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Review

Perineal resectional procedures for the treatment of complete rectal prolapse: A systematic review of the literature

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HIGHLIGHTS

- 39 studies including 2647 patients were included.
- Recurrence occurred in 16.6% of patients.
- Median rate of recurrence was 11.4% for Altemier versus 14.4% for Delorme.
- FI improved in 61.4% of patients after Altemeir versus 69% after Delorme.
- Complications were recorded in 13.2% of patients.

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ABSTRACT

Background and aim: Several procedures for the treatment of complete rectal prolapse (CRP) exist. These procedures are performed via the abdominal or perineal approach. Perineal procedures for rectal prolapse involve either resection or suspension and fixation of the rectum. The present review aimed to assess the outcomes of the perineal resectional procedures including Altemeier procedure (AP), Delorme procedure (DP), and perineal stapled prolapse resection (PSR) in the treatment of CRP.

Patients and methods: A systematic search of the current literature for the outcomes of perineal resectional procedures for CRP was conducted. Databases queried included PubMed/MEDLINE, SCOPUS, and Cochrane library. The main outcomes of the review were the rates of recurrence of CRP, improvement in bowel function, and complications.

Results: Thirty-nine studies involving 2647 (2390 females) patients were included in the review. The mean age of patients was 69.1 years. Recurrence of CRP occurred in 16.6% of patients. The median incidences of recurrence were 11.4% for AP, 14.4% for DP, and 13.9% for PSR. Improvement in fecal incontinence occurred in 61.4% of patients after AP, 69% after DP, and 23.5% after PSR. Complications occurred in 13.2% of patients. The median complication rates after AP, DP and PSR were 11.1%, 8.7%, and 11.7%, respectively.

Conclusion: Perineal resectional procedures were followed by a relatively high incidence of recurrence, yet an acceptably low complication rate. Definitive conclusions on the superiority of any procedure cannot be reached due to the significant heterogeneity of the studies.

1. Introduction

Complete full-thickness rectal prolapse is a term that describes the protrusion of the full-thickness of the rectal wall through the anus [1]. Although the true incidence of complete rectal prolapse cannot be precisely estimated; it commonly affects the elderly

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population and 80–90% of patients are female [2].

The pathogenesis of rectal prolapse remains controversial. Full-thickness prolapse can be recognized either by being a sliding hernia through a defect in the pelvic fascia or an internal rectal intussusception that progresses to a full-thickness prolapse with straining. Mucosal prolapse maybe attributed to stretching and weakness of the connective tissue attachments of the rectal mucosa [3].

Although the treatment of rectal prolapse is surgical, no consensus on the optimal surgical procedure exists and over 100 various procedures were described [4]. Surgical management of full-thickness rectal prolapse can be broadly classified into abdominal and perineal procedures. The abdominal procedures involve either resection of the sigmoid colon or fixation of the rectum to the sacrum by sutures or by the use of a foreign material such as mesh or sponge. Perineal procedures also entail either resection as Altemeier, Delorme, and stapled resection procedures, or suspension of the rectum as the external pelvic rectal suspension (EXPRESS) procedure [5]. Perineal rectosigmoidectomy was first described by Mikulicz in 1889, then devised by Miles, and ultimately popularized by Altemeier and Culbertson in the late 1960s [6].

Abdominal procedures with lower recurrence rates were traditionally favored for the younger, healthier patients owing to their high morbidity rates. Conversely, older, debilitated patients were treated more often with a perineal approach being deemed safer, although with a much higher incidence of recurrence [7].

However, with the introduction of laparoscopy the abdominal approach re-emerged as a viable option for the treatment of rectal prolapse in the elderly patients with significant co-morbidities. Laparoscopic ventral mesh rectopexy (LVMR) [8] achieved highly satisfactory outcomes attaining a weighted mean recurrence rate of 3.4% according to a systematic review [9]. Furthermore, Gultekin et al. [10] concluded that LVMR can be safely conducted in select elderly patients.

Despite that many studies [11,12] have documented the excellent results of LVMR regarding the low recurrence and complication rates and improvement in bowel function, LVMR is not universally employed. Therefore, perineal procedures still have a role in the management of rectal prolapse.

The present review aimed to assess the outcomes of the perineal resectional procedures including Altemeier, Delorme, and perineal stapled prolapse resection (PSR) operations in the treatment of external full-thickness rectal prolapse. The objective was to determine the recurrence and complication rates and functional outcomes.

2. Methods

2.1. Search strategy

The protocol of this review has been registered in the International prospective register of systematic reviews (PROSPERO).

An organized search of the current literature was made by three of the authors to evaluate the outcomes of the perineal resectional procedures (Altemeier, Delorme, and PSR) in patients with complete full-thickness rectal prolapse in adherence to the screening guidelines of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) (Fig. 1) [13]. Electronic databases including PubMed/Medline, SCOPUS, and Cochrane Library were searched for published and ahead-of-publication studies from January 2000 to July 2016. PubMed function “related articles” was used to search further articles. The reference section of each publication was searched manually for relevant articles.

We used the following keywords while conducting the literature search: *“Altemeier,” “perineal rectosigmoidectomy,” “Delorme,” “Rectal mucosectomy,” “perineal stapled prolapse resection,” “stapled prolapse resection,” “STARR,” “contour transtar,” “external rectal prolapse,” “complete rectal prolapse,” “rectal prolapse,” and “fecal incontinence”*. The medical subject headings (MeSH) terms: (rectal prolapse), (surgery), (surgical stapler), and (perineum) were also searched.

Duplicate reports and conference abstracts with no full-text version were identified and excluded. Articles were systematically screened by title, then by abstract screening as an initial step, and subsequently by full-text screening. The full text versions of the selected articles were reviewed independently by four reviewers to check eligibility.

2.2. Inclusion criteria

The studies that were considered eligible for this review involved patients with complete (external) rectal prolapse who underwent perineal resectional procedures including Altemeier procedure, Delorme procedure, and PSR. Complete rectal prolapse was defined by the studies as full-thickness circumferential protrusion of the rectum throughout the anal canal. Both comparative and cohort studies that evaluated any of the three procedures were included in the review. Only articles in English language were included.

2.3. Exclusion criteria

We excluded irrelevant articles, editorials, comments, case reports, reviews, and meta-analyses. The studies that involved less than ten patients or followed the patients for less than 12 months were excluded. Articles that did not report the recurrence and/or complication rates and articles that reported the outcome of the perineal procedures in a collective manner without stating the individual outcomes of each procedure clearly were also excluded.

2.4. Assessment of methodological quality and bias within the included studies

Two reviewers independently assessed the methodological quality and risk of bias in each study, and any discrepancies in interpretation were resolved by discussion or by consulting a third reviewer. The revised grading system of the Scottish Intercollegiate Guidelines Network (SIGN) [14] was used to assess comparative studies, a score of less than 8 indicated poor quality; a score of 8–14 implied fair quality and a score of more than 14 indicated good quality. The checklist for the quality of case series of the National Institute for Health and Clinical Excellence (NICE) [15] was used for the assessment of cohort studies, a score $\leq$3 indicated poor quality; a score of 4–6 implied fair quality, and a score of $\geq$7 indicated good quality. The senior author reviewed the collected results on a regular basis.

2.5. Variables collected

Data of the technical and functional outcomes of the perineal resectional procedures were extracted from the studies included in the review. The primary objective was the clinical recurrence of full-thickness rectal prolapse, and the secondary objectives included postoperative improvement of bowel symptoms as constipation and fecal incontinence (FI), functional bowel scores, complication and mortality rates, operative time, and length of hospital stay (LOS). Data that was not clearly reported in each study was considered missing data and was not expressed as lack of the event.