Physiological Study and Roles of Surgical Management in Patient with Rectal Prolapse*

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สรีรศึกษา และแนวทางการรักษาผู้ป่วยทวารหนักโผล่ยื่น

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รายงานการศึกษาทางคลินิกและการวัดความดันด้วยเครื่องมาโนมิเตอร์ตลอดจนถึงผลการรักษาทางศัลยกรรมโดยวิธีโพลีไวนัล สปองจ์ เร็กโตเป็กซี่ ในผู้ป่วย 30 ราย ที่มาด้วยปัญหาลำไส้ตรงยื่นโผล่จากทวารหนัก พบว่าอัตราส่วนเพศหญิง : ชาย = 14 : 1 อุบัติการของโรคพบสูงในช่วงอายุ 60–70 ปี ผู้ป่วย 20 คนพบมีอาการกลั้นอุจจาระไม่ได้ร่วมด้วย ประมาณร้อยละ 50 ของผู้ป่วยที่เป็นเพศหญิงมีประวัติเคยได้รับการผ่าตัดเอามดลูกออกไปและหรือทำผ่าตัดซ่อมกระบังลมหย่อนในอุ้งเชิงกรานเนื่องจากมดลูกเคลื่อน ผู้ป่วยหญิง 5 รายมีอาการกลั้นปัสสาวะไม่ได้มากกว่าร้อยละ 30 ของผู้ป่วยมีประวัติของการเจ็บป่วยทางจิตอย่างมีนัยสำคัญ ผู้ป่วย 10 รายเคยได้รับการผ่าตัดแก้ไขทวารหนักเคลื่อนโดยศัลยกรรมวิธีอื่น ๆ มาก่อน 14 ครั้ง และมี 5 รายที่ต้องการผ่าตัดเพิ่มเติมต่อไปอีก โดย 3 รายใช้วิธีผ่าตัดซ่อมทวารหนักทางด้านหลัง การวัดความดันในทวารหนักโดยเครื่องมาโนมิเตอร์พบว่า ความดันสูงสุดทั้งในระยะพักและระยะบีบตัวของหูรูดจะลดลงอย่างมีนัยสำคัญในผู้ป่วยทวารหนักเคลื่อนที่มีอาการกลั้นอุจจาระไม่ได้ร่วมด้วย

การรักษาโดยวิธีผ่าตัดเล็กในผู้ป่วยสูงอายุและผู้ป่วยโรคจิต มีอุบัติการของการกลับเป็นใหม่สูงและต้องการการผ่าตัดแก้ไขอีกครั้ง การวัดความดันในช่องทวารหนักด้วยเครื่องมือมาโนมิเตอร์และวัดสภาพการนำไฟฟ้าของเส้นประสาทเลี้ยงกล้ามเนื้ออุ้งเชิงกรานก่อนผ่าตัดเชื่อว่าจะนำไปสู่การวางแผนการรักษา และเพิ่มประสิทธิผลของการผ่าตัดรักษาได้ดีขึ้น *(ศรีนครินทร์เวชสาร 2529; 2 : 99 – 103)*

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The clinical and manometric features and surgical course of thirty patients with rectal prolapse treated by polyvinyl sponge rectopexy were reviewed. The female : male ratio was 14 : 1 ; the highest incidence is in the sixth and seventh decades. Twenty patients had associated anorectal incontinence. 50% of the women had had previous hysterectomy and / or pelvic floor repair for uterine prolapse and five women had urinary incontinence. More than 30% of the patients had a significant history of mental illness. Ten patients had previously had fourteen other surgical procedures for rectal prolapse. Five patients required further surgery, three by postanal repair. Maximum resting and squeeze anal canal pressures were significantly reduced only in rectal prolapse associated with anorectal incontinence.

Treatment by minor surgical procedures in the elderly and psychiatric patients leads to high reoperation rates. Prior manometric and electrophysiological assessment of the pelvic floor may further improve their management and clinical outcome.

INTRODUCTION

Chronic idiopathic constipation is predominantly a disorder confined to women[1]. This can lead to chronic straining at stool and resultant weakness of the pelvic floor musculature[2]. Trauma or stretch injury to the pudendal nerves associated with difficult childbirth also leads to weakness of the pelvic floor musculature[3]. The sequelae of this neuropathy, such as rectal prolapse, may take many years to manifest themselves. Colonic factors may also be responsible[4]. In clinical practice the surgeon may be confronted with the problem of treating a full-thickness rectal prolapse in an elderly patient who may have other manifestations of pelvic floor weakness such as faecal or urinary incontinence and procidentia. Many of these patients have psychiatric disturbances and there is thus a tendency to treat them with minor operations such as the Thiersch procedure with disappointing results[5]. Detailed urodynamic studies combined with anorectal manometry and electrophysiology of the pelvic floor[6,7] may further improve the outcome.

The natural history of this disorder is poorly documented. We have studied retrospectively the clinical features, anorectal manometry and surgical course of thirty patients with full-thickness rectal prolapse between 1973 and 1983, and present here their detailed analysis.

PATIENTS

Clinical features

The case records of thirty consecutive patients who had undergone polyvinyl sponge rectopexy for full-thickness rectal prolapse between 1973 and 1983 were obtained for detailed analysis. They comprised 28 female and 2 male patients (age range 27-92 years, mean 60.6 years). Table I shows the age distribution in the group. Duration of the symptoms of rectal prolapse ranged from 4 months to 17 years (mean 3 years). Follow-up ranged from 2 months to 8 years (mean 18 months). It is of interest that 13 of the women were nulliparous. Eleven patients had a history of significant mental disturbance necessitating psychiatric referral, depressive illness being by far the commonest ; one patient had undergone leucotomy for severe endogenous depression.

Table II shows associated conditions and their duration before surgical intervention. A very high proportion of the patients suffered from chronic constipation. Two-thirds of the patients were occassionally incontinent of faeces.

For manometric comparison, 10 female hospital control subjects with no anorectal symptoms were studied.

Previous surgery

Ten patients had previously had 14 anorectal operations as shown in Table III, the commonest of these being Thiersch wiring. Symptomatic recurrence of the rectal prolapse

Table I Age Distribution of Patients

Age in years	No. of patients
< 50	5
51 - 60	6
61 - 70	7
71 - 80	10
> 80	2

Table II Associated conditions in 30 patients with complete rectal prolapse

Condition	No. of patients (%)	Mean Duration in years
Chronic constipation	25 (83)	8
Anal Incontinence	20 (67)	2.1
Diarrhoea	6 (20)	2.7
Uterine Prolapse	5 (17)	4.2
Urinary Incontinence	5 (17)	6.5
Diverticular disease	9 (30)	-
Haemorrhoids	7 (23)	-
Dolichocolon	2 (7)	-
Solitary rectal ulcer	2 (7)	-
Colorectal polyps	3 (10)	-

Table III Surgery before rectopexy

Procedure	No. of operations
Thiersch wiring	10
York-Mason excision of rectal ulcer	2
Excision of mucosal prolapse	1
Post anal repair	1
Abdominal hysterectomy	6
Vaginal hysterectomy	5
Pelvic floor repair	10

Table IV Re-operations after rectopexy

Procedure	No. of operations
Excision of rectal mucosa	3
Post anal repair	2
Rectosigmoidectomy and post anal repair	2
Defunctioning pelvic colostomy	1

Table V Anal canal pressures before treatment

Group	No. of Patients	Maximum resting pressure (mean ± SD, cm. H_2O)	Maximum squeeze pressure (mean ± SD, cm. H_2O)
Rectal prolapse	10	53.6 ± 21.9†	148.6 ± 43.6†
Rectal prolapse + anal incontinence	5	39.8 ± 26.3‡	80.6 ± 49.3*
Controls	10	59.9 ± 25.2	150.1 ± 52.3

Comparison with controls (Wilcoxon test for unpaired differences) : † Not significant, ‡ $p < 0.05$, * $p < 0.02$

necessitated rectopexy in all these patients. Eleven female patients had previously had hysterectomy, five via the vaginal route. A total of 10 women also gave a history of previous pelvic floor repair having been performed.

METHODS

Sigmoidoscopy and barium enema had been performed in every case and were able to detect some of the associated conditions shown in Table II. Fifteen patients and 10 controls underwent anorectal manometry with conventional techniques[8] to record maximum resting and squeeze anal canal pressures, and 3 patients a urodynamic investigation.

Rectopexy was performed after emptying of the distal bowel had been achieved by means of disposable enemas or washouts. Under general anaesthesia, with the patient in the supine position, after the bladder had been catheterized. A lower midline abdominal incision is made. After mobilisation of the rectum a conventional "wraparound" technique with polyvinyl sponge was used[9]. Patients were kept in hospital until a satisfactory bowel movement had been achieved but bulk laxatives were avoided. Subsequent follow-up was via the surgical outpatient clinic.

RESULTS

There was no operative mortality. The mean total hospital stay was 15.6 days with a mean postoperative stay of 12 days. Apart from minor complications such as chest and urinary tract infection, the only others of significance included one pelvic haematoma and three patients with subacute colonic obstruction. These resolved with conservative management. During a follow-up period that ranged from 2 months to 8 years (mean 18 months) five patients required 7 further operations for symptomatic reprolapse. The procedures that were used are shown in Table IV. One patient suffered from anorectal incontinence and prolapse even after a rectosigmoidectomy combined with a postanal repair, eventually necessitating a defunctioning pelvic colostomy. Anal continence was improved in most patients although five patients continued to have poor control of liquid stool and flatus.

The results of the manometric evaluation of the anal sphincters preoperatively are shown in Table V.

DISCUSSION

Stretch or traumatic injury to the pudendal nerves at childbirth can lead to denervation and resultant weakness of the pelvic floor[3]. However 46% of the women in this study were nulliparous and could not have this had this mode of injury. It is more likely chronic atraining at stool resulted in their pelvic floor weakness[2] with prolapse. In this respect the large proportion of patients who were recorded as being chronically constipated would support this hypothesis. Hysterectomy may cause colonic dysmotility including chronic constipation (unpublished data) and may therefore increase the strain on an already compromised pelvic floor. Forty percent of the women in this series had had a previous hysterectomy.

Advanced age and psychiatric disturbance are immediately apparent and important features of the patients in this study. The impact of these factors on the operative treatment is difficult to determine precisely but there is some evidence from this and other studies[5] that many of these patients may be considered "unfit" for definitive surgery. This may result in several reoperative procedures. Rectopexy alone appears to be a completely safe procedure and should be considered more often in the management of these patients. This is particularly important in those patients who may already have had gynaecological procedures for the management of uterine prolapse.

In some patients the results of rectopexy are not entirely satisfactory and an additional

procedure such as the Parks' postanal repair[10] may be necessary to improve the prolapse or anal continence. In these patients primary sphincter weakness may be a more significant factor than the exertion of excessive pulsion forces[4]. Other patients may have such a profound neuropathy of the pelvic floor musculature that reparative surgery is destined to failure and a colostomy may be necessitated as it was in one patient in our group. Anorectal manometry[8] can give some indication of the relative functions of the internal and external anal sphincters[11,12]. The manometric data from our small group suggests that the aetiology of prolapse may be different in those patients who do not have associated incontinence. This has been suggested by other manometric studies[4,13] and may guide therapeutic management. Further indices of the function of the striated pelvic floor are now available by electromyographic[6] and electrophysiological[7,14] methods. In patients with urological symptoms the addition of urodynamic data[15] can lead to a comprehensive functional assessment of the pelvic floor. Two patients with rectal prolapse had evidence of solitary rectal ulcer. It is now believed that these patients may have a physiological abnormality of the striated pelvic floor. The puborectalis does not relax normally on attempted defaecation straining and this leads to faecal stasis and secondary prolapse of rectal mucosa. These abnormalities are demonstrable by manometric and electromyographic techniques and should lead to a more rational surgical treatment of rectal prolapse with better functional results.

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