INTRODUCTION

A bezoar is the accumulation of undigested foreign bodies or nutrients in the gastrointestinal tract, forming a conglomeration. Bezoars are named according to the accumulating materials: phyto-bezoar (fibers or seeds from vegetables or fruits), trichobezoar (hair), lactobezoar (remnants of milk), and lithobezoar (rocks or similar substances) (1). Phyto-bezoars are the most common bezoars found in children, being the stomach the most common site (2).

Trichobezoars usually occur in young girls and are related to the ingestion of their own hair. Psychiatric disturbance, behavioral disorders, mental retardation, parental separation, or abuse are reported in 20%–30% of patients affected by trichotillomania. In case of repeated trichophagia, the accumulated hair are mainly retained in the gastric cavity and the trichobezoar, in addition to entrapped food particles and mucus, impairs the gastric emptying through the pylorus. The majority of gastric trichobezoars present with abdominal pain and a palpable mass. Occasionally there can be extension to the small bowel, in which case bezoars are called small bowel obstruction. Diagnosis is not easy, as patients with trichobezoars are usually asymptomatic until the mass is large enough to cause symptoms (abdominal pain, vomits, inability to pass stool, up to anemia, and malnutrition). In case of colonic bezoars, the first diagnosis that arises is that of a constipation or stool retention, and frequently, a series of abdominal X-rays are obtained, without directly evidencing the bezoar. In these cases, to collect an accurate medical history become crucial. If addiction to plain films, ultrasonography or computed tomography can provide more precise information.

Recently, in our Pediatric Surgery Unit, we treated laparo-endoscopically a large bowel trichobezoar, which caused colonic obstruction in a 13-years-old girl with trichotillomania.

This is, to our knowledge, the first-ever reported case of a giant colonic trichobezoar with near-total colonic obstruction.

PATIENT AND METHODS

A 13-year-old girl was admitted to our Emergency Department in January 2020 with abdominal pain and distention and vomiting. Clinical history was positive for chronic constipation exacerbated over the previous week; in fact, she did not pass stool in the previous 7 days. The family denied psychological disorders of the patient or trichotillomania. On examination, the abdomen was tense and painful, there were no palpable masses, possibly due to the adult-like size of the patient; per rectal examination was not performed; the laboratory tests were within the normal ranges. In case of colonic bezoars, the first diagnosis that arises is that of a constipation or stool retention, and frequently, a series of abdominal X-rays are obtained, without directly evidencing the bezoar. In these cases, to collect an accurate medical history become crucial. If addiction to plain films, ultrasonography or computed tomography can provide more precise information.

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The authors report no conflicts of interest.
All procedures performed in this study were in accordance with the ethical standards of the Institutional and National Research Committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. Informed consent was obtained from all individual participants (children’s parents) included in the study.
The manuscript has been read and approved by all the authors; the requirements for authorship have been met and each author believes that the manuscript represents honest work.
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Luminal integrity was confirmed with rectosigmoidoscopy and the procedure was ended. The patient recovered well, and she was discharged the day after the procedure with an ongoing neuropsychiatric referral. Informed consent was obtained from all individual participants (children’s parents) included in the study. Ethical approval: all procedures performed in this study were in accordance with the ethical standards of the Institutional and National Research Committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

DISCUSSION
Surgical and endoscopic treatment of gastric bezoars is well reported in the literature while, to our knowledge, this is the first report of an endoscopic extraction of a colonic trichobezoar within pediatric population. This is probably because trichobezoars are rarely found in the large bowel, being their main portion usually located in the stomach with, eventually, a tale extending to the small bowel or event ascending colon (Rapunzel Syndrome) (2,3).

Trichobezoars are usually asymptomatic however the progressive increase in size over the time, will lead to the development of

FIGURE 1. A) Plain abdominal x-rays showing bowel obstruction: air-fluid levels at the left upper quadrant with colonic gas distension. B) Worsening abdominal occlusion demonstrated by increased air-fluid levels.

FIGURE 2. Macroscopic appearance of the bezoar.
bowel obstruction. Serious complications have been described such as gastric ulcers, perforation, or even death (4). A recent series reported that: Rapunzel syndrome accounting for 54% of the studied population; Gastric trichobezoar was found within 35% while small bowel trichobezoars were found within the 12% of the considered population. One patient, presented with massive rectal bleeding and gastric perforation, succumbed postoperatively; 1 patient developed a recurrent trichobezoar (5). A diagnostic algorithm for trichobezoars should include: (1) clinical and physical examination findings; (2) abdominal X-rays; (3) abdominal ultrasound; (4) abdominal CT/MR or explorative laparoscopy (the latter, despite more invasive, when performed as a combined procedure with endoscopy, offers the advantage to be a simultaneous diagnostic and therapeutic procedure); (5) contrast enema; (6) colonoscopy; (7) laparotomy/laparoscopy for enterotomy and bezoar removal.

Conventional laparotomy is traditionally the treatment of choice for large trichobezoars. The laparoscopic approach offers the advantages of precisely identifying the point of obstruction and, in association with the endoscopic procedures, can allow definitive extraction of the foreign body, where possible. In our case, the colonoscopy was successful in completely removing the bezoar.

Sometimes the poor general conditions of the patient do not allow a time-consuming procedure but an emergency laparotomy, and so the minimally-invasive treatment is not indicated (6).

In adults, endoscopic treatments of bezoars are reported, but only for gastric bezoars and include the use of alligator forceps, lithotripters, needle cutters, snares, and holmium:yttrium aluminum garnet laser lithotripsy (7).

At now, no reports of endoscopic treatment of colonic bezoars are reported, due to the extreme rarity of these lesions, the size as limiting factor, and the fear of spillage and peritoneal contamination if the mass would incidentally break and perforate the viscera.

Endoscopic approach gives the advantage of a reduced trauma, faster recovery, fewer complications, and low cost. Recently Huang et al (8) described a patient with a giant hard gastric bezoar that was successfully removed by combined dual knife–electric snare treatment, without any complications.

**CONCLUSIONS**

Laparo-endoscopic management of small/large bowel bezoars was feasible and effective in our case. Psychologic referral, follow-up, and support remain mandatory to prevent recurrence. This is, to our knowledge, the first-ever reported case of a giant colonic trichobezoar with near-total colonic obstruction.

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