Recurrence rate after Delorme's procedure with simultaneous placement of a Thiersch suture

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ABSTRACT

INTRODUCTION Rectal prolapse is a debilitating condition usually affecting elderly women. The management is generally surgical but the optimal operation remains unclear. The recurrence rate after Delorme's procedure has been found to be similar to that for an abdominal approach. Thiersch sutures have been associated with high rates of complications and recurrence. The aim of this study was to compare the outcomes of Delorme's procedure with those of a combined Delorme–Thiersch procedure.

METHODS A retrospective case note review was performed of all patients who underwent Delorme's procedure for rectal prolapse between 2008 and 2014 in a single centre.

RESULTS Sixty-seven patients (63 women) underwent Delorme's procedure during the study period. The majority (85%) of patients were over 75 years old. Twelve patients had a Thiersch suture placed at the time of the procedure. The median length of stay was 3 days (range: 0–19 days). Postoperative bleeding requiring either transfusion or readmission occurred in five patients (7.5%) and two patients (3.0%) were readmitted with pain. There was no difference in the rate of complications regardless of whether a Thiersch suture had been placed. Recurrence occurred in 8.3% of those who had a Thiersch suture compared with 21.8% of those who did not ($p=0.26$). There was no difference in the median time to recurrence between the groups.

CONCLUSIONS There was no increase in complications after placement of a Thiersch suture with Delorme's procedure. The rate of recurrence could potentially be decreased with this combined technique. Additional studies are required to investigate this further.

KEYWORDS

Rectal prolapse – Delorme – Thiersch – Recurrence

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Rectal prolapse is a debilitating condition usually affecting elderly women.¹ Patients suffer with pain, ulceration, bleeding and incarceration as well as chronic symptoms of mucous discharge, faecal incontinence and impaired evacuation.² The aim of treatment of rectal prolapse is to control the prolapse, restore continence and improve evacuation. The anatomical abnormalities associated with rectal prolapse are the prolapse itself, a deep pouch of Douglas, a redundant rectum and sigmoid colon, and weakness of the pelvic floor and/or anal sphincter muscles. The ideal rectal prolapse repair should correct as many of these abnormalities as possible.⁵

Rectal prolapse is usually treated surgically but the optimal surgical approach (abdominal or perineal) and technique remain unclear.⁴ Despite recent randomised trials that have attempted to answer the questions of whether to perform laparoscopic or open surgery and which technique is best, there is still considerable ongoing debate owing to underpowered studies and developments in surgical technique (eg laparoscopic ventral mesh rectopexy) that were not part of the trials.^{2,4–6} Perineal procedures are associated anecdotally with

fewer postoperative complications and a reduced length of hospital stay but have been thought to have higher recurrence rates. This assumption has been challenged in a pragmatic, randomised controlled trial assessing surgery for rectal prolapse that demonstrated no significant difference in recurrence of prolapse, bowel function or quality of life between any perineal or abdominal approach.⁵

There has been concern about the use of pelvic mesh and its associated complications.^{7,8} With success rates comparable with those for abdominal procedures but without the complications of intra-abdominal surgery, it may be reasonable to use Delorme's procedure as the first choice in the treatment of a full-thickness rectal prolapse in all patients.^{9–11}

Thiersch first reported a technique of anal encirclement in 1891 that provided a physical barrier to restrict the lumen size and prevent further prolapse.¹² He described placement of a subcutaneous wire circumferentially around the anus but a variety of materials (most commonly sutures) have been used to cause the same effect.^{13–15} Historically, this technique has been associated with complications such as infection, erosion and faecal impaction. Although anal

encirclement has a high recurrence rate, it has been used particularly for patients at very high risk for operative interventions, with reasonable results.^{5,14,16,17}

When considering the anatomical abnormalities caused by rectal prolapse, Delorme's procedure corrects the problem of having a redundant rectum/sigmoid colon but does nothing to treat the associated pelvic floor dysfunction/lax anal sphincter. The aim of our study was therefore to compare the outcome of an isolated Delorme's procedure with the outcomes of Delorme's procedure and concomitant placement of a Thiersch suture in terms of immediate complications and recurrence rate.

Methods

A retrospective cohort study was performed in a single institution. All consecutive patients over the age of 18 years who underwent Delorme's procedure for rectal prolapse in a teaching hospital between March 2008 and February 2014 were included. As an institutional review of current surgical practice, this study was deemed to be exempt from formal ethical approval.

Patients who underwent Delorme's procedure alone were compared with those who had Delorme's procedure and a simultaneous Thiersch suture. The outcomes were recurrence of the prolapse and surgical complications.

The following technique for anal encirclement was used. Two 2mm incisions are made at 3 o'clock and 9 o'clock, 1cm from the anal verge. A size 1 polyglactin suture is inserted on a large curved hand needle through the incision at 3 o'clock and passed subcutaneously to the 9 o'clock position. It is then passed through the same incision back to the 3 o'clock position to complete the posterior subcutaneous encirclement. The assistant inserts a finger in the anus and the suture is tied around the finger to prevent narrowing of the anus. The knot is buried subcutaneously. An absorbable suture was chosen because it was felt that the suture would aid in preventing immediate recurrence and allow scarring to occur where Delorme's procedure had been performed. Follow-up review was in the outpatient department and recurrence was defined clinically. Fisher's exact test was used to compare categorical data.

Results

Sixty-seven patients (63 women) underwent Delorme's procedure over the six-year study period. Four surgeons undertook the procedure during this time: three performed Delorme's procedure in isolation and one performed the combined Delorme-Thiersch procedure. More than 85% of patients were older than 75 years (Table 1).

Postoperative bleeding requiring either red blood cell transfusion or readmission occurred in five patients (7.5%) and two patients (3.0%) were readmitted with pain. There was no significant difference in the rate of postoperative complications between the groups (Table 2).

In total, 13 patients (19.4%) developed a recurrence of the prolapse and the median time to recurrence was 6 months. Recurrence occurred in 8.3% of those who had a Thiersch

Table 1 Patient characteristics

	Delorme's procedure (n=55)	Delorme-Thiersch procedure (n=12)
Female-to-male ratio	52:3	11:1
Median age (range) in years	82 (25–97)	86 (77–94)
Median length of hospital stay (range) in days	3 (0–12)	5 (1–19)
Median follow-up duration (range) in months	6 (1–64)	4 (1–39)

Table 2 Postoperative complications

	Delorme's procedure (n=55)	Delorme-Thiersch procedure (n=12)	p-value
Postoperative bleeding	4 (7.3%)	1 (8.3%)	0.64
Surgical site infection	0 (0%)	0 (0%)	1
Readmission to hospital	4 (7.3%)	1 (8.3%)	0.64

suture placed compared with 21.8% of those who underwent Delorme's procedure in isolation ($p=0.26$) (Table 3).

Eleven (84.6%) of the thirteen patients who had recurrence went on to have further surgery. Six (46.2%) underwent a 're-do' Delorme's procedure (1 with simultaneous Thiersch suture), three (23.1%) had a Thiersch suture, one (7.7%) underwent an Altemeier perineal rectosigmoidectomy and one (7.7%) underwent an abdominal rectopexy. Two patients declined further surgery.

Discussion

There was no increase in the complication rate as a result of performing Delorme's procedure combined with placing a Thiersch suture. The recurrence rate was lower if the prolapsed rectum was plicated using Delorme's procedure and

Table 3 Recurrence of prolapse

	Delorme's procedure (n=55)	Delorme-Thiersch procedure (n=12)	p-value
Recurrence of prolapse	12 (21.8%)	1 (8.3%)	0.26
Median time to recurrence (range) in months	5 (2–64)	11	
Reoperation performed for recurrence	10 (83.3%)	1 (100%)	0.67

the lax anal sphincter was supported with a Thiersch suture than for Delorme's procedure in isolation. It is possible that the surgeon performing the combined procedure undertook a 'better' Delorme's procedure than the other surgeons and that the Thiersch suture was superfluous. However, all four operators were experienced colorectal surgeons. Our results may not have reached statistical significance because the incidence of rectal prolapse is low and in common with many other published studies that have small numbers, it is difficult to compare methods on a sufficient number of patients to reach statistical significance.

Published reports on Thiersch sutures have reported high rates of extrusion.^{18,19} There were no cases of extrusion of the suture in our series. This may be because an absorbable suture was used and the pressure on the suture was less as a result of the concomitant Delorme's procedure. This technique could be of benefit as using a Thiersch suture may give some support to the pelvic floor while scarring occurs.

The follow-up period in this study was relatively short. Follow-up review occurred in the outpatient department. Patients were discharged from the clinic if there was no sign of recurrence and no symptoms. The population was elderly and likely to be stable in terms of geographical location. Consequently, if there were problems, it is probable that patients would have been referred back to our institution. Postoperative bowel function and constipation were not assessed formally but as an absorbable suture was used, we would not expect a difference in function between the two groups.

Other groups have had similar ideas and described successful results. Elgadaa *et al* performed postanal repair and Delorme's procedure concomitantly.²⁰ They found an improvement in functional results as well as the recurrence rate. Pescatori *et al* described improved function after Delorme's procedure with sphincteroplasty²¹ and Calata *et al* have successfully used a biological mesh in combination with an Altemeier procedure.¹⁵ However, both postanal repair and sphincteroplasty are more morbid and time consuming than placing a simple Thiersch suture. Furthermore, a biological mesh adds considerable expense and may increase the risk of extrusion.

To our knowledge, there is only one other group that has described performing Delorme's procedure with a concomitant Thiersch suture.²² The authors describe good results compared with Delorme's procedure alone. Recurrence was reported in 6 out of the 50 cases in which Delorme's procedure alone had been performed whereas after the Delorme–Thiersch procedure, no recurrence was detected. As in our study, there was no increase in complications. The same team went on to compare the Delorme–Thiersch procedure with laparoscopic rectopexy.²³ They found that the operative time of the combined procedure was noticeably shorter, the recurrence rate was lower and there was comparable improved anal function.

Conclusions

Delorme's procedure and simultaneous placement of a Thiersch suture does not result in an increase in

complications compared with Delorme's procedure in isolation. Although our results did not reach statistical significance, the rate of recurrence was lower in patients who underwent the combined procedure. This technique should therefore be considered in patients undergoing Delorme's procedure and bigger studies should be undertaken to investigate this further.

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