



Original Article

A novel approach to lower rectal anastomosis: technique innovation and the preliminary report of twenty cases



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ABSTRACT

Background and aims: To describe a practical technique innovation (transanal 'Pull-through' approach) as a feasible, safe and effective alternative to the conventional transabdominal stapler low rectal anastomosis in lesions of minimal anatomical distinction from the adjacent intact mucosa.

Material and methods: Prospective case-series of patients with low rectal cancers, familial adenomatous polyposis (FAP) and ulcerative colitis undergoing Pull-through transection and very low rectal anastomosis using linear TA-90 noncutting stapler and circular stapler-cutter. **Results:** In this series, twenty patients (11 men and 9 women) underwent proctectomy by the transanal Pull-through technique. Barring one of the patients that developed a pelvic abscess in the immediate postop follow-up, surgical procedure and the long-term follow-up period was uncomplicated with no critical findings of leakage, stenosis and bleeding. The postop rate of infection and fecal incontinence was not significantly different between genders and different age groups of the study. The mean operative time was calculated 169.9 ± 11.1 minutes.

Conclusion: Pull-through transection procedure using the TA-90 non-cutting stapler is a safe, efficient and economically sound technique implicated in low-lying rectal lesions. The transanal 'Pull-through' approach is particularly helpful in situations where the direct visualization of lower rectal mucosa changes the prognosis through determining the marginal extent of intact/involved mucosa (e.g., FAP, villous adenomas, rectal polyps and post-neoadjuvant chemoradiotherapy tumors).

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Uma nova abordagem para a anastomose retal mais baixa: inovação técnica e relatório preliminar de cinte casos

R E S U M O

Palavras-chave:

Cirurgia colorretal
Anastomose retal baixa com grampos
Abordagem pull-through
Transanal
Transabdominal

Experiência e objetivos: Descrever uma inovação técnica prática (abordagem transanal pull-through) como uma alternativa viável, segura e eficaz à anastomose transabdominal retal baixa convencional com grampos em lesões com mínima diferenciação anatômica com respeito à mucosa intacta adjacente.

Material e métodos: Estudo prospectivo de série de casos de pacientes com cânceres retais baixos, polipose adenomatosa familiar e colite ulcerativa submetidos à transecção pull-through e a uma anastomose retal muito baixa com o uso de um grampeador linear não cortante TA-90 e um grampeador cortante circular.

Resultados: Nesta série, 20 pacientes (11 homens, 9 mulheres) foram submetidos a uma proctectomia pela técnica transanal pull-through. À exceção de um dos pacientes, que apresentou um abscesso pélvico no seguimento pós-operatório imediato, não ocorreram complicações com o procedimento cirúrgico e ao longo do prolongado período de seguimento, nem houve achados críticos de vazamento, estenose ou sangramento. O percentual de infecção e incontinência fecal no pós-operatório não foi significativamente diferente entre gêneros e nas diferentes faixas etárias dos pacientes envolvidos no estudo. O tempo cirúrgico médio foi de $169,9 \pm 11,1$ minutos.

Conclusão: O procedimento de transecção pull-through com o uso do grampeador não cortante TA-90 é técnica segura, eficaz e economicamente confiável para uso em lesões retais baixas. A abordagem transanal pull-through tem particular utilidade em situações nas quais a visualização direta de alterações na mucosa retal mais baixa muda o prognóstico, mediante a determinação da extensão marginal da mucosa intacta/envolvida (p. ex., FAP, adenomas vilosos, pólipos retais e tumores pós-quimiorradioterapia neoadjuvante).

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Introduction

Although conventional end-to-end anastomosis (EEA) techniques are often viewed as an excellent option in a select number of lower colorectal diseases,¹ the problems of a complicated anastomosis; in particular in sites with limited anatomical access such as depth of the pelvic cavity, has led many gastrointestinal oncologist surgeons to seek alternative treating options to overcome this challenge. Ensuring the anastomotic security is especially important because life threatening potential of EEA failure in rectal cancer sufferers is associated with increased recurrence rate, which further deteriorates the prognosis.²⁻⁴

Currently, intra-abdominal transection of rectal lesions is routinely performed using different types of staplers.⁵ However and aside from concerns over a possible anastomotic leak that could persist with double stapling,⁶ operator-dependency and the high expenses of curved stapler-cutters used in these settings, many preclude its widespread use in certain regions with limited financial power. Additionally, unconfident determination of safe margin border in lesions with seemingly inseparable gross morphology from the adjacent intact mucosa (e.g., familial adenomatous polyposis [FAP] and post-neoadjuvant chemoradiotherapy rectal tumors) is another restraint to the use of transabdominal procedures.

Herein, we aimed to describe a novel yet simple and practical technique innovation for performing low and very low rectal anastomoses using different set of staplers with an eye to resolve the aforementioned shortcomings

Material and methods

We prospectively examined the proposed 'Pull-through' EEA technique on twenty consecutive candidates of elective proctectomy who fulfilled the eligibility criteria to enter our study in the Imam Khomeini Hospital Complex (IKHC, a tertiary referral teaching hospital affiliated with Tehran University of Medical Sciences) from January 2011 to February 2012. Institutional review board (IRB) exemptions were previously obtained in accordance with the Human Subjects Research policy. In addition, written informed consent was received from each of the participating patients. From our perspective, suggestive indications for transanal Pull-through approach to the lower rectal anastomosis included small to moderate sized lesions of the middle to very lower rectum, post-neoadjuvant chemoradiation therapy tumors without a palpable tumor margin, FAP, villous adenoma, other benign/malignant outgrown tissues and other indications of elective proctectomy (e.g., ulcerative colitis, UC). We excluded obese patients (body mass index $>30 \text{ kg/m}^2$) due to a complicated course of surgery, while patients with a bulky mesorectum and/or mass lesion

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