

TRANSANAL DRAINAGE OF ANASTOMOTIC LEAK FOLLOWING LOW ANTERIOR RESECTION- A NOVEL TECHNIQUE

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ABSTRACT

BACKGROUND

Anastomotic leaks after low anterior resection following rectal cancer is the major cause for morbidity and mortality. Various techniques for the conservative management of localised abscesses have been reported, but with variable results. Hence, in search of a new technique to treat anastomotic leak following low anterior resection, which is cost-effective and has good results.

MATERIALS AND METHODS

This study is a retrospective review of a prospectively maintained data of a novel technique to treat anastomotic leaks after low anterior resection with proximal diverting ileostomy in a single institution.

RESULTS

A total of 40 patients who underwent low anterior resection with diversion ileostomy for rectal cancer were studied. In them, 6 patients developed Grade B anastomotic leak, which were managed by this novel technique of paediatric endoscopic-guided transanal drainage of anastomotic leak following low anterior resection with diversion ileostomy using a 3-way Foley catheter. All the patients responded well, thus leading to local control of the septic foci without the need for any further radiological intervention or a laparotomy. This lead to salvaging the anastomosis. Out of the 6 patients managed by this technique, one patient developed stricture, which was managed by CRE balloon dilatation. All patients underwent stoma closure after a median postoperative time of 7 months.

CONCLUSION

Under paediatric endoscopic guidance, transanal drainage of anastomotic leak with an abscess cavity using a 3-way Foley catheter after low anterior resection with double-staple technique prevents further disruption of the anastomosis and local irrigation leads to faster sepsis control thus avoiding the morbidity of relaparotomy. This technique being a bedside procedure is cost-effective and feasible. This leads to good salvage of anastomosis along with early stoma closure and good long-term functional results.

KEYWORDS

Anastomotic Leak, Low Anterior Resection, Transanal Drainage, Stoma Closure Rates.

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BACKGROUND

Anastomotic Leakage (AL) after colectomy is one of the major complications in colorectal surgery and can result in the need for additional surgery, prolonged hospital stays, increased morbidity and mortality and possibly a poorer oncological prognosis.¹ AL occurred in 1% to 21% of individuals with Anterior Resection (AR) for rectal cancer as reported in several clinical trials.^{2,3} However, incidence and

mortality up to 30%^{4,5} have been reported in rectal surgery. A combination of anatomical inaccessibility, less than optimal blood supply and tightly closed anal sphincter are likely to be contributory factors. In addition, leakage after low anterior resection in patients with cancer may be associated with a higher local recurrence rate and a worse outcome.⁶⁻⁷ It is a devastating complication that may result in severe sepsis requiring emergency surgery and it can also be associated with prolonged hospital stays, considerable costs, multiple morbidities and poor functional outcomes. Early diagnosis of an AL is crucial for the prevention of mortality.⁸⁻⁹

Abscesses are often localised in the pelvis after LAR (low anterior resection). Various techniques for the conservative management of localised abscesses have been reported including CT-guided percutaneous drainage and endoluminal vacuum therapy.¹⁰ There are many local treatment

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modalities including transanal or percutaneous drainage of the pelvic collection or newer techniques such as Endo-SPONGE therapy, endoscopic stenting or endoscopic clip placement, but none are efficacious. All of these techniques mentioned in the literature have variable results. Through this article, our aim is to describe another local modality to treat AL following LAR with good outcomes. Here, we describe a novel technique of transanal drainage, an easy and cost-effective bedside procedure for symptomatic anastomotic leak in which the pelvic abscess is drained through the anastomotic dehiscence under paediatric endoscopic guidance. The aim of this study is to introduce this novel technique as an addition to the existing knowledge of treatment of AL post LAR and to analyse the efficacy of transanal drainage under the guidance of a paediatric endoscope as a treatment of localised anastomotic leakage after LAR.

AIMS AND OBJECTIVES

Aim of this study is to describe a novel technique of paediatric endoscopic-guided transanal drainage of anastomotic leak with a collection following low anterior resection and also to assess its feasibility, effectiveness along with short-term outcomes.

MATERIALS AND METHODS

All patients who developed AL following LAR during the study period between January 2013 and March 2016 in Department of Surgical Gastroenterology, Bangalore Medical College and Research Institution were analysed. Anastomotic Leakage (AL) was defined as a defect of the intestinal wall at the anastomotic site leading to a communication between the intra- and extra-luminal compartments. Severity of anastomotic leakage was graded according to the impact on clinical management. Grade A anastomotic leakage results in no change in patients' management, whereas grade B leakage requires active therapeutic intervention, but is manageable without re-laparotomy. Grade C anastomotic leakage requires re-laparotomy.¹¹

Inclusion and Exclusion Criteria

All patients who developed AL were analysed and all these patients underwent CECT abdomen and pelvis with rectal contrast. Leak was demonstrated by extravasation of the contrast outside the lumen. The grading of the leak was done using the ISGRC 2010 consensus and patients who had grade B leak were included under the study group. Patients who had grade A and grade C leaks were excluded from the study group and managed accordingly, Grade A patients were managed using antibiotics and Grade C patients underwent relaparotomy and wash, additional procedure if required.

Methodology

In our study, a paediatric upper GI endoscope was used to do colonoscopy, which was gently passed per anally and the anastomotic site was visualised for any disruption in all

patients suspected to have AL demonstrated on CECT by extravasation of contrast outside the intestinal lumen and also for any ischaemic area at the perianastomotic area demonstrated by blue to black discoloration of the mucosa. A 3-way 18-F Foleys catheter was inserted across the disrupted area into the abscess cavity under endoscopic vision as illustrated in the Figure 2. After the placement of the Foleys catheter, the bulb was inflated under vision such that the Foleys bulb remains in the abscess cavity, this prevented the Foleys catheter from slipping out. Irrigation with normal saline was started at 50 mL/hr. and the returns are assessed so that irrigation fluid is not collecting inside. The inflated Foley's catheter is left in situ and the irrigation is repeated 8th hourly with 200 mL normal saline. Irrigations are done till the returns are clear. Foleys removed after deflating the bulb and repeat check colonoscopy is done using the same paediatric upper GI endoscope to look for clearance of the cavity and assess the healing.

A total of 40 patients underwent low anterior resection for rectal cancer during the study period with double staple technique anastomosis. Out of the 40 patients who underwent LAR 6 patients developed symptomatic anastomotic leaks (Grade B), which were included in the study. Anastomotic leaks suspected were evaluated with CECT abdomen with both oral and rectal contrast. The leaks were extraperitoneal pelvic leaks in all the patients. A novel technique of transanal drainage under paediatric endoscopic guidance with a 3-way Foley catheter was done to drain the collections in this group of patients.

Outcome Measures

The primary outcomes, which were measured were mortality attributed to the leak, sepsis control, stoma closure rate and functional results.

RESULTS

Among the 40 patients undergoing low anterior resection during the study period, 6 patients developed symptomatic anastomotic leaks (15%). Laparoscopic resection was done in 20 patients and open surgery in 10 patients. Leak rate was not statistically significant in both groups, 4 in laparoscopic group and 2 in the open group. The leaks manifest within 1 week after the surgery with mean of 5 days. All the patients responded well by using this technique of endoscopic-guided transanal anastomotic drainage of collection using Foley catheter leading to local control of the septic foci without the need for any further radiological intervention or a relaparotomy, which was well documented. The documentation was based on clinical, radiological and colonoscopic parameters. Clinically, all these patients showed improvement in their general well-being, sense of improved appetite and biochemically decrease in the leucocytosis and tachycardia. Radiologically, there was reduction in the abscess cavity and collection size. This lead to salvaging the anastomosis without the need for relaparotomy and taking down of the anastomosis. Out of the 6 patients managed by paediatric endoscopic-guided transanal drainage of the abscess cavity, one patient

developed stricture, which was managed by CRE balloon dilatation. All the patients had the diverting stoma closed at a median postoperative time of 7 months.



Figure 1. Anastomotic Disruption Site

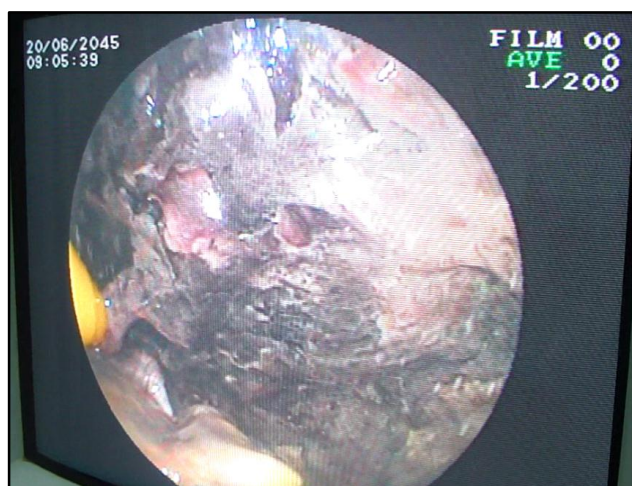


Figure 2. Collection Cavity

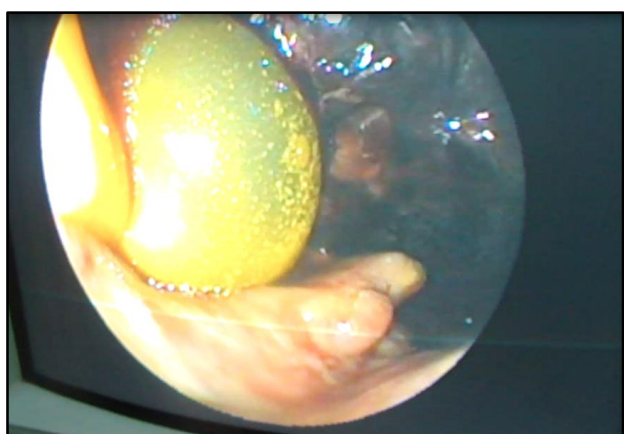


Figure 3. Inflated Foley's Catheter in the Cavity

DISCUSSION

AL has been well known as a predominant cause of morbidity and mortality after LAR.¹² In addition, some authors also reported that leakage impaired long-term prognosis of patients with rectal cancer in addition to the adverse effect

on late functional results, particularly when operative re-intervention was required.¹³ However, there has been no consensus on the management of the low colorectal anastomotic leak. Currently, operative procedures are reserved for patients with frank purulent or feculent peritonitis and unstable vital signs and vary from simple fecal diversion with drainage to resection of the anastomosis and closure of the rectal stump with end colostomy (Hartmann's procedure). However, if the patient is stable and the leak is identified days or even weeks postoperatively, less aggressive therapeutic measures may result in healing of the leak and salvage of the anastomosis. For subclinical leaks or those that persist after the initial surgery, many interventional methods such as percutaneous drainage of the pelvic collection and endoluminal approaches including injection of fibrin sealant, use of endoscopic clips or transanal closure of the very low anastomosis are available. These newer techniques have variable success rates with higher cost.¹⁴ Hence, in search of a new cost-effective and feasible technique, we have used this method of paediatric upper GI endoscopic drainage of anastomotic leak abscess cavity following LAR. A paediatric upper GI endoscope was used because of its smaller caliber (5 mm), which aided in easy visualisation of the anastomotic disruption site and the abscess cavity. The smaller diameter of the paediatric upper GI endoscope is an advantage over a normal adult colonoscope or an upper GI endoscope, so used in our study. Introducing a 3-way Foley's catheter under vision is safer than blind introduction or under proctoscopy guidance as mentioned in few of the studies done before. These above factors, i.e. using a smaller diameter paediatric upper GI endoscope and introduction under vision into the abscess cavity facilitate the drainage technique to be done safely without causing more disruption of the anastomosis along with correct placement of the drainage tube. The 3-way Foley catheter has a separate irrigation channel, which can be used for continuous irrigation along with monitoring the output at the same time. Hence, it has a greater advantage over the previously used techniques of stents and tubes to drain the abscess cavity. Hence, this novel technique of paediatric endoscopic-guided transanal drainage of the anastomotic leak for an abscess cavity is a contribution to the existing knowledge of treating AL, which is a safe technique. This technique is also cost-effective and bedside procedure with good control of sepsis avoiding morbidity of relaparotomy and thus resulting in increased stoma closure rate and good long-term functional results.

CONCLUSION

AL after LAR is one of the major complications in colorectal surgery. This leads to high morbidity and mortality if not treated effectively. Although, not uncommon, anastomotic leaks after LAR may have a lethal outcome. There has been no consensus on the management of the low colorectal anastomotic leak. Many interventional methods are available ranging from percutaneous drainage to many endoluminal approaches. None being completely effective with variable success rates. This novel technique of paediatric endoscopic-

guided transanal drainage of the anastomotic leak collection using 3-way Foley catheter has good success rates performed as a bedside procedure, which is cost-effective and feasible, thus leading to good salvage of anastomosis along with early stoma closure and good long-term functional results.

REFERENCES

- [1] den Dulk M, Marijnen CA, Collette L, et al. Multicentre analysis of oncological and survival outcomes following anastomotic leakage after rectal cancer surgery. *Br J Surg* 2009;96(9):1066-1075.
- [2] Akagi T, Inomata M, Etoh T, et al. Multivariate evaluation of the technical difficulties in performing laparoscopic anterior resection for rectal cancer. *Surg Laparosc Endosc Percutan Tech* 2012;22(1):52-57.
- [3] Maggiori L, Bretagnol F, Lefèvre JH, et al. Conservative management is associated with a decreased risk of definitive stoma after anastomotic leakage complicating sphincter saving resection for rectal cancer. *Colorectal Dis* 2011;13(6):632-637.
- [4] Kingham TP, Pachter HL. Colonic anastomotic leak: risk factors, diagnosis, and treatment. *J Am Coll Surg* 2009;208(2):269-278.
- [5] Goulb R, Goulb RW, Stein HD, et al. A multivariate analysis of factors contributing to leakage of intestinal anastomoses. *J Am Coll Surg* 1997;184(4):364-372.
- [6] Jung SH, Yu CS, Choi PW, et al. Risk factors and oncologic impact of anastomotic leakage after rectal cancer surgery. *Dis Colon Rectum* 2008;51(6):902-908.
- [7] Law WL, Choi HK, Ho JW. Anastomotic leakage is associated with poor long term outcome in patients after curative colorectal resection for malignancy. *J Gastrointest Surg* 2007;11(1):8-15.
- [8] Longo W, Northover J. Reoperative colon and rectal surgery. London, UK: Taylor and Francis Group 2003.
- [9] Mileski WJ, Joehl RJ, Rege RV, et al. Treatment of anastomotic leakage following low anterior colon resection. *Arch Surg* 1988;123:968-970.
- [10] Weidenhagen R, Gruetzner KU, et al. Endoluminal vacuum therapy for the treatment of anastomotic leakage after anterior rectal resection. *Rozhl Chir* 2008;87(8):397-402.
- [11] Rahbari NN, Weitz J, Hohenberger W, et al. Definition and grading of anastomotic leakage following anterior resection of the rectum: a proposal by the International Study Group of Rectal Cancer (ISGRC) Surgery 2010;147(3):339-351.
- [12] Schmidt O, Merkel S, Hohenberger W. Anastomotic leakage after low rectal stapler anastomosis: significance of intraoperative anastomotic testing. *Eur J Surg Oncol* 2003;29(3):239-243.
- [13] Ptak H, Marusch F, Meyer F, et al. Impact of anastomotic leakage on oncological outcome after rectal cancer resection. *Br J Surg* 2007;94(12):1548-1554.
- [14] Blumetti J, Abcarian H. Management of low colorectal anastomotic leak: preserving the anastomosis. *World J Gastrointest Surg* 2015;7(12):378-383.