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Case Report / Приказ случаја

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Simultaneous combined laparoscopic–endoscopic removal of a large gastric trichobezoar and gastric polypectomy

Симултано лапароскопско-ендоскопско уклањање великог гастричног трихобезоара и гастричног полипа

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SUMMARY

Introduction Appearance of trichobezoars and gastric polyps are very rare conditions in children that may pose diagnostic and therapeutic challenge.

The aim of this work is to present our successful experience using combined laparoscopic-endoscopic procedure for simultaneous treatment of trichobezoar and gastric polyp in the same patient.

Case Outline We present an unusual case of a 15-year-old girl whose symptoms included abdominal pain, non-bilious vomiting after feeding including undigested food and sometimes hair. Positive history of trichophagia indicated trichobezoar could be the reason for her problems. Endoscopy and ultrasound examination revealed a trichobezoar occupying almost entire capacity of the stomach and one oval polyp in the prepyloric area of the antrum. Simultaneous combined laparoscopic-endoscopic rendezvous procedure was performed. Trichobezoar (14x6cm) and gastric polyp (2,2x1,7cm) were completely removed laparoscopically through anterior gastrotomy, with a great support of adequate endobag and mechanical fragmentation of trichobezoar. Postoperative course was uneventful.

Conclusion This case shows that diagnostic endoscopy is valuable and combined laparoscopic-endoscopic technique is feasible, safe and recommended treatment for simultaneous removal of a gastric trichobezoar and gastric polypectomy.

Keywords: trichobezoar; gastric polyp; laparoscopy; endoscopy

САЖЕТАК

Увод Трихобезоар и гастрични полип су веома ретки у дечјем узрасту и могу представљати дијагностички и терапијски изазов.

Циљ овог рада је да се прикаже успешно искуство у примени комбиноване лапаро-ендоскопске процедуре приликом симултаног решавања трихобезоара и гастричног полипа код детета.

Приказ болесника Приказујемо 15-годишњу девојчицу са симптомима бола у трбуху, повраћања желудачног садржаја са примесама несварене хране и длака. Анамнестички податак о трихофагији указује на постојање трихобезоара као могућег узрока постојећих тегоба. Ендоскопски и ултразвучни налаз потврдили су дијагнозу. Трихобезоар заузима скоро у потпуности лумен желуца, а у препилоричној регији верификује се постојање полипа. Лапароскопско-ендоскопском тзв. „rendez-vous“ процедуром трихобезоар димензија 14х6cm и гастрични полип димензија 2,2х1,7cm су одстрањени кроз предњу гастротомiju. Примењен је ендобег а претходно трихобезоар фрагментован. Постоперативни период је протекао уредно.

Закључак Овај приказ нам показује значајне могућности комбиноване лапароскопско-ендоскопске технике као сигурног и препорученог терапијског начина у истовременом уклањању гастричног трихобезоара и гастричног полипа.

Кључне речи: трихобезоар; полип; лапароскопија; ендоскопија

INTRODUCTION

The purpose of this work is to present our positive experience using combined laparoscopic-endoscopic procedure and to review current literature in resolving joint appearance of trichobezoar and gastric polyps. A formation of undigested material in the gastrointestinal tract is bezoar [1]. In a situation of a long-term ingestion of hair i.e. trichophagia, that type of bezoar is called trichobezoar, which is at the same time the most common form of bezoars [2]. Hair cannot be digested and due to its smooth nature also cannot be propelled with peristalsis which causes formation of bezoar within the stomach over a certain period. The hair in trichobezoar always appears black because of influence of gastric acid on the hair proteins [1,3]. In the literature the association between bezoars and gastric polyps is relatively frequently described, however is not so widely appreciated. Even though biopsies of the gastric polyps usually show an inflammatory origin, in some cases their malignant alteration

was found [4]. A multidisciplinary approach with early diagnosis and surgical removal of the gastric bezoars and polyps are essential [1,3,5].

CASE REPORT

Our case was a 15-year-old girl with abdominal pain and vomiting after feeding. The vomit included undigested food and sometimes hair. Due to occasional gastrointestinal bleeding she appeared extremely pale. Her abdomen was non-distended without palpable mass. Positive history of trichotillomania and trichophagia led us to believe that trichobezoar could be the reason for her problems. Her mother noticed that she had lost weight. Laboratory values did not show any abnormalities especially serum proteins and particularly albumines, amylase and lipase levels, and reactants of acute phase of inflammation such as C-reactive proteine and erythrocyte sedimentation rate. At endoscopy and ultrasound examination a trichobezoar occupying almost entire capacity of the stomach was noted. Furthermore, one oval sessile polyp, not bleeding actively, was revealed in the prepyloric area of the antrum.

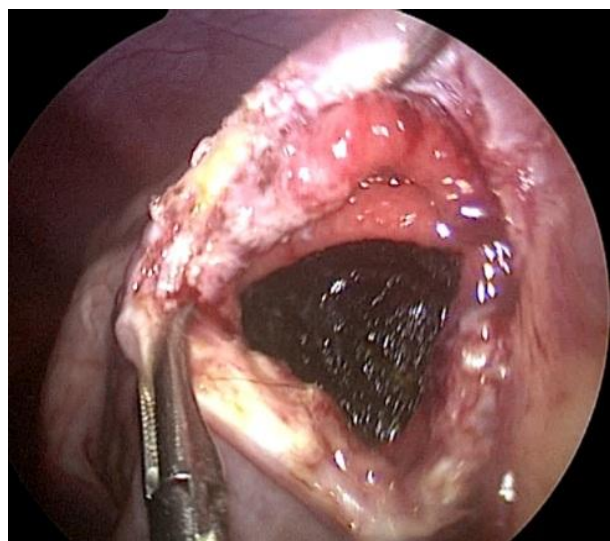


Figure 1. Trichobezoar seen through created anterior gastrotomy.

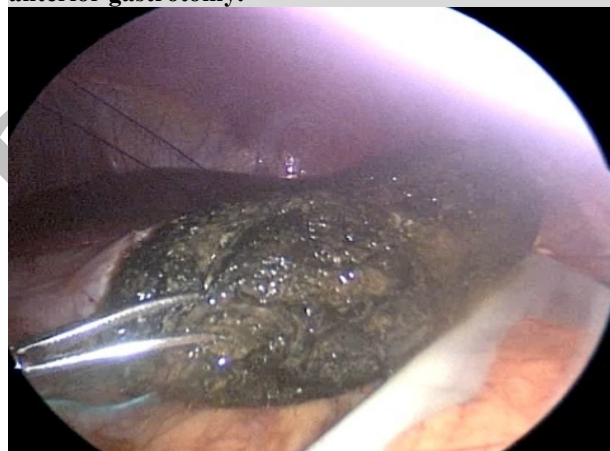


Figure 2. Removal of trichobezoar (14x6cm) from the stomach using specially modeled endobag (Endocatch^R 15x10cm).

Combined laparoscopic-endoscopic rendez-vous procedure was performed. The role of endoscopy during this „rendevouz“ procedure was to enable precise placement of gastrotomy incision, to exclude possible existence of Rapunzel syndrome, and to navigate surgeon to find gastric polyp. The most important part of endoscopy during above mentioned procedure is to control bleeding. After endoscopic navigation, laparoscopic exploration of the entire intestine was the first part of the operation. Trichobezoar (14x6cm), was completely removed laparoscopically through created anterior gastrotomy (Fig. 1), also using specially modeled endobag (Endocatch^R 15x10cm) (Fig. 2). Incision of the first umbilical port was minimally enlarged, and before complete extraction of trichobezoar from

abdomen, its mechanical fragmentation in endobag was performed without spilling into abdominal cavity (Fig. 3). The trichobezoar had a highly offensive smell which was the reason



Figure 3. Removal of trichobezoar from the abdominal cavity through enlarged umbilical port.

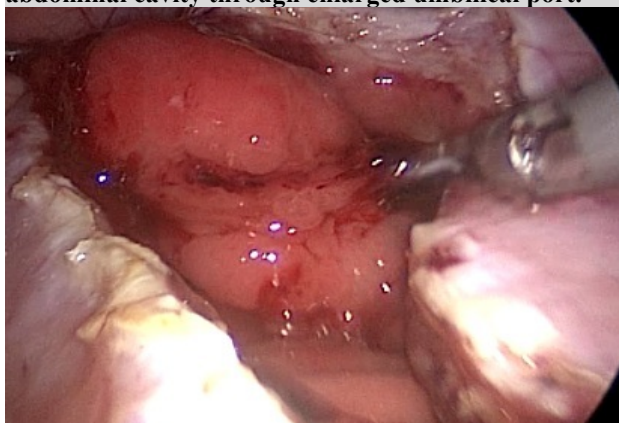


Figure 4. Gastric polypectomy (dimensions 2,2x1,7cm).



Figure 5. Omentoplasty using non-absorbable 3-0 suture.



Figure 6. The aesthetic result of the operation.

for smearing, culturing and administering antibiotics postoperatively. Additionally, gastric polypectomy (dimensions 2,2x1,7cm) was also done laparoscopically using ultracision harmonic scalpel and through the same gastrotomy (Fig. 4). After resection and exact hemostasis, polyp was removed from the abdominal cavity by placing endoscopic extraction basket (Roth Net[®]) through one of the created ports. Histopathological examination confirmed it to be hyperplastic gastric polyp.

Firstly, mucosal defect after polypectomy was sutured using absorbable sutures 4-0, afterwards gastric wall was closed by using intracorporeal suturing. Omentoplasty completed the procedure (Fig. 5). For that we used non-absorbable 3-0 interrupted suture extramucosally. The same stitches were applied for omentoplasty as well. Finally, the nasogastric tube was placed. All the time, endoscopist controls intraluminal haemostasis. Postoperative course was uneventful, per oral nutrition started after three days (Fig. 6). Gastroenterologist and psychiatrist continued the treatment.

DISCUSSION

Trichobezoars ("hair ball") are usually located in the stomach. Incidentally the gastric trichobezoar can extend through the pylorus into distal parts of gastrointestinal tract. That rare type is called Rapunzel syndrome. Between many complications of this condition, the most frequent are mucosal erosion, ulceration or even perforation of the stomach

and intestine, intestinal invagination, jaundice, pancreatitis and extremely rarely even death [1].

In children population, trichobezoars were the ones which were found in 90% of the cases. On the other hand, they are uncommon condition of which only approximately 300 cases have been reported in papers [2]. Main causes are habitual hair pulling called trichotillomania and ingestion of hair called trichophagia, which are usually related to obsessive-compulsive disorders and/or depression [2]. In our case the child was not controlled preoperatively by a psychiatrist. Physicians should always keep in mind the possibility of bezoars formation especially after gastric surgery, in case of celiac disease, diabetes mellitus, myotonic muscular dystrophy, cimetidin therapy etc [1,2,6]. In our case, positive history of trichophagia and visible weight loss pointed us to right direction in diagnosis and appropriate treatment.

Standard clinical findings are usually non-specific. In literature Lamerton's sign, large mobile epigastric mass, is described as a typical clinical manifestation. It is clear that it may pose a diagnostic challenge when during clinical examination it is not found [1].

Ripolles et al. compared conventional abdominal radiographs, sonography, and computed tomography (CT). Typical CT image showing a well-defined intraluminal ovoid heterogeneous mass with interspersed gas [2, 4]. However, endoscopy is essential and the best choice in the diagnosis [7]. In our case, sonography and endoscopy revealed huge trichobezoar and polypoid mass in the antrum of the stomach.

The endoscopist should closely monitor if the pylorus is normal and that there is no distal obstruction. It is well-known that in 17% of cases, trichobezoar can be multiple. Also, distal migration of the subsidiary fragments may cause complete or incomplete small bowel obstruction [7]. That is the reason why the entire digestive tract should be examined thoroughly to prevent secondary ileus [8]. We also started the operation with endoscopic navigation and laparoscopic exploration of the entire intestine.

Current data propose for therapy many solutions such as endoscopy, standard laparotomy, minimal invasive surgery, and even ineffective medical treatment with enzymatic degradation [1, 2, 8, 9].

Many authors suggest standard open surgery as appropriate treatment for the children with trichobezoars, because of the better results of this method in comparison with endoscopy and laparoscopy [1, 10]. Occasional reports inform about new therapeutical methods like extracorporeal shock wave lithotripsy, laser, and combination of endoscopy and laparoscopy. The last report from China even claimed 100% success in resolving trichobezoar using new „explosive“ technique through the endoscope [6]. However, clinical experience is still modest for their promotion or suggestion.

Except removal by conventional laparotomy, in some papers, a minimal invasive approach, such as laparoscopy is also proposed. Nirasawa and al. reported successful laparoscopic removal of trichobezoar for the first time. After that presentation only six other similar reports were published

[9]. Still, progression in laparoscopic technique, in general and peculiarly for removal of trichobezoar, and exploration of the entire intestine is not so easy to achieve [12].

Despite the fact that literature describes combined laparoscopy and endoscopy in the management of trichobezoar, there is only one publication addressing this combined technique for the same pathology. [12] We have been used this technique at our Institute since 2009.

Particularly limiting factor for complete laparoscopic or combined laparo-endoscopic procedure is the size of a trichobezoar. In our case, the largest available endobag diameter 15x10cm allowed laparoscopic removal of a trichobezoar. However, to prevent abdominal contamination it was necessary to gently pull trichobezoar from the stomach into the endobag. Also, the only way to insert trichobezoar into endobag was to pull it down and place it in its width. In the literature, minimal and maximal dimensions of gastric bezoars are 6x6x5cm to 15x10x10cm, and for intestinal 3x3x4cm to 4x7x7cm [7]. Specified sizes of trichobezoars allow their placement in the industry standardized and commercially available endobags. This is also important because laparoscopic approach in trichobezoar's treatment may seem less attractive due to possible spilling of contaminated hair into abdominal cavity [8]. As it is well-known that wound infection even after conventional laparotomy is a frequent complication the rule that bacteriological analysis of trichobezoar is mandatory is established [7, 8]. Postoperative administration of antibiotics is a must [8]. Trichobezoar recurrence is additionally described complication and can occur if the underlying psychological condition is not treated [6, 7].

Bates et al. claimed that formation of gastric polyps is a result of chronic irritation of the gastric mucosa by the bezoars [5]. In our case, histopathological analysis confirmed hyperplastic character of extirpated polyp.

Our first successful result using combined laparoscopic-endoscopic procedure gave us hope that it is safe and optimal therapy combining minimal invasiveness with optimal efficiency. Only one similar therapeutical approach can be found in current literature, where trichobezoar fragmentation was made laparoscopically while endoscopy was used for removal of the fragments [10, 12]. Whenever we have information about trichotillomania and triphophagia it is advisable to perform endoscopic examination.

A combined laparoscopic-endoscopic technique is feasible and recommended treatment for simultaneous removal of a gastric trichobezoar and gastric polypectomy.

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