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Case Report

Rapunzel syndrome (Trichobezoar) revisited from Gadchiroli: a case report and review of literature

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ABSTRACT

Trichobezoar, a concretion of swallowed hair within the gastrointestinal tract, is a rare condition that predominantly affects young females with trichotillomania and trichophagia; extension of the mass beyond the pylorus into the small intestine is termed Rapunzel syndrome. We present a 28-year-old married woman from Gadchiroli district, Maharashtra, with a one-year history of progressive epigastric heaviness and one month of worsening burning abdominal pain, early satiety and significant weight loss. She firmly denied hair-eating behavior, although her husband reported prolonged unusual irritability. Examination revealed a smooth, firm, well-defined 10×8 cm epigastric mass. Upper gastrointestinal endoscopy showed a large mass of matted hair occupying the stomach, and contrast-enhanced computed tomography (CECT) of the abdomen demonstrated a laminated, mixed-density intraluminal lesion without pyloric extension. She underwent elective open anterior gastrotomy with en-bloc removal of the trichobezoar, and examination of the entire small bowel excluded distal fragments. Recovery was uneventful. On psychiatric evaluation before discharge, she admitted to pulling and eating her own hair for about three years, and trichotillomania with trichophagia was diagnosed. Habit reversal therapy, cognitive-behavioral therapy and sertraline were initiated; at nine months her weight was well maintained, although adherence to psychiatric care was poor. Trichobezoar should be considered in any young woman presenting with an epigastric mass, irrespective of whether she admits to hair-eating. Endoscopy and CECT establish the diagnosis, and open anterior gastrotomy remains a safe, reproducible treatment for large lesions in resource-limited settings. Postoperative psychiatric care is the cornerstone of relapse prevention.

Keywords: Trichobezoar, Rapunzel syndrome, Gastric bezoar, Trichophagia, Trichotillomania, Epigastric mass, Gadchiroli

INTRODUCTION

The word 'bezoar' traces its roots to the Arabic-Persian term bāzahr (or pādzahr), historically understood to mean a counter-poison or universal antidote. For centuries, bezoars were valued as magical talismans capable of neutralising any venom. The irony is not lost on modern clinicians — far from being protective, a bezoar can silently accumulate inside the stomach for years and eventually prove life-threatening if ignored.

Bezoars are broadly categorized by their composition. Phytobezoars, made up of plant fiber, are the most common type and are often linked to prior gastric surgery or motility disorders.[1] Lactobezoars occur almost exclusively in preterm neonates receiving concentrated formula feeds.[2] Pharmacobezoars arise from incompletely dissolved medications, particularly sustained-release or enteric-coated preparations.[3] Trichobezoars — the focus of this report — are composed of swallowed hair. Although hair of any origin may be involved, the ingested material is almost invariably the patient's own scalp hair.

Trichobezoars are rare. Their occurrence is tightly linked to two related psychiatric conditions: trichotillomania, the compulsive pulling of one's hair, and trichophagia, the subsequent swallowing of it. Both are classified within the obsessive-compulsive and related disorders spectrum in DSM-5.[4] Epidemiologically, more than 90% of reported trichobezoar cases involve females, and about 80% of patients are younger than 30 years at the time of presentation.[5] In countries where women traditionally wear long hair — including much of South Asia — the condition is proportionally more prevalent.

When a trichobezoar extends its tail through the pylorus into the duodenum or further into the jejunum and ileum, the condition becomes Rapunzel syndrome, a term introduced by Vaughan et al. in 1968 in reference to the long-haired heroine of the fairy tale.[6] Fewer than 200 well-documented cases have been published in the English-language literature over the past five decades, though true incidence is likely underreported given the psychiatric stigma and patients' tendency to deny their behavior.[7]

Gadchiroli is one of the most resource-limited and geographically isolated districts in Maharashtra, India. Mental health infrastructure is sparse, and psychiatric disorders in young women are frequently masked by social stigma or misattributed to somatic complaints. The case we describe below exemplifies this reality. We report this case, together with a brief discussion of the relevant literature, with the aim of offering practical guidance to clinicians working in similar low-resource settings. The work has been reported in line with the SCARE 2023 criteria.[8]

CASE REPORT

Clinical presentation

A 28-year-old married woman, homemaker by occupation, presented to the surgical outpatient department of General Hospital Gadchiroli on 18 July 2025. Her primary complaint was a persistent feeling of heaviness and fullness in the upper abdomen that had been building gradually over the last 12 months. Since past one month, the discomfort had intensified, and she was now also experiencing intermittent burning epigastric pain, occasional nausea, and early satiety. Her family had noted a visible reduction in her body weight over the same period, though she had not weighed herself formally. There was no history of haematemesis, melaena, jaundice, or alteration in bowel habits.

When asked directly about any habit of pulling or eating hair, the patient denied it categorically. Her husband, who accompanied her, mentioned almost in passing that she had become increasingly irritable and withdrawn over the past couple of years — a behavioral change for which no clear explanation had been sought. He recalled no specific episodes of hair-eating but described occasionally finding her alone and unusually restless. There was no known psychiatric diagnosis, no history of prior abdominal surgery, and no significant medical comorbidities. She was not on any regular medications.

Physical examination

General examination revealed a thin-built, conscious, cooperative woman in no acute distress. She was afebrile, with a heart rate of 82 beats per minute and blood pressure of 108/70 mmHg. There was no pallor, icterus, cyanosis, clubbing, or peripheral lymphadenopathy. Careful inspection of the scalp did not reveal any obvious alopecia or patchy hair thinning — a finding that, in retrospect, may have reflected early or subtle hair loss rather than its absence.

Abdominal examination was the most telling part of the clinical encounter. The abdomen was flat and non-distended. On palpation, a smooth, hard, well-defined mass of approximately 10×8 cm was felt occupying the epigastric region. It was mildly tender on deep palpation, did not move with respiration, and was not pulsatile. The mass had an almost stone-like consistency, and its margins were clearly delineated. No free fluid was detected. There was no organomegaly. The remainder of the systemic examination was unremarkable.

Investigations

Laboratory parameters

Routine blood investigations obtained on admission are summarised in Table 1. Haemoglobin was mildly reduced at 11.7 g/dl, consistent with mild anaemia in keeping with the duration of her illness and possible micronutrient depletion. Leukocyte count and platelet counts were within normal limits, arguing against an acute inflammatory process. Serum albumin was well preserved at 4.7 g/dl, suggesting that despite the weight loss, significant protein malnutrition had not yet supervened. Serum electrolytes, calcium, and renal function were normal. Blood group was O positive.

Table 1: Pre-operative laboratory parameters.

Parameters	Result	Reference range
Haemoglobin (Hb) (g/dl)	11.7	12.0 – 16.0
Total leukocyte count (WBC) (K/µl)	5.7	4.5 – 11.0
Platelet count (K/µl)	287	150 – 400
Serum albumin (g/dl)	4.7	3.5 – 5.0
Serum calcium (mg/dl)	9.32	8.5 – 10.5
Serum sodium (mEq/l)	143	136 – 145
Serum potassium (mEq/l)	3.4	3.5 – 5.0 (borderline low)
Blood group	O positive	—

Endoscopic findings

Upper gastrointestinal (UGI) endoscopy was performed after admission. The endoscope passed the oesophagus and entered a markedly distended stomach where a large, compact mass of matted, dark-brown hair fibers was immediately apparent, occupying the fundus and body. The overlying gastric mucosa appeared intact in the visible portions, without evidence of ulceration or bleeding. The pylorus could not be clearly visualised due to the size of the mass, but there was no suggestion on endoscopy of a tail extending into the duodenum. Endoscopic fragmentation and removal were not attempted in view of the sheer bulk of the bezoar.

Imaging

Contrast-enhanced CT of the abdomen and pelvis confirmed an overdistended stomach containing a large, elongated, mixed-density intraluminal lesion measuring approximately 10×8 cm. The mass exhibited the characteristic heterogeneous 'onion-bulb' lamination pattern with interspersed peripheral air-density foci — a finding considered pathognomonic of trichobezoar by Belhadj et al.[9] Crucially, there was no demonstrable adhesion between the mass and the gastric wall, and no pyloric extension was identified. No free intraperitoneal air, ascites, or evidence of lymphadenopathy was seen. The liver, spleen, kidneys, and pelvic organs appeared unremarkable. The imaging diagnosis was consistent with a large gastric trichobezoar.

Operative management

After informed consent and pre-operative optimisation, the patient was taken to the operating theatre on 20 July 2025 for elective surgery. Under general anaesthesia in the supine position, a standard upper midline laparotomy incision was made. The peritoneal cavity was entered and the stomach was found to be markedly distended, with a clearly palpable, rock-hard mass conforming to its shape.

Two silk stay sutures were placed on the anterior wall of the stomach, and a longitudinal anterior gastrotomy was performed between them using electrocautery. The incision was kept approximately 5 cm in length — sufficient to deliver the mass without tearing the gastric wall. The trichobezoar was carefully mobilised and extracted in its entirety. It was a dense, compacted mass of dark-black matted hair measuring 10×8 cm, with a mould that reproduced the shape of inner contour of the wall of the stomach. No tail was identified on close inspection, confirming that pyloric extension had not occurred in this patient.

The stomach was irrigated thoroughly with warm normal saline until the effluent ran clear. The gastrotomy was closed in two layers — a continuous full-thickness mucosal closure using 2-0 polyglycolic acid suture, followed by an inverting seromuscular layer of 2-0 polyglycolic acid interrupted Lembert sutures. The entire small intestine was carefully examined from the duodenojejunal flexure to the ileocaecal valve to exclude any distal fragments or associated Rapunzel extension — none were found. The abdomen was lavaged with one litre of warm saline, haemostasis was confirmed, and the wound was closed in layers. Total operative time was around 70 minutes with minimal blood loss (Figures 1 and 2).

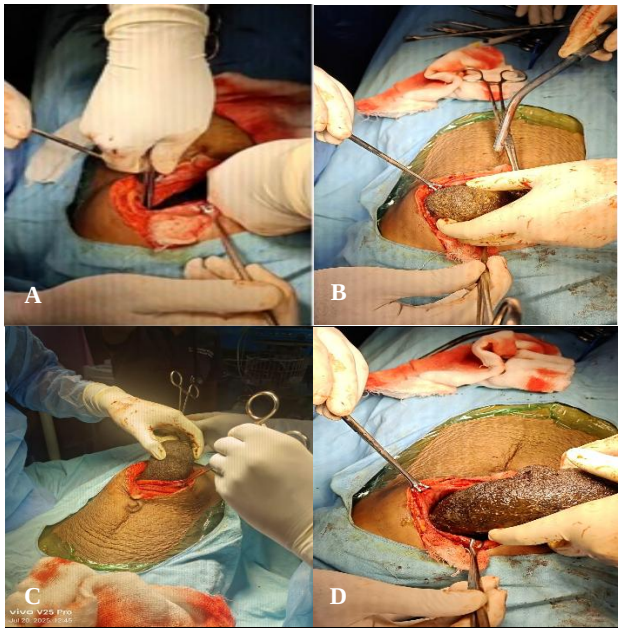


Figure 1 (A-D): Intraoperative photograph showing incision, gastrotomy & maneuvering the trichobezoar while pulling out.

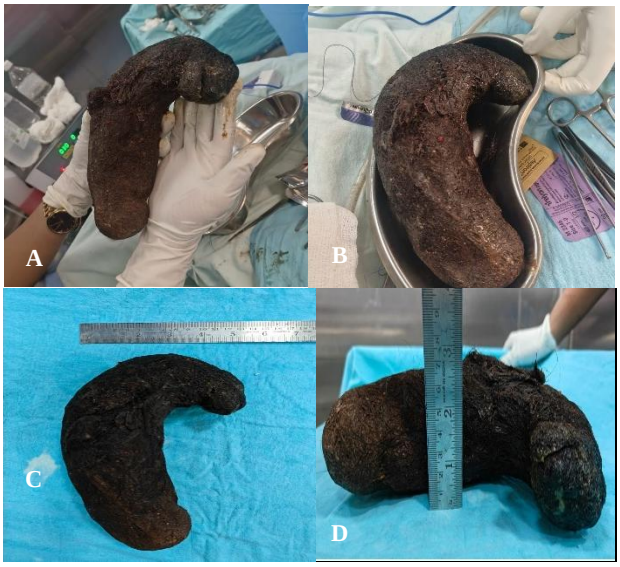


Figure 2 (A-D): Extracted Trichobezoar specimen & its dimensions.

Post-operative course

The immediate post-operative period was uncomplicated. The patient was kept nil by mouth for 48 hours with

intravenous fluids, proton pump inhibitor, and appropriate analgesia. A nasogastric tube was maintained until bowel sounds returned. Clear oral fluids were commenced on the third post-operative day and a soft diet was introduced by the fifth day, which she tolerated well. Early ambulation was encouraged from the first post-operative day.

Formal psychiatric consultation was arranged prior to discharge. In the course of this evaluation — conducted in a private and non-judgmental setting — the patient gradually acknowledged that she had been pulling and occasionally eating her own hair for approximately three years, a behavior she had concealed out of shame and fear of social stigma. The consulting psychologist diagnosed trichotillomania with trichophagia as per DSM-5 criteria.[4] The patient and her husband were counselled extensively about the nature of the condition, and she was enrolled in an outpatient psychiatric programme including habit reversal therapy and cognitive-behavioral therapy (CBT). A course of sertraline was initiated. The patient was discharged on the seventh post-operative day in a satisfactory condition. At one-month follow-up she was tolerating a normal diet, gaining weight, and continuing her psychiatric treatment. A recent 9-month visit showed well maintained weight and a bit of increase in appetite. However, she was reluctant to continue taking sertraline and was hesitant to visit a psychologist further. She is kept on biannual follow-up schedule.

DISCUSSION

Our case carries several features that deserve comment against the background of the literature. To begin with, the patient's age — 28 years — places her squarely within the adult range, and her marital status and rural background added layers of social complexity that likely contributed to the prolonged concealment of her trichophagia. This is not an isolated phenomenon. A review by Gorter et al in 2010 identified denial of hair-eating behavior as one of the most consistent barriers to timely diagnosis.[10] More recently, Yankov et al reported two cases of trichobezoar in which no identifiable psychiatric stressor could be elicited even after in-depth psychiatric assessment, raising the possibility that trichophagia may sometimes occur in the absence of classical psychiatric comorbidity — or at least in the absence of detectable comorbidity by contemporary assessment tools.[11]

The behavioral clue provided by the husband — his account of prolonged irritability and social withdrawal — is, in retrospect, consistent with the psychological substrate of trichotillomania, which commonly co-occurs with anxiety, low mood, and interpersonal difficulties.[4] Clinicians should actively seek collateral history from family members or carers, particularly when the patient's own account seems incomplete or inconsistent with the clinical findings.

From a technical standpoint, the decision to proceed with open anterior gastrotomy was straightforward given the mass dimensions (10×8 cm), the absence of laparoscopic surgical infrastructure in our resource-limited setting, and the elective nature of the procedure. The principle of exploring the entire small intestine at the time of gastrotomy — which we adhered to — cannot be overemphasised. The case reported by Jacobson et al in 2025 is a sobering illustration of what can happen when a distally migrated fragment is missed: in that patient, a second trichobezoar in the mid-jejunum was associated with two separate jejunal perforations, leading to peritonitis, septic shock, and a prolonged critical care admission.[12] Had those perforations been identified and repaired electively at an earlier stage, the morbidity would have been substantially lower.

The question of whether laparoscopic surgery should now be the default approach for trichobezoar is worth addressing. The literature supports laparoscopic removal as safe and effective in selected cases — particularly those with moderate-sized bezoars (under 8–10 cm) in haemodynamically stable patients at institutions with appropriate expertise.[13-15] However, in government district hospitals across rural India, where laparoscopic expertise may be limited and equipment unreliable, open laparotomy remains the more consistently available and reproducible option. Surgical strategies must be tailored to the local context, not merely to what is published from tertiary centers.

A considerable proportion of the published trichobezoar cases originate from South Asia, particularly India.[5] This likely reflects a genuine higher burden of disease, related to the combination of longer hair length, high rates of psychological stress among young women, limited mental health services, and cultural barriers to psychiatric help-seeking. Maharashtra, with its mix of urban centres and deeply rural districts like Gadchiroli, exemplifies this landscape. Cases have been reported from Nagpur, Latur, and now Gadchiroli — a geographic clustering that deserves recognition and should inform health policy priorities around mental health screening in young women presenting to surgical outpatient departments.[15,16] The teenage case from Pakistan by Ismail et al further confirms that this is a shared South Asian burden rather than an exclusively Indian phenomenon.[17]

One area where management has evolved considerably in the past decade is the pharmacological treatment of trichotillomania. Early reports relied heavily on SSRIs and clomipramine with variable results. More recent evidence — including a Cochrane review published in 2016 and subsequent randomised controlled trials — suggests that N-acetylcysteine (NAC) at doses of 1200–2400 mg/day is among the most efficacious pharmacological options, possibly because of its role in modulating glutamate neurotransmission in the striatum — a region implicated in habit and compulsive behavior.[18] Clinicians managing trichobezoar patients should be aware of this option and engage with their psychiatric colleagues to ensure patients receive contemporary evidence-based treatment.

Finally, a word on recurrence. Published recurrence rates range from 14% to as high as 30% in studies with long follow-up periods, almost universally in patients who did not receive or comply with psychiatric care.[19] This figure is unacceptably high for a condition that is entirely preventable once the diagnosis is made. A trichobezoar that is surgically removed but psychiatrically untreated should be regarded not as a cured case but as a patient at high risk of re-presentation — potentially with a more complex or dangerous recurrence. The report by Singh and Mitra of gastric perforation secondary to a recurrent trichobezoar reminds us that re-presentation can be more dangerous than the index episode when adequate behavioral intervention is lacking.[19] The obligation to ensure robust psychiatric follow-up is not merely an afterthought: it is the most important thing a surgeon can do for their patient after closing the gastrotomy.

CONCLUSION

Gastric trichobezoar is a rare but important clinical entity that warrants a place in the differential diagnosis of any young woman presenting with an epigastric mass, regardless of whether she acknowledges hair-eating behavior. The diagnosis is best confirmed by a combination of upper gastrointestinal endoscopy and CECT of the abdomen. For large lesions — particularly in resource-limited settings — open anterior gastrotomy via upper midline laparotomy remains the definitive, safe, and reproducible treatment. Thorough intraoperative inspection of the entire small bowel is mandatory to exclude distal extension or Rapunzel syndrome. Post-operative psychiatric evaluation and long-term follow-up are not optional adjuncts but essential components of comprehensive management without which recurrence is predictable. Our case from Gadchiroli, Maharashtra, adds to the growing body of literature documenting this condition from rural South Asia and highlights the unique socio-psychiatric dimensions that can delay diagnosis in such settings. Greater awareness, proactive family history-taking, and integration of mental health screening into surgical outpatient practice are the priority actions needed to close the diagnostic gap.

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