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Anal incontinence after transanal versus transvaginal repair of rectocele: matched pair cohort analysis

Abstract

Gynaecologists have suggested that the use of anal retractors during transanal repair of rectocele may precipitate faecal incontinence, but little data exist. We compared the incidence of anal incontinence between transanal and transvaginal rectocele repair. A consecutive series of 45 patients who underwent transanal rectocele repair were matched for age (±3 yrs), parity and duration of follow-up (±2 yrs) and compared to a series of 45 women who had undergone transvaginal repair. A modified Wexner questionnaire was used to measure anal incontinence. Comparing gynaecological and colorectal patients, the median age (62 years, interquartile range [IQR] 50-71 vs 56, IQR = 46-66) and median follow-up (6 years, IQR 4.5-8.5 vs 9, IQR = 5-12) did not differ significantly (p = 0.06 and p = 0.07 respectively). The Wexner score was significantly increased (p = 0.01) in the transvaginal group (median 4, IQR = 1.5-7.5 vs median 0, IQR = 0-6.5, p = 0.01). The use of anal retractors at transanal repair may be less likely to precipitate faecal incontinence than the gynaecological procedure.

Introduction

Gynaecologists traditionally define a rectocele as a prolapse of the rectum into the vagina with descent towards the introitus and have repaired this via a transvaginal route. Although the first posterior colporrhaphy was ascribed to Simon of Heidelberg in 1867, initial studies of bowel function after a rectocele repair were published only in the early 1990s. These reports concur that constipation improves after vaginal surgery, but provide no data about anal incontinence.

For the gynaecologist a successful outcome is correction of the prolapse. In contrast, the colorectal surgeon diagnoses rectocele on rectal examination without reference to the vagina. Rectoceles are commonly visualised on defecating proctogram; both anterior and posterior rectoceles may occur but for the purposes of this study only the anterior rectocele is considered. Surgical treatment is offered when the defect is visible on proctogram, the rectum does not empty completely and obstructive symptoms are bothersome, requiring manoeuvres such as digitation and perineal pressure to evacuate the rectum. Coexistent enterocele is generally an indication for gynaecological referral since this defect cannot be accessed transanally.

The transrectal approach was pioneered by colorectal surgeons in 1967, partly in recognition of the fact that a vaginal repair may not correct a ballooning rectal wall or correct defects of rectal sensation. Vaginal scarring was less common after transanal repair, and hence dyspareunia was less common. Numerous studies by colorectal surgeons have examined bowel function after a transanal rectocele repair, but a consensus is difficult to
reach as these studies include both males and females. Results are further confused by the fact that large, or high, rectoceles are routinely referred to a gynaecologist. Generally, the data indicate that a transanal rectocele repair improves rectal sensation as well as constipation, or post-defecation staining. For the colorectal surgeon a successful outcome is the resolution of obstructive defecation and incomplete emptying.

In a recent study comparing laparoscopic and transanal repair of rectoceles at 4-year follow-up, the transanal group had a greater improvement in obstructive defecation symptoms on a St Mark's continence score, but were more likely to experience faecal incontinence. A recent review provided data on post-operative constipation, but faecal incontinence was not discussed. It was thus hypothesised that transanal retractors weaken the anal sphincter, precipitating faecal or flatus incontinence (termed anal incontinence) and so vaginal rectocele repair, which does not involve use of anal retractors, should not traumatise the anal sphincter. Therefore, anal incontinence may be less common after a vaginal procedure than after a transanal repair.

The main aim of this study was to compare transanal rectocele repair by the colorectal surgeon to the traditional gynaecological transvaginal rectocele repair, in order to assess whether anal incontinence may be less common after a vaginal procedure. A matched group of patients with no baseline anal incontinence comprised the study sample. A secondary aim was to determine the influence of known obstetric risk factors on the incidence of post-operative anal incontinence.

Methods

We asked our colorectal colleagues to obtain the records for a consecutive series of patients who had undergone transanal repair of rectocele more than 12 months previously (see Figure 1). We asked the colorectal surgeons to nominate the ‘index’ series of participants, as it was our clinical impression that transanal repairs were less commonly performed than transvaginal repairs (and would be more difficult to obtain). Having determined the median time elapsed since the transanal procedure (9 years, IQR 5-12 years), we obtained records for a consecutive series of patients who had undergone vaginal rectocele repair up to 12 years previously, so as to match the cohort.

Both the colorectal and gynaecological surgeons had routinely sought a pre-operative history of incontinence to flatus or liquid or solid stools, which had been recorded on the prospective database for each department. Because the modified Wexner scale was not widely used at the baseline visit many years previously, these data were based on clinical information contained in the patient charts. Faecal urgency was not systematically recorded. Obstetric history of parity, mode of delivery, perineal tears, episiotomy and weight of the largest baby born vaginally, were noted for both groups. For this study, a traumatic vaginal delivery was defined as either the delivery of a macrosomic baby (>4.5 kg), or a forceps delivery with perineal tears or episiotomy.

The colorectal surgeons did not customarily assess duration of vaginal prolapse symptoms or the severity of vaginal prolapse.

In order to match the cohorts the primary match variable was age (within ± 3 years) then parity and lastly duration of time since procedure (± 2 years). As described in Figure 1 telephone contact and consent to enter the study was established in accordance with local hospital ethics committee approval. A modified Wexner scale was administered by telephone, by research fellows not involved in the original procedure. This test yielded a maximum 24 point score regarding current symptoms of anal incontinence (Table 1).

Within the transanal group, there was a cluster of younger patients (age 26-36 years) who underwent transanal repairs and were diagnosed with idiopathic slow transit constipation; this group could not be matched with transvaginal controls and were excluded. Conversely, within the transvaginal repair group a cluster of patients well over the age of 80 years could not be matched with transanal controls. This final cohort (n = 45 in each group) comprised the data set.

In order to obtain a series of vaginally operated patients with a similar duration of follow up it was necessary to include those who had undergone concurrent repair of enterocoele by sacrospinous fixation. The modified Wexner scale scores of those with and without a sacrospinous fixation was compared.
using subset analysis to determine whether the enterocele repair appeared to be a confounding variable.

Data were not normally distributed and so are represented as median ±IQR; the Wilcoxon test was used for matched-pair analysis while the unpaired t test was used for unpaired data (e.g. the sacrospinous subset analysis); p <0.05 was considered significant.

Results

Patients were matched according to age (Figure 2), parity and duration of time since surgery (Figure 3). The median age was 62 years (IQR = 50-71) for the transvaginal group and 56 years (IQR = 47-68) years for the transanal group (p = 0.06).

The median duration of follow-up after surgery for the matched pairs was 6 years (IQR = 4-8.5) for the transvaginal group and 9 years (IQR = 5-12) for the transanal group (Figure 3) (p = 0.07).

At the baseline visit, no patient complained of anal incontinence and recording of faecal urgency data was incomplete.

In the transvaginal group 17/45 (37%) patients had a concurrent sacrospinous fixation (SSF), which reflected the fact that patients with an enterocele are referred to the gynaecologist. A subset analysis comparing transvaginal repairs with and without SSF showed no difference in Wexner scores between these two subsets (p = 0.68). The median for both groups was 4.0 (IQR was 0.5-11 for the SSF group and 2-7 for the non-SSF group, (Figure 4).

The modified Wexner score was significantly higher (p = 0.01) in the transvaginal group (median = 4, IQR = 1.5-7.5) than in the transanal group (median = 0, IQR = 0-6.5, Figure 5). Note that 32 patients in the transanal group had a modified Wexner score of zero.

Of the women with a positive score in the transvaginal group, the most frequent score item was flatus incontinence. No clear trend was observed in the transanal group.

Table 1. Modified Wexner continence score (maximum score = 24) to quantify faecal continence.

<table>
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<tr>
<th></th>
<th>never</th>
<th>rarely</th>
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<th>daily</th>
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<td>3</td>
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<td>2</td>
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<td>2</td>
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<tr>
<td>Alteration of lifestyle</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
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</table>

Amendments to original score: NO YES

Need to wear a pad or plug 0 2
Need to use constipating medicine 0 2
Unable to defer defecation for 15 minutes 0 4

Figure 2. Age matched cohort comparing transvaginal to transanal rectocele repairs.

Figure 3. Patient cohort matched for duration since surgery.
Traumatic deliveries, defined as either a macrosomic baby (>4.5kg) or a delivery by forceps, were equally represented in both groups. The median Wexner scores did not reveal an association between greater birth trauma and higher Wexner scores (Table 2).

**Discussion**

To our knowledge this study is the first published comparison of anal continence outcomes from women who have had either a transvaginal or transanal repair of rectocele. In view of the previous hypothesis that anal retractors may provoke a higher incidence of anal incontinence, we were surprised to find the opposite. In the gynaecology patients, however, the most common score item was for incontinence of flatus, not faeces.

Initially we were concerned that the high proportion of gynaecology patients who underwent a concurrent sacrospinous fixation may affect the results, but, this proved not to be the case. As mentioned in the methods we could not obtain...
<table>
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<tr>
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<td></td>
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<td></td>
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<tr>
<td>Macrosomic Baby (&gt;4.5kg)</td>
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Table 2: A comparison of the median modified Wexner scale scores of a subset of patients within the transvaginal and transanal rectocele repair groups who had a forceps delivery or a macrosomic baby (i.e. birth weight >4.5 kg) or both a macrosomic baby and a forceps delivery.

prospective data about the anatomical severity, or duration, of the vaginal prolapse from the colorectal surgeons as such data is not routinely collected. Perhaps severity or duration of the rectocele may have a bearing upon the risk of subsequent anal incontinence, but at present this information is not available.

Although the transanal group tended to be younger and had a slightly longer duration of follow up, these differences were not significant. The longer follow up for the transanal group should have allowed any subsequent anorectal dysfunction more opportunity to emerge. Alternatively, immediate postoperative anal incontinence that resolved over time may have been a feature that this study did not capture.

Even though the difference in modified Wexner scores between surgical groups was statistically significant, we must ask whether this is clinically significant. In fact, a previous report from colorectal surgeons showed that a modified Wexner score of less than 9/24 (or 6/20 on the original score) was unlikely to affect quality of life. Hence our observation of a difference in Wexner scores between the two groups (i.e. a median of 4 in the transvaginal group versus a median of 0 in the transanal group) may be of academic interest only. However, qualitative data from our telephone enquiries did indicate that women were socially impaired by their flatus incontinence.

From our data it would appear that anal retractors are not implicated in precipitating anal incontinence post-operatively.
This is corroborated by a recent study showing that dilation of the anal sphincter with a large-diameter operating sigmoidoscope, sometimes for a prolonged period, did not affect anal continence. It would seem that anal incontinence post-operatively may simply reflect the natural progression of disease. Our findings contradict a previous study that compared laparoscopic rectocele repair to transanal rectocele repair; the authors report higher faecal incontinence rates for transanal rectocele repairs. However, the median follow-up for this comparison was only 20 months. Certainly the duration of follow-up after the initial surgical technique is an important potential confounding variable.

One of the main weaknesses of this study (and potentially any observational cohort study) was that patients with prolapse were referred to gynaecologists and patients with obstructed defecation were referred to colorectal surgeons. Thus ‘apples were compared with oranges’. We had expected the patients with obstructed defecation to exhibit greater bowel dysfunction post-operatively, but this did not appear to be the case.

The colorectal literature suggests that there is a natural progression of pathology underlying pelvic floor dysfunction. Patients who have a large rectocele may eventually suffer from anal incontinence owing to their underlying pelvic floor dysfunction irrespective of which surgical procedure corrects their rectocele.

**Conclusion**

In order to definitively answer the question as to whether vaginal rectocele repair is more deleterious with regard to faecal continence than the transanal approach, this study needs to be undertaken on a prospective basis. In our opinion, a randomised controlled trial would not be feasible because patients with obstructive defecation will seldom be seen by gynaecologists and patients with a vaginal bulge will seldom seek colorectal referral. This study highlights the current controversy about the best advice to give patients regarding the mode of operation for rectocele repair. We suggest that a carefully controlled prospective multi-centre trial may be required to determine the optimal method of surgical approach for the patient with a low rectocele without coexistent enterocoele. Successive annual visits to capture fluctuations in symptoms would be needed, with quantitative Wexner scores collected at all visits. Detailed prospective questioning about antecedent and post-operative constipation and dyspareunia would also be required.

**References**