Original article

Functional and physiological outcome following transanal repair of rectocele

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Background: **Rectoceles are traditionally repaired transvaginally and sexual dysfunction can be a significant complication. The aim of this study was to evaluate the functional and physiological outcome following transanal repair of rectoceles.**

Methods: **Forty-five patients of mean age 57·1 (range 34–78) years with a symptomatic anterior rectocele, selected by contrast retention greater than 15 per cent on isotope defaecography, underwent transanal repair of rectocele. Preoperative and postoperative symptoms were assessed by means of a questionnaire. A proportion of patients underwent anorectal physiology and isotope defaecography before and after surgery.**

Results: **Median(range) follow-up was 24 (2–50) months. One patient developed a wound infection after surgery. Thirty-five patients reported an excellent, good or fair result, with seven reporting a moderate and three a poor result. There was a reduction in incomplete evacuation ($P < 0·001$) confirmed by isotope defaecography (mean(s.d.) rectal emptying before surgery 57(14) per cent *versus* 76(9) per cent after surgery; $P = 0·020$), and a reduction in vaginal ($P < 0·001$) and perineal ($P = 0·004$) digitation. Symptomatic feeling of prolapse (vaginal bulging) was significantly improved ($P < 0·001$). There was no increase in incontinence ($P = 0·688$). Resting and squeeze anal canal pressures were unchanged after operation. Surgery did not result in sexual dysfunction.**

Conclusion: **Transanal repair of rectocele is a safe alternative to posterior colporrhaphy. It provides improvement in symptoms, reflected by anatomical improvement with minimal complications and no increase in dyspareunia.**

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Introduction

Rectocele, or herniation of the anterior rectal wall into the vagina, is a common condition considered to be part of genital prolapse[1]. Rectoceles are frequently asymptomatic[2] and have been reported as an incidental finding on defaecography in up to 80 per cent of patients[3–6]. Rectoceles may, however, be associated with significant anorectal symptoms including constipation with difficulty in evacuation, the need for perineal and/or vaginal digitation, and rectal pain[2,7]. The extent to which symptoms can be attributed directly to the anatomical pathology represented by the rectocele remains uncertain, resulting in difficulty in the selection of patients for surgical repair[8]. Repair of the rectocele has been correlated with a successful functional outcome in 70–90 per cent of patients[8–11], but has failed to resolve symptoms in others despite successful resolution of the structural abnormality[7,11]. The reason for this variability in outcome remains uncertain. Selection of patients for surgical intervention for symptomatic rectocele remains an area of debate.

Gynaecologists traditionally repair rectoceles transvaginally[12]. Although this may correct the vaginal defect in the majority of women, it is not always successful and may contribute to bowel and sexual dysfunction[13]. Mellgren *et al.*[14] reported that almost 50 per cent of

patients continued to have some degree of constipation following posterior colporrhaphy. Redding[15] reported that neglect of the rectocele resulted in failure of other anorectal surgery and in 1967 Marks[16] identified the presence of 'the loose inner lining of the rectocele in the rectal ampulla' following transvaginal repair. Transanal repair has been considered to address the anorectal component of rectoceles in contrast to the transvaginal approach. There has been a wide spectrum of results for transanal rectocele repair, combined with variable criteria for surgery[1,2,7–10,17,18]. Transanal repair has been associated with a decrease in sphincter pressures after surgery[19].

The aim of this study was to assess the outcome of applying restrictive criteria for transanal repair of rectocele, and to evaluate the resolution of symptoms with quantifiable changes in degree of evacuation and anorectal physiology.

Patients and methods

Patients and assessment

Between April 1995 and April 2002, 138 patients with a symptomatic rectocele seen in the combined pelvic floor clinic at St George's Hospital were evaluated according to a standard protocol. All patients were examined clinically and underwent anorectal physiological assessment of resting and maximum anal squeeze pressures, the presence of an anorectal reflex, and rectal volume sensation. Endoanal ultrasonography and isotope defaecography to determine percentage rectal evacuation were also performed. Patients were considered candidates for surgical repair of a rectocele if the following criteria were fulfilled: symptoms of obstructed defaecation (difficult or prolonged defaecation requiring manual evacuation or a sensation of incomplete evacuation and/or perineal digitation and/or vaginal bulging and/or straining at stool) and the retention of more than 15 per cent of the isotope on isotope defaecography. Fifty-eight patients were found to have a significant rectocele; 45 decided to proceed to surgery. All patients who had surgery completed a standard questionnaire to assess the frequency of preoperative symptoms: bowel frequency, straining at stool, incomplete evacuation, vaginal and/or perineal digitation, faecal incontinence (grade 1, normal continence; grade 2, incontinent to flatus; grade 3, incontinent to liquid stool; grade 4, incontinent to solid stool), dyspareunia, vaginal bulging and use of laxatives.

After surgery, patients again completed the questionnaire. Anorectal physiology studies and isotope defaecography were repeated in patients who agreed to undergo these studies. Patients were also asked to grade outcome subjectively as excellent, good, fair, moderate or poor.

Isotope defaecography was performed as described by Hutchinson *et al.*[20] using technetium-99m-labelled oatmeal-like contrast. Anorectal manometry was performed using a flexible, polyethylene, water-perfused catheter with a pull-through technique, and a rectal balloon for assessment of anorectal reflex and rectal sensation.

Surgical technique

All patients underwent surgery in the jack-knife position under general anaesthesia and received prophylactic intravenous antibiotics (cefuroxime 750 mg, metronidazole 500 mg). Preoperative bowel preparation was not used and patients were not routinely catheterized. A transverse mucosal incision was made in the anterior rectal wall just above the dentate line. A mucosal flap was elevated from the anterior rectal wall using diathermy dissection with 6–8-cm vertical incisions extending cranially on the anterior rectal wall from each end of the primary transverse incision. Elevation of the mucosal flap revealed the underlying rectal circular muscle. Four interrupted sutures of 3/0 polypropylene (Prolene®; Ethicon, Edinburgh, UK) were inserted into the anterior rectal wall to plicate the rectovaginal septum longitudinally. The sutures were tied, plicating the anterior rectal wall. Any excess mucosa was excised and the mucosal flap sutured back into place using 3/0 polyglactin (Vicryl®; Ethicon).

Follow-up

All patients were seen at follow-up 6–8 weeks after the operation. They were subsequently contacted by telephone and asked to complete the questionnaire regarding symptomatic outcome. Seventeen patients agreed to repeat anorectal physiology studies and ten underwent repeat isotope defaecography.

Statistical analysis

McNemar's test was used to compare patient symptoms before and after surgery, and the presence of an anorectal reflex. Wilcoxon's signed rank test was used to compare preoperative and postoperative isotope defaecography results and anorectal physiology.

Results

Forty-five patients with a clinically significant rectocele underwent transanal repair. Their mean age was 57·1

(range 34–78) years and symptoms had been present for a mean of 52 (range 2–360) months.

Median follow-up was 24 (range 2–50) months. One patient had a postoperative wound infection that settled with conservative management. Twelve patients reported an excellent outcome following surgery, 13 a good outcome, ten a fair outcome, seven a moderate outcome and three a poor outcome.

The most common preoperative symptoms were vaginal bulging, straining and incomplete evacuation. Patients also complained of vaginal digitation, perineal digitation, dyspareunia and faecal incontinence. Symptom frequency before and after surgery is shown in *Table 1*. Surgery resulted in a significant reduction in the frequency of vaginal bulging ($P < 0{\cdot}001$), incomplete evacuation ($P < 0{\cdot}001$), straining ($P < 0{\cdot}001$) and dyspareunia ($P = 0{\cdot}020$). There was no increase in incontinence.

Eleven patients were taking stimulant laxatives and ten were taking enemas before surgery. After operation, ten patients continued taking stimulant laxatives and one patient used enemas.

The mean(s.d.) percentage retained contrast determined by isotope defaecography before surgery was 41(15) per cent. In ten patients who underwent isotope defaecography after surgery there was a significant improvement in rectal emptying (*Fig. 1*) (mean(s.d.) rectal emptying before surgery 57(14) per cent *versus* 76(9) per cent after surgery; $P = 0{\cdot}020$).

Seventeen patients underwent anorectal physiology before and after surgery; there was no difference in resting or squeeze anal canal pressure (*Table 2*). The anorectal reflex was present in five of the 17 patients before surgery and in seven after surgery ($P = 0{\cdot}500$). The threshold volume of rectal sensation, measured by detection of rectal expansion using an air-filled intrarectal balloon, was significantly reduced following surgery. Maximum tolerated volume was not significantly changed.

Table 1 Functional outcome following transanal repair in 45 patients with rectocele

Symptom	Before surgery	After surgery	*P*†
Straining	40	16	< 0·001
Incomplete evacuation	40	27	< 0·001
Vaginal digitation	28	6	< 0·001
Perineal digitation	22	10	0·004
Incontinence (grade 3 or 4)*	9	7	0·688
Dyspareunia	11	3	0·020
Vaginal bulging	43	10	< 0·001

*Grade 3, incontinent to liquid stool; grade 4, incontinent to solid stool. †McNemar test.

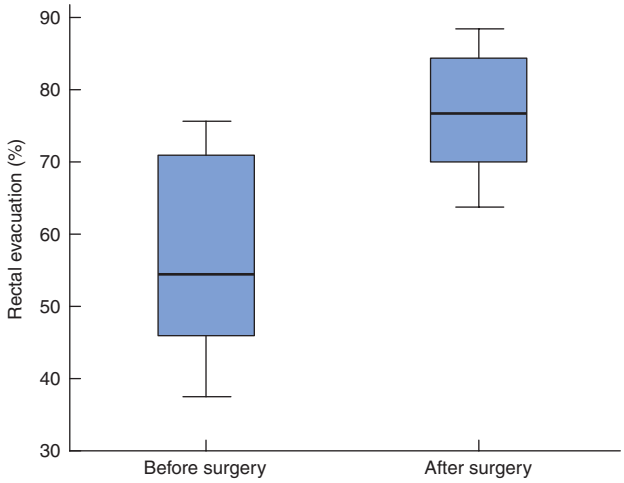

Fig. 1 Efficiency of rectal evacuation determined by isotope defaecography before and after transanal rectocele repair. Median values, interquartile ranges and ranges are denoted by horizontal bars, boxes and error bars respectively. $P = 0{\cdot}020$ (Wilcoxon signed rank test)

Table 2 Anorectal physiological assessment in 17 patients

	Before surgery	After surgery	*P*‡
Resting anal canal pressure (cmH_2O)	80(23)	76(29)	0·370‡
Squeeze anal canal pressure (cmH_2O)	136(42)	141(40)	0·911‡
Anorectal reflex present	5	7	0·500§
Threshold volume (ml)*	51(23)	41(19)	0·025‡
Maximum tolerated volume (ml)†	204(87)	201(78)	0·619‡

Values are mean(s.d.). *Volume at which rectal balloon distension is first perceived by patient; †volume at which discomfort becomes intolerable during rectal balloon distension. ‡Wilcoxon signed rank test; §McNemar test.

Discussion

Rectoceles are a common finding on physical examination, particularly in multiparous women[21]. Bartram *et al.*[22], in a proctographic study, found that up to 80 per cent of asymptomatic women had rectoceles, supporting the findings of Block[2] who had reported that less that a quarter of women with a clinical rectocele were symptomatic. Neglect of a rectocele has previously been shown to result in failure of other anorectal surgery[15], but identifying a rectocele as the primary cause of a patient's symptoms is more unlikely as the cause of symptoms is often multifactorial.

Transanal rectocele repair has been referred to as an anterior internal Delorme procedure, as the anterior mucosal intussusception and prolapse are reduced in

addition to correction of the rectocele. Thus it is important to define the precise symptom for which the intervention is being performed. Many early studies failed to identify the symptoms the operation was aimed at addressing. Khubchandani *et al.*[17] and Sehapayak[21] reported 63 and 49·5 per cent of patients respectively to be asymptomatic following transanal repair but did not state what symptoms the patients had originally. Block[2] observed no recurrence in 60 patients who underwent transanal repair, but commented that 77 per cent of the patients were asymptomatic before surgery. Arnold *et al.*[7] operated on 60 patients with constipation and reported that half remained constipated and one-third were incontinent. These authors stated that 'their relatively poor results may be due to an unselective approach to rectocele repair'. This appears to have been a problem in many early studies, as reflected by the poor results obtained.

Later studies of transanal repair of rectocele took a more selective approach to surgery and demonstrated more successful results. Karlbom *et al.*[9] found that the need for vaginal or perineal digitation before surgery was predictive of a good outcome following repair. Janssen and van Dijke[18] selected patients with rectoceles who complained of difficulty in defaecation; they demonstrated a good correlation between reduction in rectocele size and improvement in symptoms. Murthy *et al.*[8] selected patients for surgery on the basis of symptoms and the presence of retained contrast on proctography, symptomatic vaginal digitation or vaginal bulging, or a very large rectocele; 92 per cent of patients were either improved or satisfied by the outcome.

Outcome after surgery is inevitably influenced by patient selection, and in the present series the selection criteria were chosen to reflect this. To be selected for operation, all patients had to have a clinical rectocele and symptoms of obstructive defaecation that could be attributed to the rectocele. In addition, contrast retention of 15 per cent or greater had to be demonstrated on isotope defaecography. The decision to use percentage contrast retention as a criterion was based on a number of reports. Although many rectoceles demonstrated on defaecography are asymptomatic[21], only 16 per cent are asymptomatic when larger than 2 cm, as demonstrated by barium defaecography[23]. Symptoms have not been shown to correlate with barium retention[24], and on isotope defaecography size does not correlate with symptoms[25]. Clinical studies have, however, shown a correlation between reduction in rectocele size and improvement in symptoms[18]. Isotope defaecography has shown that rectocele size is reduced by surgery and allows precise quantification of contrast retained[25]. Selection of symptomatic patients with significant contrast retention, whether on isotope or barium defaecography, appears to have the potential to identify patients with a greater likelihood of benefiting from surgery. The proportion of contrast retention required is debatable: it needs to be sufficiently large to demonstrate that the retention is likely to be reduced by surgery, but not so large as to exclude significant proportions of patients from operation. This is an area that would benefit from further study, although it is interesting that the present study confirmed the findings of Janssen and van Dijke[18] with a significant reduction in contrast retention matched by a significant improvement in symptoms such as incomplete evacuation. The patients did not undergo routine contrast defaecography to assess for intussusception, and it remains uncertain whether intussusception represents a primary phenomenon or is secondary to chronic straining alone.

These results provide support for the transanal approach for rectocele repair. There was no increase in dyspareunia, which is often a problem with the transvaginal approach[13], and no measurable difference in resting or squeeze pressure, a reported complication of the transanal approach[19]. Patients reported no increase in incontinence, as in previous studies of transanal repair[7].

Transanal repair of rectocele appears to be a safe alternative to posterior colporrhaphy. It provides a significant improvement in symptoms, reflected by anatomical correction and increased efficiency of faecal evacuation with no increase in dyspareunia. Selection of patients according to the criteria used in this study may enable the identification of those who will benefit from this operation, although this needs to be confirmed in a larger study.

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