RECTAL PROLAPSE (PROCIDENTIA)

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HISTORICAL REVIEW

The treatment of complete rectal prolapse has passed through a large number of unsatisfactory phases. The earliest operations performed were aimed at removal of the protruding bowel, either completely,[1] or in part (by removal of a cuff of mucosa[2]). Other surgeons directed their efforts towards fixing the prolapsed bowel to the pelvic wall[3] or towards shortening the lateral ligaments.[4] Both Murphy[5] and Ball[6] described operations to fix the sigmoid colon to the ilio-psoas muscle.

These operations all proved relatively unsatisfactory and the next major advance came from Quénu and Duval[7] and from Moschowitz,[8] who described a laparotomy in which a number of silk sutures were placed round the pelvis in circular fashion. These surgeons recognized that the pouch of Douglas was abnormally large in cases of procidentia, and their object was (*a*) to obliterate this pouch, and (*b*) to cause fibrous-tissue fixation of the rectum. The Moschowitz operation has a significant mortality and a considerable risk of subsequent intestinal obstruction, and never became popular; but it was the precursor of one of the modern operations for procidentia.

Special mention must be made at this point of Thiersch's operation,[9] which is indicated for minor degrees of prolapse and where muscle tone is poor. It consists essentially of the insertion of a non-absorbable suture in circular fashion round the anal orifice, in order to narrow its diameter to approximately 1·5 cm. (one finger). It is also a useful adjunct to recto-sigmoidectomy. Thiersch's operation was popularized by Lenormant in a thesis (Paris, 1903) which includes the first complete review of prolapse in the medical literature.

There appears to have been a lapse of 30 years before Carrasco's monograph[10] appeared in 1934 as the second major review of rectal prolapse. The description of Cunéo and Sénéque[11] in 1932 of a direct attack on the levator and sphincter musculature apparently aroused little interest, but it has an important application in modern treatment, as will be seen later. Cunéo and Sénéque used two incisions, first a transverse cut in front of the anal canal through which the puborectalis was approximated to the midline, and secondly a posterior sagittal incision through which (*a*) the pubococcygeus and ileococcygeus were overlapped to increase their tension, and (*b*) the external sphincter was plicated to tighten it and then fixed to the coccyx.

The next landmark is Roscoe Graham's classic article[12] in 1942 which revived Quénu and Duval's concept of obliterating the pelvic peritoneal pouch. Graham went further and postulated that procidentia is primarily a pelvic hernia, and that removal of the hernial sac must be an integral part of any operation which hopes to cure the condition. He also strengthened the pelvic muscle floor by approximating the levators on the two sides.

This detailed historic review will facilitate a survey of present views on pathogenesis and treatment.

PATHOGENESIS

1. Muscle Tone

In elderly patients atrophy and atony combine to present the greatest problems in treatment; for even if the protruding bowel is fixed back into position, partial or complete incontinence may persist, and this is usually the symptom which brings the patient to the doctor. Therefore, although atony is certainly not a primary aetiologic factor, it must receive first consideration in relation to treatment; also atony of the levator must, to some extent, be implicated in allowing the peritoneal sac to descend into the lower pelvis.

2. Herniation

If a patient with complete prolapse is carefully examined, it will nearly always be noted that the anterior rectal wall forms the main protrusion; when a finger is placed in the anal canal after reduction of the prolapse, the gap between the puborectalis muscles is easily palpable, as is the distinct impulse when the patient is asked to cough. At laparotomy the exceptionally large pouch of Douglas is conspicuous, and it is difficult to believe that this is a secondary effect. Several authors, including Waldeyer, Zuckerkandl and Ludloff, have suggested a congenital defect, pointing out that the pouch of Douglas is normally much deeper in children than in adults, and presuming that the deep adult pouch is an abnormal persistence of the normal neonatal state.

3. Rectal Supports

If these are weakened by atrophy, stress, diarrhoea, pregnancy or other illness causing pelvic strain, prolapse could result (Jeannel, von Esmarch). However Hartmann[13] pointed out that it is surprisingly easy to evaginate a normal colon in the course of an operation for removal of a polyp or in a pull-through resection, and he did not believe that the rectal supports are important in the aetiology of prolapse.

4. A Combination of all the Above

This would seem to be the most logical way of explaining the preponderance of this complaint in elderly females and the fact that the presentation varies considerably from patient to patient, depending on which factor is of greatest import in each case. For this reason also no single operation will suit all cases, and each patient must be treated according to his or her needs.

TREATMENT

In the majority of cases some form of operative treatment will be needed, and the more major operations will be considered first for convenience.

1. Abdominal Operations

These all combine, to a varying degree, obliteration of the peritoneal pouch, repair of the levator muscles and fixation of the rectosigmoid. This is the approach of choice in an otherwise healthy adult who has a complete proci-

dentia. The most satisfactory technique is Goligher's[14] modification of the Roscoe Graham operation, which relies upon (*a*) extensive dissection of the rectum down to the pelvic floor to cause postoperative adhesions, and (*b*) firm suture of the levators in the midline anterior to the rectum. Muir[15,16] has claimed equally good results from anterior resection of the redundant bowel, but it is probable that the success stems from the same cause, viz. adhesions following an almost identical and extensive dissection of the pelvic rectum; and there is the added danger of leak at the suture line — not uncommon in low anterior resection.

Both these operations still carry a certain recurrence rate — Goligher admits to one recurrence since he reported his first 23 cases,[17] but this is nevertheless a much lower failure rate than with any other described operation. Goligher also says that patients with incontinence from weak musculature may continue in the same state after operation; in addition a certain number of patients had diminished control after operation, presumably as a result of damage to the parasympathetic nerve supply during the extensive dissection. Muir, on the other hand, claims that once the prolapse is cured the incontinence will recover without further treatment, but he has not yet given a detailed follow-up of this aspect of his operation.

The only other abdominal operation with results approximating those mentioned above is that currently practised at St. Mark's Hospital. Here the rectum is partially or completely enveloped by a roll of 'ivalon' sponge after the dissection of the rectum and repair of the levators. I have no experience of this operation and the St. Mark's Hospital results are not yet available. The principle is the same, i.e. promotion of fibrous adhesions.

The late results of other abdominal operations, such as that described by Moschowitz, have shown a recurrence rate varying from 20 to 50%, and must be considered as unsatisfactory.

2. Perineal Operations

These can be considered in three groups, depending on whether they are aimed at (*a*) removing redundant bowel, (*b*) causing adhesions, or (*c*) improving muscle function.

(*a*) *Excision of protruding bowel (rectosigmoidectomy).* This operation was first described by von Mikulicz,[1] then developed by Miles,[18] and finally championed by Gabriel[19] who combined a repair of the levators with a radical (intraperitoneal) rectosigmoidectomy. Although the immediate results have been favourable and the mortality negligible, Hughes[20] found a high recurrence rate in the St. Mark's Hospital cases available for follow-up (65 out of 108). Gabriel later reported that the recurrences were usually minor in extent and controlled by the subsequent application of a Thiersch wire.[21] In this light the operation has a definite place for elderly patients with complete and extensive prolapse who are not fit subjects for a major abdominal repair. In partial prolapse a mucosal excision identical with haemorrhoidectomy is all that is required and gives an excellent result.

(*b*) *Operations to cause adhesions between the rectum and sacrum* from below are for practical purposes valueless and are seldom practised today. Hughes[20] reviewed 29 patients treated by the Lockhart-Mummery procedure (plugging gauze into the sacral hollow) and found that all had recurrences.

(*c*) *Improving muscle function.* Many operations have been designed to repair the pelvic musculature by means of a perineal dissection; all suffer the same drawback, namely that removal of the hernial sac cannot be effected. From a functional point of view the procedure to be described below offers more possibilities than any other because it aims at restoring the ano-rectal angle without interference with sensory or motor nerve supply. The first authoritative description comes from Cunéo and Sénéque[11] and Parks is presently performing a modified version of this operation in selected cases.[22] An elliptical incision is made behind the anal canal and the plane between the internal and external sphincters is defined. Dissection is carried up between these muscles (in fact between the internal sphincter and the longitudinal muscle fascial plane) until the puborectalis sling can be dissected out. The two sides of this muscle are then approximated behind the ano-rectum with floss silk or a similar suture. This manoeuvre tends to fix the ano-rectum, restores the angle, and improves the efficiency of the levator sling. The main difficulty is suturing the two sides together in such a way that the sutures do not cut out afterwards. With this proviso, the operation seems particularly suited to relatively minor prolapse, to patients with gross muscle atony where any operation not specifically directed at muscle support will fail, and to poor-risk patients.

3. Non-operative Procedures

The most popular of these are (*a*) linear cautery through mucosa (van Buren) and (*b*) injection of phenol. The latter is the easiest technically and can be controlled quite accurately by repeated office visits. Phenol, 5% in almond oil, is injected as for haemorrhoids, but at various levels, until the whole circumference of the anus and the lower rectum is sclerosed. I have used this technique most successfully on several patients with minor degrees of prolapse.

CONCLUSION AND SUMMARY

Every patient must be considered individually and the treatment best suited to him should be applied. In this respect the distinction between prolapse and prolapse with incontinence is vital, for patients with incontinence will not be satisfied unless control is improved regardless of what happens to the prolapse. It is also of interest to note that 80% of patients are female and that the incidence is equally divided between women who have borne children and nulliparae.

Incomplete prolapse is best treated by sclerosant injections or by wedge incision of the mucosa in three quadrants. Minor prolapse with poor control should improve with posterior perineal repair as practised by Parks. Major prolapse in poor-risk patients is amenable to rectosigmoidectomy — subsequent Thiersch-wire insertion may be necessary. Major prolapse in healthy adults is best treated by laparotomy with Goligher's modification of the Roscoe Graham operation; alternatives being anterior resection (Muir) or ivalon-sponge implant. All the abdominal operations include repair of the puborectalis by stitching together the two sides, usually in front of the ano-rectum.

There is no ideal anatomical and functional repair, and

the compromise best suited to the patient's needs must be used.

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