Rectal prolapse: enlightenment of the obscure
Wijffels, N.A.T.

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Laparoscopic anterior rectopexy for external rectal prolapse is safe and effective in the elderly. Does this make perineal procedures obsolete?

Wijffels NAT, Cunningham C, Dixon A, Greenslade G, Lindsey

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Abstract

Objective: To assess the safety of laparoscopic ventral rectopexy in elderly patients, compared with perineal approaches.

Background: Perineal approaches are considered to be the “gold standard” in treating elderly patients with external rectal prolapse (ERP) because morbidity and mortality are lower compared with trans-abdominal approaches. Higher recurrence rates and poorer function are tolerated as a compromise.

Method: The prospectively collected databases from two tertiary referral pelvic floor units were interrogated to identify outcome in patients of 80 or more years of age with full thickness ERP treated by laparoscopic ventral rectopexy. Primary end-points were age, ASA grade, mortality, major and minor morbidity. Secondary end points were length of stay (LOS) and recurrence.

Results: Between January 2002 and December 2008, 80 (median age 84 (80-97) years) patients underwent laparoscopic ventral rectopexy. The average ASA grade was 2.44 (s.d. +/- 0.57) [ ASA I(2), II(42), III(35), IV(1)]. The median LOS was 3 days (range 1-37). There was no mortality and 10 (13%) patients had complications (1 major and 9 minor). At a median follow up of 23 (2 – 82) months, two (3%) patients developed a recurrent full thickness prolapse.

Conclusion: Laparoscopic ventral rectopexy is safe to treat full-thickness ERP in elderly patients. Mortality, morbidity and hospital stay are comparable with published rates for perineal procedures, with a tenfold lower recurrence.
Introduction

External rectal prolapse (ERP) a circumferential, full thickness intussusception of the rectal wall with protrusion beyond the anal canal\(^1\). Its impact on the patients’ quality of life is considerable. The goals of treatment are to correct the prolapse by restoring anatomy while improving function by restoring continence and improving evacuation\(^2,3\).

Numerous operations have been described, indicating an ongoing search for the ideal surgical approach\(^4\). The techniques used are divided into perineal and trans-abdominal procedures. The latter are known to have much lower long-term recurrences and better recovery of continence\(^4,5,20\) at the expense of higher morbidity. Perineal procedures therefore are frequently performed in elderly patients who may not be considered fit enough for abdominal surgery. Higher recurrence rates (up to 16% with Altemeier’s and up to 38% with Delormes procedure)\(^5\) and poorer functional results with unpredictable recovery of continence\(^4,5,20\) are accepted as a compromise.

The use of laparoscopic surgery in treating prolapse has challenged the classical view of management of full thickness external prolapse. Since these have in general been adaptations of classical open procedures, recurrence rates (<5%) and functional results are comparable to open trans-abdominal operations\(^6\)\(^-\)\(^16\). A laparoscopic approach is associated with lower cost through a reduction in hospital stay and faster patient recovery\(^19\). More importantly, it is associated with a significant reduction in morbidity\(^6,17\)\(^-\)\(^20\). This has lead necessarily to a reappraisal of the traditional balance between perineal and trans-abdominal procedures. Recently autonomic nerve-sparing anterior or ventral rectopexy has been shown to be a further advance. D’Hoore et al. have described laparoscopic ventral mesh rectopexy (LVR) and have reported the results in 109 consecutive patients with external rectal prolapse\(^21,22\). By creating a pocket at the level of the rectovaginal septum, ventrally to the rectal wall, dissection is kept to a minimum. Apart from avoiding the posterior rectal dissection with the risk of producing rectal denervation by damage to the lateral ligaments, the morbidity is low.

We have demonstrated the reproducibility of this technique\(^24\). The primary aim of this study was to evaluate mortality and morbidity in elderly patients with full thickness external rectal prolapse, a group traditionally managed by perineal approaches. The secondary aims were to assess length of hospital stay and rate of recurrent full-thickness external rectal prolapse. We aimed to compare the primary and secondary outcome measures to those published in perineal procedures for rectal prolapse.
Method

Between January 2002 and December 2008, 80 patients with a full thickness external rectal prolapse of 80 years of age or older, were operated on in two different centres with tertiary referral pelvic floor expertise (Churchill Hospital, Oxford and Frenchay Hospital, Bristol).

The diagnosis of full-thickness external rectal prolapse was made clinically, or when suspected, confirmed by defaecation proctography. Patients underwent preoperative colonoscopy or flexible sigmoidoscopy to exclude organic disease.

Of the 80 patients some (January 2004 to December 2006) had been previously. The aim of this current paper was to look at LVR in elderly patients in particular those who would previously have been treated by a perineal procedure.

Surgical technique

The technique of LVR has been described elsewhere. Peri-operatively prophylactic intra-venous antibiotics are administered. The patient is positioned in Lloyd-Davies with hip flexion. A 30-degree laparoscope is placed in the umbilical tube. Right iliac fossa 10mm and 5mm operating ports are inserted. A superficial peritoneal window is made to the right of the sacral promontory and extended caudally over the right outer border of the mesorectum down to the right side of the pouch of Douglas. This spares the right hypogastric nerve (deeper), ureter (more lateral) and avoids mobilisation of the mesorectum. The peritoneum posterior to the apex of the rectovaginal septum is retracted postero-cranially and the vagina is retracted antero-caudally. This results in the opening of the recto-vaginal septum.

A purely anterior rectal dissection is then undertaken down to the pelvic floor (figure 1), and its distal extent is confirmed by digital rectal and vaginal examination. A strip of polypropylene (3 x 20 cm) or polyester mesh is introduced and sutured as distally as possible on the anterior rectal wall/perineal body with interrupted non-resorbable
sutures (Ethibond® Excel 00, Ethicon, Edinburgh, UK). The posterior wall of the vagina is fixed with the same sutures and to create a new rectovaginal septum. The mesh is secured to the sacral promontory using three Protack staples (Autosuture, Covidien Healthcare, Gosport, UK). If the vaginal wall is not fixed as described, the vaginal vault (or cervix) is fixed to the mesh without traction by two additional sutures. The mesh is then peritonealised by suturing the free edges of the previously divided peritoneum over the mesh to provide additional ventral elevation and avoid small bowel adhesion to the mesh.

**Anaesthetic technique**

General anaesthesia is used with short acting opioids, intravenous propofol or inhalation agents augmented by intravenous paracetamol often combined with a transversus abdominal plane block (TAP block)\(^{53}\). Administration of excessive amounts of intravenous water and electrolyte is avoided.

**Data and statistical analysis**

Data on gender, age, ASA classification, mortality, morbidity, length of stay and recurrence were prospectively collected on an institutionally approved electronic database. Nonparametric data were described as median and range and parametric data as average and standard deviation.

**Ethics**

No ethical approval was needed since the operation was well established. Even in the “classic algorithm” with younger patients offered a transabdominal procedure and older patients a perineal one, there is no clear line between young or old. As our experience with LVR increased more older patients were operated upon with satisfactory results and a morbidity and mortality to a point where there was no clear benefit of a perineal procedure for patients of any age.

**Results**

**Patients**

Between January 2002 and December 2008, 80 patients (median age 84 [80-97] years), underwent LVR (figure 2). The average ASA grade was 2.44 (s.d. +/- 0.57) distributed into ASA I (2), II (42), III (35), IV (1). Seventy eight (98%) patients were female. Thirty-six were operated in Bristol and 44 in Oxford. During the same period, four patients underwent a perineal procedure. Thirty-three (41%) patients were operated on for a recurrent rectal prolapse including Delorme’s procedure (28 ) [1-12 years earlier], posterior rectopexy (2) [4 months to 9 years earlier] and Altemeier’s resection (1). Eight (10%) patients had had two or more operations.
Figure 2, Age distribution.
X-axis: age (yrs), Y-axis: number.

Morbidity and Mortality
There was one (1%) major complication (an on-table inferior myocardial infarction successfully paced) and 12 minor complications in 9 (11%) patients (table 1). There was no mortality. The most common complications were chest infection, port site hernia and urinary tract infection. There were no mesh related complications. There was one conversion (1%) for widespread abdominal and pelvic adhesions following a previous hysterectomy and a failed complicated open posterior rectopexy.

Length of stay and recurrence
The median length of stay was 3 (1-37) days. The median follow up was 23 (2-82) months. Six patients (all died from unrelated causes) were lost to follow-up. Two demented patients were discharged from follow-up at 6 months. Two (3%) patients developed a recurrent full thickness prolapse at 6 and 16 months. Both were re-operated, one by a repeated LVR and the other by Delorme’s procedure. Three patients developed symptomatic recurrent/persistent mucosal prolapse, treated with an anopexy (2) and with a STARR procedure (1).

<table>
<thead>
<tr>
<th>Complication</th>
<th>Number of patients (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chest infection</td>
<td>3 (4%)</td>
</tr>
<tr>
<td>Urine tract infection</td>
<td>3 (4%)</td>
</tr>
<tr>
<td>Port side hernia</td>
<td>3 (4%)</td>
</tr>
<tr>
<td>Myocardial Infarction</td>
<td>1 (1%)</td>
</tr>
<tr>
<td>Wound infection</td>
<td>1 (1%)</td>
</tr>
<tr>
<td>Fluid overload</td>
<td>1 (1%)</td>
</tr>
<tr>
<td>Small bowel obstruction</td>
<td>1 (1%)</td>
</tr>
</tbody>
</table>

Table 1, Morbidity.
Discussion

Perineal procedures have been considered the “gold standard” treatment of a full-thickness external rectal prolapse in elderly patients to avoid the possible morbidity of a laparotomy. This does not mean, however, that perineal procedures are without risk. Delorme’s rectal mucosectomy has a morbidity of 12-14% and a mortality 0-5%\(^3\)\(^{25,35}\). Altemeier’s perineal rectosigmoidectomy has a similar risk of death (0-6%) and an even higher morbidity (5-25%)\(^36\)\(^\text{-}\)\(^52\). Whilst Altemeier’s procedure has better functional results than Delorme’s operation\(^31\) there is the risk of anastomotic leakage.

A recent Cochrane Collaboration review concluded that laparoscopic rectopexy results in fewer postoperative complications and earlier discharge\(^4\) over open methods. Other outcomes were similar in the open and laparoscopic groups, which imply that the advantages of an open abdominal approach also apply to laparoscopic surgery. Although laparoscopic rectopexy has become popular it has as yet not been advocated in the very aged who perhaps might be considered at increased risk from this approach. In this sizeable consecutive laparoscopic series of aged patients with full-thickness rectal prolapse there were no deaths and morbidity was very low with only one major complication, proof that LVR is safe. It is also very predictable with a good functional outcome\(^26,27,28\). Despite its minimal dissection, LVR also has a very low recurrent prolapse rate compared with the published recurrence rates up to 38% for perineal procedures\(^5\). D’Hoore reported that in a subgroup of 42 patients with a 5 year follow up, the recurrence rate was only 5% (two patients). Our 3% recurrence rate after a median 23-month follow up is consistent with this figure. A longer follow up is clearly desirable to see whether the rate will remain at around 3% although the two recurrences in the series occurred after only 6 and 16 months (which is below the median follow up).

A 30-degree laparoscope allows the surgeon to dissect the rectovaginal plane all the way down to the perineal body and the muscles of the pelvic floor (figure 1). The extent of this dissection can be checked during the procedure by digital vaginal or rectal examination. We believe that a good fixation of the mesh to the ventral rectal wall as distal as possible is essential to minimize recurrence. Although the ability to control a full thickness rectal prolapse with good functional results seems to be reproducible, it is very important to realise that the procedure requires practice and experience. This applies particularly to the distal fixation of the mesh to the anterior rectal wall which can be difficult at times.

LVR is now offered to every patient in our units whatever their ASA grade. Operating on these sometimes frail, elderly patients necessitates good anaesthetic care, but these elderly patients do tolerate laparoscopic surgery well. Using short acting agents and avoiding the administration of much intravenous water and electrolyte allows quick recovery within minutes after the end of surgery.
Many colorectal surgeons will feel that a perineal is much better tolerated than a transabdominal approach but anaesthesia used in perineal procedures such as a Delorme’s or Altemeier’s procedure has its disadvantages. The prone position is associated with unpredictable circulatory changes which often necessitate intravenous water and electrolyte boluses. Spinal anaesthesia is only practicable when the patient can be operated upon in the lithotomy position. Putting the patient prone soon after a spinal injection of local anaesthetic can lead to uncontrolled spread of the local anaesthetic, with resulting unwanted sympatholytic activity. The anaesthetist then has to respond with vasopressors and fluid boluses during surgery, leaving the patient to adjust to this change when the spinal anaesthetic wears off.

**Conclusion**

LVR combines the advantages of laparoscopy (shorter hospital stay, quicker patient recovery, lower costs and less morbidity), a trans-abdominal approach (reliable improvement in incontinence, low recurrence rate) and an anterior rectal dissection (autonomic nerve-sparing, improves constipation, avoids inducing new-onset constipation). It is tolerated very well in the elderly, which makes perineal procedures indicated only in the very frail, and thus almost obsolete. The dictum of abdominal procedure if young and perineal procedure if old, should be abandoned.
References


