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Perineal stapled prolapse resection for external rectal prolapse: is it worthwhile in the long-term?

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Abstract

Background Perineal stapled prolapse (PSP) resection is a novel operation for treating external rectal prolapse. However, no long-term results have been reported in the literature. This study analyses the long-term recurrence rate, functional outcome, and morbidity associated with PSP resection.

Methods Nine consecutive patients undergoing PSP resection between 2007 and 2011 were prospectively followed. Surgery was performed by the same surgeons in a standardised technique. Recurrence rate, functional outcome, and complication grade were prospectively assessed.

Results All 9 patients undergoing PSP resection were investigated. The median age was 72 years (range 25–88 years). No intraoperative complications occurred. Faecal incontinence, preoperatively present in 2 patients, worsened postoperatively in one patient (Vaizey 18–22). One patient developed new-onset faecal incontinence (Vaizey 18). The median obstructive defecation syndrome score decreased postoperatively significantly from 11 (median; range 8–13) to 5 (median; range 4–8) ($p < 0.005$).

At a median follow-up of 40 months (range 14–58 months), the prolapse recurrence rate was 44 % (4/9 patients).

Conclusions The PSP resection is a fast and safe procedure associated with low morbidity. However, the poor long-term functional outcome and the recurrence rate of 44 % warrant a cautious patient selection.

Keywords Perineal stapled prolapse resection · Perineal approach · External rectal prolapse · PSP

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Introduction

External rectal prolapse has a significant negative impact on social life and quality of life. Different surgical approaches such as abdominal, laparoscopic, and perineal have been proposed to treat this pathology. The perineal approach is considered a surgical strategy for elderly and polymorbid patients because it is associated with low morbidity [1]. The Rehn-Delorme and Altemeier procedures are the two most commonly performed perineal techniques. As compared to abdominal techniques, perineal approaches are burdened with major shortcomings such as less improvement of continence and increased recurrence rates [2]. Altemeier's procedure, with or without levatorplasty, is associated with lower recurrence rates than Delorme's procedure, but higher recurrence rates than abdominal approaches [3–6]. Beside the overall high recurrence rate after perineal approaches, none of these procedures provides complete resolution of symptoms in the majority of patients [7].

Perineal stapled prolapse (PSP) resection was introduced in 2008 by Scherer et al. [8] as a new perineal surgical approach. The authors reported a short operating time and good mid-term functional results. Since no long-term

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results have yet been reported, the aim of this study was to assess long-term results with regard to recurrence rate, functional outcome, and morbidity.

Materials and methods

Patients with a full-thickness external rectal prolapse and significant comorbidities (American Society of Anesthesiologists ASA score ≥III) were offered a perineal approach. Out of this population, for feasibility reasons, patients with a full-thickness external rectal prolapse >5 cm, measured from the anocutaneous verge, were selected for PSP resection. Nine patients matching these criteria underwent PSP resection between January 2007 and October 2011 and were prospectively followed.

All patients received an enema preoperatively and antibiotic prophylaxis (single shot of 500 mg metronidazole and 1.5 g cefuroxime intravenously). Spinal anaesthesia or general anaesthesia was used according to the patient's preference. Patients were placed in the lithotomy position in Trendelenburg. Surgery was performed by the same surgeons (DD and DH) using a standardised technique [9]: The prolapse was pulled out completely and opened with a linear stapler by two axial transections at 3 and 9 o'clock. Subsequently, the horizontal prolapse resection was completed. The complete prolapse resection was performed via a continuous, counter clockwise transection beginning anteriorly at 3 o'clock and posteriorly at 9 o'clock using the curved Contour® Transtar™ stapler (Ethicon Endo-Surgery). The stapler was positioned parallel to the dentate line. After the complete resection, neorectum and anal mucosa relocated spontaneously to their correct anatomical position. To achieve haemostasis, absorbable monofilament sutures were placed.

Functional outcome (Vaizey score for incontinent patients [10] and the obstructive defecation syndrome (ODS) score for constipated patients [11]) as well as recurrence were prospectively assessed. Postoperative complications were recorded using the Clavien–Dindo Classification [12]. Only descriptive statistical analysis was performed. Descriptive statistics are expressed as absolute and relative frequencies.

Results

All 9 patients (8 females and 1 male) undergoing PSP resection for external rectal prolapse were included. Median age was 72 years (range 25–88 years). The median preoperative length of the prolapse was 7.5 cm (range 5–9 cm). Median operating time was 60 min (range 30–75 min), and median hospital stay was 5 days (range 3–13 days) (Table 1). No intraoperative complications occurred. One patient developed a pelvic abscess postoperatively and was successfully treated with antibiotics and percutaneous drainage (Clavien–Dindo grade IIIa complication). A total of 3 patients received antibiotics postoperatively due to a newly diagnosed urinary tract infection. There was no procedure-related mortality in this study.

At 6 months after surgery, faecal incontinence, preoperatively noticed in 2 patients, had worsened in one patient (Vaizey 18–22). Another patient developed new-onset faecal incontinence (Vaizey 18). The median postoperative ODS score decreased significantly from a median of 11 (range 8–13) to 5 (range 4–8) ($p < 0.005$). At a median follow-up of 40 months (range 14–58 months), rectal prolapse recurred in 4 of 9 patients (recurrence rate 44 %). Recurrence was observed at a median time of 8 months (range 1–17 months) after surgery, and treatment consisted of Delorme's procedure in 2 cases, 1 laparoscopic rectopexy and 1 open rectopexy with Douglas obliteration.

Discussion

This is the first study of the long-term results of PSP resection for external rectal prolapse. The procedure was associated with low morbidity, no mortality, and marginal functional results. However, the long-term recurrence rate of 44 % was high.

Over 200 different surgical procedures and many conservative treatments have been described for the treatment of rectal prolapse [6]. Modifications of the transanal technique with the Contour stapler to resect internal rectal redundancy led to the PSP resection. This PSP resection technique was introduced in a feasibility study in 2008 by Scherer et al. [8] and described as an alternative technique for conventional perineal procedures such as the Rehn-Delorme [13] and Altemeier [14] procedures. The safety of the PSP resection technique was demonstrated by Hetzer et al. [9] in a study of 32 patients in which no intraoperative complications and 6.3 % minor postoperative complications were reported. In order to prevent injuries to the pouch of Douglas or any concomitant enterocele, the patients were placed in the lithotomy position with a slight anti-Trendelenburg. In our study, we had few complications, no reoperation, and no mortality. This confirms that PSP resection is a safe procedure. Regarding material costs, PSP resection is more expensive than Delorme's or Altemeier's procedure. However, when taking into account the decreased operating time as well as the reduced length of hospital stay in PSP patients compared to those who underwent other perianal procedures, the higher costs might be compensated. However, we did not perform a full cost analysis.

Table 1 Patients

Patient	Sex	Age (years)	Operation time (min)	Hospital stay (days)	Postoperative complication (Clavien–Dindo Classification)	Follow-up time (months)	Recurrence (yes/no)	Time of recurrence after operation (months)	Treatment of recurrence
1	F	56	75	3	II	44	No	N/A	N/A
2	F	82	45	6	II	58	No	N/A	N/A
3	F	82	35	7	II	36	No	N/A	N/A
4	F	88	30	13	IIIa	42	Yes	17	Delorme
5	M	79	75	*	No	43	No	N/A	N/A
6	F	25	60	7	No	43	Yes	16	Laparoscopic rectopexy
7	F	80	60	3	No	39	No	N/A	N/A
8	F	83	60	5	No	40	Yes	1	Open rectopexy, Douglas obliteration
9	F	76	60	4	No	14	Yes	1	Delorme

N/A not applicable

* Operated while hospitalised for treatment of metastatic lung cancer

So far, 4 studies, with a short mean follow-up of 1–6.5 months (Table 2), have reported a significant improvement in continence and constipation after PSP resection [7–9, 15]. In line with these results, we found similar functional results 6 months postoperatively with a significant postoperative decrease in the ODS score ($p < 0.005$). However, faecal incontinence worsened in one patient, and one patient developed new-onset faecal incontinence. This might be due to the reduction in the rectal reservoir by PSP resection. Furthermore, vaginal multiparity might contribute to pelvic floor insufficiency with a consecutive increased risk for rectal prolapse and increased risk for developing postoperative faecal incontinence. However, our patient population shows no correlation between the number of vaginal deliveries and the development of postoperative faecal incontinence. Despite this, there is a tendency that older age of the patients as well as size of the prolapse correlates with development of postoperative faecal incontinence. Therefore, a preoperative anal ultrasound alone or combined with anal manometry might be helpful in order to detect associated sphincter tears.

The Rehn-Delorme operation and Altemeier procedure are low-risk techniques associated with high recurrence rates reaching 32 % [3, 4]. Abdominal approaches are associated with lower recurrence rates than to perineal approaches but with higher rates of morbidity and mortality and with longer reconvalescence [16]. In our study, 4 out of 9 patients (44 %) were found to have recurrence at their last follow-up (median of 40 months).

Multiple reasons might lead to the high recurrence rate in our study. Giving the fact that the recurrence rate seems to be higher for the PSP resection than for the other perineal procedures the reason must be either found in the technique itself or patient selection. A possible explanation for the poor results might be insufficiency of the pelvic floor and the lack of levatorplasty. Altemeier's procedure without levatorplasty shows recurrence rates in up to 58 % [17], whereas a combination with levatorplasty results in a significant reduction in the recurrence rate of 0 % after 30-month follow-up as reported by Boccasanta et al. [18]. Chun et al. [19] concluded that levatorplasty should be offered to patients since perineal rectosigmoidectomy with levatorplasty is associated with a lower recurrence (7.7 vs.

Table 2 Review of the literature on perineal stapled prolapse resection

Study	Patient No.	Study design	Mortality	Continence	Constipation	Recurrence (%)	Follow-up (months)
Romano et al. [15]	3	Prospective	0	100 % (+)	100 % (+)	0	4
Mistrangelo et al. [7]	5	Prospective	0	$P = 0.010$	$p < 0.010$	0	6.5
Hetzer et al. [9]	32	Prospective	0	90 % (+); $p = 0.0001$	69 % (+)	3.7	6
Scherer et al. [8]	15	Prospective	0	∅	∅	0	1

∅ N/A, (+) improvement; (−) worsening, ± no change

20.6 %) rate and longer time to recurrence (45.5 vs. 13.3 months) than perineal rectosigmoidectomy alone. Similar results might be obtained in PSP resection when combining with levatorplasty. Additionally, a learning curve may explain the high recurrence rate in our study. Patient selection may also play a crucial role. The patients in our study showed a median prolapse length of 7.5 cm, which is longer than reported in other studies. This suggests a more advanced pelvic floor dysfunction.

The low number of patients is a limitation of our study. As reliable randomised trials are still missing, concise recommendations regarding the choice of the surgical technique cannot be made. The small number of trials and their small sample sizes together with other methodological weaknesses limit the usefulness for guiding practice [20]. Cochrane studies failed to identify or refute clinically important differences between the alternative surgical operations. Results from larger rigorous trials are needed to help surgeons choose the optimal treatment for an individual patient with rectal prolapse [20, 21]. The recommendations published recently in a consensus survey [1] state that PSP resection is a possible surgical option for selected patients, especially for elderly and polymorbid patients with a short life expectancy. These recommendations are in line with our results yielding low morbidity but a high recurrence rate in the longer term.

Conclusions

Perineal stapled prolapse resection is a safe procedure for the treatment of external rectal prolapse. It permits resection of the prolapsed rectum without need of mobilisation or dissection of the rectum. However, the long-term, recurrence rate of 44 % was high. Currently, PSP can be regarded as a surgical option for older and frail patients with severe comorbidities and a short life expectancy. Further studies on larger series are required prior to the introduction of PSP for routine use in clinical practice.

Conflict of interest None.

References

1. Formijne Jonkers HA, Draaisma WA, Wexner SD et al (2013) Evaluation and surgical treatment of rectal prolapse: an international survey. Colorectal Dis 15:115–119
2. Ris F, Colin JF, Chilcott M, Remue C, Jamart J, Kartheuser A (2012) Altemeier's procedure for rectal prolapse: analysis of long-term outcome in 60 patients. Colorectal Dis 14:1106–1111
3. Watts AM, Thompson MR (2000) Evaluation of Delorme's procedure as a treatment for full-thickness rectal prolapse. Br J Surg 87:218–222
4. Johansen OB, Wexner SD, Daniel N, Nogueras JJ, Jagelman DG (1993) Perineal rectosigmoidectomy in the elderly. Dis Colon Rectum 36:767–772
5. Kimmins MH, Evetts BK, Isler J, Billingham R (2001) The Altemeier repair: outpatient treatment of rectal prolapse. Dis Colon Rectum 44:565–570
6. Williams JG, Rothenberger DA, Madoff RD, Goldberg SM (1992) Treatment of rectal prolapse in the elderly by perineal rectosigmoidectomy. Dis Colon Rectum 35:830–834
7. Mistrangelo M, Tonello P, Allaix ME, Borroni R, Canavesio N, Corno F (2012) Perineal stapled prolapse resection for complete external rectal prolapse: preliminary experience and literature review. Dig Surg 29:87–91
8. Scherer R, Marti L, Hetzer FH (2008) Perineal stapled prolapse resection: a new procedure for external rectal prolapse. Dis Colon Rectum 51:1727–1730
9. Hetzer FH, Roushan AH, Wolf K et al (2010) Functional outcome after perineal stapled prolapse resection for external rectal prolapse. BMC Surg 10:9
10. Vaizey CJ, Carapeti E, Cahill JA, Kamm MA (1999) Prospective comparison of faecal incontinence grading systems. Gut 44:77–80
11. Altomare DF, Spazzafumo L, Rinaldi M, Dodi G, Ghiselli R, Piloni V (2008) Set-up and statistical validation of a new scoring system for obstructed defecation syndrome. Colorectal Dis 10:84–88
12. Dindo D, Demartines N, Clavien PA (2004) Classification of surgical complications: a new proposal with evaluation in a cohort of 6,336 patients and results of a survey. Ann Surg 240:205–213
13. Delorme R (1900) Communication sur le traitement des prolapsus du rectum totaux par l'excision de la muqueuse rectale ou recto-colique. Bull Soc Chirurgiens 26:498–499
14. Altemeier WA, Giuseffi J, Hoxworth P (1952) Treatment of extensive prolapse of the rectum in aged or debilitated patients. AMA Arch Surg 65:72–80
15. Romano G, Bianco F, Caggiano L (2009) Modified perineal stapled rectal resection with Contour Transtar for full-thickness rectal prolapse. Colorectal Dis 11:878–881
16. Agachan F, Reissman P, Pfeifer J, Weiss EG, Nogueras JJ, Wexner SD (1997) Comparison of three perineal procedures for the treatment of rectal prolapse. South Med J 90:925–932
17. Zbar AP, Takashima S, Hasegawa T, Kitabayashi K (2002) Perineal rectosigmoidectomy (Altemeier's procedure): a review of physiology, technique and outcome. Tech Coloproctol 6:109–116
18. Boccasanta P, Venturi M, Spennacchio M, Fratus G, Despini L, Roviaro G (2012) Trans-obturator colonic suspension during Altemeier's operation for full-thickness rectal prolapse: preliminary results with a new technique. Colorectal Dis 14:616–622
19. Chun SW, Pikarsky AJ, You SY et al (2004) Perineal rectosigmoidectomy for rectal prolapse: role of levatorplasty. Tech Coloproctol 8:3–8 (discussion 8–9)
20. Tou S, Brown SR, Malik AI, Nelson RL (2008) Surgery for complete rectal prolapse in adults. Cochrane Database Syst Rev 4:CD001758. doi:10.1002/14651858.CD001758
21. Bachoo P, Brazzelli M, Grant A (2000) Surgery for complete rectal prolapse in adults. Cochrane Database Syst Rev (2):CD 001758. doi:10.1002/14651858.CD001758