetite, reduce weight, and even cause gastrointestinal symptoms such as diarrhea, which may make the patient suspicious of parasites. Adequate information to doctors and patients can reduce such misunderstandings.

Declaration of Interest:

All authors declare that they have no conflicts of interest.

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