

Release of obstructing rectal cuff following transanal endorectal pullthrough for Hirschsprung's disease: a laparoscopic approach

Sameh Abdel Hay, Ihab El Shafei, Mohamed El Debeky and Ahmed Bassiouny

Obstructive problems secondary to a tight or a long rectal cuff following transanal endorectal pullthrough for Hirschsprung's disease usually require redo surgery for release. Many approaches have been described. We describe the laparoscopic approach for the release of a tight or a long rectal cuff in two cases after a transanal endorectal pullthrough. Two patients had obstructive symptoms after transanal endorectal pullthrough for Hirschsprung's disease. The first patient had a long rectal cuff that caused severe constipation with severe straining on defecation and the second patient had recurrence of symptoms with failure of spontaneous defecation with the need for an enema or a rectal tube for evacuation. A laparoscopic excision of the long rectal cuff was performed in the first patient and incision of the tight rectal cuff in the second patient. In both patients, the obstructing symptoms were because of a rectal cuff that was long in the first case and tight in the second. The procedure was completed

laparoscopically with relief of symptoms and acquisition of normal defecation immediately after surgery. Approach of the rectal cuff was possible using laparoscopy and this technique facilitates release or excision of the rectal cuff when it causes obstructing symptoms without the need for extensive surgery and without the risk of causing fecal incontinence or wound disruption or infection using other more complicated techniques. *Ann Pediatr Surg* 8:90–92 © 2012 Annals of Pediatric Surgery.

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Pediatric Surgery Unit, Department of Pediatric Surgery, Ain Shams University, Cairo, Egypt

Correspondence to Sameh Abdel Hay, MD, 1, Elmokades El kabary street, Nasr City 11147, Cairo, Egypt
Tel: +20 1222 176 112; e-mail: samehhay@yahoo.com

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Introduction

Transanal endorectal pullthrough (TEPT) has been widely adopted for the treatment of Hirschsprung's disease (HD) [1]. The majority of outcomes are excellent; however, complications requiring surgical intervention, such as recurrent obstruction and coloanal anastomotic leak, have been reported [2,3]. Recurrent obstruction can arise from mechanical or functional causes. Narrowing of the residual cuff and coloanal anastomotic stenosis are listed as causes of the former [4], whereas pullthrough of the transitional zone, acquired aganglionosis, and concomitant intestinal neuronal dysplasia are listed as causes of the latter [5]. We report two cases of HD treated by TEPT referred from another center, with persistent signs of obstruction postoperatively, caused by a long rectal cuff in the first and a tight rectal cuff in the second, both treated by laparoscopic approach after the approval of the review board.

Case 1

A 3-month-old boy underwent TEPT for rectosigmoid HD. Immediately after surgery, he was passing six to eight motions daily for 3 days that decreased to two motions afterwards. After 3 weeks postoperatively, he developed constipation and needed suppositories for rectal evacuation and he developed abdominal distension and signs of enterocolitis that was treated by a saline rectal wash with rectal tube evacuation in conjunction with parenteral antibiotics. Per rectum (PR) examination at that time showed sound anastomosis without stricture and a tight ring felt 4 cm from the anal verge. Regular dilatation was initiated using Hegars' dilator but without a good response and he needed a rectal enema for the

evacuation and intermittent insertion of a rectal tube. Barium enema was performed (Fig. 1), showing abrupt arrest of the dye at the lower rectum. Rectal biopsy showed normal ganglia. After the failure of a conservative treatment to cure the condition, we decided to explore initially by laparoscopy to determine whether the cuff could be visualized from above and, if so, whether a laparoscopic incision can be completed.

Laparoscopy indicated a thick, tight rectal cuff seen around the pulled colon and the cuff was identified and incised posteriorly until its lowermost part could be seen during the procedure (Fig. 2). PR examination after cuff incision showed the release of the constriction ring and, after surgery, the patient had normal evacuation, with passing of two to three motions per day spontaneously.

Case 2

A 9-month-old girl underwent TEPT for rectosigmoid-type HD. She had a smooth postoperative course, passing stools spontaneously two to three times per day. After 10 days, she began showing severe straining on defecation. The mother noticed that the straining was increasing and became distressing. Examination indicated a normal abdomen without distension, and PR examination showed sound anastomosis with a loose ring felt 6 cm from the anal verge. Rectal biopsy taken from the pulled colon indicated the presence of normal ganglia, and barium enema indicated a narrow lower end of the pulled colon.

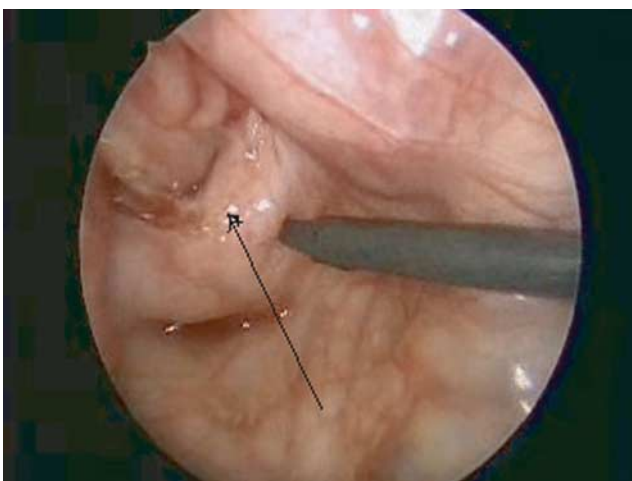
Laparoscopy showed a long rectal cuff that was incised anteriorly and 2 cm width was excised until its lowermost part could be seen at laparoscopy (Fig. 3).

Fig. 1



Barium enema, the arrow indicate the site of tight rectal cuff.

Fig. 2

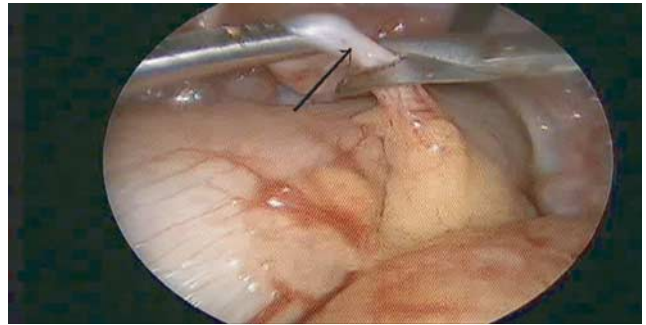


Laparoscopic view, the arrow indicates the upper edge of thick rectal cuff tight rectal cuff.

After surgery, the patient showed amelioration in symptoms, with disappearance of straining.

In both cases, the laparoscopic procedure was carried out with the patient in a supine position with the head tilted down. Four 5 mm ports were used: one in the umbilicus for the camera, one port in the left iliac fossa for

Fig. 3



Laparoscopic view, the arrow indicate the edge of the long rectal cuff.

retraction of the sigmoid colon, and two working ports: one in the left hypochondrium in the midclavicular line for atraumatic tissue grasping forceps and the second in the right iliac fossa for a scissors connected to diathermy. The cuff was identified and cut strictly in the midline posteriorly or anteriorly, avoiding the important related structure (the ureters and the large pelvic vessels). A clear plane was evident in both cases between the cuff and the pulled colon without any adherence. The operative time was 45 min in the first case and 30 min in the second case, and the procedure was completed safely without blood loss.

Discussion

In some cases, a child may show a good response to surgery and then develop obstructive symptoms later. This may indicate the presence of complications and this was clear in our report. The major reasons for persistent obstructive symptoms after a pullthrough are because of mechanical obstruction, persistent or acquired aganglionosis, and colonic motility disorder [6,7]. In our report, both patients had obstructive symptoms secondary to cuff problems. The first patient had a tight cuff and the second patient had a long cuff. The diagnosis can be made by a rectal examination and barium enema. A biopsy was performed and showed the presence of normal ganglia. Anastomotic leakage, stenosis, and cuff abscess were unlikely to be the causes because the anastomosis as felt by a rectal examination was sound and the narrowing was located cranial to the coloanal anastomotic site. A similar case, in which cuff folding led to severe post-operative constipation, has been reported recently, and was treated using a posterior sagittal approach [8]. This involves incision of the entire muscle complex, with a risk of wound infection, disruption, or fibrosis. The use of laparoscopy has the advantage of initial confirmation of the diagnosis and proper visualization of the rectal cuff, which can be incised or excised either anteriorly or posteriorly. A similar case treated by laparoscopy has been reported [9], and we report two additional cases with dealing of the obstructing cuff according to the ease of approaching it either anteriorly or posteriorly, avoiding injury of the pulled colon and to ensure complete cuff release guided by a simultaneous rectal examination. The

procedure was completed by laparoscopy in both cases, with clear visualization of the cuff, which was incised posteriorly in the first case and anteriorly with an excision of 2 cm width strip in the second case. Both patients responded well after surgery and showed amelioration in their symptoms. Although we attempted to manage our case conservatively with bowel irrigations, laxatives, and mechanical dilatation, redo surgery was required.

We decided to approach the rectal cuff transabdominally using laparoscopy that allowed very clear visualization of the cuff. A laparoscopic incision of the tight cuff or its excision was possible and easy, and the posterior sagittal approach could be avoided. On follow-up for more than 2 years, both patients are doing well, with satisfactory bowel function.

Conclusion

A long cuff or reapproximation and/or folding of the rectal cuff following trans anal endorectal pull through for HD may lead to postoperative obstruction and can be managed using various techniques [10]. In this report, this complication can be managed safely by cuff myectomy using a laparoscopic approach. To prevent this complication, we strongly suggest not only shortening the rectal cuff but also near-total excision of its posterior aspect during initial surgery.

Acknowledgements

Conflicts of interest

There are no conflicts of interest.

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