

Results of Delorme's Procedure for Rectal Prolapse

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PURPOSE: This study was designed to examine the results of Delorme's procedure. **METHODS:** Thirty-two patients (24 males and 8 females, mean age, 70 years) underwent Delorme's procedure between 1978 and 1990 following symptoms lasting between two weeks and ten years. Thirteen patients had had 21 previous operations for prolapse. **RESULTS:** The mean operation time was 65 minutes. No blood transfusions were needed, there was no operative mortality, and only two patients had complications (one chest infection and one anastomotic dehiscence). No patients were lost to follow-up. Over a mean follow-up of 24 months (4 months to 4 years), 9 patients died of unrelated conditions. There were four recurrences (12.5 percent), two in patients who had each had two previous procedures. Incontinence improved in 46 percent. No patient became constipated and 50 percent of those constipated preoperatively improved. **CONCLUSION:** Although abdominal rectopexy is safe and has a low recurrence rate (<5 percent), it involves the hazards of a laparotomy. In addition, up to 40 percent of patients become constipated after rectopexy which may be debilitating. Delorme's procedure has a low morbidity, results in good bowel function, and has a low recurrence rate. It can be performed on unfit patients with possible advantages over rectopexy and perhaps should be used more readily. [Key words: Rectal prolapse; treatment; Delorme's procedure; fecal incontinence.]

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As over 100 different procedures have been described to treat rectal prolapse,¹ it is likely that none is entirely satisfactory. (Some are listed in Table 1.) In the United Kingdom, abdominal posterior rectopexy (Wells type) is the most frequently used operation, usually with the insertion of an implant of polyvinyl alcohol (Ivalon®) or polypropylene (Marlex™). Although the reported recurrence rates are low, intractable constipation can ensue and be very difficult to treat. Added to this a laparotomy is necessary, which is not always a good thing in the elderly.

Edmond Delorme² originally described his operation in 1900. It is a perineal procedure associated with few postoperative complications and no

reports of constipation.^{3,4} It has become popular in recent years not only because of its low morbidity, but also because it can easily be repeated should it fail.

PATIENTS

Between 1978 and 1990, Delorme's procedure was performed on 32 selected patients with complete full-thickness rectal prolapse at one hospital. The mean age was 69.6 years \pm 19.9 (SD) with a range from 14 to 92 years. There were 24 females and 8 males. The duration of symptoms ranged from 2 weeks to 10 years. Twenty-eight (88 percent) patients were incontinent and 10 (31 percent) were constipated preoperatively. Thirteen (41 percent) patients had had a previous operation for prolapse (Table 2), some more than one, making a total of 21 procedures.

The operative details have been described⁴ previously and a similar technique was used in these patients.

RESULTS

Follow-up was complete in all 32 patients. Nine patients died from unrelated causes, from one month to ten years later. They had been followed up until death. The remainder were followed from four months to eight years (mean, 21.4 months). The mean duration of the operation was 65 minutes \pm 20 (SD), ranging from 40 to 120 minutes. No patients required a blood transfusion.

There were no deaths related to the operation. Two (6 percent) patients had complications: one wound dehiscence and one chest infection. Discharge from hospital was delayed in both. The median postoperative stay was 10 days (range, 1-51 days).

Full-thickness recurrence occurred in 4 (12.5 percent) patients: 1 having a repeat Delorme's procedure, 1 an Ivalon rectopexy, and 1 awaits rectopexy. One patient died of an unrelated cause before further treatment could be given.

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Table 1.
Procedures Performed for the Treatment of
Rectal Prolapse

Abdominal	Perineal
Ivalon® sponge rectopexy	Thiersch wire
Ripstein teflon sling rectopexy	Silastic sling
Anterior resection and rectopexy	Perineal rectopexy
Low anterior resection	Intersphincteric Ivalon rectopexy and postanal repair
Extended abdominal rectopexy	Postanal repair
Marlex™ mesh rectopexy	Perineal proctectomy, posterior rectopexy, and postanal repair
Roscoe-Graham repair	Transanal fixation
Loygue rectopexy	Modified Thiersch procedure
Puborectalis sling	Angelchick prosthesis insertion
Rectal plication	Graciloplasty
Hartmann's operation	Rectosigmoidectomy
Retroperitoneal colopexy	Altemeier procedure
Absorbable rectopexy	Alum injection
Abdominoperineal resection	Delorme's procedure
Presacral suture rectopexy	
Ivalon stent	
Lahaut's operation	
Moschowitz's operation	
Devadhar's operation	

Table 2.
Previous Operations

13 patients	6 had two	1 had three
9 Ivalon® rectopexy		
5 Thiersch wire		
1 Marlex™ rectopexy		
1 Ripstein rectopexy		
1 Anterior resection		
1 Postanal repair		
1 Excision mucosal prolapse		
1 Hemorrhoidectomy		
1 Delorme's procedure		
21 procedures		

Three (9 percent) patients developed a mucosal prolapse postoperatively. One was injected and two did not require treatment.

Of the 10 patients with constipation before surgery, 5 (50 percent) improved and the remainder were unchanged. Constipation did not develop in any of the 22 who were not constipated preoperatively. Of the 28 patients with incontinence before surgery, 13 (46 percent) improved after the operation. These results are summarized in Table 3.

DISCUSSION

Since Delorme² described his operation there was little interest until the 1970s when a handful of articles were published describing the results in small series³⁻⁹ (Table 4).

Mortality of abdominal rectopexy is low, under 3 percent,¹⁰⁻¹⁴ and morbidity ranges from 6 to 12 percent.^{10,11} The results of Delorme's operation (Table 4) show a comparable morbidity and no mortality.

The rate of recurrent prolapse after abdominal rectopexy tends to be lower than after Delorme's procedure, the incidence usually varying from 0 to 10 percent¹⁰⁻¹⁵ (Table 5). In one publication with a follow-up of ten years, recurrence was, however, found to occur in 20 percent.¹⁶ This might be explained by the wide variation in the length of follow-up in the different series. Recurrence rates may be lower when another procedure is used simultaneously. For example, 4 percent with a postanal repair¹⁷ and 2 percent with a sigmoid resection.¹⁸ Anterior resection alone resulted in a recurrence rate of 9 percent¹⁹ after a mean follow-up of seven years. By contrast, recurrence rates after Delorme's operation range from 5 to 20 percent (Table 4). Although this is higher than most series of abdominal rectopexies, the advantages of this procedure outweigh this disadvantage. In addition, this procedure can easily be repeated.

Urinary disturbances occur after rectopexy,¹⁰ sometimes in as many as 27 percent of patients¹¹; most publications on Delorme's procedure do not discuss this. Retention postoperatively, however, was reported in 23 percent in one series of Delorme's operation.⁵ Our patients were routinely catheterized perioperatively and no long-term urinary dysfunction occurred.

Constipation can occur after abdominal rectopexy with a reported incidence ranging from 27 to 47 percent.^{10-12,14} The reason for this is unknown. Some have suggested that scarring and rigidity around the rectum may impede function. Others have produced evidence to suggest that division of the lateral ligaments interferes with the nerve supply to the rectum, changing its sensitivity.²⁰ Prolapse has been shown to be associated with slow transit constipation,²¹ and as abdominal repair creates an elongated redundant sigmoid loop, some have advocated its concurrent excision at the same time as performing rectopexy (Frykman-Goldberg's operation).¹⁸

Table 3.
Alteration in Bowel Function After Delorme's Procedure

	Preoperative	Postoperative		Preoperative	Postoperative
Constipation	10	5	Incontinent	28	15
Not constipated	22	27	Continent	4	17

Table 4.
Summary of Publications on the Delorme's Procedure

Author	Year	No. of Patients	Recurrence (%)	Post-operative Constipation (%)	Improvement in Continence (%)	Follow-up	Urinary Dysfunction	Other Complications	Mortality
Uhlig and Sullivan ⁵	1979	44	3 (6.8)	NS	NS	2-10 yr	10 (23%)	5 (11%)	0
Christiansen and Kirkegaard ⁶	1981	12	2 (17)	NS	50	median 3 yr	NS	0	0
Gundersen <i>et al.</i> ⁷	1985	18	1 (6)	NS	NS	mean 42 mo 3 mo-9 yr	NS	3 (17%)	0
Houry <i>et al.</i> ⁴	1986	18	3 (17)	6	44	mean 18 mo 8 mo-4 yr	NS	NS	0
Monson <i>et al.</i> ⁸	1986	27	2 (7.4)	NS	83	mean 35 mo 11-64 mo	NS	0	0
Heaton and Rennie ⁹	1988	5	1 (20)	NS	NS	mean 11 mo	NS	0	0
Abulafi <i>et al.</i> ³	1990	22	1 (5)	9	75	mean 29 mo 3-70 mo	3 (14%)	3 (14%)	0

NS = not stated.

Table 5.
Recurrence Rates After Abdominal Rectopexy

Author	No. of Patients	Mean Follow-up (yr)	Recurrence (%)
Penfold and Hawley ¹⁰	93	4	3
Mann and Hoffman ¹¹	51	4.8	0
Morgan <i>et al.</i> ¹²	128	5	2
Atkinson and Taylor ¹³	40	2.6	10
Holmstrom <i>et al.</i> ¹⁴	97	6.9	4
Keighley <i>et al.</i> ¹⁵	100	86% > 2 yr	0
Boulos <i>et al.</i> ¹⁶	25	10	20
With postanal repair			
Rogers and Jeffrey ¹⁷	24	1.75	4
With sigmoid colectomy			
Watts <i>et al.</i> ¹⁸	102	81% > 2 yr	2

The prevalence of postoperative constipation does not give any information on change in bowel function caused by the rectopexy: this can only be done prospectively by recording preoperative and later postoperative bowel function. Madden *et al.*,²² using strict criteria for the definition of constipation, found that 42 percent of patients not constipated preoperatively became so after undergoing posterior rectopexy. Broden *et al.*²³ similarly found that 40 percent of patients who were not constipated before Ripstein's operation became so postoperatively. In the present series of Delorme's procedures, there was no postoperative deterioration in bowel function.

Incontinence is improved following any successful treatment for rectal prolapse: between 38 and 100 percent of patients improve after abdominal rectopexy¹⁰⁻¹⁵; up to 83 percent after Delorme's procedure (Table 4). Part of the reason for this may

be the cessation of mucous leakage from the prolapse previously interpreted as incontinence. However, since most studies are retrospective, few have classified or recorded incontinence rigorously. The reduced resting pressure in patients with rectal prolapse^{24,25} is undoubtedly improved in some after surgery, perhaps simply because the anus is no longer kept open by the prolapse,^{26,27} perhaps also through abolition of the rectoanal inhibitory reflex triggered by the presence of an internal intussusception like a fecal bolus in the rectum.²⁸

Pelvic sepsis after an implantation rectopexy occurs in between 0 and 2.6 percent of cases^{10-12, 15} and can be troublesome; a complication not seen after Delorme's procedure.

Further surgery after Delorme's procedure seems to be for the treatment of recurrence. Although the reported recurrence rate is low after abdominal procedures, in our series 33 percent had recurrences after failed abdominal rectopexies. Furthermore, additional surgery is needed in up to 7 percent^{11, 14, 22} of patients after abdominal rectopexy for reasons unrelated to recurrent prolapse. Nonetheless, the recurrence rate after Delorme's procedure is undoubtedly higher than after abdominal procedures. A partial explanation may be technical: it is important to perform a total mucosectomy as far as the entire length of the prolapse, thereby reaching high into the rectum. Skimping on this dissection may result in recurrence.

Other perineal operations are also becoming popular, particularly modifications of Altmeier's operation (perineal rectosigmoidectomy) currently advocated separately by Finlay and Aitchison²⁹ and Williams *et al.* (1991 unpublished data presented at the Association of Surgeons of Great Britain and Ireland). These modifications have the advantage of an added anterior or posterior levatorplasty, procedures best done separately should they prove to be indicated after Delorme's procedure. However, Altmeier's operation results in a coloanal anastomosis with its attendant problems of anastomotic leakage and inherent early urgency and incontinence.

The results of the selected series in this article are in keeping with the published literature, in spite of one-third of the patients having had previous surgery. In unselected patients, therefore, one would perhaps expect the results to be better still, leading to the possibility of short-stay surgery in some. This allows us to recommend that this

procedure be considered in the first instance for patients with full-thickness rectal prolapse.

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