

P R O L A P S U S U T E R I

with

Results of 100 cases treated

by

Vaginal Plastic Operations.

Thesis for the Degree of M.D. 1916.

by

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During my tenure of office as Resident Surgical Officer in St. Mary's Hospitals, Manchester, where I have been in charge of the Gynaecological Department, I have been very much impressed by the large number of cases of Prolapse of the Uterus in comparison to the number of other special diseases of women, and also by the exceedingly satisfactory results obtained in this condition by Vaginal Plastic Surgery without the addition of any form of Abdominal Fixation or Suspension Operation.

The cases were practically all drawn from a class of patient who has always been accustomed to work hard and many of them, although married, are still employed in the Cotton Mills. Thus the operation was subjected to a fairly severe test, the women not being able to remain long off work and many of them going back to their employment within a very short time of leaving the Hospital.

CLINICAL TYPES.

The cases all fell under one or other, or else, a combination of the following types:

- (a) Cystocele,
- (b) Prolapsus Uteri, (Classical Prolapse)
- (c) Inversion of the Vagina from above downwards.
- (d) Rectocele.

(a) Cystocele.

The patient is practically always a parous woman and/

and the vaginal orifice has been stretched or torn at previous confinements.

In this type when the patient is asked to cough or bear down it will be seen that the anterior vaginal wall and with it the urethra and bladder, forms a bulging at the vulvar orifice.

An important point in this condition is that the vaginal wall when it comes down everts from below upwards and not from above downwards. On Bimanual Examination the uterus is found to be in its normal position, antiflexed, and the Cervix points downwards and backwards.

(b) Prolapsus Uteri.

Again the patient is practically always a parous woman. The few cases of prolapsus uteri occurring in virgins are almost always found to fall into the type of Inversion of the Vagina from above downwards and not to be cases of True Prolapse.

The classification of prolapse under various stages must necessarily be a very arbitrary one, as there is almost no end to the slight variations that one may meet with during the examination of a large number of cases, but it is useful, for descriptive purposes and also from the point of view of treatment as the operation decided upon may vary according to the degree of severity of the cases to describe the condition under three main stages according to Fothergill.*

Stage 1.

The Patient being asked to cough or bear down
the/

* Fothergill. Manual of Diseases of Women.

the anterior vaginal wall bulges through the vulvar orifice in other words we again have a Cystocele.

On Bimanual examination and when the patient strains the uterus can no longer be felt antiflexed. Instead, it has passed into a condition of Retroversion and has descended slightly in the pelvic axis and in doing this it pulls down with it the posterior vaginal wall. Thus the Post.Fornix is shortened; the amount of shortening being in proportion to the amount of descent of the uterus.

An important point to notice in this condition is that the anterior vaginal wall (the Cystocele) everts from below upwards whereas the posterior vaginal wall is pulled down by the descending uterus therefore it is inverted from above downwards.

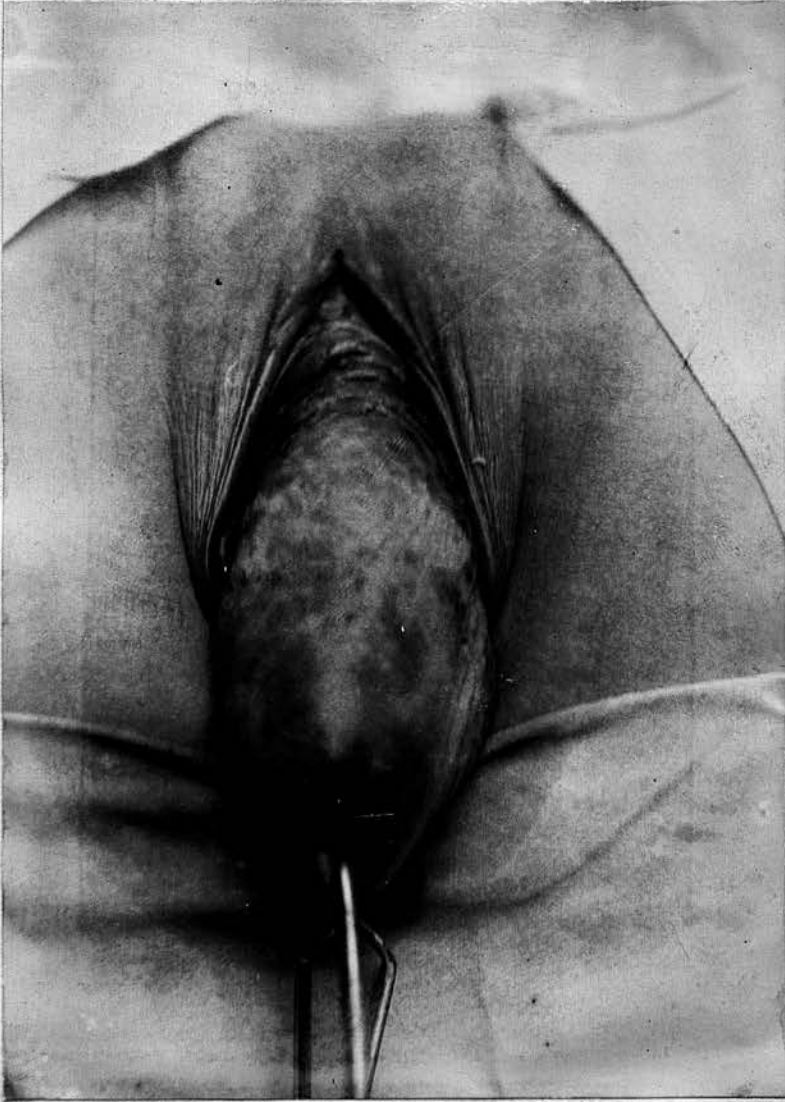
Stage 2.

When the condition has progressed a little further than Stage 1. then we find that the anterior vaginal wall and with it the bladder and urethra, is completely outside the vaginal orifice - thus there is no longer any anterior fornix - this has entirely disappeared by the complete eversion of the anterior wall. The cervix is situated at, or nearly at, the vaginal orifice and the posterior fornix is still further shortened and will now only admit the examining finger for about one inch or so.

Stage 3. (figures 1 and 2)

The final stage is one of complete Prolapse or
as/

Figure 1.



This photograph shows a typical case of complete Prolapse (Stage 3 in Text) In this case there was slight hypertrophy of the cervix as well.

Figure 2.



A typical case of complete prolapse,
complicated by an ulcerated hyper-
trophied cervix.

as it is very commonly called Complete Procidentia. The vagina is entirely inside out and hangs outside the vulva; within it we have uterus, and appendages, bladder, urethra and occasionally a few coils of intestine. The rectum rarely comes down in a complete prolapse but if it does then the condition is one of complete prolapse complicated with Rectocele.

Prolapse of the Uterus may be complicated by several other conditions. A very common complication is hypertrophy of the cervix; the cervix may be only slightly enlarged or else it may be an enormous size; it is generally ulcerated as well or else there may be a laceration and scarring from previous confinements.

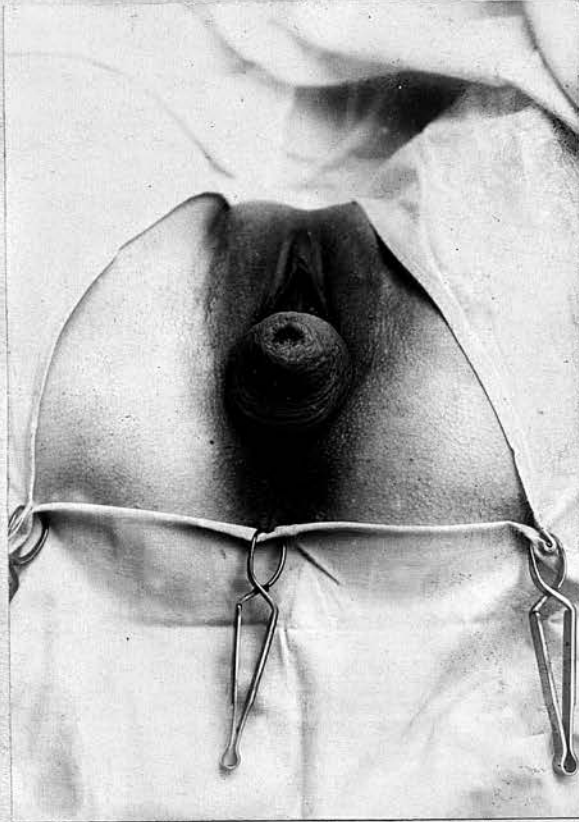
(c) Inversion of the Vagina from above downwards.
(Hypertrophy of the Cervix)

The patient may be either a Parous or a Nulliparous woman. Practically all cases of Prolapse in virgins are of this type - figure 3 being a very typical example in a girl of 21.

The patient comes, as usual, complaining of a bearing down but on examination it is found that there is no Cystocele or Rectocele.

The Uterus is in the pelvic axis; the cervix pointing downwards and forwards and when the patient is asked to strain the Uterus will be found to descend but the fornices are still present; the vaginal walls in this type inverting from above downwards by the descent of the Uterus and there is no eversion of the anterior/

Figure 3.



A very typical case of Congenital prolapse occurring in a girl (age 21).

anterior wall as in Cystocele.

The most important point in this type is the hypertrophy of the cervix as this is the cause of the whole condition. A hypertrophy which may only be discovered on passing the sound, and finding the Uterus to be much longer than normal, in other cases of course the hypertrophy is easily made out by the examining finger.

In virgins the vaginal orifice gets gradually enlarged by the descending Cervix and ultimately the vagina may become entirely inverted and so simulate a complete Prolapse very closely but on replacing the Uterus and asking the patient to bear down then the cervix is first seen to come down and after it the vaginal walls gradually invert until the condition is reproduced.

In Virgins the cervix is simply hypertrophied but in Multipari along with the cervical hypertrophy there may be laceration and scarring of the Cervix from previous labours.

Rectocele.

This condition is always the result of previous laceration of the Perineum during a confinement.

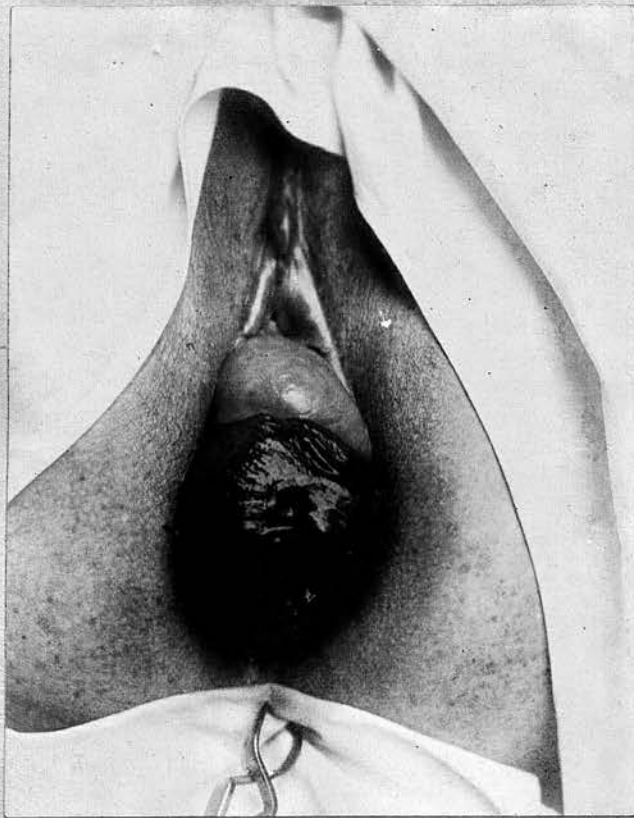
When the patient strains a mass appears through the vaginal orifice and this consists of the post vaginal wall and rectum. The fact that the rectum bulges with the vaginal wall is easily demonstrated by/

by passing a finger through the Anus.

For this condition to occur there must have been tearing of the Perineum with some inflammation during the healing process and as a result of this the Rectal and Vaginal Walls become adherent and then when the patient strains the bulging is produced.

If the patient has a complete perineal tear, i.e., one passing through the Sphincter Ani and into the Rectum, a Rectocele never results as the patient does not strain while at stool, but what may happen instead is that the Rectal Mucosa may become prolapsed and this occasionally stimulates a rectocele - Figure 4 shows this condition in a patient who had had the perineum completely torn about 30 years previously and had never had any operation for its repair; there was a very marked prolapse of the Rectal Mucosa.

Figure 4.



Shows extraordinary prolapse of the
rectal mucosa - Perineum had been torn
at a confinement 30 years previously.

ANATOMY.

For a full understanding of the aetiology of Prolapse we must first of all consider shortly, the structure of the normal female pelvic floor.

The Pelvic Floor may be divided into:-

(1) Moveable part,

(2) Fixed part.

(a) The Moveable part consists of the Uterus and appendages, bladder, urethra and vagina. These organs are all bound together by a loose connective tissue.

(b) The Fixed part comprises the muscular layers of the pelvic diaphragm; the pelvic fasciae and connective tissue between and covering the muscles.

Fothergill* describes this as being "a Fibro-muscular sling extending from the front to the back of the Pelvic Cavity in such a way that the urethra vagina and anal canal pass between its two lateral halves". "Thus we may define the fixed portion of the pelvic floor as the structures which are left in situ after the removal from the pelvis of the uterus and its appendages; so called ligaments; bladder with the retro-pubic fat, ureters, urethra and the whole vagina. The upper surface of this fixed portion is thus basin or funnel like in form and consists mainly of the aponeurosis of the Levator ani and coccygei muscles on either side with the rectum behind."

The/

* Fothergill. Manual of Diseases of Women.

The old view as regards the normal position of the Uterus was that it was held up by the broad ligaments, round ligaments, and utero-sacral ligaments, but this is obviously not correct as the so called ligaments are found to be lying quite loose when the Abdomen is opened during an Abdominal section. Therefore they cannot be the main support of the Uterus. Again I must quote from Fothergill as his view in regard to this matter appeals to me as being exceedingly sound and also because it has a very distinct bearing as will be seen later on the operative treatment.

"The Moveable portion of the Pelvic Floor is really fastened within the fixed portion by the structures which intervene between the fascial lining of the pelvic funnel on the one hand, and the fascial coverings of the Uterus, bladder and vagina on the other. The three organs are joined together by loose connective tissue and there is more loose tissue between the bladder and the pelvic bones, and between the vagina and the rectum. But in the space at either side of the three organs lie the arteries, veins, lymphatics and nerves which supply the three organs, also the ureters. These structures all have sheaths of firm dense connective tissue, which is continuous with the fascia lining the pelvic funnel and with the fascia lining the three organs. It is these connective tissue sheaths which anchor or fasten the uterus, vagina and bladder within the pelvic funnel. The three organs are/

are firmly attached where they receive their blood supply and nowhere else. Thus the vagina is attached and supplied with blood over the whole of its lateral aspects. The bladder has its blood supply and firm attachments laterally and below but is free above. The uterus receives its main blood supply and is fastened by the lateral aspects of its lower portion. At either side of the pelvis the blood vessels and the connective tissue in which they are embedded, together with the lymphatics, the nerves and the ureters, form a mass whose upper margin is defined by the internal iliac artery and its direct continuation, the Obliterated hypogastric; The mass is fixed behind by its continuity with the internal iliac vessels and is firmly attached to the innominate bone. The coverings of the posterior branch of the artery and the accompanying veins anchor the mass near the sacro-sciatic notch. The sheaths of the Obturator vessels anchor it near the obturator foramen.

The uterine, vesical and vaginal vessels spread radially from the main vascular mass and run between the sides of the pelvic funnel to the organs they supply. The perivascular connective tissue thus forms the connection between the fascial coverings of the organs and the fascial linings of the cavity which they occupy.... When the attachments between the moveable and the fixed portions of the Pelvic Floor are Normal, the/

the upper part of the Vagina and the Lower portion of the Uterus are held back and up by the sheaths of their vessels so that the Cervix lies within about an inch and a half of the middle of the Anterior surface of the Sacrum."

Thus with the cervix being held well back in the pelvis and behind the pelvic axis the uterus almost automatically falls forward and occupies its normal position in front of the pelvic axis.

*

Jellett's view as regards the position of the Uterus is somewhat similar to the above. He states:

"Three structures under normal condition kept the vagina in its place, these were, (1) Levator ani muscle and the investing fascia, (2) The Vaginal Suspensory Ligament and fold of pelvic fascia, (3) Its attachment to the cervix and parts of the endo-pelvic fascia which had an insertion both into the cervix and into the upper part of the vagina. The uterus again was supported directly by the vaginal attachment, by the utero socral ligaments and by the different layers of the endo-pelvic fascia which passed into it laterally and anteriorly. The indirect support of the uterus was the pelvic floor aided by the fact that the uterus lay with its long axis almost at right angles to the axis of the vagina.

* Edin. Medical Journal, January 1915.

CAUSATION OF UTERINE DISPLACEMENTS.

If we accept Fothergill's view in regard to the normal support of the Uterus, then we can explain all the pathological variations met with in the position of the uterus.

If the lateral masses of perivascular tissue become relaxed and lengthened then the cervix will fall downwards in the pelvis and will also go forwards and along with this change of position of the cervix the body of the uterus will be practically tilted backwards until it occupies a position in the pelvic axis. It will now be in the most favourable position for the production of a prolapse and by its weight and also by the intra abdominal pressure acting on the uterus which occupies the pelvic axis then the uterus will gradually descend until we get a condition of complete procidentia. According to Fothergill if the upper portions of the Perivascular connective tissues alone are lengthened and relaxed then the cervix goes forwards and the uterus backwards and we get a condition of retroversion; if the lower portions only are affected then we get the bladder and the vaginal wall falling and so cystocele is produced and if the centre portion is the only one affected then we get prolapse of the Uterus without Cystocele; finally if the whole perivascular tissue is affected then we get prolapse and cystocele; in other words the classical Prolapse.

As to why this relaxation and elongation of the perivascular tissue should occur is much more difficult to explain.

This tissue has been shown to contain muscular tissue and to be definitely contractile, therefore it is quite reasonable to suppose that this tissue will share in the involution changes which occur after labour, but, all women who have been pregnant do not develop prolapse, therefore there must be some other additional factor at work, and this is probably of the nature of Superinvolution.

If the Uterus undergoes Superinvolution then the Perivascular tissues will share in this process and so we will get atrophy of the muscular tissues and then the connective tissue having lost its contractile power will tend to elongate if any strain be put upon it.

In favour of the view that the changes are of the nature of Superinvolution, one may bring forward the cases of Prolapse occurring after the menopause when atrophic changes definitely occur in the pelvic structures.

After the menopause, women can be almost divided into two classes, firstly there is a type where an increase in the adipose tissue occurs and this will act as a buttress and help to support the Uterus, and secondly we have the other class where atrophy occurs without the increase in adipose tissue and this is the class/

class most likely to suffer from Prolapse after the Climacteric.

In my series of 100 cases, 42% occurred between the ages of 40 and 60 and the only way we can explain this large proportion occurring after the normal child bearing period is that they were due to some atrophic condition. Under these circumstances is it unreasonable to explain the cases occurring during the child bearing period, by a similar process of atrophy or as it is called Superinvolution? Thus we have seen that all types of Prolapse can occur by a process of atrophy of the muscular connective tissue in the pelvis so what relationship is there between laceration of the perineum and Prolapse?

Tearing of the Perineum during parturition is not a cause of Prolapse as can easily be proved by the fact that cases of severe laceration of the perineum extending into the rectum where the Levator ani and the sphincter ani muscles have both been torn, practically never suffer from Prolapse and this is due to the fact that these patients do not strain at stool. Figure 4 shows a case of complete perineal tear which had been present for 30 years and yet there was no prolapse whatever. The only effect of perineal laceration where the Sphincter ani has not been torn is that it alters the axis of the vagina and makes it more vertical and in this way the uterus is able to descend more easily and also leaves more of the anterior vaginal wall/

wall exposed and for this reason it is, of course, a very important factor in the treatment of cases of Prolapse, but it cannot possibly be looked upon as a cause of the condition but merely as an accessory after the fact.

Another very strong argument against perineal laceration being a cause of prolapse, - are the cases which occur in Virgins where there cannot have been any tearing of the Perineum but the descending uterus gradually distends the vagina and vulva, - This type is undoubtedly a congenital condition and there is a general laxity of the pelvic structures including the perivascular connective tissue.

Jellett* explains the causation on the basis of Perineal laceration:

"When injuries occurred in labour such as deep tearing of the Perineum, the levator ani muscle lost its attachment to the central point of that structure, with the result that the vaginal walls began to descend - the suspensory fascia being unable, alone, to hold them up. Then followed backward displacement of the uterus due to its weight and the general relaxation of its ligaments or to the traction exercised on the cervix by the prolapsed anterior vaginal wall. Thus through a change in the direction of the axis of the uterus/

* Jellett. Edin. Med. Jour. Jan. 1915.

uterus almost all the support given to it by the pelvic floor was lost. This brought the utero-sacral ligaments and the endo-pelvic fascia into the line of strain and these structures were unable by themselves to resist it and so gradually yielded."

This view does not explain at all why the uterus passed into a condition of retroversion; because one cannot accept the theory that the weight of the uterus makes it fall backwards. If the uterus is enlarged or heavy then of course it will descend more easily once it passes into retroversion, but one cannot say this is a cause of prolapse because a very large number of cases of prolapse occur where the uterus is small and this is most often seen in the type of Senile Prolapse occurring in women between 50 and 65 where the uterus is generally small and atrophic.

COURSE AND SYMPTOMS.

The Symptoms of Prolapse vary very much according to the severity of the lesion - many of the women never complain at all of the Prolapse and it is only found on examining them for some other condition, others come complaining of a "Bearing down" or "Something coming down" but in many cases the chief complaint is in regard to bladder trouble - either difficulty in micturition, especially when the uterus is completely outside the vulva, or else frequency of micturition or it may even be inability to hold the water at all. This is generally/

generally due to an incomplete emptying of the bladder and then a chronic cystitis is set up. Associated with the falling of the womb there is after a certain amount of congestion of the pelvic organs due to some interference with the blood supply and then we get the patient complaining of pain, dysmenorrhoea, and menorrhagia. This, of course, is a result rather than a part of the prolapse but it is important to notice it as one must pay special attention to this group of symptoms during the operative treatment. In the cases of complete prolapse where the Uterus hangs outside the vulva, the vaginal walls become very much thickened, hard and dry and are very liable to become the seat of extensive ulceration (Figure 2) by the friction to which they are exposed and this adds very considerably to the dangers of the condition as infection may then spread into the Pelvis and cause Pelvic Peritonitis with matting of the appendages and coils of bowel adjacent and a few cases have been reported where this has proved fatal. These cases of extensive ulceration all have a great deal of yellow foul discharge and this passing over the skin of the vulva and buttocks tends to set up an exceedingly irritable condition, which still further adds to the patient's trouble. In some cases a constriction occurs at the vulva and then the vaginal walls become enormously thickened and oedematous, and it may be found quite impossible to replace the prolapsed mass until the patient has spent some time/

time in bed and steps have been taken to reduce the oedema of the vaginal walls.

If a case of prolapse is complicated by a fibroid then it is often found that as the tumour grows the prolapse may disappear entirely by the uterus being pulled upwards into the abdomen, on the other hand I have seen cases of Prolapse complicated by Ovarian Cysts where the prolapse could not be reduced until the Cyst had been removed.

The occurrence of Pelvic Cellulitis may cure a case of prolapse by thickening and shortening the pelvic cellular tissue and this fact has been taken advantage of by one Surgeon who injected quinine into the cellular tissue for the purpose of causing a reaction and consequent shortening of the Perivascular connective tissue.

DIAGNOSIS.

The easy and accurate diagnosis of the various stages of Prolapse can only be made by an inspection of the external genitals in a good light, with the patient lying on her back and her knees drawn well up. When the patient is asked to cough or bear down, it will be seen that the anterior vaginal wall bulges at the vulvar orifice and then with the finger in the vagina, the body of the uterus will be felt to go backwards into retroversion and then begin to descend in the pelvic axis, - The three signs - bulging of the anterior vaginal wall, uterus passing into retroversion and the descent of the uterus is the tripod upon which the diagnosis of cases of Classical Prolapse must stand.

If the case is one of Cystocele only, then when the patient is asked to strain the anterior vaginal wall will bulge through the vulvar orifice but on examining with the finger the uterus will be found to remain antverted and will not descend. Cases of Cystocele may be complicated by hypertrophy of the Cervix and this type is very liable to be mistaken and called prolapse on account of the cervix being felt so low down in the Vagina, but if a careful examination be made, the uterus will again be found in antiflexion and it will not descend. Prolapse may be complicated by a Rectocele and in this case both the anterior and posterior vaginal walls will be seen to bulge at the vulvar orifice when the patient strains.

The diagnosis of Inversion of the vagina from above/

above downwards is made by noting that the uterus descends as in prolapse when the patient strains but the anterior vaginal wall does not bulge at the vulvar orifice. Thus the diagnosis of the various types of Prolapse depends entirely upon an accurate knowledge of the physical signs of the various conditions.

DIFFERENTIAL DIAGNOSIS:

There ought to be no difficulty in the diagnosis of Prolapse as the physical signs of this condition are quite definite but several conditions may be mistaken for it.

1. Retroflexion: Patients with this condition frequently complain of bearing down, but on examination although the uterus is retroflexed there is no Cystocele and the uterus does not descend when the patient strains.

2. Uterine Polypi: The Polypus lying in the Vagina may give rise to a sensation of "something coming down" but the condition is easily diagnosed on examination. One of my series of cases, when she reported herself, complained that there was still something coming down, on examination I found a large fibroid polypus in the vagina and the uterus well up and antiflexed and no prolapse whatever, but the polypus was causing exactly similar symptoms to those from which she suffered before the operation.

3. Fibroids of the Cervix: The position of the os uteri to the tumour readily differentiates this condition.

4. Inversion of the Uterus: In this case there is an absence of the os uteri and one may see the openings of the Fallopian tubes.

5. Enterocoele. This condition may be mistaken for Rectocele but a finger in the rectum immediately shows that the rectal wall does not line the protruding vaginal wall and that something comes down in front of the examining finger when the patient is asked to cough.

PROGNOSIS:

This condition tends in most cases to become progressively worse as time goes on, but many women will suffer from a Prolapse for 10 or 20 years before coming to get anything done for it. The Prolapse may become cured if the patient puts on fat during the menopause, but as a rule it becomes worse during this period.

Practically the only dangers are when we get extensive ulceration of the cervix, and then a septic infection of the pelvis from this, or where the patient does not empty the bladder properly and a Cystitis is set up with may be coincident infection of the kidneys. Prolapse by itself is not dangerous to life and this must be taken into account when an operation is proposed to the patient, and also when the type of operation which is to be performed is decided upon.

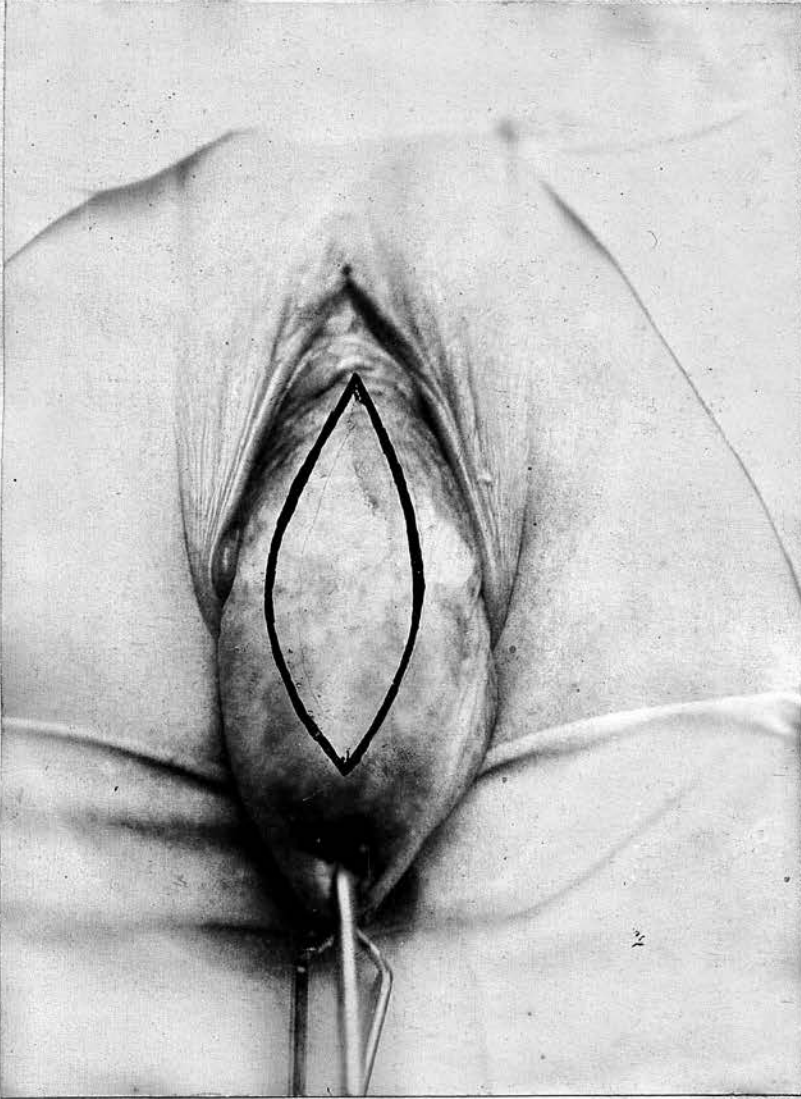
TREATMENT:

In this Thesis I only propose to deal with the Operative Treatment of Prolapse, with special regard to the various types of vaginal plastic operations which were used in the treatment of the 100 cases under review. I will now describe the various operations used and discuss the relative merits of the various types later.

1. Anterior Colporrhaphy:

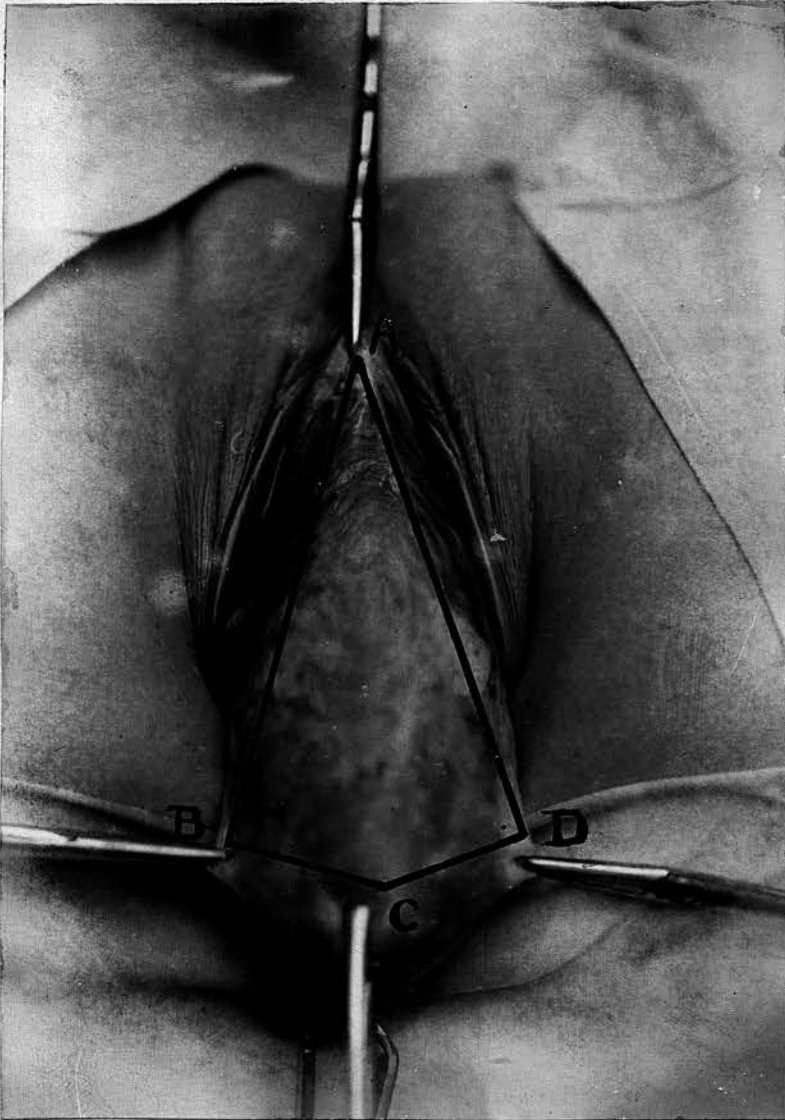
The Cervix is pulled well down by a vulsellum. The area of anterior wall which is going to be removed should now be mapped out and this is easily done by applying four pairs of forceps, either ordinary Spencer Wells artery forceps or else some type of American Bullet forceps. The ordinary way is simply to excise an oval area from the vaginal wall (fig. 5) but very much better results will be obtained by removing a diamond shaped piece in which two sides of the diamond are shorter than the other two (fig. 6) so that the two forceps B & D will extend well out towards the sides of the cervix. Incisions are made by a knife joining up the four pairs of forceps, i.e. from A.B., B.C., C.D., and D.A. Care must be taken in doing this so as not to injure the bladder. The flap of vaginal wall will partly strip off but one generally has to aid this by snipping with the scissors. In some cases it/

Figure 5.



Shows the ordinary oval shaped flap
of vaginal wall removed in anterior
colporrhaphy.

Figure 6.



The diamond shaped incision, which will be found to give much better results than the preceding one.

it will be found easier to start stripping at A and work towards C. but in others the reverse order will be found to be much more easily carried out. Now, without separating the bladder, we begin to stitch the wound. The uterus should be pushed into the vagina and the stitching down with the uterus in its proper position if possible. The stitches should be begun at the cervix and work forwards towards the urethra. Each stitch goes in through the vaginal wall about $\frac{1}{4}$ " from the cut margin, penetrates deeply enough so as to take in the parametric tissue but not deep enough to injure the bladder, it then crosses over to the opposite side again taking up the parametric tissue and coming out exactly opposite the point of insertion. Each stitch ought to be tied before the next one is put in and also after tying the stitch the uterus should be pushed well up so as to try and keep it in its proper position. If the colporrhaphy is stitched in this way then we get the parametric tissue at either side of the Cervix pulled over towards the mid-line - in other words it is made to take a longer course and by this way it is shortened without interfering with the vessels and nerves which run through it, the effect of this is to push the cervix backwards into the hollow of the sacrum and then the body of the uterus will automatically fall forwards into its normal position of antiflexion. The stitches should be interrupted and not continuous because if a continuous suture be used then when it is tightened up it will tend to pull the/

the cervix towards the urethra, thus shortening the anterior vaginal wall whereas what one is aiming at is to lengthen the anterior wall if possible. In St. Mary's Hospital, Manchester, a No. 3 Iodised Cat-gut is used for the sutures and the stitching will be much more easily and rapidly carried out if Hagedorn holders and needles be used - by doing this one is able to stitch much higher up into the vagina and so save pulling the cervix down so as to insert the stitches. There is often a marked redundancy of anterior vaginal wall just above the urethra, forming a urethrocele, and this must always be removed otherwise it will continue to cause symptoms of "something coming down".

Amputation of the Cervix:

A Posterior speculum is introduced into the vagina. A vulsellum is fixed to the anterior lip of the cervix and another to the posterior lip. The cervix is pulled well down by means of the vulsella and the cervix dilated and the uterus curetted. The cervix is then split transversely as high up as may be required for each individual case, it should not if possible be split as high as the vaginal vault so that when the operation is completed there will still be a portion projecting into the vagina. The cervix should now be pulled towards the pubes so that the posterior lip may be removed first, by doing this the stitches are more easily applied as there will be practically no bleeding/

bleeding from the anterior lip. The curved incision is now made beginning at the left side of the incision through the cervix, near the vaginal vault, and extending downwards and then across the mid line and upwards again to a corresponding point on the right side of the cervix. This incision merely goes through the thickness of the vaginal wall and it will be found that the cut vaginal wall will retract and leave the posterior lip of the cervix bare. The posterior lip may now be amputated either by a simple transverse incision or what is better by a V shaped incision so that the stump may be drawn together more easily. Three sutures of Chromicised Catgut (No.2) should now be inserted and tied. The first in the middle of the cut posterior lip and the other two to either side. The suture is most easily inserted by a Hagedorn needle and holder - it is passed through the posterior lip beginning in the cervical canal passing through the thickness of the cervix and then the cut edge of vaginal wall is picked up with a pair of dissecting forceps and the needle passed through the centre about $\frac{1}{8}$ " from the cut edge.

This suture should then be tied and the other two sutures inserted in a similar manner a little to either side of the first and central suture. It will be found that these three sutures will control practically all the bleeding. The anterior lip should now be amputated in an exactly similar manner and sutures introduced as/

as in the posterior lip. Several more sutures will now be required to close the raw area extending out to either side. An exceedingly useful suture to bring the anterior and posterior vaginal walls around the cervical canal at the two sides will be found to be one which begins first through the anterior wall then through anterior lip of Cervix coming out by the cervical canal, the needle is now passed through the posterior lip of the cervix and lastly through the posterior vaginal wall, when this is tied it brings the anterior and posterior walls together at the side of the cervix and at the same time brings the mucosa of the cervical canal and the vaginal mucosa together and so covers up the raw surface. After the sutures are all inserted and tied the bleeding will probably all be stopped, if there is any bleeding point then a deep suture may be passed and tied and this generally controls all bleeding quite easily.

A small gauze plug may be passed into the Cervix but this is better left out if there is no bleeding.

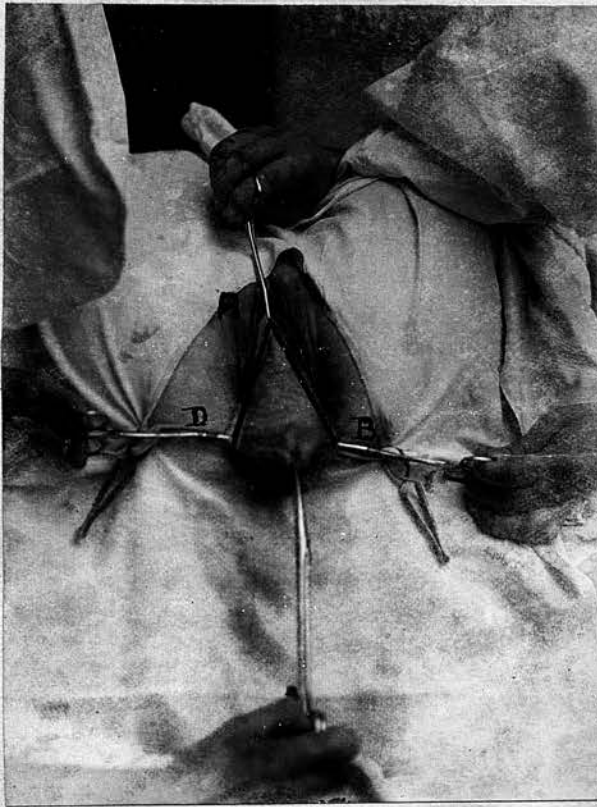
Fothergill's Operation.

(Anterior Colporrhaphy. Excision of the Anterior Fornix and Amputation of the Cervix) Pull down the Cervix with a Vulsellum and dilate, then measure the length of the uterus and curette thoroughly, this is an essential feature in this operation - especially the dilatation of the cervix. With artery or tissue forceps pick up four points, one just behind the urethral/

urethral orifice, one at the junction of cervix and posterior vaginal wall and one on the vaginal wall on either side of the cervix. These two lateral points should be well apart and should if anything be a little behind the cervix rather than in front of it: (Fig. 7 shows three of the four forceps in position and Fig. 8 gives the relations of the lateral forceps to the os externum rather better than the preceding one). The four points for convenience in description are labelled A, B, C, D. Next cut through the vaginal wall with a knife so that the incision connects A,B. B,C. C,D. D,A. Beginning at the apex of the area marked out - i.e. at point A. situated just above the urethra, strip off the vaginal wall enclosed by the incision from the parametric and paravaginal tissue but leave it attached to the Cervix; now snip round the cervix and this has already been mapped out by the incisions B,C. and C,D. By snipping with the scissors round and round the cervix one can get the cervix entirely freed from the parametric tissue, the cervix may now be cut straight across leaving the uterus about 3" long. The anterior vaginal wall and cervix will come away in one piece. Figures 9, 10 and 11 show the pieces removed from 3 cases. Figure 9 was taken from a case of congenital prolapse and shows very well the enormous piece of cervix removed - a little over 2" in length.

Figure shows a cervix which has been the seat of chronic inflammation and ulceration. Fig. 11 shows the/

Figure 7.



The forceps applied before making the incision for Fothergill's operation.

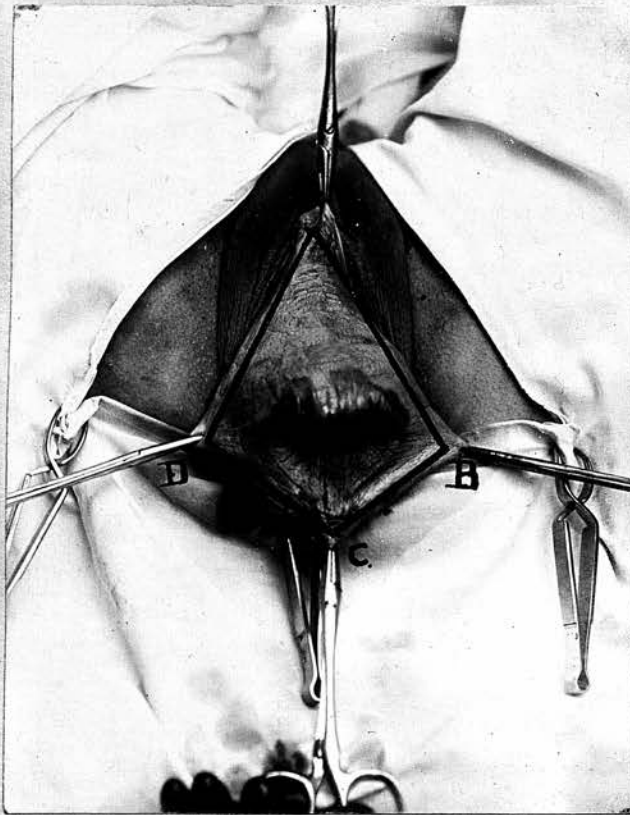
Forceps A. just above urethra.

" B and D on either side of the cervix.

The fourth pair of forceps is shown in the next photograph.

Part of the incision is shown.

Figure 8.



The lines of incisions for Fothergill's operation are quite well shown in this figure.

Figure 9.



The piece of tissue removed by Fothergill's operation from the case of congenital prolapse (Fig.3)

Shows very well the enormous piece of cervix amputated.

The letters A, B, C, D. correspond to the points where the forceps were applied (see figure 8)

Figure 10.



The piece of tissue removed from the case shown in the photograph (Fig.2). Very little cervix has been removed in this case but all the ulcerated area was excised.

Figure 11.



The piece of tissue
removed from case (Fig.1)

the piece removed in the case (Fig. 1)

The first suture is now passed from within the cervical canal through the back of the cervical stump and through the posterior vaginal wall in the middle line, this is tied and sutures are now inserted to the left and to the right working slowly round the cervix and bringing the cut edge of vaginal wall to the cut edge of cervical Mucosa. It will be found that the two sides of the wound gradually approach one another and eventually meet on the front of the cervix in the middle line. Fig. 12 shows the sutures inserted right round Cervix. As the last suture is inserted bringing the two sides together in front of the cervix, it will be found necessary to push the cervix upwards and backwards into the vagina otherwise one cannot, if enough vaginal wall has been removed, get the two sides together and the suture tied. Thus the cervix comes to lie high up and far back in the vagina and consequently the body of the uterus tends to fall forwards and so we get the normal anteversion. The remainder of the incision is closed from side to side by interrupted sutures as in the anterior colporrhaphy previously described.

When the operation is completed it will be found that the cervix is high up and far back in the Pelvis and the body of the uterus is lying anteverted. Even with a Speculum in the vagina it is sometimes difficult to see the cervix it has gone so high up.

Chromicised/

Figure 12.



Shows cervix completely re-stitched by Fothergill's method. To get this photograph the cervix had to be pulled forcibly down as it was lying far back and high up in the vagina.

Chromicised catgut No. 2 is used for suturing the cervix and plain catgut No. 2 or 3 for the rest of the incision. When the cervix is cut across it bleeds fairly freely but it is not worth while to try and stop the bleeding by tying vessels, because it will be found that the bleeding is entirely stopped by the time the cervix is completely stitched.

It is rarely necessary to tie any vessels in the anterior colporrhaphy, because here again by the time the suturing is completed the bleeding has generally stopped. If any point continues to bleed then it can easily be stopped either by simply under stitching or else by a figure of eight stitch.

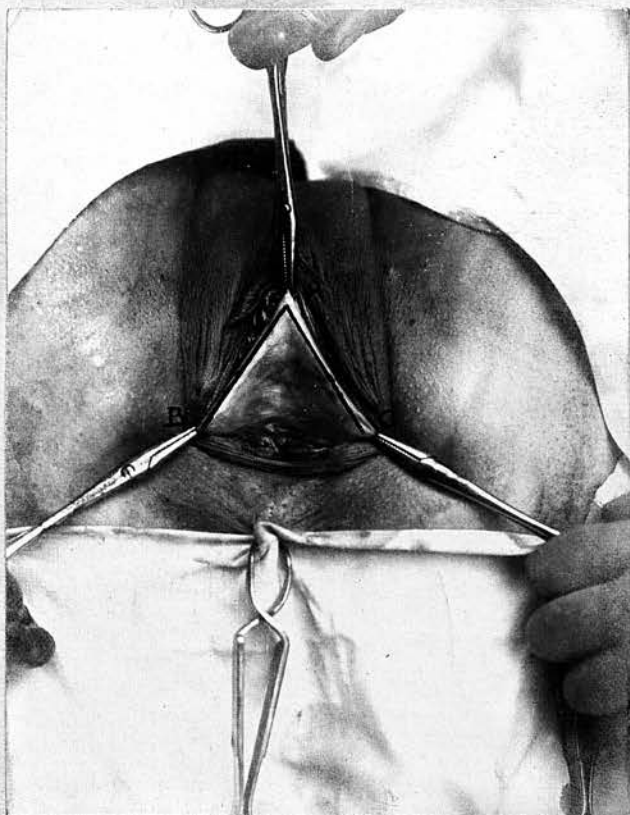
Donald's Posterior Colporrhaphy.

Pick up with forceps (Artery or tissue) a point in the centre of the posterior vaginal wall as high up as is easily accessible - this point in some cases will be almost at the cervico vaginal junction but in most cases is about 1" below the cervix, - two other forceps are now put on to points on the posterior vaginal wall about an inch and a half below the first forceps and separated from each other by about 1" - the distance between the various forceps varies greatly in different cases, but the above is the average position. Fig. 13 shows the three forceps in position and separated widely from one another so as to put vaginal wall on the stretch.

An incision is now made from forceps A to B and

A/

Figure 13.



The first stage in Donald's posterior
colporrhaphy with incision marked out.
The Text explains the position of the
forceps.

A to C and this inverted V shaped piece of vaginal wall is separated by snipping with the scissors, but it is left attached along the base of the triangle (B.C.) The two sides of the triangle are now united by interrupted Catgut sutures, working from above downwards the first suture being cut as soon as the second is tied and so on until the area is completely sutured - as a rule only four or five sutures are required to close this area.

Next pick up two points one on either side of the vaginal orifice, which when pulled together will just meet behind the finger placed in the vagina - now continue the lateral incisions to these points and then separate the vaginal wall from its sub-jacent structures; two other points are now picked up, one on each labium minus which when pulled together will form a sufficiently long perineum; the lateral incisions are again extended out to these points and the vaginal wall further separated from the underlying tissues. The flap of separated vaginal wall may now be removed. Again working from above downwards and beginning where the suturing in the first stage was left off, the cut edges of the vagina are brought together by interrupted catgut sutures.

Several deep sutures are also inserted so as to bring the deeper parts of the wound together and also so that no dead spaces may be left in the reformed perineal body. It is not necessary to dissect out and suture/

suture the Levatores ani muscles but the Transversus perinei muscles should be brought together by deep sutures, and if this is done then a very sound and thick perineal body is formed and this gives ample support to the uterus.

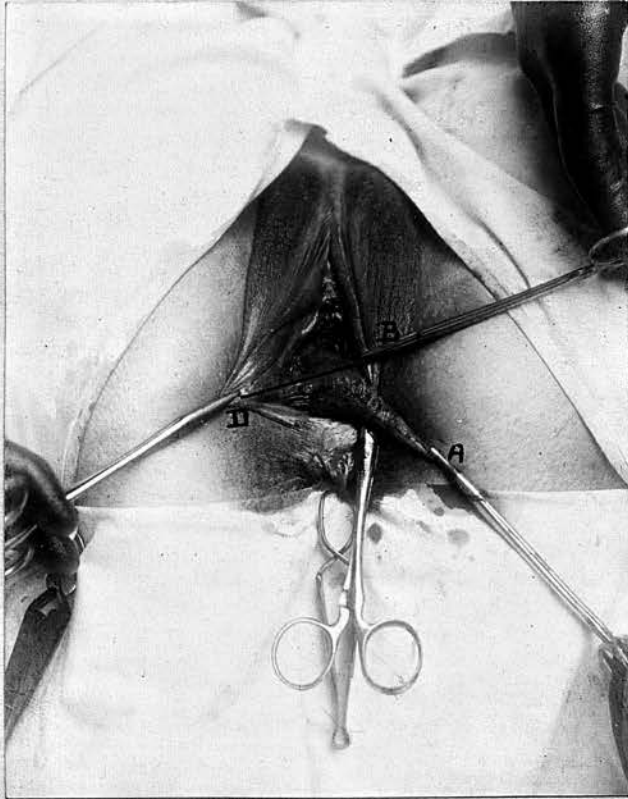
The part of the wound which is in the perineal skin should now be closed by interrupted silk-worm gut sutures.

It is better to ignore all bleeding points and it will be found that the haemorrhage has quite ceased when the operation is completed - the bleeding points are practically all caught by the deep sutures, and by the sutures uniting the cut edges of vaginal wall, (Fig. 14) shows the second stage of the operation. Forceps D is the point on the vaginal orifice on one side. Forceps B of the first stage is pulled well over to the opposite side so as to put the vaginal wall on the stretch and make it easier to extend the lateral incision down to the vaginal orifice.

In this photograph the forceps A on the apex of the first triangle will be seen still attached to the apex of the piece of separated vaginal wall.

The vagina should be lightly packed with gauze and this helps to stop any oozing that may be going on although as a general rule the vagina is quite dry and there is no haemorrhage.

Figure 14.

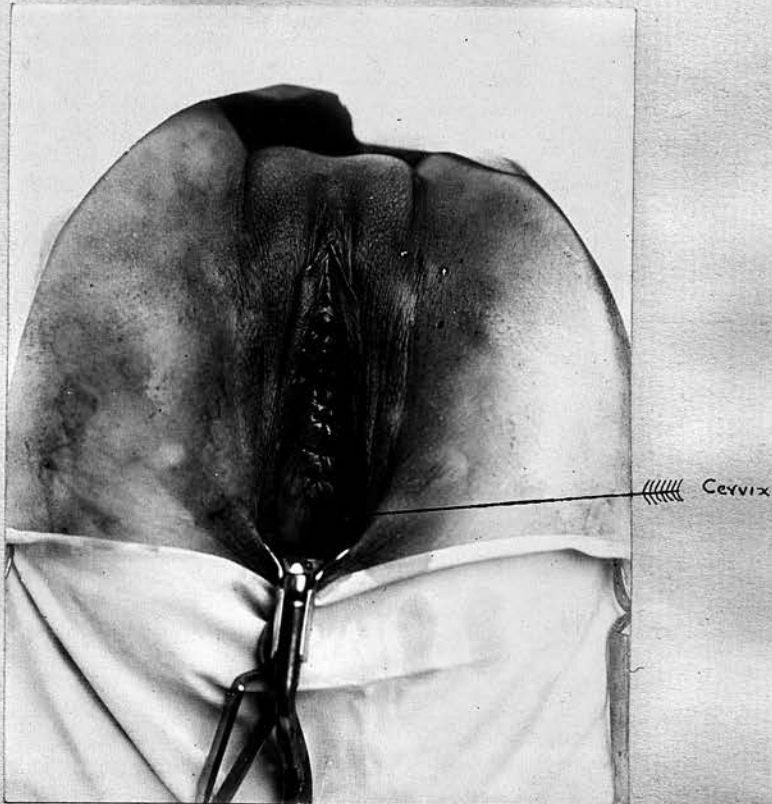


2nd Stage in Donald's operation.

Forceps B has been pulled over to the opposite side.

D is the point chosen in the vaginal orifice on one side. These two forceps are separated widely so as to put the vaginal wall on the stretch and thus make it easier for the incision to be made.

Figure 15.



This shows the completion of Fothergill's operation. The sutures uniting the cut edges of vaginal wall are seen but the cervix is quite out of sight in the hole marked by the arrow.

Figure 16.



The operation completed showing the new perineum.

Figure 17.



This photograph shows the enormous piece of posterior vaginal wall removed in a case of Rectocele.

This was removed by Donald's Method, i.e. working from above downwards in contrast to the ordinary method of working from below upwards.

AFTER TREATMENT.

There is often considerable pain after vaginal operations which may require the administration of morphia but in some cases Aspirin or Phenacetine will relieve all suffering. Almost as soon as the patient recovers from the after effects of the anaesthetic she should be propped up on a bed-rest so as to ensure free drainage from the vagina. If a gauze plug has been inserted this may be removed in 24 hours if there is no bleeding. The bowels are opened on the third day by enemata and purgatives and then kept open every day afterwards. The perineum should be frequently swabbed with some weak antiseptic solution and it is a very good thing to follow this by a swab soaked with spirit,- and also whenever the patient passes water or her bowels move then the perineum must be carefully cleansed and swabbed with spirit. It is better to abstain from all vaginal douching for the first week at least so as not to soften the catgut, but if there is much purulent discharge then a daily douche must be given and the best douche, in my opinion, for the first week is equal parts spirit and water and this has very little action on the catgut. During the 2nd and 3rd weeks, if there is much discharge, the best douche is one of Hydrogen Peroxide followed in 10 minutes by a saline douche.

The silk-worm gut sutures in the perineum should be/

be removed as soon as they begin to cause irritation and cut through the skin, but as a rule they may be left in and removed on the 10th or 12th day. If the Perineum is not quite healed or if any raw areas are left, Red Lotion makes an excellent dressing and aids the healing very considerably. The patient may have difficulty in passing water for the first few days but a catheter should never be passed until all other methods have failed i.e. hot cloths on abdomen, etc. She may be allowed up on the 14th day but after Fothergill's operations the patient should be kept in bed for 3 or even 4 weeks - the more prolonged the rest, the better will the ultimate results be, especially in those cases where the uterus has been completely outside the vulva for some time prior to the operation.

INDICATIONS FOR THE VARIOUS OPERATIONS.

In treating Prolapse of the uterus solely by various forms of Colporrhaphy there are several important points which must be paid special attention to:-

1. The operation must be thorough. It is no use at all to take a narrow strip from the anterior vaginal wall and then do a small posterior colporrhaphy. If this is done, then it is simply courting a recurrence of the condition when the patient gets up out of bed, I saw this done recently and there was a complete recurrence/

recurrence of the Prolapse within $1\frac{1}{2}$ months of the operation.

2. If the Cervix is hypertrophied then it must be removed by some form of Cervical Amputation. It is quite common to see in the Out-patient Department of a Gynaecological Hospital a case where Colporrhaphy has been done, the Cervix not removed, and on examination the Prolapse is quite cured but the woman still complains of something coming down and this is solely due to the hypertrophied cervix.

3. If the anterior vaginal wall is specially redundant, just above the urethra - in some cases forming a urethrocele, then this must be removed or the patient may return in a very short time and still complain of a sensation of something coming down. I have met with several cases of supposed recurrence of the Prolapse, which were entirely due to this small area of redundant anterior vaginal wall.

4. If the anterior Colporrhaphy is thoroughly done then there is no necessity to separate the bladder from the cervix, and push it up off the anterior uterine wall. It has been found in practice that cases do just as well without if the anterior colporrhaphy has been thoroughly done.

If the cervix is not hypertrophied then a simple anterior colporrhaphy combined with Donald's posterior colporrhaphy/

colporrhaphy will be found to give very excellent results.

If the Cervix is hypertrophied then one may either do an amputation of the cervix combined with a double Colporrhaphy or else Fothergill's combined anterior colporrhaphy with amputation of the cervix and excision of the anterior fornix and then complete the operation by Donald's posterior colporrhaphy.

Fothergill's operation will be found to give much the best results in those cases where the cervix is hypertrophied and no matter what position the uterus was in before the operation, it will be found to be anteverted at the completion and this is a very strong point in its favour, also this operation tends to lengthen rather than shorten the anterior vaginal wall, whereas an amputation of the cervix combined with an anterior colporrhaphy generally shortens the anterior wall to a slight extent.

Fothergill's operation is based on the theory of the causation of Prolapse by the lengthening and relaxation of the perivascular connective tissues, and as this tissue cannot be cut and shortened the same effect will be produced if it is made to take a longer course, and this end is obtained by the method of restitching the amputated cervix, in which the tissues which were originally at the sides of the cervix are made to join one another in the mid line in front of the cervix and so the course is considerably lengthened and/

and consequently the perivascular tissue is tightened up.

In all cases if there is any dysmenorrhoea, menorrhagia or leucorrhoea then the cervix should be dilated and the uterus curetted before the colporrhaphy is commenced.

RESULTS OF 100 CASES.

To investigate the results of cases of Prolapse treated by Vaginal Plastic operations, I took 150 consecutive cases operated upon 3 years ago in St. Mary's Hospital, Manchester, and to each one I sent printed slips with a list of questions - the following being an exact copy of the slips sent out.

Mrs.

Dr.

Date of Operation.

Have you any bearing down feeling or discomfort?

Have you any pain: if so, when do you have it?

Have you any discharge?

Have you had any children since the operation: if so, how many? Please state when you had them?

If so, had you any trouble at the confinements, i.e. had you instruments?

Have you had any return of troubles you had before the operation since the confinement?

Have you had any miscarriages since the operation, if so, how many, and when did you have them?

Is there any complaint you would like to tell us of you have suffered from since the operation, not previously mentioned?

Do you consider that the trouble for which the operation was done is

Cured?

Relieved?

Not Improved?

No. in Register:

St. Mary's Hospital,
High Street Branch,
MANCHESTER.

Dear Madam,

You were operated on by Dr in
..... and he will be interested to hear from
you the result of the operation. We shall be much
obliged if you will kindly read carefully and answer
the enclosed questions, and return to us: also if
you could make it convenient to call at this Hospital
on so that we can really see the result
of your operation.

Yours truly,

Resident Surgical Officer.

Please bring this note with you.

I then took the first 100 replies and analysed
the results. The reason why I only went back 3 years
for the cases was because Fothergill's operation was
not being performed before that time and I wanted to
compare the results of this operation with the results
after an ordinary colporrhaphy with amputation of the
Cervix.

Of the 100 cases 88% felt quite cured, and the
remainder (12%) although not cured felt relieved - but
of/

of this 12%, 5 at least had been quite cured until a future confinement when they had some return of the previous symptoms. Thus for over one year after the operations had been performed 93% were quite cured.

Results of Various Operations.

Table 1.

Operation.	No. of Cases.	Number Cured.	Percentage cured.
Double Colporrhaphy	49	41	83.6
" " with amputation of Cervix	21	19	90.4
Fothergill's with Posterior Colporrhaphy	20	20	100.
Posterior Colporrhaphy	3	3	100.
" " with amputation of cervix	7	5	71.4
Total.	100	88%	

There were unfortunately only 20 cases of Fothergill's operation in the series and although this is much too small a number to judge accurately the efficacy of the operation I was able to examine many others which did not fall into the series mentioned above and I have only seen one case that was not entirely cured, and thus, although the percentage of cures by this operation would not have remained at 100% had I been able to include more cases of this type - I am quite convinced that it would have still shown a higher number of cures than any of the other operations.

of/

Of the 100 cases I was able to examine personally 43 of the series and of this number there were 38 cures and 5 failures.

Table 2.

		Uterus		
			Ante- flexed.	Retro- verted.
No of Cases	No Cured	38	31	7 (22.5%)
examined	43	No relieved	5	3
				2 (66.6%)
			<hr/>	<hr/>
		Total	34	9

Table 2 shows the effect of the position of the uterus in regard to the number of cures and although a certain number of cases may show no return of the Prolapse even although the uterus is retroverted yet a very much greater number will complain of some return of the symptoms if the uterus is in this position.

The causes of the failures in the 5 cases which I was able to examine were as follows:

1. One showed slight cystocele and rectocele and the uterus came down to a slight extent when the patient strained - Uterus anteflexed. Patient was quite better until a confinement 18 months after the operation.
2. In two cases there was no cystocele prolapse or rectocele but there was a slight redundancy of the vaginal wall just above the urethra - Urethrocele - and this was the cause of the symptoms. In both cases/

cases had this redundancy been removed at the operation there would have been no recurrence of the symptoms.

3. In one case there was slight cystocele but the symptoms were caused by a greatly hypertrophied anterior lip of the Cervix, this woman was much better until a confinement 2 years after the operation.

5. This case showed a markedly hypertrophied cervix, especially the anterior lip which was protruding at the vulva - there had been no subsequent confinement consequently had the cervix been removed at the operation she would have been quite better. This type of case should be classed as an error of judgment at the time of the operation rather than a failure.

Relation to Sterility.

It has been held and probably quite rightly so that amputation of the cervix tends to produce Sterility but this was not shown to any great extent in my series of cases.

In the 100 cases, 18 became pregnant after the operation.

Table 3. shows the operation which had been performed in the cases which subsequently became pregnant and also the number of recurrences of the symptoms after each operation.

Table 3.

Operation.	No. of cases showing subsequent confinements	No. of cases showing return of symptoms after confinement.
Double Colporrhaphy	10	4
" " with amputation of cervix.	5	1
Fothergill with Posterior Colporrhaphy.	1	-
Posterior Colporrhaphy.	1	-
Post. Colp. with amputation of cervix.	1	-
Total.	<u>18</u>	<u>5</u>

Thus in the 18 cases of subsequent confinement, 11 had not had the Cervix removed and in 7 there had been some form of amputation of the Cervix, now these figures are very misleading unless we know the number of cases occurring during the child bearing period in each class.

Table 4.

	No. of cases under 40 yrs. of age.	No. which became pregnant	%	No. of cases over 40 years of age.
Cervix not removed	33	11	33.3	19
Cervix removed	26	7	26.8	22
Total.	59	18		41

Thus we see that there were only 7% more pregnancies among the cases, where the cervix had not been removed, in comparison to those in which some form of amputation had been performed, and against this one must put the higher percentage of cures in the cases where the cervix is removed.

The question as to whether the Cervix ought to be removed or not must be decided in each individual case and if for any reason the woman is very anxious to have another child then it would probably be better not to remove the cervix if there is a reasonable chance of curing the condition without, of course in cases where the cervix is hypertrophied and this is the cause of the symptoms then it must be removed and there is still quite a reasonable chance of her becoming pregnant at some future date.

Age Incidence.

This is not a matter of any real importance because so many women suffer from the condition for years before coming to have the operation performed.

It is of slight interest, however, to note the ages at which the condition is most common.

<u>Age Period.</u>	<u>No. of Cases.</u>
15 to 20	2
20 - 25	0
25 - 30	10
30 - 35	22
35 - 40	24

40 - 45	20
45 - 50	12
50 - 55	5
55 - 60	5

Return after Confinement.

18 cases had subsequent confinements and only 5 showed any return of the symptoms. If the labour is well conducted and the head is kept well flexed and allowed to be born very slowly then the large number of cases will show, not only no tear of the perineum but also no return of the symptoms. This is another great point in favour of Fothergill's operation - in this case the uterus is kept well up in its normal position and does not depend so much on the posterior colporrhaphy in contrast to the cases where a simple anterior colporrhaphy is done and thus one does not require to do quite such a thorough colpo-perineorrhaphy consequently the vaginal outlet is not narrowed to the same extent and there are fewer recurrences after subsequent labours.

Comparison with Results Obtained by Other Operations.

Unfortunately I have not been able to find many Statistics showing the results of the treatment of Prolapse by a combination of vaginal and abdominal operations. Thus one cannot compare the two methods very thoroughly.

Wade/

Wade* gives the results obtained by various methods of the Williamsburgh and Deaconess Hospitals, Brooklyn, New York. "The vaginal method of supporting the uterus and with it the bladder and rectum combined with suspension from above, was satisfactory in 43 out of 61 cases, the uterus remained in position and was moveable in 50 of the cases. 14 became pregnant, two aborted, two had normal deliveries, and two were delivered by the aid of forceps".

These figures certainly show no improvement on the cases which had only had vaginal plastic operations performed, and the patient has had the added risk of an Abdominal Section.

CONCLUSIONS.

1. Excellent results are obtained in the Treatment of Prolapse by vaginal plastic surgery only.
2. Abdominal fixation or suspension are unnecessary if a thorough and wide Colporrhaphy is done.
3. The best and most lasting results will be obtained by doing Fothergill's operation combined with Donald's Posterior Colporrhaphy.
4. The Cervix should always be removed if there is the least hypertrophy.

* Trans. Amer. Assoc. of Obstet. & Gynaecol. Vol. XXVII.

I am indebted to the Honorary Surgeons of St. Mary's Hospitals, Manchester, for allowing me to use the notes and reports on all their cases from which the series of cases under review was drawn.
