ORIGINAL RESEARCH PAPER

Paediatric Surgery

TRICHOBEZOAR WITH CYSTIC DUCT EXTENSION IN A CHILD: A RARE CASE REPORT

KEY WORDS: Trichobezoar; Rapunzel syndrome; cystic duct; trichotillomania; case report

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ABSTRACT

Introduction: Trichobezoars are uncommon gastrointestinal foreign bodies that predominantly occur in children and adolescents with trichotillomania and trichophagia. Most remain confined to the stomach; however, extension beyond the pylorus is recognized as Rapunzel syndrome. Extension involving the biliary tree, particularly the cystic duct, is exceptionally uncommon. This case describes an unusual paediatric trichobezoar with gastric and duodenal extension and an additional projection into the cystic duct, highlighting the diagnostic and therapeutic challenges associated with extensive bezoar formation and the importance of addressing the underlying behavioral disorder. A 10-year-old girl presented with chronic abdominal pain, early satiety, and a palpable epigastric mass. Imaging demonstrated a large trichobezoar occupying the stomach and extending into the duodenum, with a rare projection into the cystic duct. The clinical presentation was consistent with an extensive upper gastrointestinal trichobezoar. The diagnosis was an extensive trichobezoar with post pyloric extension consistent with Rapunzel syndrome and an unusual cystic duct extension. Open gastrotomy was performed, with successful extraction of the bezoar and its biliary extension. The postoperative course was favourable based on the information provided. The patient was subsequently referred for psychiatric assessment and behavioural therapy for the underlying trichotillomania, and cognitive-behavioural therapy was initiated postoperatively to reduce the risk of recurrence. This case illustrates an exceptionally unusual extension of a pediatrictrichobezoar into the cystic duct. Extensive trichobezoars may present with nonspecific gastrointestinal symptoms, and comprehensive imaging can be important for defining the extent of disease before intervention. Definitive management should address both the physical bezoar and the behavioral disorder underlying hair ingestion to minimize recurrence.

INTRODUCTION

Trichobezoars are concretions of ingested hair that accumulate predominantly within the stomach. Human hair is resistant to digestion and has a smooth surface that facilitates retention within the gastric folds, allowing progressive accumulation of hair, mucus, and food material. Trichobezoars are particularly associated with trichotillomania and trichophagia and occur predominantly in young females. When a trichobezoar extends through the pylorus into the duodenum or more distal gastrointestinal tract, it is termed Rapunzel syndrome. (1)

The clinical manifestations may be nonspecific, including abdominal pain, early satiety, vomiting, weight loss, gastrointestinal obstruction, or a palpable abdominal mass. Large bezoars may require surgical removal, particularly when extensive or complicated. Previous pediatric series and reviews emphasize that treatment should not end with removal of the bezoar; psychiatric assessment and behavioral intervention are important because untreated trichotillomania and trichophagia may predispose to recurrence. (1) Recent literature continues to support behavioral approaches, particularly cognitive-behavioral and habit-reversal strategies, as important components of pediatric trichotillomania management. (2)

The present case is notable because of the unusually extensive trichobezoar in a 10-year-old girl, with extension from the stomach into the duodenum and a reported projection into the cystic duct. Biliary involvement represents an exceptionally unusual anatomical manifestation and adds to the spectrum of potential extension of large trichobezoars.

Patient Information

A 10-year-old girl presented with chronic gastrointestinal symptoms and was subsequently diagnosed with an extensive trichobezoar involving the stomach and duodenum, with reported extension into the cystic duct at emergency department

The patient presented with Chronic abdominal pain, Early satiety and huge palpable epigastric mass. Parents noticed visible fullness in epigastrium since last 6 months which was gradually increasing in size but was associated with intermittent pain in abdomen which progressed further. There were no associated complaints of vomiting or bowel habits or any other medical illness in past. No history was documented by parents at the time of presentation regarding hair pulling behaviour or hair ingestion and any other psychological abnormal behaviour in patient

Clinical Findings

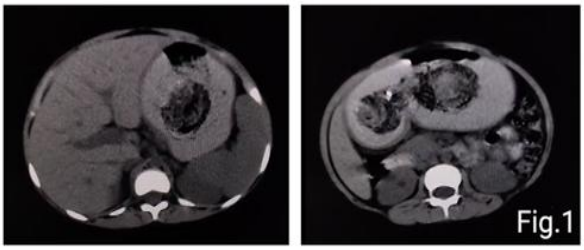
Physical Examination and Important Clinical Findings

On physical examination patient was vitally stable with average build with no any signs of jaundice. On per abdomen examination there was huge mass palpable extending from epigastrium to right hypochondriac region and periumbilical region. On deep palpation there was mild tenderness. There was no evidence of alopecia or scalp lesions suggestive of trichotillomania. General appearance.

Diagnostic Assessment

Diagnostic Testing

On admission thorough haematological and radiological investigations done using ultrasonography of abdomen and Enhanced CT scan of abdomen and pelvis. On Sonography of abdomen there was huge intraluminal solid mass seen occupying whole of stomach and extending into duodenum and jejunum with dilated common bile duct and partially distended gall bladder. On CT scan abdomen, Sonography findings were confirmed with no obvious foreign body seen in common bile duct but it was mild dilated suspecting a case of trochobezore(Fig. 1) .



Large trichobezoars can frequently be diagnosed using a combination of clinical assessment and imaging, although the precise imaging strategy depends on the clinical presentation and suspected extent of disease. (3)

Diagnostic Challenges

The initial symptoms of trichobezoar can be nonspecific, and diagnosis may be delayed because abdominal pain, early satiety, and an abdominal mass have multiple possible causes. Previous literature emphasizes that the diagnosis may be overlooked until the bezoar becomes large or produces complications. (1)

In the present case, the unusual cystic duct extension represents an additional diagnostic challenge because it is outside the usual anatomical distribution of a gastric trichobezoar or conventional Rapunzel syndrome.

Diagnosis

The principal diagnosis was an extensive trichobezoar with gastric and duodenal extension consistent with Rapunzel syndrome, accompanied by a reported projection into the cystic duct.

The principal differential diagnoses for a palpable epigastric mass with chronic gastrointestinal symptoms may include other gastric or intestinal masses, gastrointestinal obstruction, inflammatory conditions, and other types of bezoar. The available information supports a trichobezoar based on the imaging findings and subsequent surgical extraction.

Prognosis

The immediate postoperative prognosis was favorable according to the information provided.

Long-term prognosis depends not only on complete removal of the bezoar but also on management of the underlying trichotillomania and any associated trichophagia. Behavioral treatment is therefore an important component of recurrence prevention(2)

Therapeutic Intervention

The patient underwent exploratory laparotomy with gastrostomy(Fig 2). Intraoperative there was huge mass of trichobezoar extending from stomach to duodenum and entering into jejunum. Complete extraction of mass was attempted through gastrostomy but specimen was stuck at second part of duodenum and was difficult to extract so on exploring second part of duodenum through same gastrostomy incision , there was bunch of cotton threads entering into ampulla of vater migrating into common bile duct and cystic duct(Fig 3). There was small palpable mass near neck of gall bladder . On gradual milking of gall bladder, complete extraction of migrated portion of threads and hairs was done. Specimen sent for histopathology(Fig 4, 5). Postoperatively patient was managed in pediatric intensive unit. On post operative day 2 patient passed stools with bunch of cotton threads and hair follicles so kept nill by mouth to prevent obstruction. On post operative day 4 patient again passed bunch of cotton threads and hair follicles along with stools(Fig. 6). On post operative day 5 patient passed normal stools and started with feeds. Following definitive surgical treatment, management was expanded to include psychiatric assessment and behavioral therapy. Cognitive-behavioral therapy was initiated postoperatively with the objective of addressing the underlying trichotillomania and reducing the likelihood of recurrent hair ingestion and subsequent trichobezoar formation.

On postoperative day 10 patient was discharged on oral medications. Closed follow up was kept on OPD basis. Patient was asyptomatic clinically till date (post operative 2 years of follow up period)

Fig 3

Fig 5


Fig 6
Bunch Of Threads and hairs on post operative day 4

The clinical course consisted of chronic gastrointestinal symptoms followed by identification of a palpable epigastric mass, diagnostic imaging demonstrating an extensive trichobezoar with duodenal and cystic duct extension, definitive open surgical removal, postoperative recovery, and subsequent psychiatric and behavioral intervention.

Diagnostic Assessment

The diagnosis was established through clinical assessment and imaging, followed by operative confirmation and removal of the trichobezoar.

The unusual cystic duct projection should be documented in detail because this represents the principal distinctive feature of the case.

Because of the extensive size and anatomical extension of the trichobezoar, open surgical removal was performed. Surgical treatment remains an important approach for large or extensive trichobezoars, particularly when endoscopic removal is unlikely to achieve complete extraction. Published pediatric series have reported successful management with operative removal, while emphasizing the importance of psychiatric intervention after surgery. (1)

Follow-up and Outcomes

The reported postoperative course was favorable. Following surgical treatment, the patient was referred for psychiatric assessment and commenced cognitive-behavioral therapy.

On Long-term follow-up of 2 years patient was asymptomatic with evidence of sustained behavioral improvement.

DISCUSSION

The principal strength of this case is its unusual anatomical presentation. Although trichobezoars generally remain within the stomach, extension through the pylorus defines Rapunzel syndrome, and the reported cystic duct involvement represents an exceptionally unusual extension pattern. The case therefore expands awareness of the potential anatomical extent of large trichobezoars and emphasizes the importance of careful preoperative imaging. (1)

A second strength is the multidisciplinary approach. Definitive surgical management was combined with psychiatric referral and cognitive-behavioral therapy, addressing both the physical manifestation and the behavioral disorder associated with recurrent hair ingestion. Current pediatric literature supports behavioral interventions as an important component of treatment for trichotillomania. (2)

The principal limitations are those inherent to a single case report. The findings cannot establish the frequency of cystic duct extension or determine whether the presentation is representative of other patients with extensive trichobezoars. In addition, several details of the diagnostic evaluation, operative procedure, postoperative course, and long-term follow-up were not included in the information available for this manuscript. These should be completed from the original clinical records.

Relevant Medical Literature

Trichobezoars are rare accumulations of hair within the gastrointestinal tract and are particularly associated with trichotillomania and trichophagia. Because hair is resistant to digestion and gastrointestinal propulsion, continued ingestion can result in progressive accumulation and formation of a large gastric mass. (1)

Rapunzel syndrome refers to a trichobezoar with extension beyond the stomach, classically through the pylorus into the duodenum and potentially further into the small bowel. Patients may present with nonspecific symptoms such as abdominal pain, vomiting, early satiety, weight loss, or an abdominal mass. Complications of extensive trichobezoars can include obstruction, gastrointestinal mucosal injury, perforation, pancreatitis, and obstructive biliary manifestations. (5)

Management depends on the size, location, and extent of the bezoar. Endoscopic techniques may be suitable for selected smaller lesions, whereas large or extensive trichobezoars frequently require surgical removal. A pediatric surgical series reported that all seven patients in their cohort required exploratory laparotomy for definitive treatment, with post-pyloric extension identified in five patients. (3)

Surgical removal alone, however, does not address the behavioral mechanism underlying hair ingestion. Psychiatric consultation and behavioral therapy are therefore important components of comprehensive management. (1,6)

Recent evidence concerning pediatric trichotillomania indicates that behavioral interventions, particularly habit-reversal and cognitive-behavioral approaches, have demonstrated the most consistent therapeutic benefit, while evidence for pharmacological treatment remains less definitive. (2,7)

The present case differs from the usual description of Rapunzel syndrome because of the reported projection of the trichobezoar into the cystic duct. This unusual anatomical finding emphasizes the need to evaluate the complete extent of an extensive bezoar rather than assuming that its distal extension is confined to the gastrointestinal tract.

Scientific Rationale for the Conclusions

The diagnosis is supported by the combination of characteristic clinical findings, imaging demonstrating an extensive gastric trichobezoar with duodenal extension, and successful operative extraction of the bezoar. The duodenal extension fulfills the clinical concept of Rapunzel syndrome. The reported cystic duct projection represents an atypical extension and is the defining unusual feature of this case.

The association with trichotillomania provides a plausible mechanism for recurrent hair ingestion and progressive bezoar formation. Surgical removal addresses the immediate gastrointestinal pathology, whereas behavioral therapy addresses the underlying mechanism that may otherwise lead to recurrence. Existing literature supports this combined approach. (1,6)

The favorable postoperative recovery suggests successful resolution of the immediate mechanical problem; however, the available information does not permit conclusions regarding long-term recurrence prevention unless sustained behavioral follow-up is documented.

CONCLUSION

This case highlights an exceptionally unusual presentation of an extensive pediatrictrichobezoar with Rapunzel syndrome and reported extension into the cystic duct. Chronic abdominal symptoms and an epigastric mass in a child, particularly when associated with trichotillomania or trichophagia, should prompt consideration of trichobezoar. Comprehensive imaging is important for defining the extent of disease and planning treatment. Large or anatomically extensive bezoars may require surgical removal, but definitive care should also include psychiatric assessment and behavioral intervention to address the underlying hair-pulling and hair-ingestion behavior and thereby reduce the risk of recurrence.

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