Excellent historical review
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POSTERIOR COLPOPERINEORRHAPHY*

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A FEW years ago a series of women previously treated for prolapse by an operation which included a combination of anterior and posterior colpoperineorrhaphy were investigated. Results reported by letter were not accepted and only the patients who, on request, returned for questioning and examination were included in the review. This procedure may introduce an element of selection in that the women who are dissatisfied with an operation are probably more likely to take the trouble to attend than those who are symptom free. This consideration apart, the cases were unselected.

Among many matters brought to light by this inquiry was the fact that a large number of women had ceased to practice coitus following the operation. It was this observation which fired the train of thought leading to this communication. As a text, the findings among the first 100 consecutive women reporting for follow-up examination will suffice.

Results in Series of 100 Women

Details of Operation.—All the 100 patients were operated upon 2 or more years prior to the review. In each case both anterior and posterior colpoperineorrhaphy were carried out. These procedures were combined with amputation of the cervix (to comprise the so-called Manchester operation) in 66 cases, with vaginal hysterectomy in 12 cases, and with abdominal hysterectomy in one case. When the complaints included stress incontinence of urine, some form of urethroplasty was added.

Results in Regard to Coital Function.—A large number of the women reported some temporary difficulty and pain during the early attempts at coitus after the operation. This is not surprising and is of little consequence. Of more concern are permanent apareunia and dyspareunia. In this respect the findings were as shown in Table I.

TABLE I. RESULTS OF OPERATION IN 100 WOMEN

Widowed	9
Coitus discontinued completely	26
Severe dyspareunia and very infrequent coitus	4
Regular coitus without serious discomfort	61
6 women subsequently had had live births	
1 woman subsequently had had an abortion	

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Widows: The ages of the 9 widows varied from 41 to 70 years at the time of operation. None had had subsequent coitus and in all cases the vagina was found to be so narrow that it would not admit more than one finger. Had any of these women chosen to remarry they would have suffered apareunia.

Married women with apareunia and severe dyspareunia: There were 30 women who had ceased, or virtually ceased, to have coitus. Yet, at the time of operation, the majority were comparatively young as the following tabulation shows:

31-40 years	3
41-50 years	14
51-60 years	9
61-70 years	3
71-80 years	1

When they came to examination, 21 of these patients had a vagina or introitus so narrowed that apareunia was inevitable. In the remaining 9 coitus would have been physically possible but painful. One of these had an unduly shortened vagina with a tender scar in the vault and 3 suffered moderate contracture of the vagina and vaginismus. This means that only 5 women in this group were found to be without a mechanical hindrance to penetration.

It is not suggested that the gross narrowing of the vagina found in so many of these women was necessarily present immediately after their operation. Indeed, in many cases, the records contained a clear statement to the opposite effect. Much of the contracture had developed subsequently as a result of senile atrophy and because coitus had not been seriously attempted.

In the married group, and including the 5 women in whom there was no anatomical fault, there were 14 cases in which coitus was not resumed because either wife or husband "did not wish for it." This phrase covers many possibilities—absence of libido, fear of pain, fear of prejudicing the result of the operation, and the like. It may be, too, that some women used the operation as an excuse to avoid coitus. According to the patient, the responsibility for not wanting coitus was divided as follows:

Wife alone	2
Husband alone	6
Husband and wife	6

The fact that the wife alone was so rarely afraid of, or lacking in desire for, coitus may mean that the evidence was prejudiced. On the other hand, it is not out of keeping with the conclusions of Kinsey and others[23] to the effect that sexual capacity in the female remains fairly constant until at least the age of 60 years, any fall in outlet over the years being determined mainly by diminishing sex urge in the male partner.

Comment on Results.—It is generally recognized that dyspareunia and apareunia are possible complications of vaginal plastic operations. The frequency of these complications is, however, not always appreciated. Stallworthy[22] found an incidence of 10 per cent permanent dyspareunia following all types of operation for prolapse, and it seems unlikely that any other conscientiously investigated series would produce a smaller figure. In the particular series reported here, which deals only with combined anterior and posterior colporrhaphy, the figure is 30 per cent. Moreover, if the widows are included, 30 per cent of the women were subsequently found to have an introitus and vagina too narrow to permit coitus, even if it had been desired. It has to be recognized that several of these patients were advancing in years and might well have ceased to practice coitus even if no operation had been

carried out. Nevertheless, the number of women who had some regret at being deprived of this function was sufficiently high to question whether the apareunia, and especially its chief cause—contracture of the vagina—could have been avoided.

The Cause of Vaginal Stenosis

The reasons for the excessive reduction in the vaginal lumen are:

Deliberate Narrowing of the Vagina by the Surgeon.—In certain cases of uterovaginal prolapse where the vagina is short and narrow and where the supports of all organs are weak, conditions often present when the patient is nulliparous, it is sometimes necessary to reduce the caliber of the vagina to small dimensions in order to make certain of a cure. The need for such deliberate sacrifice of coital function does not, however, generally arise; it accounts for only one of the cases reviewed here, that of a nulliparous widow aged 60 years suffering from extensive prolapse.

Inadvertent Narrowing of the Vagina and Introitus by the Surgeon.—Misjudgment of the amount of vaginal wall removed and of the degree of tightening of underlying muscles and fascia, although most likely to be the fruit of inexperience, is nevertheless not uncommon among expert surgeons. It is especially likely if no regard is paid to the subsequent involution of overstretched tissues and to the later occurrence of senile contracture. Te Linde[34] is one of the few writers on operative gynecology to emphasize this point.

Senile Contracture.—Following the climacteric all tissues of the genital tract undergo atrophy. This normally results in gradual contracture of the vagina and introitus. The gaping vulva and patulous vagina of the multiparous woman of 40 years become a narrow tube, barely admitting one finger by the age of 70 years. This gradual constriction is arrested or controlled only by the regular practice of coitus. If a postmenopausal woman discontinues coitus for any length of time she finds its resumption physically impossible. This is a natural sequence of events which applies to women operated on for prolapse as well as to those who are not.

ERT not available

A large proportion of women treated for prolapse are perimenopausal in age; the vagina which admits two fingers easily at the conclusion of a plastic operation is therefore likely to shrink considerably in the next few years. It is this which explains why, by and large, it is the older rather than the younger woman who suffers apareunia after a repair operation.

Failure to Practice Coitus.—The performance of an operation at or after the menopause interrupts the practice of coitus. Thereafter there is a common sequence of events. The woman leaves hospital with a tender perineum and an introitus much smaller than she or her husband expected. If coitus is avoided until all tenderness subsides, senile contracture is given an opportunity to operate. If, however, coitus is attempted early, pain and vaginismus cause the postponement of further attempts for several months. Meanwhile, the vagina continues to shrink so that later efforts, made perhaps rather fearfully lest pain or injury result, also fail. Sex desire is in any case weakening so the reaction in the man (who is usually the more important partner in this matter) is not to try again. Thus apareunia persists and the introitus and vagina become more and more stenosed.

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Analysis of the cases suggests that the factor mainly responsible for initiating this chain of events is the repair of the posterior vaginal wall and perineum. The vaginal wall is relatively insensitive; anterior colporrhaphy is virtually painless and constricts only the upper vagina. Posterior colpoperineorrhaphy, however, restricts the capacity of the lower vagina and

obstructs the introitus. Moreover, it causes nearly all the pain and tenderness experienced after operation. Two questions then arise. Why is posterior colpoperineorrhaphy carried out as part of the surgical treatment of prolapse? Is it really necessary? The answers lie in the history of this operation, a history somewhat confused by the prejudices and personal rivalries of the nineteenth century writers. For most of the following details I am indebted to the books of Davis,[7] Churchill,[8] West,[28] Baker Brown,[1] Thomas,[25] Barnes,[2] and Pozzi.[27]

The History of Vaginal and Perineal Operations

Vaginal and perineal plastic surgery began with the repair of complete perineal tears. According to existing records this operation was first suggested by Ambroïse Paré in the sixteenth century and first carried out successfully by his pupil Guillemeau. The plan was, however, slow of acceptance so that La Motte, Saucerotte, and others were still pioneering perineal repair at the end of the eighteenth century. Indeed, although the French School

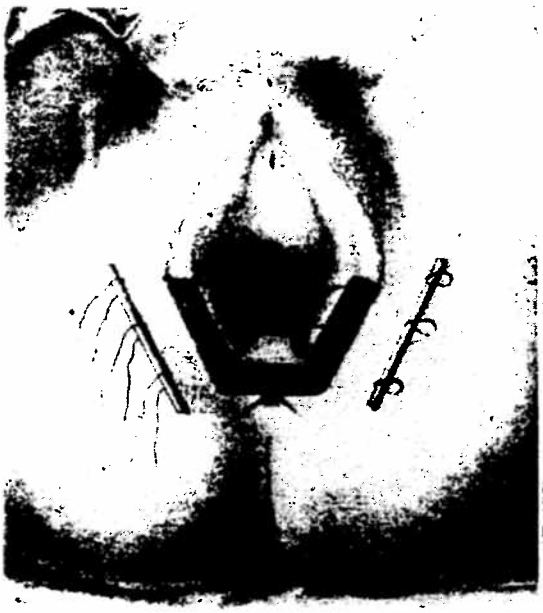

Fig. 1.

Fig. 2.

Fig. 1.—Repair of complete perineal tear as practiced in the mid-nineteenth century. In this example the freshened edges are brought together by mattress sutures tied over quills—the so-called quill suture. Note the two posterior lateral incisions into the anal sphincter to relieve tension. (Reproduced from Plate I of *Surgical Diseases of Women* by J. Baker Brown, London, 1861, John W. Davies.)

Fig. 2.—Horseshoe shaped denudation for posterior colpoperineorrhaphy as carried out by Baker Brown for both vaginal and uterine prolapse. The quill sutures are again used. (Reproduced from Plate IV of *Surgical Diseases of Women* by J. Baker Brown, London, 1861, John W. Davies.)

initiated the operation which was subsequently called perineauxesis, perineosynthesis, and perineorrhaphy, it was the Germans led by Dieffenbach (professor of surgery in Berlin) and his successor, Langenbeck, who gave it a firm basis. Dieffenbach began his work in 1829 and, by 1838, was able to report 9 cases of complete tear treated successfully by different methods.[7] Dieffenbach made such progress that he became an enthusiastic advocate of the immediate repair of all perineal obstetrical tears, incomplete as well as complete.

During the 1850's, Baker Brown,[1] an Englishman who had initially considered third-degree tears incurable, became an ardent and vocal leader in

this type of surgery (Fig. 1). He considered his contributions original but most writers of the time said that he did no more than copy or modify Langenbeck's operation. Meanwhile, Roux, Velpeau, and Nélaton were carrying out perineorrhaphy in France; and Sims and Emmet were not far behind in the United States. Early in the nineteenth century there arose controversies as to the optimum time of suturing third-degree tears, immediately or when the surfaces showed clean granulation tissue; and as to the methods and materials for suturing. Later disputes, which still remain unsettled, included the following: Is it better to keep the bowels constipated or moving freely after the operation? Should the anal wall be reconstituted by a flap from the vagina? Should the anal sphincter be divided posteriorly at the conclusion of perineorrhaphy? This last step, which Norman Miller of Ann Arbor has in more recent years called the "paradoxical operation," was strongly advocated if not introduced by Baker Brown[1] and was practiced by many of his contemporaries (Fig. 1).

The early operations were performed without anesthesia and without asepsis. They were, therefore, comparatively simple and, even in the case of long-standing third-degree tears, consisted of little more than freshening of cicatrized edges followed by simple closure with through and through sutures. Moreover, nothing more than perineorrhaphy was carried out. From perineorrhaphy, however, posterior colporrhaphy developed, and it developed as a means of constricting the vagina with a view to controlling vaginal and uterine prolapse.

The supports of the genital organs were then a mystery; the causes of prolapse were unknown. Partial closure of the vagina was devised as a purely empirical method of treatment. Early unsuccessful efforts in this direction consisted in the physical and chemical burning of the vaginal walls in the hope of making them adhere to each other. With a similar objective, small areas of the vaginal wall were next denuded with a knife; one of the earliest to do this was Fricke of Hamburg in 1831. The same surgeon[13] later, in 1833, removed the skin from the posterior parts of the labia majora and sutured them together in the hope of containing the falling uterus. This operation of episiorrhaphy was also carried out by Ireland[20] in Dublin about the same time. Meanwhile, Heming[17] of London, acting on the suggestion of Marshall Hall,[15]* succeeded in 1831 in narrowing the vagina by removing a triangular strip (with the base of the triangle at the urethral meatus) of the anterior vaginal wall and suturing together the cut edges. Strips of different shapes and sizes were then taken from various aspects of the vagina by Dieffenbach, Fricke, Ireland, Velpeau, Roux, Stolz, and others; all these operations received the name of elytrorrhaphy (Greek origin, a stitching of the sheath or cover). The fact that narrowing of the vagina sometimes controlled uterine prolapse encouraged those interested in perineorrhaphy to apply the principle to the lower posterior vaginal wall, and Baker Brown described in 1853 a combination of perineorrhaphy and posterior elytrorrhaphy which involved a horseshoe-shaped denudation of the posterior vaginal wall (Fig. 2). His contemporaries took the view that this was no more than a modification of the operations of episiorrhaphy and denudation of the vaginal wall which had been gradually developed by Fricke since 1831. Baker Brown[1] himself, who incidentally is the first writer I have found to use the term "plastic" operation in relation to elytrorrhaphy, protested† that his operation for uterine prolapse was "done in ignorance of Fricke's plan" and that it was in any case different because "I never adopted the contraction of the vulva as a principle

*Girardin also suggested this type of operation to the Medical Society of Metz in 1823 but did not carry it out.[36]

†He admitted that, unknown to him, Geddings had earlier performed a similar operation in the United States.

of my practice but, on the contrary, the contraction of the vagina." This refutation of the idea that his operation constricted the introitus is not in keeping with Brentnall's[1] recent comment, "Whether his [i.e., Baker Brown's] satisfaction was equalled by that of his patients or their husbands we have no direct evidence."

Fig. 3.

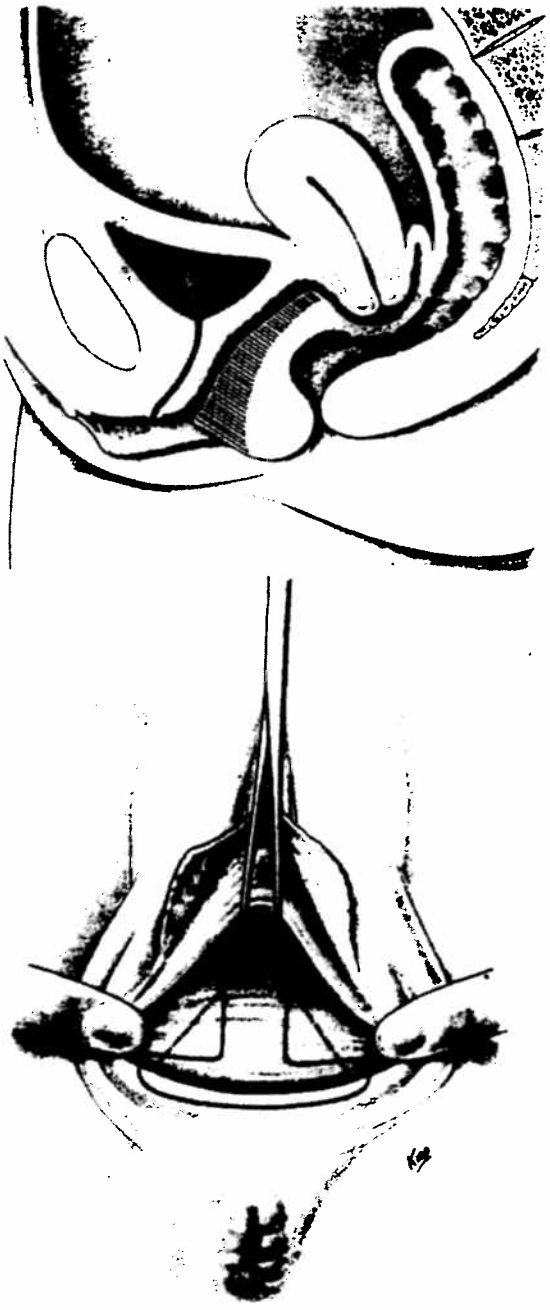

Fig. 4.

Fig. 3.—Diagrammatic representation of the principle of Simon's posterior colpoperineorrhaphy for uterine prolapse. The lower posterior vaginal wall and perineum are made rigid but the upper posterior vaginal wall is left slack to form a pouch in which rests the prolapsing uterus.

Fig. 4.—The classical Hegar incision for posterior colpoperineorrhaphy is indicated by the broken line. This tends to leave a tight band just within the introitus. The type of incision indicated by the continuous line (also an old type) is preferable.

Anterior and posterior elytrorraphy became so well established that Churchill[5] was recommending them as treatments of cystocele and rectocele in his textbook of 1850. Nevertheless, it soon became clear that mere narrowing of the vagina by either method often failed to cure *uterine* prolapse. This was not really surprising to the gynecologists of that time for, as they pointed out, the uterus could descend even through the restricted vagina and introitus of virgins.

Nevertheless, Simon[32] of Heidelberg, regarded by some as the father of the modern type of posterior colpoperineorrhaphy and the originator of the term "posterior colporrhaphy,"[32] reported in 1867 the cure of 29 out of 30 cases of uterine prolapse. He extended the denudation of the posterior vaginal wall upward from the perineum but insisted on a special technical point which seems later to have been overlooked. He carried the incisions up to a point ¾ to 1 inch *below* the level of the cervix and insisted that the upper end of the flap should be square, not rounded or triangular. In this way he made the lower vagina narrow and the lower posterior vaginal wall rigid but ensured that the upper posterior vaginal wall formed a pouch in which the prolapsing cervix rested. The weight of the uterus was then carried in this pouch, directed toward the rectum rather than down the vaginal canal (Fig. 3).

Among the many who developed posterior colpoperineorrhaphy in the second half of the nineteenth century may be mentioned Sims, Emmet, Lawson Tait, Martin, Schroeder, Doléris, and Hegar. They each modified the shape of incision, the method of suturing, and other details. Hegar (in the 1870's) was responsible for the classical triangular denudation and, even at the beginning of the present century, colpoperineorrhaphy was frequently called Hegar's operation. Adherence to this triangular incision is, incidentally, a potent cause of dyspareunia following repair operations. It results in a tight band just within the introitus. This trouble can be avoided by shaping the denudation somewhat as shown in Fig. 4.

With the exception of Simon, all the early workers had only two objectives in mind when carrying out posterior colpoperineorrhaphy for uterovaginal prolapse. The colporrhaphy was intended to constrict the vagina with the idea that the narrower a tube the more difficult it is to turn inside out. The perineorrhaphy was done to close the vulva and to contain or hide any prolapse which might still occur. It is tempting to comment that these objectives, although not now declared, remain all too often those of the modern gynecologist.

The operative treatment of prolapse then developed on three lines. Some surgeons concentrated on posterior colpoperineorrhaphy and claimed that it would cure all types of prolapse—cystocele, rectocele, and procidentia. Others favored anterior colporrhaphy as developed by Sims,[31] Emmet, and others. The third approach began with Huguier of Paris who, in 1848,[35] conceived the idea that the elongation and hypertrophy of the supravaginal cervix, for some time previously known to be associated with uterine prolapse, was in fact the *cause* of the prolapse. Amputation of the cervix was therefore the appropriate treatment. It is from Huguier's[19] writings that we must date present-day statements to the effect that amputation of the cervix should be carried out in order to restore the length and weight of the uterus to normal.

The arguments and confusion about the relative merits of amputation of the cervix, anterior elytrorrhaphy, and posterior elytroperineorrhaphy arose from an almost complete lack of knowledge of the normal supports of the genital organs and of the causes of prolapse. The sort of etiological factors postulated early in the last century were constipation, tight corseting, overdistention of the bladder due to modesty, early ambulation and hard work

after delivery, a roomy bony pelvis, obesity, and increased weight of the uterus. For prolapse in nulliparas there were exotic explanations such as physical activity carried out during menstruation, while for prolapse in the virgin, which was never cured by posterior colporrhaphy, Baker Brown had an erotic explanation, namely, "excitation of the parts of generation." On this basis he advised treatment by the application of leeches to the labia and, this failing, he "excised the head of the clitoris with considerable benefit." Gradually, however, and mainly because surgeons had discovered how to carry out vaginal plastic operations, it became generally accepted that the main support of the uterus was the vagina and that the vagina was supported by the insertion of the levatores ani muscles into the perineal body. Perineal tears therefore caused vaginal prolapse, and cystocele or rectocele pulled down the uterus. This anatomical concept was built up almost entirely to suit the convenience of surgeons and to justify their empirical methods of treatment. The creation of anatomy to suit the surgeon is a feature of the history of vaginal plastic work and is still evident. Thus, as late as 1949, a well-known gynecologist, after giving a description of the levatores ani which he admitted was not accepted by anatomists, and which neither he nor anyone else had been able to demonstrate, wrote, "This conception appeals to the operating gynecologist."

The surgeons of the eighteenth and nineteenth centuries were well aware that descent of the uterus often occurs without cystocele or rectocele, and that severe perineal lacerations are rarely followed by prolapse. Such observations were, however, conveniently forgotten—especially by the protagonists of posterior colpoperineorrhaphy. These included West and Baker Brown in Britain, Simon in Germany, and Gaillard Thomas[23] in New York. The last epitomized views current in 1869 when he wrote, "Upon the posterior vaginal wall rests the anterior, and upon this the bladder and against the bladder lies the uterus; all of which depend in great degree for the support of the perineal body. . . . It [i.e., the perineal body] is truly the 'keystone of the arch' on which the uterus is supported in the pelvis."

This belief became so deep rooted that even in the 1890's MacNaughton Jones[21] in Britain, Pozzi[27] in France, and Kelly in the United States still put their faith primarily in posterior colpoperineorrhaphy. Thus, in 1898, Kelly,[22] in his book on operative gynecology, said, "in a large percentage of cases the anterior vaginal wall is well supported by resection of the posterior wall," and "anterior colporrhaphy for the relief of cystocele is indicated only in cases of extreme relaxation." There were of course dissentient voices raised from time to time. Barnes[2] questioned the general purpose use of posterior colpoperineorrhaphy and even as early as 1873 laid down principles for the surgery of different types of prolapse which, with a little modification, would be accepted today. Moreover, just before the turn of the century Hart and Barbour,[16] Phillips,[26] Webster,[37] and others opposed the established view regarding posterior colpoperineorrhaphy in no uncertain way. Webster, who trained in Edinburgh but who subsequently practiced and taught in Montreal, wrote, "Many cases of perineum ruptured even into the anus are not followed by prolapse," and went on to say that Gaillard Thomas' view of the perineum as a wedge supporting the anterior part of the pelvic floor "is no longer believed." These skeptics had the results of posterior colpoperineorrhaphy in their favor. So we find Phillips saying that perineorrhaphy "is a useless and inadequate procedure in any but the mildest cases, and simply enables a pessary to be retained." Hart and Barbour also wrote scathingly of elytroperineorrhaphy: "This is the favourite operation with many and helps at least by enabling the patient to wear a ring pessary." Galabin[11] pointed out that there were many kinds of operation for prolapse but that the choice did

not really matter because it was the postoperative treatment which counted. This should generally include the use of a pessary to keep the fundus at its normal level for some years, to give the uterosacral ligaments the opportunity of recovering their tone."

We arrive then at the beginning of the twentieth century with the remarkable situation of posterior colpoperineorrhaphy being performed with the declared object of achieving no more than the provision of a shelf on which could rest a pessary which would support the uterus and anterior vaginal wall.

It has to be remembered that nineteenth century surgery was so hazardous that it had to be limited in scope. Anterior colporrhaphy and posterior colporrhaphy were regarded as two separate operations and a choice had to be made between them. Even posterior colporrhaphy and perineorrhaphy were originally two distinct procedures. Nevertheless, combinations were gradually attempted. Tracy[26] of Melbourne is generally credited with being the first to combine anterior colporrhaphy with posterior colpoperineorrhaphy, performing in 1862, as Barnes[2] says, "all *three* operations together." In 1888, however, Donald of Manchester, and Olhausen and Schroeder of Berlin combined amputation of the cervix with anterior and posterior colpoperineorrhaphy.[30] That all these procedures were necessary in certain cases was in fact advised by Barnes in 1873 but he added, "it will generally be best to do this in successive operations."

Then came the anatomical discoveries of the beginning of the twentieth century and the appreciation of their significance by Fothergill[11, 12] of Manchester. While recognizing the empirical value of Donald's[10] operation, Fothergill realized that to cure prolapse of the uterus and upper vagina it was necessary to tighten the cardinal ligaments—their normal supports. With this in mind he combined the previously two separate operations of anterior colporrhaphy and amputation of the cervix into one, modifying Donald's incisions to secure access to the bases of the broad ligaments. It is of interest to note that Fothergill[11] credits Alexandroff in 1903, followed by Tweedy in 1905, with being the first to stitch the parametrial tissues in front of the cervix. Galabin[14] also made a significant observation when he noted that vaginal hysterectomy is of no value for prolapse except when the broad ligament pedicles are stitched together to form a band in the vaginal vault. This was confirmed by Fothergill.[11] It may also be added that Fothergill's realization of the supporting role played by the perivascular and other connective tissue in the base of the broad ligament had been anticipated by Savage.[18] Indeed, the importance of the uterosacral ligaments had been tentatively postulated more than 50 years previously by Boivin and Dugès,[3] Davis,[7] and Churchill.[5]

Despite these other claimants, it is to Fothergill to whom credit is mainly due for teaching the need to tighten the cardinal ligaments no matter whether the cervix be amputated or the uterus removed. This principle is now accepted universally, and with it an appreciation that the cure of cystocele depends on repairing the fascial envelope of the vagina anteriorly. This acceptance, however, has not enabled gynecologists to rid their minds of the old "fixation" that the perineal body is the essential support to the pelvic organs. For this reason, they have continued to teach and practice that, whatever else be done by way of anterior colporrhaphy, amputation of the cervix, or vaginal hysterectomy, posterior colpoperineorrhaphy is essential, otherwise prolapse will recur. Fothergill[21] himself, in his original description of his operation, said "To complete the operation the vaginal outlet is narrowed

by repairing the perineum. The upper part of the posterior vaginal wall is not touched." Culbertson in 1923 said that "no operation for prolapse of the bladder or uterus is complete until the perineum is reconstructed and the axis of the vagina restored." Finally, Phaneuf[25] in 1947 laid it down that "An adequate reconstruction of the pelvic floor or perineorrhaphy is an essential to all prolapse operations." He practiced it in every case—with anterior colporrhaphy, with vaginal hysterectomy, and with the interposition operation. This view was representative of his time, and even of our time. So much so that it has been said that the modern gynecologist spends the first half of his professional life supporting the perineum and the second half in being supported by the perineum.

The idea that the perineum is so important has lingered probably because of the development of maternity services which has characterized the present century. During this time pioneering obstetricians emphasized the repair of perineal tears as part of the care of the woman in childbirth and, to strengthen their cause, resurrected or resuscitated the old doctrine to the effect that neglected tears lead to prolapse. So we find statements such as "untreated lacerations of the perineum are almost inevitably followed by prolapse of the genital organs"[28] in innumerable articles written for general practitioners and midwives during this century. They have disappeared in the last 10 to 20 years but the practice of routine posterior colpoperineorrhaphy is still handed on by the written and the spoken word despite so insecure a basis and despite all the advances in knowledge. It now serves merely to undermine the importance of the earlier stages of the Fothergill operation and all too often does no more than hide from the onlookers the vault prolapse which still remains uncured.

The Indications for Posterior Colpoperineorrhaphy

The proper placing of posterior colpoperineorrhaphy in the treatment of genital prolapse requires the courageous discard of the old view that the vagina and uterus are supported by the levatores ani and their insertions into the perineal body. As Fothergill[11] pointed out, "The cervix does not rest on the pelvic diaphragm any more than the bottom of a hansom cab rests on the ground."

The rational treatment of prolapse is based on the following principles:

1. The integrity of the vaginal walls is maintained by a strong outer coat of connective tissue or fascia. This sheath is supported in its lower part by the insertions of the puborectalis and in its upper by the cardinal ligaments, the latter being the more important. Conditions of cystocele, rectocele, and enterocele represent herniations through the investing fascia. Their successful treatment is dependent on repairing the weaknesses through which underlying tissues or organs project. The perineal body plays no part in cause or cure. It follows that posterior colpoperineorrhaphy should not be necessary to protect the repaired anterior vaginal wall nor the vaginal vault after vaginal hysterectomy.

2. The uterus is supported almost entirely by the transverse cervical (cardinal) ligaments, with their backward extensions—the uterosacral ligaments. The cure of uterine prolapse depends on tightening the cardinal ligaments where they are inserted into the sides of the supravaginal cervix and upper vagina. To achieve this it is essential to carry out upper *anterior* colporrhaphy, and it is desirable to amputate the cervix. It is also essential to close the anterior vaginal wall from the cervix downward, and not from the

urethra upward. The latter technique, sometimes taught and practiced in North America, is incompatible with the proper repair of uterine prolapse. Indeed, it is impossible to apply if the Manchester operation is efficiently performed.

3. The levatores ani at a higher level and the superficial perineal muscles at a lower level are constrictor muscles, serving to close rather than to support the vagina and rectum. The objective of plastic operations is, as emphasized by Malpas,[21] a reconstruction of the fibrous tissue framework of viscera rather than the tightening of constrictor muscles. It is only when these natural connective tissue supports are constitutionally weak (as in prolapse in nulliparas) that the circumstance occasionally arises when, in order to be reasonably certain of containing the uterus and vaginal vault, it is necessary to sacrifice coital function by carrying out an operation which destroys the normal anatomy in that the vaginal lumen is almost entirely obliterated.

4. While the levatores ani do not directly support the pelvic organs they nevertheless serve as an elastic framework to which the real supports, that is, the cardinal ligaments, are attached. If the medium raphe of the levatores is severed, the sloping muscular sheets tend to move apart. If this has any effect it should tighten rather than slacken the cardinal ligaments and the insertions of the levatores into the lower vagina. Indeed, it can be argued that resuturing of the levators in the middle line as part of colpoperineorrhaphy should relax rather than strengthen the direct supports of the vagina and uterus.

5. Although anterior colporrhaphy is essential for the cure of uterine prolapse or cystocele, posterior colporrhaphy is necessary only when a rectocele or enterocele is present, and perineorrhaphy is required only when the perineum is so deficient as to cause symptoms. Here it may be noted that rectocele is the least common form of prolapse.

A common excuse for colpoperineorrhaphy is what is alleged to be a deficient perineum. This condition can nearly always be found in a multiparous woman in the lithotomy position, especially one whose muscles are relaxed by general anesthesia, relaxant drugs, and spinal block—as they generally are at the conclusion of anterior colporrhaphy. The finding and repair of perineal deficiency therefore becomes a habit to the pelvic plastic surgeon.

Perineal deficiency (and indeed rectocele) and the need for posterior repair can only be judged before any vaginal plastic procedure is commenced, *before the patient is anesthetized.* Moreover, in making the assessment it is necessary to recognize that the perineum is usually more slack in the multiparous woman. The vulva may even gape slightly from an unhealed perineal tear. This is a symptomless and normal state. It seems to me that reproduction under natural circumstances, that is without trained attendants to carry out episiotomy or to repair tears, would be as follows: The first delivery would inevitably cause some tearing of the fourchette and perineum. This would heal without perfect apposition and thus leave a "defective" perineum. The patulous introitus would then allow all subsequent deliveries to be easy. Once childbearing was complete the natural senile involuntary changes would restore the introitus to its nulliparous dimensions.

The Omission of Posterior Colpoperineorrhaphy

At the time that the 100 consecutive cases of combined anterior and posterior colpoperineorrhaphy were reviewed, 19 women who had had anterior

without posterior repair were also seen. These had been operated on during the same period of time and under similar circumstances at the following ages:

21-30 years	1 case
31-40 years	6 cases
41-50 years	7 cases
51-60 years	5 cases

In addition to anterior colporrhaphy, vaginal hysterectomy was carried out in 5 and amputation of the cervix in 2 cases. The two groups are not strictly comparable in that the smaller one contained relatively fewer cases of uterine prolapse and more in which the main complaint was stress incontinence of urine. Nevertheless, it is of some interest to study the incidence of dyspareunia following a plastic operation without posterior colpoperineorrhaphy. Three out of the 19 women had ceased to practice coitus, 2 because they did not "wish it" and one because it caused urinary incontinence. Two other women suffered some dyspareunia, one because the vagina was shortened and one because of vaginismus. The capacity of the vagina was adequate for coitus in all except one woman who was postmenopausal and had not cohabited for many years.

vaginas had more room when post. repair not done.

Study of even these small groups confirms what was said at the outset, namely, that postoperative dyspareunia may be due to anatomical narrowing or shortening of the vagina and to advancing years but often it is the result of fear—fear of pain, fear of doing injury, fear of causing a recurrence of prolapse, and even fear of pregnancy. It follows, therefore, that the omission of posterior colpoperineorrhaphy, although sparing the woman immediate postoperative discomfort and later stenosis of the vagina, does not by itself inevitably eliminate subsequent coital difficulties. To avoid these it is essential to devote special attention to the aftercare of these patients. This may mean seeing them several times during the few weeks or months following operation, explaining to them the details of the operation, when to resume coitus, and how to overcome initial difficulties, at the same time assuring them that coitus will not prejudice the result.

Summary

1. The high incidence of apareunia and dyspareunia following plastic operations for prolapse is attributable partly to anatomical changes in the vagina, partly to the fear of the patient and her husband that the resumption of coitus will do harm.

2. Excessive narrowing of the vagina is mainly the result of posterior colpoperineorrhaphy, combined with climacteric atrophy.

3. The reasons for the almost habitual use of posterior colpoperineorrhaphy in conjunction with other vaginal procedures are revealed by a study of the history of the operation. These reasons are no longer valid.

4. Posterior colpoperineorrhaphy should not therefore be practiced routinely as part of an operation for cystocele or uterine prolapse, or as an adjunct to vaginal hysterectomy. There should be a clear indication for it, the presence of a significant degree of rectocele or perineal deficiency being determined before the patient's muscles are relaxed by anesthesia.

5. Although the omission of unnecessary posterior colpoperineorrhaphy largely prevents undue narrowing of the vagina, functional postoperative

dyspareunia still occurs unless care is taken to see the patient from time to time afterward, and to explain to her the nature of the operation and its significance.

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