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Original research

The combined abdominal and perineal approach for dissection of the lower rectum. The development of new indications

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HIGHLIGHTS

- Dissection of the lower rectum can be technically difficult that it ends up in abandoning the procedure or raising a permanent stoma.
- The described approach allows completion of rectal dissection from the perineal route and preservation of the anal sphincters.
- Analysis of using the combined abdomino-perineal approach in low rectal pathologies, and to describe two new indications for the technique.

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ABSTRACT

Aims: Dissection of the lower rectum in some low rectal and pararectal pathologies can be technically difficult that it ends up in abandoning the procedure or raising a permanent stoma. The recently described combined abdomino-perineal approach allows completion of rectal dissection from the perineal route and preservation of the anal sphincters. Patients requiring the combined approach are not seen frequently and reports on this new technique are scarce. The purpose of this study is to analyze our results of using the combined abdomino-perineal approach in different benign and malignant low rectal pathologies, and to describe two new indications for the technique. **Patients and methods**: This is a retrospective analysis of prospectively collected data of 10 patients (8 males, age range 22–75 years), including 7 cancer patients who required the combined abdomino-perineal approach for completion of their procedures. Previously unreported indications for the technique included iatrogenic rectovaginal fistula and presacral tumor. The study was conducted in a tertiary referral colorectal unit in a university hospital. **Results**: The procedure was completed and the sphincters preserved in all patients. All cancer patients had adequate resection with good quality mesorectum. Continence was preserved in 4 patients. Three patients are living with permanent stoma. Anastomotic perineal fistula requiring dismantling the anastomosis and raising a permanent stoma occurred in one patient. **Conclusions**: The combined abdomino-perineal approach is useful to complete rectal resection in a highly selected group of patients with technically difficult low rectal pathologies. The technique is probably safe in cancer patients and new indications are evolving. Expectations for preservation of continence are disappointing.

1. Introduction

The combined abdominal and perineal approach for dissection of the lower rectum is a recently described procedure that allows completion of rectal resection and sphincter preservation in technically difficult situations in which raising a permanent stoma or abandoning the procedure could otherwise be done [1]. Abou-Zeid and Makki [1] first described the technique in a patient for difficult reversal of Hartmann and Williams et al. [2] described it in 14 patients with low rectal cancer, inflammatory bowel disease and rectal strictures. The technique was initially described in open rectal resections but recently, Marquardt et al. [3] combined laparoscopic ultralow anterior rectal resection with the perineal approach to treat a patient with deep rectal cancer. Patients who require this technique are few and new indications are evolving [4]. In this article we are reporting our experience in 10 patients who had their operations completed and their sphincters preserved by using the combined abdominal and perineal approach. We are also describing new indications and we are suggesting a new name for the technique.

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2. Patients and methods

2.1. Patient selection

In the period from November 2007 till May 2012, 10 patients (8 males, age range 22–75y) had the combined abdomino-perineal approach for completion of rectal resection. All patients were treated in a tertiary referral colorectal center at Ain Shams University Hospitals, Cairo, Egypt. The patient's data were published based on approval of the ethical committee held on 5th of June 2013. The demographic data, clinical diagnosis and the original scheduled procedure for all patients are shown in Table 1. Four out of seven rectal cancer patients received neoadjuvant chemoradiation for locally advanced disease, one patient achieving complete clinical and pathological response, the other three had various degrees of incomplete response. One patient was scheduled to have completion coloproctectomy with IPAA for multiple metachronous colon cancer and polyps after low anterior resection for cancer. One patient had iatrogenic mid rectovaginal fistula following inadvertent involvement of the vagina in stapled colorectal anastomosis. One patient had a large presacral tumor that was stuck in the pelvis giving no room for completion of resection from the abdominal route.

2.2. Procedures done

Three patients had laparoscopic procedures with one conversion, the rest had open procedures. The decision for the combined approach was taken intra-operatively in all patients based on the surgeon's judgment that completing the operation transabdominally was not possible and the surgical technique was the same as we previously described [1].

Table 1
Original pathology, scheduled procedure and final outcome in the studied patients.

	Age in years (sex)	Operation	Outcome	Pathology
1	36(F)	LAR/ileostomy	Stoma closed/ continent	Adenocarcinoma (T2N0R0)
2	24(M)	LAR/ileostomy	Stoma closed/ continent/ deceased of LR	Mucoid adenocarcinoma (ypT3pN2R0)
3	58(M)	Completion proctocolectomy/ IPAA	Permanent ileostomy	Multiple adenomas with dysplasia and CIS in left colon. Two cancers in transverse colon (Both T2N0)
4	76(F)	Proctectomy/ colorectal anastomosis/vaginal repair/ileostomy	Stoma closed/ suboptimal continence	Inflammatory fistula with evidence of residual staples
5	84(M)	LAR/ileostomy	Permanent colostomy/ deceased of MI	Adenocarcinoma (T2N0R0)
6	67(M)	LAR/ileostomy	No show to close ileostomy	Adenocarcinoma (ypT2pN1R0)
7	56(M)	LAR/ileostomy	Permanent colostomy	Adenocarcinoma (T2N0R0) circumferential margins
8	56(M)	LAR/excision of tumor/ileostomy	On chemotherapy/ waiting for reversal of Hartmann	Myxofibrosarcoma
9	56(M)	LAR/ileostomy	Permanent colostomy	Complete response to neoadjuvant. No evidence of tumor
10	67(M)	LAR/ileostomy	Stoma closed/ suboptimal continence	Adenocarcinoma (ypT3pN0R0)

LAR: low anterior resection, LR: Local recurrence, IPAA: Ileal pouch anal anastomosis, MI: Myocardial infarction.

3. Results

The planned original procedure was successfully completed after conversion to the perineal route with preservation of the anal canal in all patients. Six patients had primary coloanal anastomosis. All anastomoses were hand-sewn and all were covered by a proximal loop ileostomy. The ileostomy was closed in five patients; two achieved excellent continence (Wexner scores 3 and 4), including one patient who developed anastomotic stricture that was successfully treated by simple dilatation. Two had suboptimal continence (Wexner scores 7 and 9) and one patient developed anastomotic perineal fistula that required dismantling the anastomosis and raising a permanent stoma. One patient never showed up to close the ileostomy. The follow up ranged from 2 to 6 years (median 3 years).

Primary anastomosis was declined in four patients for different reasons (weak anal sphincters ($n = 2$), short ileal pouch not reaching the pelvis ($n = 1$), major presacral bleeding that required packing ($n = 1$)). Three of these patients are living with permanent stomas (two colostomies and one ileostomy) and one is waiting for restoration of bowel continuity. Patient outcomes are shown in Table 1.

The pathology results of all patients are shown in Table 1. All cancer patients had free circumferential and longitudinal resection margins. Five cancer patients are alive without local or distant recurrence. One patient deceased 3 months postoperatively by myocardial infarction. One patient deceased of local recurrence 3 years after the resection. One patient with presacral tumor is receiving chemotherapy.

4. Discussion

The recently described combined abdomino-perineal approach for low rectal resection is intended to achieve more than one goal; first completing low rectal dissection in technically difficult situations, second, in rectal cancer patients, achieving radical resection that respects dissection in proper surgical planes resulting in a good quality mesorectum, and finally, preservation of the anal sphincters with acceptable degree of continence. The first and second goals were fulfilled in all patients in the present study. Thus the procedure was successfully completed in all patients and radical resection was confirmed by negative resection margins in all pathology reports and long term survival in the majority of cancer patients. One patient in the present study developed local recurrence at a median follow up of three years. This particular patient had mucin secreting, node positive tumor that showed minimal response to neoadjuvant chemoradiation, all are factors associated with local recurrence. The safety of the procedure was confirmed by Williams group [2] where 7 patients with neoplasia had clear margins on pathologic examination, none developing locoregional recurrence and with only one patient developing systemic disease at 2 years. Also, in the case reported by Marquardt et al., the postoperative pathology report proved that the mesorectum was of a good quality and the resection margins were clear [3].

The third goal of the combined approach, namely sphincter preservation with acceptable continence, was achieved in less than half of our patients (4 out of 10 patients had acceptable continence; one patient is waiting for restoration of bowel continuity). Sphincter preservation is an important objective in the modern surgical treatment of rectal cancer provided the radicality of the procedure is not breached and acceptable continence is guaranteed [5,6]. Despite earlier studies showing that patients with permanent