

PROLAPSE OF THE RECTUM

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PROLAPSE of the rectum is a rare, somewhat misunderstood and neglected condition, which is generally held to occur at the extremes of life. We are almost totally ignorant of its cause. Misconceptions regarding its clinical presentation are common. Its management is confused for the average surgeon—who sees relatively few of these cases—by the availability for its treatment of a multitude of methods, the merits of which are hotly disputed by experts. Finally its prognosis, when it afflicts adults, is often considered to be very poor even with treatment, a state of affairs that is accepted with some measure of complacency because of the frequent belief that the sufferers are usually nearing the end of their life-span and are often of enfeebled mentality so as to require institutional care. It is hoped in this short article to correct some of these faulty impressions and to give an account of the achievements of modern surgical treatment. The disease will be separately considered as it is met with in adult life and in childhood.

RECTAL PROLAPSE IN ADULTS

Definition

By prolapse of the rectum is meant a circumferential descent of the bowel through the anus. If this comprises only the mucosa and submucosa, the condition is known as a *mucosal prolapse*; if all coats of the bowel wall are included, it is termed a *complete prolapse* or *procidentia*.

Incidence

In Relation to Age and Sex

Prolapse of the rectum is not confined to elderly females. It occurs also in males, though much less frequently, and in both sexes is found at all ages, in men actually more commonly in young, middle-aged persons than in the aged (Hughes 1949; Porter 1962b). It is by no means uncommon to encounter rectal prolapse in otherwise fit, young attractive women, though admittedly the condition is much more often found in older patients of this sex. Rectal prolapse in adults may be complete or partial.

The Effect of Parturition

It would be reasonable to suppose that the strain of parturition might weaken the pelvic floor and thereby predispose to prolapse of the

rectum, as of the uterus, especially if there had been a rapid succession of pregnancies. It is a fact, moreover, that the majority of women with rectal prolapse have borne children, but the proportion of parous to non-parous patients is probably a good deal less than in the general female population of the same age distribution. The striking thing really is the relatively large number of unmarried and childless women who present with rectal prolapse. Though vaginal or uterine prolapse may be associated with prolapse of the rectum, particularly where there is a history of numerous or difficult confinements, not more than 10% of my female patients with rectal prolapse have been so complicated.

In Regard to Mental State

It is true that people in mental asylums seem specially prone to develop rectal prolapse, and that a number of the sufferers from this disease exhibit rather peculiar personalities, but the great majority of the patients are apparently perfectly normal from the psychological point of view.

Clinical Features

History

The most prominent complaint is usually of the prolapse itself, which tends to dominate the scene and obscure other less evident symptoms. At first the bowel only comes down at defaecation and returns spontaneously afterwards, but later it prolapses when the patient exerts herself at all, or simply when she is walking about. The prolapse is unpleasant for the patient because of the discomfort caused by the stretching and projection of the parts concerned, and also because of the leakage of mucus and faeces which occurs when the bowel is protruding. It is important to realize that the patient may also be incontinent when the prolapse is reduced, for a peculiar laxity of the sphincter muscles, particularly the internal one, is often present in these cases, and there may also be some blunting of normal anorectal sensation. Sometimes it is possible to elicit a history of imperfect control for flatus and faeces preceding the onset of the actual prolapse by several months or a year or so, but in other cases the patient claims normal bowel function up to the commencement of the prolapse. The later

stages of the condition are distressing in the extreme, for, harassed by frequent prolapse and incontinence, the patient is reluctant to leave the security of her home and leads a secluded existence increasingly devoted to the care of her lower intestinal tract.

On Examination

The prolapse may be down when the patient is first examined, in which case the nature of the condition may be only too evident, but, even when there is no bowel projecting, examination of the anal region by simple inspection and palpation may reveal physical signs from which it may be possible to surmise that one is dealing with a case of rectal prolapse. In many instances the anus is patulous and widely open, so that the upper anal and lower rectal mucosa is clearly apparent, or very slight lateral traction on the buttocks may cause the anal orifice to gape. Sometimes the patient is able to close the anus by a vigorous voluntary effort at contraction, but occasionally this is found to be impossible. Palpation reveals the extreme hypotonicity of the sphincter muscles, and it is often possible to insert three or four fingers side-by-side into the anal canal and rectum without causing any real discomfort or sensation of wanting to defæcate. If the patient attempts to close the anus or draw it in whilst the fingers are in position it will be readily appreciated how much reduced is the contractile power of the anal sphincters and pubo-rectalis sling. Though these are the usual findings, in a few cases the appearance of the anus and the state of the anal musculature on palpation are much more nearly or entirely normal.

If the hand is now withdrawn and the patient is asked to bear down the descent of the prolapse can be observed. At first the anus widens and then, somewhat hesitantly, the mucosa starts to emerge, initially on one aspect of the circumference and then all round. In cases of purely mucosal prolapse the protrusion seldom reaches more than $1\frac{1}{2}$ in. beyond the anal verge and on palpating the projecting rim of tissue it is possible to deduce with reasonable confidence that it could only consist of an emerging and a returning layer of mucosa with submucosa. In patients with complete prolapses, if the expulsive effort is maintained, the protruding bowel continues to lengthen and expand, but even in the largest prolapse seldom projects more than 4 or 5 in. A characteristic feature is that the opening of the lumen of the bowel is situated, not at the extreme distal end, but somewhat posteriorly, due to the presence of the most dependent part of the pouch of Douglas with contained loops of small bowel in the front of the prolapse. Often the mucosa

shows considerable thickening and even ulceration due to repeated trauma whilst in an exposed prolapsed position. When straining ceases the prolapse may reduce itself rapidly, but more usually it remains stuck in the extruded position till the patient makes a violent indrawing effort or the examiner gives the bowel a touch with his hand.

Diagnosis

Most patients referred to hospital with prolapse of the rectum are found on examination to have merely *prolapsing internal hæmorrhoids*, which can be distinguished fairly readily from a mucosal prolapse because they present as three more or less discrete swellings rather than a complete circular descent of mucosa. Very occasionally a *intussuscepting tumour of the upper rectum or sigmoid* may project through the anal orifice and mimic a rectal prolapse, but on careful inspection the appearances are quickly seen to be different from those of prolapse, and a finger can be passed into the anal canal alongside the protruding part. Perhaps the most difficult aspect of diagnosis is the *differentiation between mucosal and complete prolapse*. If the patient should fail to bear down adequately during examination, a complete prolapse may not be fully displayed and all that may appear is some degree of mucosal prolapse leading to an erroneous conception of the severity of the condition.

Ætiology

There is no certain knowledge, but a great deal of speculation, about the causation of rectal prolapse. The features that have been considered to be most significant in regard to ætiology are the gross laxity of the anal sphincters and musculature of the pelvic floor, so often found in these cases and the great deepening of the pouch of Douglas which seems to be a constant abnormality in patients with complete rectal prolapse. Moschowitz (1912) and Roscoe Graham (1942) suggested that this deep pelvic peritoneal pouch with contained loops of small bowel might descend as sliding hernia, invaginating the anterior rectal wall into the lumen of the rectum and eventually through the anus, thereby producing a complete rectal prolapse. Laxity of the sphincters and levators could obviously facilitate this occurrence, but alternatively such dilatation might be an effect of the repeated stretching produced by the recurrent prolapse itself. Alternatively it could be that a relaxed state of the anal and pelvic musculature alone might be the main causal factor and that the deep pelvic peritoneal pouch is formed consequent upon the development of the prolapse. The clearest demonstration of this

possible sequence is provided by the frequent occurrence of complete rectal prolapse in patients suffering from paralysis of these muscles due to a cauda equina lesion (Butler 1954; Muir 1955; Todd 1959). In the average patient with rectal prolapse no gross neurological abnormality of this kind is demonstrable, but Porter (1962a) has demonstrated by electromyographic studies that in persons with complete rectal prolapse there is a prolongation of the normal period of inhibition of the external sphincter and levator muscles produced by balloon distension of the rectum. He suggests that a similarly prolonged inhibition of these muscles during defæcation might, over a period of months or years, be a factor in the production of the prolapse. In cases of mucosal prolapse, where there is no descent of a peritoneal pouch, the only circumstance that would seem to be ætiologically important is the lax state of these muscles, together possibly with some looseness of the ano-rectal mucosa.

Treatment of Mucosal Prolapse

It would seem that the logical therapeutic manœuvres for mucosal prolapse should be directed to tightening the anal orifice or to fixing or removing the lax mucosa. Though some authorities, such as Gabriel (1948), believe that the tone of the external anal sphincter can be improved by voluntary exercises or faradic stimulation, I have not observed any benefit to result from this treatment. Fixation of the mucosa may be attempted by injections of 5% phenol solution in almond oil into the submucosa of the lower rectum and upper anal canal at several points around the circumference of the bowel as in treating internal piles. Some improvement may be obtained but it is usually only temporary. In other words no substantial or lasting amelioration can be expected from conservative management and one must turn to operative measures, if anything worth while is to be achieved. In recent years in this country these have consisted essentially of two operations—Thiersch's perianal wiring, and ligature and excision as for hæmorrhoids.

Thiersch's operation

This procedure was revived by Gabriel (1948) and consists in inserting a ring of silver wire into the subcutaneous tissues around the anal orifice. It is a very simple operation which, if necessary, can be conducted under local anæsthesia; consequently there are very few patients, however frail, who are unfit to stand it. Several methods are available for introducing the wire, but a good one involves the use of a Doyen handled needle. Half-inch radial incisions are made in the perianal

skin, immediately in front of and behind the anus. The needle is then passed from the posterior to the anterior wound through the subcutaneous tissues of the right half of the anal verge. One end of a 12 in. strand of No. 10 silver wire is threaded on to the end of the needle as it projects through the front wound, and the needle is withdrawn, pulling the wire with it round the right half of the anus to emerge posteriorly, where it is disengaged from the needle. The needle is then re-introduced from back to front to draw the other end of the wire round the left half of the anal orifice. The assistant next introduces his index finger into the anal canal, and the two tails of wire projecting out of the posterior wound are twisted together to close the ring firmly on the obturating digit. The excess of wire is then cut off and the short twisted tail is turned into the depths of the posterior wound. Finally the two wounds are closed with Michel clips and a dry dressing is applied. The bowels are opened on the third or fourth day with an aperient or enema.

Some patients are very pleased with the results of this operation, but others find it disappointing, as when it fails to control the prolapse properly—possibly because the wire has not been tightened enough—or frustrating, as when they become impacted with fæces, probably because the wire has been made too tight or their bowel habits have been neglected. Other complications or sequelæ, apart from fæcal impaction, are breakage or cutting out of the wire, or infection around it. However, it is a simple matter to remove the wire for either of these troubles and to insert a fresh one when the sepsis has resolved.

Ligature and Excision of Mucosa

This operation is carried out like a hæmorrhoidectomy by the ligature and excision method, the protruding mucosa and skin being divided arbitrarily into three main 'pile areas', leaving intervening skin-mucosal bridges. The 'piles' are then isolated, drawn down vigorously and tied off as high as possible in the anal canal; the excess tissue is cut off each pedicle. It is no disadvantage, but may be a gain, if one or more of skin-mucosa bridges have to be sacrificed, for this will increase the risk of fibrous stenosis occurring during healing, which may be beneficial in these cases with their lax anuses.

Treatment of Complete Prolapse

Surgeons have displayed much ingenuity in devising methods of treating complete rectal prolapse (for a full account of which specialist works such as Gabriel (1948), Turell (1959) and Goligher (1961), should be consulted), but the great majority of these techniques are no longer

used and will not be mentioned here. Instead only three or four of the currently more popular and successful operations will be considered.

Rectosigmoidectomy or Amputation of the Prolapse from Below

This used to be the operation most commonly employed for complete rectal prolapse in Britain; but the results obtained by it have been shown in two large collective surveys (Hughes, 1949; Porter 1962b) to be poor, with recurrence of the prolapse in over half the cases, and defects of continence in as many. Attempts to improve these results by incorporating suture of the puborectales muscles in the operative technique have not been successful (Porter, 1962b). Because of these experiences most surgeons with a special interest in rectal work in this country have abandoned it in favour of various forms of repair, fixation or resection by the abdominal or abdomino-perineal route, but it is still widely used by the generality of surgeons because of its relative safety even in elderly patients, and is specially popular in America where it is associated with the name of Altemeier (Altemeier, Giuseppi and Hoxworth, 1952).

Abdominal or Abdomino-perineal Repair without Resection of Bowel

Roscoe Graham (1942) described a technique of repair in which the pelvis is exposed through a lower abdominal incision, the pelvic peritoneum opened between the rectum and uterus and the puborectales muscles approximated by suture between the rectum and vagina. The pouch of Douglas is then excised or obliterated and the abdomen closed. Actually the operation is more easily performed if the lateral ligaments are completely divided and the rectum is fully mobilized down to the anorectal ring before the main stitches are inserted (Goligher 1958). Alternatively, a synchronous perineal approach may be added so that the suture of the levator muscles may be performed largely or entirely from below (Hughes and Gleadell 1962).

A considerable amount of experience with these operations has now been reported in the literature, and between them Goligher (1958, 1961), Palmer (1961), Snellman (1961), Butler (1962), Hughes and Gleadell (1962) and Porter (1962) have recorded a collective series of 227 patients treated by abdominal or abdomino-perineal forms of repair without excisions of bowel during the past 20 years. There was a collective operative mortality of 1.3%, and a recurrence rate of 9.5% on a follow-up of from 6 months to 22 years. The functional results have varied greatly in individual reports, but in my experience about a quarter of the cases have been frankly incontinent,

and in another quarter control has been somewhat impaired (Goligher 1958).

Ivalon Sponge Fixation

This operation was introduced by Wells (1955) and has been warmly sponsored by him (Wells, 1962) and Morgan (1962). As in the foregoing procedure the rectum is exposed and mobilized from the abdominal aspect, though the dissection need not be taken so deeply into the pelvis, for it is not necessary to define the levator muscles accurately. A sheet of polyvinyl alcohol sponge $\frac{1}{8}$ in. to $\frac{1}{4}$ in. thick is then wrapped round the rectum, the edges being approximated anteriorly and fixed to the rectum by sutures. The sponge may also be sutured to the posterior vaginal wall to build up the recto-vaginal septum, and, if desired, stapled to the front of the sacrum. Finally the pelvic peritoneum is sutured over it.

This operation has certainly one advantage over the Roscoe Graham type of repair, in that it is technically easier to perform. But some surgeons will possibly have misgiving about burying this amount of foreign material in the tissues, though the results reported by Wells (1962) and Morgan (1962) are most encouraging and there appear to have been few troubles with discharging sinuses. Unfortunately the period of follow-up of most of their cases is less than two years so that it is difficult to make a long term evaluation at the present time. If the good results are maintained on longer study it could be argued that they are due to fibrosis and fixation of the rectum to its bed following mobilization and irrespective of the presence of the Ivalon sponge—and the same could be said of the results of the Roscoe Graham type of operation.

Low Anterior Resection of the Rectum

After a low abdominal resection with anastomosis for rectal carcinoma the remaining rectum and suture line in the bowel become firmly adherent to the sacrum, as anyone knows who has attempted a further abdomino-perineal excision for recurrence after this operation. Muir (1955) decided to put this disagreeable experience to good use by utilizing low anterior resection for the treatment of complete rectal prolapse. When employed for this purpose the operation must be a *low* resection, extending inferiorly to 3 in. above the anorectal ring and superiorly to a point sufficiently high on the sigmoid to leave just enough of a colon stump to stretch to the top of the rectal remnant for end-to-end anastomosis without tension.

One of the attractions of this operation is that it is a technique with which the average surgeon is fairly familiar, because it is regularly used in the treatment of certain rectal carcinomata. Muir (1962) reports that he has treated over 50

cases of rectal prolapse in this way during the past 10 years with no recurrences to date so far as he is aware, but he admits that his follow-up has not been very thorough. Details of the functional results are not given, but they are presumably similar to those of the Roscoe Graham operation.

Thiersch's Operation

Though these various abdominal operations are remarkably well borne as a rule, even by elderly patients, there are always a few frail sufferers from complete prolapse for whom they would be too hazardous. For such patients the simple procedure of perianal wiring, as described earlier for mucosal prolapse, may be helpful. Admittedly the risk of the wire breaking or cutting out is greater in cases with large complete prolapses than in patients with small partial prolapses, but some patients have undergone re-wiring on two or three occasions with considerable benefit.

Conclusion

It cannot be denied that the results of surgical treatment for complete prolapse of the rectum sometimes fall short of perfect, particularly in the restoration of normal anal continence, but, using one of the newer abdominal techniques, it is possible to make most patients with this condition a great deal more comfortable, and at very small operative risk. There is certainly no justification whatsoever for regarding rectal prolapse as a well-nigh hopeless object of surgical endeavour.

RECTAL PROLAPSE IN CHILDREN

The textbook picture so often painted of this condition is of a grossly emaciated child with sunken cheeks and ischio-rectal fossæ, who is also

wracked by a chronic cough, and develops a rectal prolapse. Whether this ever was a true likeness, I cannot say, but it certainly bears no resemblance to the clinical presentation of childhood prolapses in my practice. The children coming to me with rectal prolapse, who vary in age from a few weeks to six years and comprise roughly equal numbers of boys and girls, are all perfectly fit apart from the prolapse. There is no obvious cause for the condition as a rule, except that excessive straining at stool may occasionally be a factor. The mother notices the protrusion at defæcation, and occasionally there is a little bleeding. Sometimes the child is brought urgently to the doctor or hospital with the prolapse in an apparently irreducible condition, but there is seldom any difficulty about returning the bowel with a suitable manipulation. If the child is seen when the prolapse is in a reduced condition, there is no abnormality to be detected on examining the anal region, but, if a glycerine suppository is inserted and the child put to stool, the prolapse can often be brought down, thus confirming the diagnosis. The most important differential diagnosis is a prolapsing rectal polyp.

There is a growing body of opinion that regards rectal prolapse in childhood as a self-limiting disease, that cures itself spontaneously without active treatment if the child is discouraged from excessive straining at defæcation and the prolapse is replaced as necessary (Stephens, 1958). Alternatively the buttocks may be strapped together to support the anal region, but this is rather difficult to maintain. Submucous injections as for internal piles are a very satisfactory treatment which is usually immediately effective, but it involves the administration of a general anæsthetic.

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