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Complete Rectal Prolapse: Our Experience with Repair by Simple Suture Technique

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ABSTRACT

A simple technique for the repair of complete rectal prolapse is described and the result discussed. This simple suture method involves posterior rectopexy; suturing the rectum to the sacrum with interrupted nylon suture, which is commonly available in Nigeria, and thus avoiding the insertion of foreign material (eg polypropylene mesh) which are not easily available in Nigeria. This operation is suitable for all ages, the minimal pelvic dissection and short operative time makes this method attractive for use even in high risk patients. The procedure was carried out in 38 patients aged between 16 and 80 years with a follow up period between 6 months and 5 years. There was one post-operative death. The operation has a low morbidity and mortality and most of the patients were asymptomatic at follow up. There were only two recurrences, one complete rectal prolapse and the other mucosal prolapse. Simple suture posterior rectopexy remains a viable and effective option for treatment of rectal prolapse especially in our environment where foreign material (mesh) is not easily available.

KEY WORD; Complete rectal prolapse, Simple suture technique.

INTRODUCTION

The numerous procedures available to the surgeon for treatment of rectal prolapsed reflect the varied views of inadequacy of most of the methods. The use of Thiersch wire or suture introduced in 1891[1] should be abandoned in view of its high recurrence rate [2], and anal sinuses formation with consequent anal soiling when the wire or suture erodes the anal skin and more particularly the troublesome faecal impaction. The pelvic floor operation involving obliteration of pouch of Douglas like Roscoe – Graham operation has a high recurrence rate of 15-20% [3] and also involves extensive pelvic dissections. Recto sigmoidectomy is now reserved for gangrenous prolapse which is fortunately rare. Moore [4] reported on 42 cases using Lahaut's method in which the rectum and lower sigmoid are help up and taken through to the rectal sheath produces an unacceptable bulge in the lower abdomen. Delorme's operation in which the prolapsing portion of rectal mucosa is stripped off the underlying muscle as far as possible and the muscle coat imbricated with series of longitudinal sutures has a low mobility and obviates the necessity for laparotomy. It is therefore suitable for frail and high risk patients. It is however a compromise operation with high recurrence rate of 10-25% [5]. Operations involving fixation of rectum to the sacral concavity either by means of polyvinyl alcohol sponge (or more recently use of polypropylene mesh) as described by Wells [6] or use Teflon sling as described by Ripstein [7] have been more successful. Both operations have low recurrence rates but their disadvantage is that they involve the use of foreign implants that are expensive and not easily available to the surgeon working in a developing country like ours. They also involve extensive and elaborate surgical dissections with long operation time and may not be suitable for the very old and frail patients. We report our experience with posterior rectopexy by simple suture and analyzed the outcome. The aim of this study is to support the suitability of posterior rectopexy by simple suture as a simple, yet effective method of treatment of complete rectal prolapse in our environment.

PATIENTS AND METHODS

This is a prospective study of all the patients seen with complete rectal prolapse and who were operated upon from April 1998 to June 2008 (10 years period) in our surgical department. Institutional ethical approval was sought and obtained. All 38 patients included in this study were clinically evaluated at the

outpatient clinic department. Their ages ranged from 16 to 80 years (average 63.3years). There were 29 (76.6%) women and 9 (23.7%) men. Completeness of the prolapse was ascertained by physical examination during which straining produced the prolapse. Information obtained were recorded in a proforma. Baseline investigations included full blood count, urinalysis, chest radiograph and ECG where indicated. Barium enema and sigmoidoscopy were done in some select patients to exclude any other rectal pathology. Consent for the operative procedure described below was also obtained. The duration of prolapse varied from 6 months to 15 years, 26 (68.4%) patients had Thiersch wiring or suturing previously. Three of these had, Thiersch wiring or suturing twice. Prolapse reoccurred either when the wire cut through the anal skin or were removed due to complications of Thiersch wiring. Factors contributing to the prolapse included childhood mucosal rectal prolapse in 3 (7.9%) patients, uterine prolapse in 9 (23.7%) patients, associated third degree obstetric tear in 3 (7.9%) patients and positive family history of rectal prolapse in 3 (7.9%) patients, 31 (81.6%) patients suffered faecal incontinence, some of them with perianal excoriation from poor anal hygiene.

OPERATIVE METHOD

Pre-operative broad spectrum antibiotics was given. Lower midline laparotomy incision is used to open the abdomen. The rectum is mobilized by incising the peritoneum on both its lateral aspects down to the lower coccygeal bones. The peritoneum of anterior rectum wall is not incised. The rectum is mobilized from the front of the sacrum, from the sacral promontory to the tip of the coccyx. The presacral space is exposed by mobilizing and retracting the rectum forwards. Eight 'O' Nylon sutures, on curved needles are inserted through the sacral periosteum close to the midline in four pairs situated at intervals from level of lower sacrum to the sacral promontory. The needles are left on the sutures and as an assistant reduces the prolapse by upward traction, the sutures are placed through the serosa and muscle coats of the posterolateral wall of the rectum. The mucosa is not penetrated but the bite of the needle takes a broad bite of the rectal wall so that when tied the sutures do not cut through. When the four paired sutures are in place and tied, they firmly fix the rectum into the sacral concavity. A suction drainage tube is left in situ in the pelvis. The lateral rectal peritoneum is repaired and abdomen closed in the usual manner. The operating time varied between 40 to 60 minutes.

RESULTS

38 patients were seen during the study period with a mean age of 63.3 years (range 16years to 80years). 29 (76.3%) were females and 9 (23.7%) males. The duration of prolapse ranged from 6 months to 15 years. 26 (68.4%) patients had undergone Thiersch wiring or suturing previously, the prolapse had either recurred spontaneously after the wire cut through the skin or was removed because of troublesome faecal impaction. None had any previous major surgery for prolapse. The factors contributing to rectal prolapse included childhood mucosal prolapse in 3 (7.9%) patients, associated uterine prolapse in 9 (23.7%) patients, third degree obstetric tear in 3 (7.9%) patients and strong family history of rectal prolapse in 3 (7.9%) patients. Patients with positive family history all had prolapse at young ages, and none of them had a history suggestive of neurological disease, 31 (81.6%) of patients had faecal incontinence. Post-operative hospital stay ranged between 7 and 19 days. There were 6 cases (15.8%) of wound infection. One patient (2.6%) aged 74 years died on the 14th post-operative day of pulmonary embolus secondary to deep venous thrombosis. The remaining 37 patients were followed up for between 9 months and 5 years. 2 (5.3%) patients had recurrence of rectal prolapse at follow up. Of the 31 (81.6%) patients who had faecal incontinence pre-operatively only 9 (23.7%) patients still have the problem post-operatively. 10 (26.3%) of patient had anal pains pre-operatively but only 2 (5.3%) of patients had it post-operatively of which one was moderately severe.

DISCUSSION

Complete rectal prolapse in the adult is seen chiefly in females. In our series 29 patients (76.3%) are females and 9 patients (23.7%) are males. This is in agreement with the findings in other studies [8]. Among the females the disease is seen more commonly from the 5th decades of life. Of the 29 females, 3

patients were below 50 years of age (one 19 years old and the others 42, 47 years old respectively). The rest of 26 females were above the age of 50 years. In the males the age incidence are much lower. Of the 9 males, three were above the age of 50years, while six were between the ages of 16 and 47years. In our Table: 1.

S/N	Age	Sex	Duration of Prolapse	Previous surgery	Associated pathology	Post-op days	Follow-up
1	56	M	10yrs	Nil	Nil	7	4yr
2	75	F	5yrs	Thiersch wiring	Associated uterine prolapse	14	Recurrence at 1year
3	64	F	6 months.	-	-	8	4years
4	58	F	3years	Thiersch wiring	Associated uterine prolapse	9	3years
5	47	F	8years	Thiersch suturing	-	7	5years
6	16	M	12years	Sclerotherapy for mucosal prolapse of age of 2	Mucosal prolapse at young age	8	5years
7	62	F	10 years	Thiersch suturing	-	10	2yrs
8	70	F	5yrs	Thiersch wiring x2	-	15	3yrs
9	77	F	2yrs	Thiersch suturing	Associated uterine prolapse	17	6months
10	65	F	4yrs	Thiersch wiring	-	8	3yrs
11	22	M	15yrs	Sclerotherapy for mucosal prolapse at 3yrs of age	Mucosal prolapse at young age	7	5yrs
12	72	F	1½yrs	Thiersch wiring	-	18	4yrs
13	42	F	2yrs	-	Positive family history	9	4yrs
14	67	F	Not stated	Thiersch suturing	-	11	2yrs
15	80	F	15yrs	Thiersch suturing x2	Associated uterine prolapse	19	10 months
16	30	M	2yrs	-	Positive family history	8	4yrs
17	55	F	10yrs	Thiersch suturing	-	10	3yrs
18	60	F	5yrs	Thiersch suturing	-	9	3yrs
19	60	F	10yrs	Thiersch wiring	-	10	5yrs
20	19	F	8yrs	-	-	8	4yrs
21	74	F	7yrs	Thiersch suturing	Associated uterine prolapse	14(died) due to DVT	
22	70	F	10yrs	Thiersch wiring	-	16	2yrs
23	65	F	4yrs	Thiersch wiring	-	9	4yrs
24	58	F	10yrs	Thiersch suturing	3 rd degree obstetric fear	10	5yrs
25	53	M	5yrs	Thiersch suturing	-	11	3yrs
26	47	M	3yrs	-	Positive family history	7	4yrs
27	62	F	5yrs	Thiersch wiring	-	10	3yrs
28	58	F	7yrs	Thiersch suturing	Associated uterine prolapse	11	4yrs
29	27	M	3yrs	Sclerotherapy for mucosal prolapse at 3yrs of age	Mucosal prolapse at young age	7	5yrs
30	78	F	8yrs	-	-	10	3yrs
31	69	F	5yrs	Thiersch suturing	3 rd degree obstetric fear	12	Recurrence at 1yr
32	45	F	6yrs	-	-	11	3yrs
33	74	F	10yrs	Thiersch wiring x2	-	17	2yrs, 6months
34	35	M	5yrs	-	-	9	2yrs
35	73	F	15yrs	Thiersch suturing	Associated uterine prolapse	10	1yr, 6months
36	65	F	12yrs	Thiersch wiring	Associated uterine prolapse	10	1yr, 6months
37	56	M	10yrs	Thiersch suturing	-	11	1yr
38	77	F	15yrs	Thiersch wiring	Associated uterine prolapse	19	10months

environment many people from their 5th decades of life onwards have either become fairly frail or have developed one or more anaesthetic and or surgical risks [9] Eu kw *et al* [10] have indentified that complete rectal prolapse is associated with distinct anatomical changes, most striking being the deep pouch of Douglas. Others include redundant rectosigmoid, weakness of levator ani and anal sphincter muscles, elongated mesorectum, lax lateral and posterior rectal attachments and loss of posterior curvature of rectum in the sacral concavity. These anatomical changes have formed the basis for fashioning surgical procedures for treatment of complete rectal prolapse. Cine-radiographic studies by Broden *et al* [11] have shown convincingly that rectal prolapse initially starts as an intussusception of the upper rectum by the sigmoid colon 6-8cm from the anal verge and above the pelvic floor. In addition to the intussusceptions occurring, the mesorectum in the time becomes lax allowing the loss of normal posterior curve of the rectum in the sacral concavity and the rectum the assumes a straight position. Most patients with rectal prolapse have weak, atonic anal sphincter. Weakness and diastasis of pelvic floor muscles have also been suggested by many authors as a factor in rectal prolapse but Porter [12] in his physiological studies of the pelvic floor showed no evidence of muscle weakness though he did find that levator ani muscles behaved differently. Fry *et al* [13] found no abnormality of the pelvic floor in 12 out of 15 cases with complete rectal prolapse. It has been suggested that if pelvic floor weakness is a contributory factor, then this may be due to childbirth. However in Hughes [14] and Golighers [15] series 39% and 47% respectively of their women with rectal prolapse were childless. In our series 25 (86.2%) of the women had children. 9 women (31%) in our series had associated uterine prolapse whilst 3 (10.3%) had third degree obstetric tear all of which we think were contributory to their rectal prolapse. Only 3 patients had positive family history of rectal prolapse. Other studies also showed similar insignificant family history. The disease therefore does not have significant family history.

Innumerable methods of surgical management of complete rectal prolapse have been described by many workers and this reflects the inadequacy of many of the methods. The method of choosing any procedure should bear consideration to age of patient, fitness of patients as regard surgical risks and then local circumstances like availability of materials e.g. Mersiline mesh, Teflon sling. The art of rectal prolapse management is to match procedure to the patient. As mentioned earlier the surgical procedures for complete rectal prolapse are based on observed anatomical changes. Thiersch wiring has been abandoned because of the high recurrence rate, sinus formation with anal soiling when the wire or suture erodes the anal skin. There is also the serious problem of faecal impaction. A large number, 26 (68.4%) out of 38 patients in our series had previous wiring or suturing. This is a reflection of the inadequate number of trained and skilled surgical manpower available in our environment as a developing nation. Other perianal procedures for management of complete rectal prolapse are all compromise operations, removes the reservoir function of the rectum with its physiological effects and all have high recurrence rates. However, they obviate the necessity for laparotomy. Tobin *et al* [15] and other workers recorded a recurrence rate of 25% in their series using Delorme's procedure. Rectosigmoidectomy via perianal approach is no longer popular and is reserved for gangrenous prolapse. The operation suffers the same disadvantage as other perianal procedures including high recurrence rates. The abdominal procedures available for treatment of complete rectal prolapse all involve formal laparotomy. The pelvic floor operation involving obliteration of pouch of Douglas and plication of levator ani muscles in front of the rectum as in Roscoe-Graham procedures [3] involves extensive dissection, time consuming and has a high recurrence rate. Lahaut's operation in which the rectum and lower sigmoid are help up and taken through to the rectus sheath produces an unacceptable bulge in the lower abdomen as noted by Moore4has been largely abandoned. However Akarimo E. Eshiobo [16] described their experience with Lahaut's operation in Calabar, Nigeria and did not identify the unacceptable bulge as a limitation. The operations involving posterior rectopexy have become very popular. The concept of posterior rectopexy is derived from the work of Broden *et al* [11] that demonstrated intussusception of upper rectum by the sigmoid colon as the prime initiator of rectal prolapse. Consequent on the intussusception occurring, the normal posterior curve of the rectum in the sacral concavity is lost and rectum assumes a straight position. For this to be possible there is either a mesorectum or the rectum becomes separated from the sacrum by loose areolar tissue consequent on recurrent intussusception. Based on the above findings, methods of fixing the

rectum to the sacral concavity to restore its normal posterior curve and prevent intussusception were fashioned out. The early attempts at this were made by Lange [17] and vernenil [18]. Their methods were later modified as in Lockhart – Mummery [19] operation in which the development of adhesions between the rectum and sacrum was stimulated by temporary gauze packing of presacral space through a perianal approach. 29 of 32 patients treated by this approach and reviewed by Hughes [14] all had recurrences. Pemberton and Stalker [20] using abdominal approach carried out posterior rectopexy and colopexy by fixing the sigmoid colon in an elevated position by stitching it on the peritoneum of the anterior abdominal wall, pelvic brim, iliac fossa or uterus. The recurrence rate of Pemberton-Stalkers operation as reviewed by Beahrs *et al* [21] was 34.6% in 52 patients. The principle of posterior rectopexy was utilized in Wells and Ripstein procedures by insertion of polyvinyl alcohol sponge (later marlex mesh) and Teflon sling respectively. These foreign implants induce intense fibrous tissue reaction to maintain the rectum in place. These operations have low recurrence rates. Morgan *et al* [18] followed up 93 out of 150 patients who had Wells operation with three cases of recurrent complete prolapse and eight mucosal prolapses. Roberts *et al* [23] reviewed 135 patients who had Ripstein operation with a recurrence rate of 9.6%. Furthermore, these operation especially Wells operation has post-operative sepsis secondary to foreign implants as a recognized hazard, necessitating removal of the implant in four patient in Morgan *et al* series [22]. Presacral rectopexy with simple suture achieves the same fibrous tissue reaction between the rectum and the sacrum but obviates the use of inserted foreign implants (Ivalon sponge or Marlex or Teflon mesh). Novell *et al* [20] found the result of posterior rectopexy with simple suture equivalent to result of Ivalon sponge. It is suggested that Ivalon or Marlex rectopexy should be abandoned in favour of the simpler suture technique. It obviates the need for insertion of sheets of foreign material and involves minimal dissection with short operating time. It can therefore be used in all groups of patients. Furthermore, the problem of faecal impaction is not seen as is the case with Wells or Ripstein's operations, where faecal impaction can occur in months and years ahead due to very intense fibrous tissue reaction causing rectal stenosis. In our series the pre-operative problem of faecal incontinence ceased to exist in most of our patients due to spontaneous restoration of anal sphincter muscle tone. Novell [24] reported improvement in continence in their series, as well.

CONCLUSION

We report on our method of treatment of complete rectal prolapse using simple suture to achieve posterior rectopexy. Nylon sutures for this procedure are easily available to us in our environment as opposed to foreign implants which are not. The short operating time (one hour or less) and the minimal dissection involved makes this method attractive for use in frail and poor surgical risk patients common in our environment. It has low and acceptable morbidity and mortality and more importantly low recurrence rate. Our series had a mortality rate of 2.6% and a recurrence rate of 5.3%, which is comparable to 8.2% in Novell *et al* series. The procedure because of its simplicity can be done by young and up coming surgical residents. This is an added advantage in our environment because of fewer number of skilled and experienced surgeons available.

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