SciMedCentral

Archives of Emergency Medicine and Critical Care

Case Report

Combination of Altemeier's Procedure and the Laparoscopic Sugarbaker Modified Technique to Repair End Colostomy Prolapse (ECP) and Parastomal Hernia (PSH)

Elie Chelala* and Elias Adam

Centre Hospitalier Universitaire Notre Dame de Secours, Byblos, Lebanon

***Corresponding author**

Elie Chelala, Centre Hospitalier Universitaire Notre Dame des Secours- Affiliated to USEK, Byblos, Lebanon, Tel: +961.9.940438; Email: cheli@skynet.be

Submitted: 07 February 2017

Accepted: 21 February 2017

Published: 22 February 2017

Keywords

- Altemeier's technique
- End colostomy prolapse
- Parastomal incisional hernia
- Laparoscopy Sugarbaker

Abstract

Introduction: Stoma Prolapse and Parastomal Incisional Hernia are both, separately, very common complications after end colostomies. However, their simultaneous occurrence is rare and, to our knowledge, combining Altemeier's procedure and Laparoscopic Sugarbaker modified technique has yet to be reported for an end colostomy related complications.

Materials & methods: In this case report, we detailed a 61 year-old morbidly obese man who suffered from a prolapsed End Colostomy, 1.5years post APR, associated to a Parastomal Incisional Hernia. The patient underwent a combination of the Altemeier's technique of mucosal and colic resection, external closure of the defect, followed by a laparoscopic Sugarbaker modified technique using a specific Parastomal Parietex composite® mesh for reinforcement. Recovery was uneventful.

Discussion: Several techniques are reported in the literature to treat separately these types of related colostomy complications but unfortunately there are no standardized guidelines for the tailored surgical treatment.

Conclusion: The aim of this case report is to highlight the existence of this rare association, and its successful combined surgical treatment.

ABBREVIATIONS

ECP: End Colostomy Prolapse; AT: Altemeier's Technique; PHR: Parastomal Hernia Repair APR: Abdomino Perineal Resection; LSMT: Laparoscopic Sugarbacker modified Technique

INTRODUCTION

End Colostomy Prolapse (ECP), and Parastomal Hernia (PSH) are very common late complications following a permanent colostomy. The incidence of occurrence varies from 2-12% and 0-48% respectively, depending on the length of follow-up [1,2]. Indications for surgery are incarceration, obstruction, pain, mucosal ulceration or skin irritation with subsequently inappropriate fixation of the "ostomy-bag". Various techniques of repair, operated separately, have been reported in the literature. They vary from a simple resection under local anesthesia to mesh repair, with the Sugarbaker modified technique being preferred for PSH repair.

We present this tailored procedure combining both Altemeier's (AT) and the Laparoscopic Sugarbacker Modified Techniques (LSMT). This combination has yet to be described in the literature, as a combined procedure to repair ECP and PSH.

MATERIALS AND METHODS

A 61 year-old morbidly obese patient was admitted 1.5-years after APR for a low rectal cancer, presenting an end colostomy with a 15cm length prolapsed, associated to a Parastomal hernia (Figure 1). His major complaints were intestinal sub occlusion, pain and bleeding by mucosal erosion, which necessitated a

surgical intervention. Under general anesthesia, a laparoscopic exploration using 3 trocars was undertaken. The patient underwent a prolapsed repair first, by an adapted Altemeier's procedure consisting of a full thickness circumferential electrocautery incision on the mucosa of the bowel prolapsed 5mm from the skin. Incision was pursued on Lortat-Jacob clamp separating the space between the 2 layers of the prolapsed bowel (Figure 2). The everted colon was exteriorized through the colostomy opening and transected at the level of the skin after ligation of the feeding vessels (Figure 3). Closure of the defect longitudinally was executed by 2 "figure of 8" stitches of unresorbable monofilament. 4 cardinal resorbable stitches anchoring the colic serosa to the anterior fascia were placed. The new end stoma was fashioned on skin with absorbable eversion sutures (Figure 4). The second part was to lateralize the left colon by laparoscopy and apply the intraperitoneal Onlay prosthesis reinforcement with a specific Parastomal composite mesh 20cm® (Medtronic-USA) as the Sugarbacker modified technique. The trans-facial sutures were placed on the fourth side to allow the mesh to encompass the stoma while allowing the colon to exit through the created mesh flap-valve. Additional resorbable takers were applied to anchor the mesh anteriorly (Figure 5). The recovery was uneventful and patient was discharged at 2nd post-operative day. The last follow up at 6 months was excellent.

DISCUSSION

Stoma prolapse is defined as a full thickness protrusion of the intestine through the stoma and is considered as a late complication following a colostomy. ECP incidence varies from 2-11.8% in the study of Londono-Schimmer [3]. Many risk factors may cause PSH, including obesity, wide opening on the site of stoma, redundant loop bowel proximal to the stoma, increased intraabdominal pressure (IAP), and chronic obstructive pulmonary disease. In our patient, the contributing factors were morbid obesity and heavy work, consistently increasing his IAP. The indication for surgery was brought about by his complaint of intestinal sub occlusion, pain on the site of stoma related to his parastomal herniation and existing ulcerations on the prolapsed mucosa with inadequate appliance of his "ostomy-bag". A review of the literature shows that conservative measures used for ECP,

Figure 1 End colostomy with a 15cm length prolapsed, associated to a Parastomal hernia.

Figure 2 Lortat-Jacob clamp separating the space between the 2 layers of the prolapsed bowel.

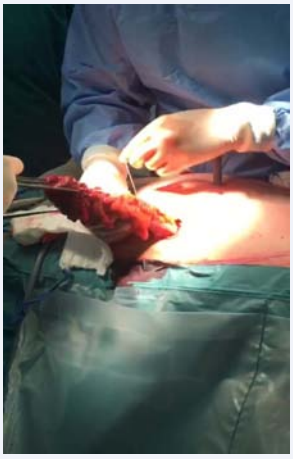

Figure 3 Colostomy opening after ligation of the feeding vessels.

result in recurrence in the majority of cases. However, a variety of surgical conventional techniques involving laparotomy were selectively used to excise the prolapsed bowel, with either the Delorme's or stapling device excision described by Masumori [4,5]. These techniques showed fairly good results where no concomitant edema or ischemia of the prolapsed bowel occurred. Recently, Bulut has reported his series of 10 patients with full thickness ECP, who benefited successfully under local anesthesia of the adaptation of Altemeier's procedure, with 2/10 recurrences occurring at 3rd and 5th post-operative month [6]. We reproduced this AT with a minimally invasive procedure through the same stoma orifice, which was facilitated by laparoscopic adhesiolysis.

Parastomal hernia is a frequent late complication that may occur within 2 years after fashioning an end colostomy, at an incidence of 30-50 % [7]. The overall results and comparison of open repairs versus relocation to the laparoscopic keyhole, Sugarbaker or Sandwich technique, were in favor of the

Figure 4 End stoma with absorbable eversion sutures.

Figure 5 A specific Parastomal composite mesh 20cm® (Medtronic-USA) by using the Sugarbacker modified technique.

laparoscopic Sugarbaker modified technique. This procedure resulted in less morbidity and better outcomes in terms of recurrence in 6,6% of patients with a mean follow-up of 26 months, as reported by Hansson and by DeAsis, in 16% with a mean follow-up of 17months [8,9]. In light of the reported best outcomes technique, and of our large experience in laparoscopic ventral hernia repair (LVHR) with composite meshes, we have chosen to associate the anterior closure of the defect with non-resorbable monofilament prior to the LSMT. Mesh reinforcement is highly recommended in LVHR for morbidly obese patients. Therefore, we applied this adapted double-protected collagen macroporotic intraperitoneal composite mesh with a large overlap, which reduced the potential risk of recurrence and minimized morbidity.

In absence of standardized guidelines for the best surgical approach for each pathology, we found that a tailored combination of both techniques, in a risky symptomatic patient that presents with concomitant complications, was the ideal repair using a minimal invasive approach, to minimize risk of recurrence.

As PSH is an almost inevitable consequence of stoma formation, a prophylactic mesh placement at the time of fashioning the stoma is now being associated with a significant reduction in the incidence of parastomal hernia and reoperation [10].

CONCLUSION

The association of an end colostomy prolapse with a parastomal hernia in obese patients is a frequent late complication. The combination of the adapted Altemeier's and Laparoscopic Sugarbaker modified techniques is safely reproducible and a successful treatment.

REFERENCES

1. Stelzner S, Hellmich G, Ludwig K. Repair of Paracolostomy Hernias with a prosthetic mesh in the intraperitoneal onlay position: Modified Sugarbacker Technique. Dis Colon Rectum. 2004; 47: 185-191.
2. Shellito PC. Complications of abdominal stoma surgery. Dis Colon Rectum. 1998; 41:1562-1572
3. Londono-Schimmer EE, Leong APK, Philips RKS. Life table analysis of stomal complications following colostomy.Dis Colon Rectum 1994; 37: 916-920.
4. Marrosu A, Paliogiannis P, Sassu MA, Attene F, Trignano M. Correction of an end colostomy prolapse with the Delorme technique Ann.Ital. Chir. 2012; 83: 567-569.
5. Masumori K, Maeda K, Koide Y, Hanai T, Sato H, Matsuoka H, Katsuno H, Noro T. Simple excision and closure of a distal limb of loop colostomy prolapse by stapler device. Tech Coloproctol 2012; 16: 143-145.
6. Bulut O. The adaptation of Altemeier's procedure to treat end colostomy prolapse: A simple option for day surgery Ambulatory surgery. 2013; 19: 4-6.
7. Nilay S, Randall C, Kristi H. Parastomal Hernia Repair. Surg Clin Am. 2013; 98: 1185-1198.
8. Hansson BM, Morales-Conde S, Mussack T, Valdes J, Muysoms FE, Bleichrodt RP. The Laparoscopic modified Sugarbaker technique is safe and has a low recurrence rate: a multicenter cohort study. Surg Endosc. 2013; 27: 494-500.
9. DeAsis FJ, Linn JG, Lapin B, Denham W, Carbray JM, Ujiki MB. Modified Laparoscopic Sugarbaker repair decreases recurrence rates of parastomal hernia. Surgery. 2015; 158: 954-961.
10. Wang S, Wang W, Zhu B, Song G, Jiang C. Efficacy of Prophylactic mesh in End-Colostomy construction: A systematic Review and meta-analysis of randomized controlled trials. World J Surg. 2016; 40: 2528-2536.

Cite this article

Chelala E, Adam E (2017) Combination of Altemeier's Procedure and the Laparoscopic Sugarbaker Modified Technique to Repair End Colostomy Prolapse (ECP) and Parastomal Hernia (PSH). Arch Emerg Med Crit Care 2(1): 1021.