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Considerations on the Statics of the Pelvic Viscera and their Relationship to the Operative Treatment of Utero-Vaginal Prolapse *

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PART II.

PATHOLOGICAL AND THERAPEUTICAL CONSIDERATIONS.

From the preceding anatomical considerations, it naturally follows that whatever on one hand will increase the intra-abdominal pressure, the weight of the uterus itself or of any organ connected with it, and on the other, whatever will lead to relaxation, absorption or destruction of the different pelvic planes, must necessarily favour also displacement descent and finally hernia of the pelvic contents. Further, the close relationship of the supporting elements of the pelvic viscera to one another, and to the pelvic organs themselves, explains the intimate connection of one form of displacement with another, which thus requires no further demonstration. Each variety may, of course, temporarily exist as a separate entity, justifying a special description or treatment, nevertheless, for practical purposes, the displacement of one organ should always be regarded only as preceding that of the others and treated accordingly.

The principles governing the successful treatment of pelvic herniæ may, therefore, be said to centre themselves around the reduction on one hand of the force acting from above and on the other, the reinforcement from below, or from above as the case may be, of the structures forming the pelvic floor. Unfortunately, the practical application of these principles presents features of unusual complexity; first, owing to the impossibility of checking with any degree of certainty the intra-abdominal pressure; secondly, because of the difficulty of reconstructing in anything like a “restitutio ad

* Read at the S. A. Medical Congress, 1909.

integrum" the structures supporting the pelvic viscera; thirdly and finally, owing to the fact only too easily set aside by innovators of new surgical procedures, that the normal uterus, as indeed all the other organs resting on the pelvic floor, are essentially movable organs and therefore liable, if interfered with by pathological processes, or operative measures, to have their mobility compromised and their functions greatly hampered if not destroyed.

To the first dilemma the only solution is one so far removed from the area of practical therapeutics as to be unfortunately a negligible quantity. We may, with some hope of betterment, advise the restriction of violent movements, the recumbent posture, the removal of all restricting bands, such as corsets, tight-fitting dresses, or the wearing of abdominal supports, but no one can look upon these measures, even if given extensive trial, as but adjuncts to a treatment, which to be of any value, has perforce to be more active and positive at the same time. Surgery fails, therefore, to check the action of a force, which if an unknown, is only too tangible a quantity.

Can it do more to solve the second problem?

Let us recognize at once, that no operation ever devised or performed has as yet been able to reconstruct what is certainly a very complex anatomical arrangement, and what, if once destroyed, is unquestionably beyond complete repair. Surgery can only patch up, but the patching up, if done judiciously, and specially on an anatomical basis is of material assistance. It certainly considerably relieves, if it does not always cure, and on its proper conception and application may be said to rest the foundation of the successful treatment of prolapse.

The third problem is perhaps one that has exercised the minds of surgeons more than any other connected with the surgery of the pelvic cavity. It is responsible for an abundance of procedures, the ingenuity of which could not be but admired, if unfortunately the great majority were not stamped by that irrational application of the best known principles of physiology which makes them valueless if not dangerous. How to hold the uterus in position, without interfering with its mobility is still the question, which for many goes a begging, although the study of the action of the round ligaments in the statics of the uterine body and the now extensive experience derived from hundreds of operations, should have, by this time, given us some reliable answer.

We shall see presently that there is such an answer, provided we do not ask for the unobtainable, and understand that if the preservation of the physiological posture and mobility of the organ of conception of the woman, still in the child-bearing period, is the goal to be striven for and to be attained at all reasonable costs, there are

occasions when between two evils, it is wise to choose the lesser and sacrifice without fear what often has become an encumbrance and only requires to be kept out of harm's way to prevent further mischief.

To this end and in view of the special treatment demanded by each variety, we may divide uterine misplacements into the usual classical divisions of retro-deviations and prolapses, to which must be added the condition of hernia of the pelvic organs by which we imply here, the complete extrusion outside the vulvar aperture of the uro-genital canals.

UTERINE RETRO-DEVIATIONS.

Backward displacement of the uterus has been further subdivided into retroflexions and retroversions.

The former term implies a relaxation of the round and of the strictly peritoneal border of the broad ligaments, the meso-salpinx, but above all the condition is due to the abnormal flexibility of the uterine body at its cervico-corporeal junction.

The pathological changes which thus upset the equilibrium of the fundus are numerous and need not be mentioned here, the terms congestion and inflammation cover practically the majority of the morbid changes affecting the mucous surface and the uterine parenchyma leading to this undue softening of the uterine body and its maintenance in Douglas's pouch by the intra-abdominal pressure.

By retroversion we mean the addition to the above changes of an excess of mobility of the cervical portion of the uterus, which thus gets tilted forward, while the fundus sinks backward.

Retroflexions and retroversions are often combined.

In my experience, except in some nulliparæ where it may be a congenital defect in the growth of the uterine walls, a pure retroflexion is a rare condition, and in the vast majority of cases is probably only the first step to a retroversion, which thus adds to the relaxation of the round ligaments and the undue softening of the uterine walls, a slackness of the perivascular sheaths holding the cervix in position.

A retroversion is therefore frequently associated with an early descent of the uterine body, and from a practical point of view should be considered as a condition of mild "*descensus uteri*" paving the way to prolapse. The sagging of the uterine sling, does not, of course, necessarily mean also the relaxation of the fibro-muscular layers of the pelvic diaphragm, and the bladder may still be held in position by its pubo-vesical ligaments, while the utero-pelvic and utero-sacral have already given way. Thus a retroversion may exist without an apparent cystocele and colpocele. A careful examination, however, will almost always detect some degree of descent of the whole uterine plane, which may be demonstrated by a shallowness of the vaginal fornices and the unusually roomy condition of

the upper vaginal segment. What has given way here is the upper fibrous and connective tissue layer, and with it also the perivascular sheaths, either owing to injuries received through parturition or abortion, or simply owing to degenerative changes or a diathetic condition, which has led to absorption of some cellular elements, but mostly of the fatty cells of the loose connective tissue. It is not surprising, therefore, that retroversions should be found in nulliparæ or that virgins, with no excuse of a past history of labour or abortions, should present a slight descent of the uterus, while they still have a vaginal introitus guarded by an intact hymen and a perfect action of the levator ani muscle. We remember seeing a young girl, who, while playing tennis, had her uterus forcibly shot out, so to speak, from the pelvic cavity. She was a red-haired, anæmic, overgrown young woman, who, after a serious attack of typhoid fever, had lost a considerable amount of fatty tissue. Her internal pelvic suspensory apparatus was unquestionably as relaxed as her anterior abdominal wall, which was slightly pendulous and remarkably flabby. Under the violent action of the intra-abdominal pressure, brought about by exercise, the uterus with its overstretched perivascular sheaths, easily overcame her weak and unprepared levator ani, reaching at one bound a position which the wombs of other women only attain after months if not years of gradual descent.

SURGICAL TREATMENT OF RETRO-DEVIATIONS.

The surgical treatment of retroflexions and retroversions when necessary, which is by no means always the case, as many patients show no symptoms and therefore require no treatment, depends much on whether the condition is a temporary or permanent one, and also upon the nature and the severity of the symptoms created.

In the former case an intra-uterine treatment may be all that is required. If, in addition to a thorough curettage and to the other means usually employed to relieve the passive congestion and inflammatory conditions of the uterine mucosa and parenchyma, the uterus is straightened by an intra-uterine stem and the maintenance of the anteverted position further assisted by a well-fitting Hodge pessary or a still more active support, by a well-directed and applied "tamponade," the cure, although somewhat tedious, may be permanent.

What is wanted here is to give time to the uterine supports to recover their temporary lost elasticity and reduce at the same time the enlarged and heavy uterine body, so frequently the sequela of post abortum and post partum conditions.

In obstinate retro-deviations the surgical treatment obviously demands more radical measures, and depends much on whether the uterus is free in Douglas's pouch and can still be replaced by manual or instrumental manipulation, or whether the condition has

been followed by acute inflammation of the pelvic peritoneum leading to the formation of adhesions which may have permanently bound down the organ in its false position. The first condition has been described as a simple or mobile retro-deviation, the second on the contrary as a complicated or adherent retro-deviation. Mobile retro-deviations, whether versions or flexions, only here deserve consideration, as the adherent ones may safely be left to the surgical treatment of tubal and ovarian inflammatory diseases of which they are in reality one of the most constant complications.

When a uterus is permanently retroflexed or retroverted, but still mobile, it may be asserted that it cannot be restored to a position of anteversion and maintained in that situation, unless some means are found of altering its overstretched ligamentary connections of which the most important ones are the round and the utero-sacral ligaments. In other words we must find some practical way by which the tow strings which are supposed to poise the fundus across its mesometrium can be shortened and made taut again, while an attempt is made to take up the slack of the perivascular sheaths holding the cervix in a latero-posterior direction, so as to preserve the normal ante flexion of the uterus and prevent as well its downward tendency.

Shortening of the so-called round and utero-sacral ligaments are unquestionably here, the operations which in the treatment of uterine retro-deviations are based on the soundest physiological principles, and especially as regards the first structures have proved the more reliable and successful.

SHORTENING OF THE ROUND LIGAMENTS.

Alexander's and the intra-peritoneal shortenings of the round ligaments are the operations usually and most frequently performed. In spite of undue criticism, followed by a still more unjustifiable generalization in its application, Alexander's operation has stood the test of time and experience, and when applied to a small, easily-replaced uterus, with a sound condition of either tubes and ovaries, gives excellent results. It is the procedure to advise for a simple uncomplicated retroflexion, but may also be applied to some forms of retroversion with only a slight relaxation of the utero-sacral ligaments.

Unfortunately, the impossibility of ascertaining whether the uterine appendages are perfectly healthy, the fact that the operation is not always of easy performance, that the uterus is frequently enlarged and heavy, and the round ligaments possibly illdefined and in an atrophic condition at their inguinal insertion, may render its substitution by the intra-peritoneal method necessary.

Of all the innumerable and varied surgical procedures devised by countless surgeons to secure by this means, the correct altitude, while maintaining at the same time the mobility of the uterus, one of the

best is doubtless that described and performed by Gilliam of Columbus, U.S.A., and which has since been modified and greatly improved by Simpson.

The principles underlying Gilliam's operation are exactly those governing Alexander's, with this difference that the abdomen is opened and a loop of the round ligament at its strongest and most developed portion secured on the aponeurotic sheath of both recti muscles, thus obtaining a firm fibro-muscular attachment to the undivided ligaments. The operation is simplicity itself and really meets all requirements, as it gives to the retroposed uterus a firm support, while it grants to it at the same time all the flexibility and mobility it formerly enjoyed. Unlike Alexander's operation, which corrects the uterine deviation without being absolutely certain of the condition of the uterus, or of the actual state of its appendages, it gives full opportunity to deal with adhesions, or any abnormalities of the tubes or ovaries so frequently following uterine misplacements, and which if left untreated would finally destroy any benefit conferred to the patient by the operation. Unfortunately, as pointed out by Kelly⁸ Gilliam's intra-abdominal fixation of the round ligaments "divides the pelvic cavity into three segments (one external to each round ligament and one between the ligaments), any of which may serve as a pocket in which the bowel may become incarcerated." This has happened once in the experience of Simpson, and I am sorry to say within the last 24 months of mine also, when a former patient, to whom I had suspended the uterus by Gilliam's method, was suddenly seized with violent intra-abdominal pains and died three days afterwards of peritonitis, a somewhat tardy abdominal section performed with all the disabilities attending such procedures in outlandish places having failed, I am told, to relieve the obstruction favoured by the pocket diverticula resulting from the first operation.

Simpson's retro-peritoneal shortening of the round ligaments obviates the possibility of a recurrence of this unfortunate accident. The technic advised by that surgeon consists in making a loop of the round ligament at its outer third and suturing it to the uterine cornua, opening the peritoneum on the anterior surface of the broad ligament and withdrawing the loop through this opening by means of a Deschamp's needle which has been passed between the rectus muscle and the aponeurosis of the transverse muscles to the internal ring and then along the round ligament to the opening in the peritoneum. The loop of round ligament is then sutured to the aponeurosis exactly as in Gilliam's operation.

As it will readily appear this operation presents all the advantages of an Alexander without its disadvantages. It does not weaken the inguinal rings, allows full inspection of the abdominal cavity, and by using the middle portion of the round ligament, and its strong

uterine end, renders the fixation firm and durable. It is indeed the ideal procedure to shorten the round ligaments, one of its most favourable points being that it does so without disturbing the natural relation of the uterus to the rest of the pelvic organs, and especially as regards the action of the bladder.

As I have already had occasion to point out elsewhere⁹ the large majority of uterine suspensions and fixations materially interferes at times with the proper distension of the bladder and its ascent in the pelvis, and although, as truly pointed out by H. A. Kelly transient irritability of the bladder is occasionally observed after all sorts of abdominal operations, nevertheless it is of such frequent occurrence after uterine fixations, that unless one subscribes to the rather doubtful statement made by some authorities, that it is always due to cystitis and defective catheterisation, it seems within reason to admit that the symptom may arise from an inability on the part of that viscus to accommodate itself to its new position; hence the advisability to choose, if possible, an operation which interferes with its functions as little as possible.

From the experience I have gained in, as yet a few cases, I must admit Simpson's retro-peritoneal shortening of the round ligaments, following as it does the same arrangement devised by a wise nature to allow sufficient space for the vesical expansion, fully meets the case and does so without impairing in the least, either the solidity of the suspension or the mobility of the uterus.

DESCENSUS UTERI.

Alexandroff-Tweedy and Donald Operations—Shortening of the Utero-Sacral Ligaments.

Uterine retro-deviations being always attended with some degree of descent of part or of the whole of the upper pelvic segment, and bearing in mind what has been said as to the non-supporting action of the round ligament, it naturally follows, that when the uterus is enlarged and heavy, and the perivascular sheaths overstretched, something more than a mere suspension may become necessary.

Such cases, where the upper part of the vagina and with it the parametric tissues on its sides and on the latero-posterior aspect of the cervix have become relaxed, should be carefully distinguished from those of the prolapse. The term "descensus uteri," or partial prolapse, exactly defines this variety of uterine displacement, inasmuch as it only implies a giving way of the upper pelvic segment and not of the lower, and therefore only affects the uterus and upper part of the vagina and not the rest of the utero-vaginal canal.

This condition, as we have seen, is generally associated with backward displacement, but it also exists without a retroflexion or retroversion, should the uterine parenchyma show some rigidity and the round ligaments be still acting. A large number of women suffer

from this sagging of their upper uterine segment. Indeed, it seems probable that many conditions ascribed to infective causes of either the uterine mucosa and its adjoining parenchyma or its appendages, are simply due to the congestion, favoured and maintained by this partial descent of the uterus. These are just the cases where a well-fitting Hodge or ring pessary, when the pelvic floor is still sound, gives so marked a relief, but one also where operative treatment, when mechanical aids have ceased to be of use, is of difficult application, and frequently utterly fails to obtain permanent results. Why do so many women after a successful operation of suspension, and in spite of the correction of the retroversion, still suffer from backache and on the whole are not much benefited by surgical treatment?

The reasons given are too numerous to mention or discuss, but one of the more plausible ones is that the organ, although anteverted, has not regained its normal plane in the pelvic cavity—it still sags, consequently it is still congested and painful. What is wanted here is, to use Dr. Fothergill's expressive terminology, "to take up the slack in some degree," and he goes on to mention Alexandoff's operation and those performed by Tweedy and Donald, of Manchester, as being successful in obtaining this aim.

According to the same author, however, "there are obvious technical difficulties in handling a mass of tissue, which contains embedded in it, important arteries, veins, and lymphatics, as well as the ureters, and which is attached to the whole surface of the vagina, a large portion of the bladder, and to the anterior aspect of the cervix uteri." So there is! and indeed one is not surprised to hear that "the most surgery can accomplish in this direction is to alter the attachment of the more accessible portions of this mass of tissue to the cervix and upper part of the vagina in such a way as to "take up" the slackness of the overstretched perivascular sheath." How the slack can be taken up, Dr. Fothergill describes further,* but except in such cases where the uterus is removed as well, a procedure somewhat too radical for ordinary cases of prolapse, the description of this operation is unfortunately as illdefined as the tissues to which it is applied.

Nor is one surprised to find, as an adjunct to this taking up the slack, that the performance of the time-honoured operations of ventro-fixation and colpo-perineorrhaphy should be advised, as apparently of a more lasting character.

Whatever future such procedures may have as adjuncts to colpo-perineorrhaphies to which we will refer later, they have always appeared to us, so far as the uterus itself is concerned, to lack the precision and the "raison d'être" demanded by sound surgery.

* Fothergill, *Loc. Cit. Operations for Prolapse*, page 413. *Journal of Obstetrics and Gynæcology of British Empire*.

What do they aim at and how is the slackness of the overstretched perivascular sheath taken up? The blind insertion of temporary ligatures about an inch and a half from the cervix on either side, their junction in the middle line (Tweedy), and the further union "in front of the cervix of a *good deal* of the parametric tissue and a *good deal* of the paravaginal tissue of both sides, without endangering the ureters or the blood supply of the parts" (Fothergill) appears a matter of considerable speculation if not impossibility! The extensive anterior colporrhaphy, performed at the same time, certainly does relieve the slack in a measure, but such an operation affects the vesical plane only and not the uterine, and should it do so, which our practical experience has not borne out, the suturing of the parametric and paravaginal tissues one to another and to the anterior aspect of the cervix *owing to the very nature of the tissues operated upon* can only be temporary and lacks all the elements of stability.

Freund, in 1889, to remedy the "descensus uteri," especially when complicated by retro-deviation, shortened the utero-sacral ligaments per vaginam, and suggested it also per abdomen. The operation is now performed either way, and as pointed out by Kelly, combined with plastic operations, shortening the round ligaments, or suspensio uteri it should be followed by a mechanical cure of the retro-displacement and prolapse of the uterus. Our experience, which we may state at once, has been limited to a dozen or so of cases, is very similar to the one Kelly quotes as given by Polk. The operation per vaginam is difficult and hazardous, at times impossible, per abdomen, if much easier, it has one great objection, which is to necessitate a large abdominal incision. One certainly, to quote Kelly again, "which the uniformly satisfactory results secured by other methods" has been proved unwarranted, especially when it may be remembered that the therapeutical results obtained have been either doubtful or have not been permanent.

VENTRO-FIXATION.

Under these circumstances, and seeing that neither shortening of the round ligaments, nor plastic operations which only affect the lower pelvic plane, can be trusted successfully to raise the uterus to its normal position, especially when large and heavy, one may well turn to the other surgical methods as probably presenting more effective and permanent support to the relaxed pelvic organs. Of these none has been more widely performed and on the whole has met with more success, in spite of its obvious drawbacks, than Lawson Tait's original operation of ventro-fixation. It is not only a valuable surgical measure in retro-deviations, but may also be indicated in some forms of prolapsus uteri with or without plastic operations on the vagina. Now we fully agree with those who consider it an unphysiological venture, and in young women a dangerous one into

the bargain. Indeed, it has always appeared to us that to fix to the abdominal wall the fundus of a woman still in the child-bearing period is to interfere fundamentally with the plans of nature, which has made the organ naturally free and mobile, so as to meet the different changes of altitude and size necessitated by the menstrual and puerperal states.

We therefore fully endorse the opinions of those surgeons who, like McKay¹⁰ declare that it should now be an accepted surgical axiom that ventro-fixation ought never to be performed on any woman who is likely to become pregnant. Nor can we but agree with him when he strongly denounces the teaching of those authorities who, like Herman¹¹ and Giles,¹² take the attitude that when "the operation is properly performed subsequent difficulty in labour need not be feared." Kelly has well shown how ill-founded such an opinion is, nor is the recitation of the disasters which have followed this nefarious practice of any moment, as they are too well known to require recapitulation. But if ventro-fixation is contra-indicated in women still liable to impregnation, it is on the contrary *the operation par excellence* which belongs to the period of the menopause.

All that is wanted here, is to produce artificially a strong adhesive ligament which will hold permanently in position an organ probably materially enlarged and which only requires to be kept out of harm's way to prevent further degeneration. This ventro-fixation fulfils to perfection and is our most reliable and trustworthy operation. It not only keeps the uterine body well forward and in an anteverted position, but it successfully raises as well the whole uterine and visceral planes, a result unobtained by any other fixation or suspension operation.* Whatever may be said to the contrary, therefore,

* A little known, or at least not a frequently mentioned result of round ligament fixation, is, its temporary existence.

On four occasions, I have had to re-open the abdomen of patients, on whom several months to three years previously, I had shortened the round ligaments by Alexander's and by a method very similar to Gilliam's. In every case, the uterus although anteverted, was no more held in situ by the shortened round ligaments—these had become elongated, in fact had again partly resumed the sinuous appearance they have in health. I experimentally retroverted the uterus but by doing so, did not put them to the stretch and on releasing my hold, the artificially retroplaced uterus, resumed its normal position, certainly not owing to any action of the round ligaments, but simply on account of the now tonically recovered elasticity of the uterine parenchyma and more specially of its subjacent fibro-muscular and cellular elements. This temporary nature of round ligament fixation shows the utter futility of depending on this operation to hold up permanently a badly retroverted and partially prolapsed uterus, but it becomes an advantage of no mean order, when on the contrary the retroversion is unattended with any marked elongation or sagging of the peri-vascular sheaths and of the fibro-muscular and cellular elements composing the pelvic diaphragms. The operation be it round, broad, or retro-uterine fixation of either broad or round ligaments, has fulfilled its purpose as soon as tone is restored to the temporary relaxed uterine supports and the more rapid the vestiges of surgical interference are effaced the better.

ventro-fixation will remain the sheet anchor for the gynæcological surgeon, whenever he has to deal with those conditions of uterine displacements where the fundamental lesion consists in the permanent overstretching, whether by actual destruction or by absorption, of the elements supporting the uterus and its adjoining viscera. Should it become imperative to perform it on a young woman, an eventuality which the correct application of other methods should render more and more unlikely, it should be the surgeon's greatest care never to include the fundus in the fixing sutures, but to apply the latter close to the cervico-corporeal juncture, and on the anterior uterine surface, so as to facilitate the upward ascent of the organ during pregnancy.

PROLAPSE.

Relaxation of both the upper and lower pelvic planes gives rise to the condition known as "prolapsus uteri." The uterus is then generally found lying immediately behind the vulvar aperture surrounded by the redundant folds of an inverted vagina. But the prolapse may only affect the vesical plane, or the vaginal walls, when it gives rise to what is described as cystocele, or colpocele.

Although the descent of the uterine body may be the primary lesion which ultimately leads to that of the other visceral organs, in the great majority of cases the destruction of the lower pelvic plane, and in particular of the levator ani muscle and its fascial covering, is the initial injury which practically always favours this form of displacement. The surgical treatment of prolapse may therefore be said to centre itself almost exclusively around the reconstruction, in as complete a manner as possible, of the lower pelvic fibro-muscular diaphragm. Of the various and complicated methods invented to deal with this condition, perhaps the simplest and certainly one of the best is that of Hegar, one of the earliest pioneers of perineal operations

When applied to a relaxed vagina, with no material damage to the "pelvic floor," its results are excellent and sufficient in the milder cases of prolapse to restore the parts to a normal condition. In the majority of procidentia cases, however, the injuries to the perineum involve a laceration of the muscles of the sacral segment of the pelvic floor, together with that of the deeper layer of the pelvic fasciæ. Such an operation, which only resects the superfluous and redundant parts of the vaginal canal is utterly inefficient to deal with the situation, and it becomes necessary to do more to restore some strength to the damaged pelvic floor. We have now, for some years, performed Lawson Tait's colpo-perineorrhaphy as modified by Doleris and Pozzi, to which we invariably add a myorrhaphy of the levator ani. The two rami of the muscle are fully exposed on each side of the rectum and vagina and sutured by a

continuous superimposed suture in the middle line. The vaginal tissues are then treated exactly as in the Tait's operation. This method has never failed to give us admirable results, and if supplemented by the anterior colporrhaphy presently to be described, gives the best possible support to a prolapsed uterus—indeed, in the majority of severe procidentia cases, combined with a solid ventrofixation, it is almost invariably curative, and I have never seen a patient return to me with a relapse. This operation is supposed to affect later the second stage of labour. My experience has so far been a happy one, I do not remember hearing that any of my patients had difficulties in their subsequent pregnancies.

Cystocele, or hernia of the bladder, is generally associated with prolapse of the uterus, but it not infrequently exists alone, or to speak more accurately precedes that of the uterus. The structures generally affected are both layers of the triangular ligament and secondarily the most anterior fibres of the levator ani muscle.

The usual method of dealing with this condition has been to remove an oval or triangular portion of the anterior vaginal wall and thus reduce the redundancy of the protruding viscera. The operation is, however, totally ineffective if the cystocele is extensive.

We have conjointly, with the perineal operation, performed another very similar to that of Donald of Manchester, by which the whole of the lower portion of the bladder wall is freed from the cervix and vagina anteriorly. The latter is then resected as widely as necessary, the bladder pushed back into the pelvic cavity, and the incision closed by a mattress suture which involves first the deep fascial layers, and finally the vaginal mucous surface. This method successfully raises the whole of the pelvic vesical plane, although it does little to modify the uterine one, but it generally proves curative to the cystocele and relapses are exceedingly rare.

HERNIA OF THE PELVIC CONTENTS.

When the uterus and its adjoining visceral connections have crossed the vulvar boundary and escaped entirely outside, the prolapse is described as complete. This condition is rightly considered as, and styled hernia of the pelvic contents, inasmuch as the uterus alone is not the only organ which has lost the right of domicile in the pelvic cavity, but the vagina is also completely inverted. In extreme cases a posterior enterocele may exist simultaneously.

The analogy with ordinary hernia is therefore complete. The operations which have been devised to deal with this condition, especially when occurring in middle-aged women, cannot so far be said to have met with general success. When the prolapse is not severe and is of recent origin, some of the methods already advocated for ordinary prolapse are of service. Generally speaking, however, the seriously impaired nature of the herniated uterus, renders the

retention of this organ inadvisable, and an attempt should be made, after its removal, to resect the redundant vaginal tissues, and as advised by Fothergill "unite the parametric and paravaginal tissues in the middle line." In a case in which malignant degenerative changes had started in the prolapsed uterus, I performed vaginal hysterectomy, followed by the suture together of the base of both broad ligaments, to which I added an extensive anterior and posterior colpo-perineorrhaphy with a myorrhaphy of the levator ani. The vagina was thus practically occluded, and so far as I am aware the prolapse has not returned. In another, but younger, patient, I opened the abdomen, amputated the uterus at the seat of election, sutured the broad ligaments one to another and to the stump, and fixed the pedicle to the abdominal incision. Two years after the patient returned with a very marked cystocele and rectocele, for which I had to perform an extensive double colpo-perineorrhaphy.

There was some improvement, but only of a momentary nature, as the vesical displacement has again become obvious and will undoubtedly become more so in the near future.

In order to relieve these severe cases of prolapse occurring in women who have passed the menopause, and with a marked tendency to adiposity, and a general flaccidity of their connective tissue, the so-called "interposition operation" has been advocated. The anterior vaginal cul-de-sac is opened, as in the preliminary step of vaginal hysterectomy, the fundus delivered through the incision and secured to the anterior vaginal wall and also to the posterior surface of the os pubis immediately before it. The bladder is pushed right up in the pelvis and the uterus in its new position acts as a sort of stop cock to the rest of the vaginal organs preventing their outward and downward displacement.

I have no experience of this operation, nor of that of Professor Muller, of Berne, who advises and performs in similar occasions the resection of the whole vagina and the closure of its cavity.

No doubt the desperate character of these cases justifies all audacities, although owing to the very unsatisfactory nature of the ground on which one operates, even these radical methods of treatment have been known to fail to remedy what is frequently beyond the power of surgery to relieve and much less to cure.

CONCLUSIONS.

As a summary to the preceding considerations we may draw the following conclusions.

1st. That the pelvic viscera are both suspended and supported organs.

2nd. That the "pelvic floor" forms one solid mass separating the pelvic cavity from the exterior, just as the anterior abdominal wall separates the abdominal cavity from the exterior.

3rd. That it includes part of the viscera, as well as the so-called ligaments of the uterus, of which they are an integral part.

4th. That relaxation of part or the whole of this fibro-muscular, cellular, vascular and peritoneal diaphragm results in the production of the different forms of pelvic displacements.

5th. Relaxation of the upper pelvic segment leads to retro-deviations and partial uterine descent. That of the lower to cystocele, colpocele and rectocele. Relaxation of the upper and lower segments to classical prolapse. The intensification of the combined conditions is productive of hernia of the pelvic contents or total prolapse.

6th. Relaxation of the upper pelvic segment is curable by the so-called round ligament operations of which Alexander's and Simpson's are the best types. Descensus uteri, especially in middle-aged women demands ventro-fixation combined with plastic operations on the vagina and perineum.

7th. Prolapse should always be operated upon. Classical prolapse, by a combined anterior and posterior colpo-perineorrhaphy, with union of the paravaginal tissues in the middle line, and a myorrhaphy of the levator ani and frequently also in addition a ventro-fixation; cystocele and rectocele by the combined perineal and vaginal plastic operations.

8th. Hernia of the pelvic contents justifies all these preceding operations, but may best be treated by vaginal or abdominal hysterectomy with suture in the middle line, and if possible to the abdominal incision of the overstretched perivascular sheaths. In extreme cases, the interposition operation may be tried, or when everything else fails P. Muller's excision of the whole vaginal canal.

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