

2 **Introduction:**

3 Gastric bezoars are masses of foreign material found in the stomach, generally forming
4 into a hard object. Gastric bezoars are categorized by the material of which they are composed
5 including but not limited to: phytobezoars (plant matter), trichobezoars (hair), pharmacobezoars
6 (medications) and other (i.e. tissue paper, Styrofoam).

7 Gastric bezoars appear to be rare with Kadian et al reporting an incidence of only 0.3%
8 on endoscopy (1). While initially thought to be secondary to delayed gastric emptying, it is now
9 believed that the components of the bezoars themselves play a larger role in the pathogenesis
10 than gastric motility itself. In this case report, trichobezoars form as the proteins in hair are
11 resistant to digestion and their smooth surface are not susceptible to peristalsis (2). If not
12 recognized early, growing bezoars can lead to serious complications such as gastric mucosal
13 ulceration, perforation, malnutrition and pancreatitis.

14 Trichobezoars are far more common in females (90%) and have the highest incidence
15 before the third decade of life (3). Additionally, trichobezoars are associated with psychiatric
16 disorders such as trichotillomania and trichophagia. There is currently a debate in the literature
17 regarding the incidence of trichobezoar in patients with trichotillomania (1%-37.5%) (4,5).
18 Nonetheless, this case illustrates an unusual presentation of trichobezoar, highlighting the need
19 for bezoars to be on a differential diagnosis in patients presenting with abdominal pain and also
20 hematemesis.

23 **Case Report:**

24 Patient is a previously healthy school aged female who presented to the emergency
25 department with two bouts of bloody emesis in the setting of intermittent nausea and non bloody
26 vomiting over the past several months. On the date of presentation, emesis was noted to be bright
27 red in color by report with the final episode being witnessed in triage.

28 Per patient's mother, previously, the patient had had about five episodes of emesis in the
29 past week that were non-bloody and nonbilious. However, on the morning of presentation,
30 patient had one episode of bright red blood in her emesis followed by another episode as they
31 were walking into the emergency department. Patient additionally endorsed nausea and
32 dizziness. While she had intermittent nausea and vomiting over the past several months, she has
33 maintained a relatively normal appetite without any known triggers to her emesis. There were no
34 known alleviating or aggravating factors.

35 Patient does not have a known history of constipation and had a normal bowel movement
36 on the day prior to presentation that was described as soft and brown with no black tarry
37 appearance or frank blood. She had otherwise been well, meeting developmental milestones and
38 is up to date on vaccinations. There is no family history of hematologic or bone marrow cancers,
39 autoimmune disorders or kidney disorders. Patient lives at home with three younger siblings,
40 none of which have been sick recently.

41 On initial examination, patient was tachycardic with a heart rate of 174 bpm with
42 otherwise normal vital signs. Patient was thin and pale appearing with pale conjunctiva and a
43 tachycardic heart rate on auscultation with unremarkable lung examination. On abdominal
44 examination, abdomen was thin and soft with mild tenderness to palpation in the RUQ with a
45 very large mass noted in the RUQ extending approximately 5 cm below the last rib.

46 Initial laboratory analysis was significant for a CBC showing a normal hemoglobin and
47 thrombocytosis with mild leukocytosis with left shift. CMP noted a lactate of 2.3 with otherwise
48 unremarkable LFTs or findings. Chest x-ray was read as no acute abnormality with KUB
49 showing findings that were suspicious for intrabdominal mass, concerning for a trichobezoar
50 (Figure 1). Given signs of upper GI bleed as well as abdominal mass found on examination,
51 pediatric gastroenterology was consulted.

52 On reevaluation, patient's tachycardia had improved after a total of 20 cc/kg bolus. As her
53 KUB was read as evidence of a trichobezoar, CT abdomen pelvis was ordered to better
54 categorize the mass. Imaging showed a large intraluminal mass concerning for a trichobezoar
55 (Figure 2). Pediatric GI felt that this mass was likely too large to remove using EGD and
56 suggested a pediatric surgery consult. Pediatric surgery recommended admission to pediatrics
57 with continued NPO for further endoscopic vs. surgical management.

58 The patient was admitted to pediatric surgery and underwent an exploratory laparotomy
59 with subsequent removal of the large trichobezoar (Figure 3, 4). The post-operative course was
60 uncomplicated. While inpatient, child psychiatry was also consulted. Pediatric Psychiatry did a
61 thorough initial evaluation with multiple follow ups. The patient did not end up starting
62 medication or receive therapy for anxiety or OCD per shared decision making with patient and
63 their mother. Patient was discharged home with close outpatient follow up with surgery and
64 psychiatry.

65 **Discussion:**

66 This case demonstrates the importance of maintaining a broad differential in pediatric
67 populations in both clinics and in emergency settings. Hematemesis in otherwise healthy

68 pediatric patients is rare, but a serious presentation that must be identified. Approaching these
69 cases with a broad differential aid in timely diagnosis and management of further complications.

70 Emergency physicians work up and evaluate patients with broad differentials. In patients
71 presenting with hematemesis, although much rarer in pediatric-aged children, causes of acute GI
72 bleeds should be thoroughly evaluated. Pediatric upper GI bleeds are not as well defined in
73 children as in adults. Upper GI bleeds account for about 20% of GI bleeds across all age
74 spectrums of children (6). Common upper GI bleeding sources: ulcers and gastritis can be seen
75 in pediatric populations, especially in the Western world.

76 Children with underlying GI pathology or hematologic/oncologic processes must also be
77 considered. Possible masses found to be of concern in the GI tract should not exclude bezoars on
78 the differential.

79 If left untreated or undiagnosed, large trichobezoars such as this case can lead to gastric
80 irritation, ischemia and eventually perforation. Given the difficulty of obtaining good histories on
81 these patients when they present initially, differential should include a strong variety of possible
82 etiologies. As such, keeping bezoar on the differential for those at higher risk (females prior to
83 the 3rd decade of life, prior psychiatric histories or tendencies) is especially pertinent.

84 **Conclusions:**

85 Although rare, bezoars can be an emergency requiring timely management. Thorough
86 history and physical examination are of utmost importance in these presentations. Laboratory
87 evaluation for signs of coagulopathy or cell line abnormalities should be performed.

88 Based on the severity of presentation, abdominal KUB can be useful in diagnosis.
89 However, if still undifferentiated more advanced imaging may be necessary to secure a diagnosis

90 and guide consultation. Ultrasound may be helpful in some cases though the extreme size of the
91 bezoar in our patient made cross-sectional imaging of importance. CT or MRI should be
92 considered depending on the modalities available at different institutions and the severity of
93 presentation.

94 Finally, timely treatment with bowel rest, intravenous hydration and pharmacologic
95 agents should be started. Acid suppression medications are the cornerstone of treatment.
96 Octreotide has limited utility in these presentations unless strong concern for variceal bleeding,
97 much which is much rarer in children.

98 Entertaining the broad differential for abdominal pain and hematemesis in your pediatric
99 patients will serve future patients. Understanding bezoars can expedite diagnosis, treatment, and
100 prevent further complication in our pediatric patients in emergency settings.

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131 Figure 1: Abdominal KUB

132 Figure 2: Abdominal CT Scan

133 Figure 3: Trichobezoar specimen

134 Figure 4: Cross section of trichobezoar specimen