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ORIGINAL CONTRIBUTIONS.

THE TECHNIC OF PELVIC OPERATIONS BY VAGINAL SECTION.*

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I do not know how popular or unpopular the vaginal route of attack in pelvic diseases in women may be in the Southern Surgical and Gynecological Society, how much it may have entered into your deliberations, or whether there be in your ranks so much as one devotee and advocate of the method. However that may be, I am glad to bring you tidings of its continued satisfactory results in my own hands and of its steady growth in popularity and adoption throughout the country. Scarcely a week passes that does not bring me a letter or a verbal report from some former student who has been using the method with marked improvement in his results over his former experience with laparotomy. The most marked example of this is at the St. Joseph's Hospital, in Yonkers, N. Y., in which the entire Visiting Staff of Surgeons—six in all—have as a routine method adopted the vaginal route for pelvic disease to the almost complete exclusion of laparotomy, and with such improvement in their statistics that they are all ardent advocates of the method. These men are, or were, all general surgeons without any special training in gynecology. St. Joseph's is a general hospital with an ambulance service whose range of cases is very wide. But with them every disease confined to the true pelvis in women is attacked through the vagina. A complete report of three years of this work at this institution was recently presented before the New York Academy of Medicine, by Dr. Henry Moffat, and since published.[1]

*Read by invitation before the Southern Surgical and Gynecological Society at Atlanta, Ga.

1—Medical Record, December 5, 1903.

In summing up the subject the author says:

"The following conclusions are fairly indicated, not only from my own personal experience, but from what I believe a candid study of the table of cases would teach.

"1. The anterior vaginal route is most useful for reaching and operating upon the round ligaments in cases of retroversion of the uterus or procidentia; also for removal of small fibroids, either subperitoneal or pediculated, for conservative work on the ovaries and tubes, or for removal of these organs.

"2. The posterior incision is most useful for drainage in cases of pyosalpinx, salpingitis, pelvic abscess, some cases of tubal pregnancy with hematocele and puerperal sepsis, either with or without involvement of the tubes; for oophorosalpingectomy, when the ovary is held backward and downward by old adhesions, and even in some cases of acute general septic peritonitis.

"The more I see of this work the more am I impressed with the important truth that no pus tube should be attacked by any other route than by the vagina.

"The following are the summaries of the tabulated record of vaginal operations performed in St. Joseph's Hospital by seven different operators during these three years.

"ANTERIOR SECTIONS.—Shortening the round ligiaments for retroversion, 11; exploratory with breaking up of adhesions, 2; myomectomy, 2; resection of ovary, 1; single oophorectomy, 3; double oophorectomy, 2; total, 21 operations with no deaths.

"POSTERIOR SECTIONS.—Single oophorosalpingectomy, 21 double oophorosalingectomy, 8; drainage for (*a*) pelvic abscess, 10; ((*b*) puerperal sepsis, 6; (*c*) pelvic haematocele, 5; (*d*) salpingitis, 2; (*e*) exploratory operations, 2; total, 54 operations, with 2 deaths, giving a mortality of 3.75 per cent.

"HYSTERECTOMIES.—Performed for complete procidentia uteri, 7; puerperal sepsis, 3; double pyosalpinx, 3; uterine fibroma, 2; double pyosalpinx and uterine fibroma, 1; carcinoma uteri, 3; total, 19 cases, with 6 deaths, giving a mortality of 31.6 per cent. The deaths were in cases of puerperal sepsis, 2; uterine fibroma, 2; carcinoma uteri, 1; double pyosalpinx, 1."

In my own hands the scope of the operation, *i. e.*, the conditions to which it is applicable, is steadily widening. It is no longer confined on the one hand to simple puncture and drainage nor limited on the other to the radical operation of hysterectomy. All the intermediate procedures that are called for by the multifarious pathologic conditions found in a woman's pelvis find their most direct route through the vagina.

There are two vaginal incisions through which the pelvic cavity can be reached: one posterior to the cervix into Douglas' pouch, and the other anterior to the cervix, separating the bladder from the uterus and opening up to view and touch the entire contents

of the pelvis. The latter is the one which affords the greater facilities for operative procedures, and the one which I depend upon almost exclusively. The posterior incision is frequently used in connection with it to afford additional opportunity for the purpose simply of securing drainage and in some cases for manipu-

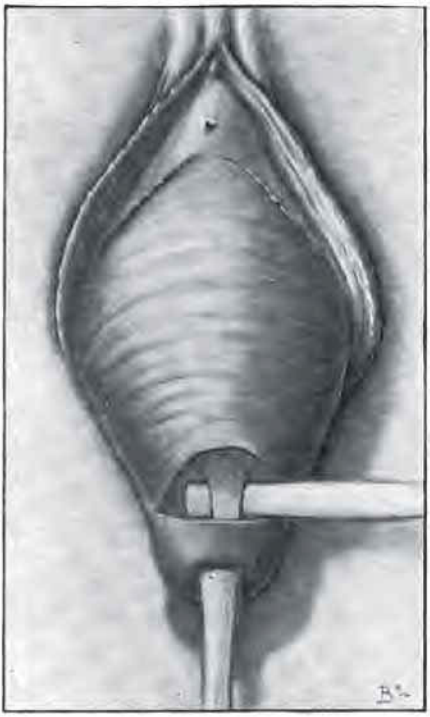

Fig. 1. Dissecting out the utero-vesical ligament before cutting it.

lation. Briefly, the procedure consists in making a transverse incision in front of the cervix corresponding to that employed in complete vaginal hysterectomy. Through this incision the bladder is dissected from the uterus up to the peritoneal fold. The peritoneum may then be incised and the peritoneal cavity opened, or that can be left until the next step in the process is completed, which consists in making a longitudinal incision through the vaginal mucous membrane and sheath throughout its entire length. This is accomplished by grasping the edge of this transverse incision either side of its middle point by two artery clamps. Tension upon these clamps puts the anterior vaginal wall upon the

stretch, and an incision is made with the knife from the neck of the bladder down to the center of the transverse incision. The

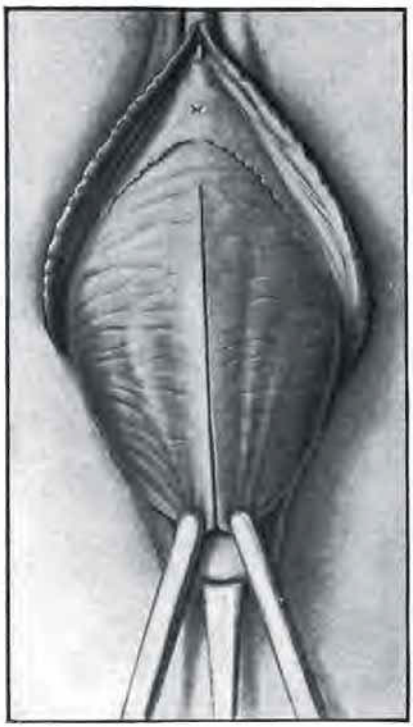

Fig. 2. The longitudinal incision in anterior vaginal section.

bladder is then dissected off the vagina for the distance of an inch or an inch and a half either side of this longitudinal incision. The purpose of this second incision and the separation of the bladder is to secure sufficient room in which to work. The dissection is done almost exclusively with the handle of the scalpel and the finger, and the hemorrhage is inconsiderable. Through this opening, whether in virgin or multipara, ample space is afforded for whatever radical or conservative work upon the uterus and its appendages may be indicated. This becomes at once apparent when we consider that the vaginal cleft, *i. e.*, the introitus vaginae, is quite as large as the usual abdominal incision of a laparotomy, and by this T incision in front of the uterus the opening into the peritoneal cavity duplicates the size of the introitus.

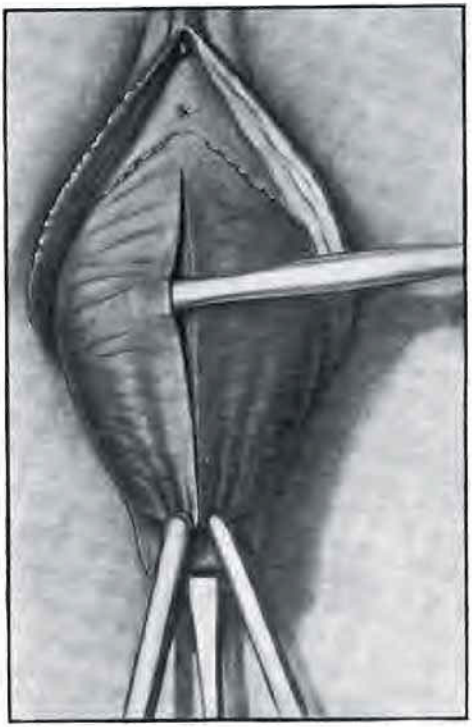

Fig. 3. Beginning dissection of bladder from the vagina.

The simplest and at the same time very important function which is subserved by an incision into any of the large cavities of the body is that of an exploratory operation. An exploratory incision, so far as possible, should be free from danger; should give facilities for gaining the desired information, and at the same time afford opportunity for the completion of such surgical procedures as may be indicated.

The anterior vaginal incision fulfills these functions most satisfactorily. (1) It is free from danger; more than that, it is devoid of any untoward or annoying consequences. When I first began its use I felt that it might be followed by more or less serious bladder symptoms. In this, however, I have been happily disappointed. Indeed, I have yet to meet the first case in which there have been any symptoms following this procedure referable to the urinary apparatus. The tissues through which the opening is made seem to be unusually tolerant of traumatic interference.

and the generous blood supply of these parts favors prompt and complete healing. (2) As an exploratory incision I have found it to afford the means of accurate, definite and reliable information in regard to the entire contents of the pelvis. (3) The third condition is an important one, and experience is constantly widening the field of its application, and demonstrating that it affords ample space for completing almost every surgical procedure that may be indicated.

PELVIC ABSCESS.—The simplest application of the vaginal method, and the one that probably commends itself most universally to the profession, is incision and drainage of pelvic abscesses. Accumulations of pus in the pelvis may have various locations, depending upon whether they arise from puerperal conditions or the results of infection under the general conditions of life. But whether the pus be in the cellular tissue, in the Fallopian tubes, in the ovaries or in peritoneal spaces between coils of intestine and adjacent tissues, the conservative and at the same time the efficient method of attack is vaginal incision and drainage. Under these conditions the anterior incision is rarely used, the opening being made posterior to the cervix or in the lateral sulci of the vagina. The predominant indication for this procedure is in cases of large pelvic abscesses, especially if the patients are acutely ill or prostrated from long-continued suppuration. Noble, of Philadelphia, says that in this class of cases this procedure gives in his hands a mortality of 2 per cent. as contrasted with one of 25 per cent. or more by abdominal section. There is no question concerning the positive merits of the drainage operation; it is done quickly, does not cause shock to the already weakened patient, and permits her to recover from the critical condition in which she is placed by the accumulation of pus and the general septic condition. Should the ovaries and tubes of both sides be found involved and collections of pus therein, they may be freely opened through the posterior incision and drained. The central incision is made into Douglas' pouch and into that common cavity the various pus pockets are opened. Should the condition of the appendages be such as to necessitate their removal and the vitality of the patient warrant it, they may be removed through the posterior incision or a pan-hysterectomy performed, thus accomplishing what our laparotomy friends call, "a complete operation." In cases in which the appendages of one side show probability of recovery, it is my custom to pack the pelvis through the posterior incision with gauze for the purpose of lifting the intestines out

of the pelvis, and to then make the anterior incision, remove the hopeless appendages, washing, cleaning up and disinfecting the appendages to be left. As a rule it is safest in *desperate* cases to simply open into the collections of pus, break up the involved cellular tissue and insert a T drainage tube.

Vaginal incision and drainage has by universal approval taken the place of vaginal puncture. One point in the technic I wish to emphasize, and that is that the incision through the vaginal tissue should be sufficiently free in its extent to afford opportunity for careful investigation with the finger and ensure a sufficiently patulous opening during the succeeding drainage period. The utero-sacral ligaments are such important structures in retaining the uterus in its normal position that I am careful not to interfere with their continuity, and after entrance through the peritoneum into Douglas' pouch prefer to dilate and stretch rather than to cut. The technic is as follows: The cervix is seized with a strong traction forceps and drawn down to the vulva or near to it as possible with reasonable traction. A transverse incision is made with scissors or knife in the middle line through the posterior vaginal wall, close to the cervix, down to the peritoneum. The latter is then caught up with a mouth tooth forceps and snipped with the scissors. Through this opening first one index finger is pushed and then the other and the peritoneum torn and stretched out to the utero-sacral ligaments, care being taken not to injure these structures. In case of hemorrhage the cavity should be packed with gauze and the insertion of the drainage tube postponed till the gauze is removed.

Shortening The Round Ligaments.—The condition in which I first applied the anterior incision was that of retro-position of the uterus, and perhaps it may be well to speak of that first. I am a firm believer in the principle that the uterus is supported exclusively by its ligaments, that when a uterus remains in normal position it is because its ligaments retain it there, and when a uterus gets out of its normal position it is because the ligaments have failed to do their duty. This is indisputably the case in unmarried women who suffer from procidentia or simple retro-displacement. In cases, therefore, of displacement of the uterus, the ligaments and the ligaments alone are the proper tissues to utilize in restoring and maintaining the uterus in its normal position. The success attained by the Alexander operation of shortening the round ligaments at the external ring, and by the Wylie-Mann operation of shortening the round ligaments intraperiton-

cally, and the multiplicity of devices for utilizing the round ligaments for this purpose is ample assurance of the efficiency of these ligaments for this purpose. In this connection we recall the Kellogg, Dudley, Goldspohn, Gilliam, and many other operations. My plan of procedure consists simply in shortening the round ligaments inside of the pelvis, but I do it through the anterior vaginal incision.

The technic is as follows: After entering the peritoneal cavity, the uterus is dragged down firmly by traction forceps attached to the cervix, and the finger passed over the fundus and slipped along until it hooks over the broad ligaments near the uterus. The round ligament near to its origin from the uterus is then seized between the index finger, which is on the posterior face of the broad ligament, and the thumb, which is anterior. The cervix is now pushed into the posterior fornix and the traction forceps removed, the cornu of the uterus in the meantime being dragged forward and downward into the vagnia. The bladder and vagina are pushed up by a retractor or the index finger of the other hand, and by a little persistent effort the entire uterus is delivered into the vagina. In accomplishing this maneuver I never catch the fundus with a volsellum forceps, tenaculum or other pointed instrument. They break the peritoneum and give a point for future adhesions; sometimes cause annoying hemorrhage. As a rule the fingers are the only instrument necessary. If a little firmer grip is desirable the ovarian ligament near to the fundus may be grasped by a sponge forceps. This ligament is strong and fibrous and affords a very good hold. The round ligament, first of one side, then of the other, is caught by an artery clamp from one to two and a half inches from the horn of the uterus and dragged down in the form of the letter U. A fine, twisted silk suture is now passed through the ligament at a point on the outer side of the forceps and then near to the uterus. The point selected at the outer side of the forceps is at as remote a point as will allow of approximation to the second point through which the stitch is passed near the horn of the uterus. It is then tied, thus shortening the round ligament to an extent equal to the length of tissue taken up in the loop. The two arms of the loop between this suture and the forceps are then stitched together by two sutures of silk, and finally a third one catches the tip of the loop and attaches it to the anterior face of the uterus just at the origin of the round ligament. This latter suture is for the purpose of disposing of the loop of tissue, although it doubtless

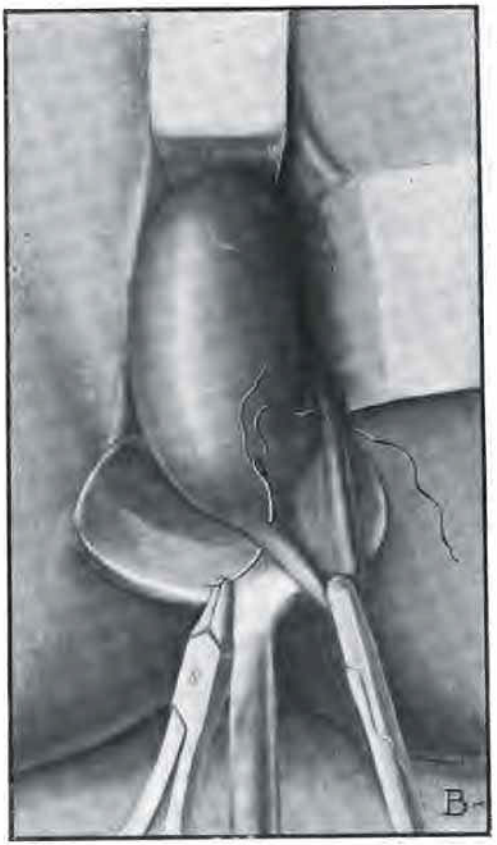

Fig. 4. Shortening the round ligament, first suture.

affords an additional support. The horn of the uterus thus treated is allowed to resume its position in the pelvis. The other horn of the uterus is drawn down and the round ligament of that side treated as in the first instance. The uterus is then allowed to take its normal posture of anteversion in the peritoneal cavity, and the bladder tissue is adjusted to its original position. Two catgut sutures sew up the transverse incision in front of the cervix, and the running catgut suture restores the vagina along the longitudinal incision. The vagina is then packed with gauze and the operation is completed.

Cases of retroversion complicated by adhesions, either of the uterus or of the appendages, are made to conform to this

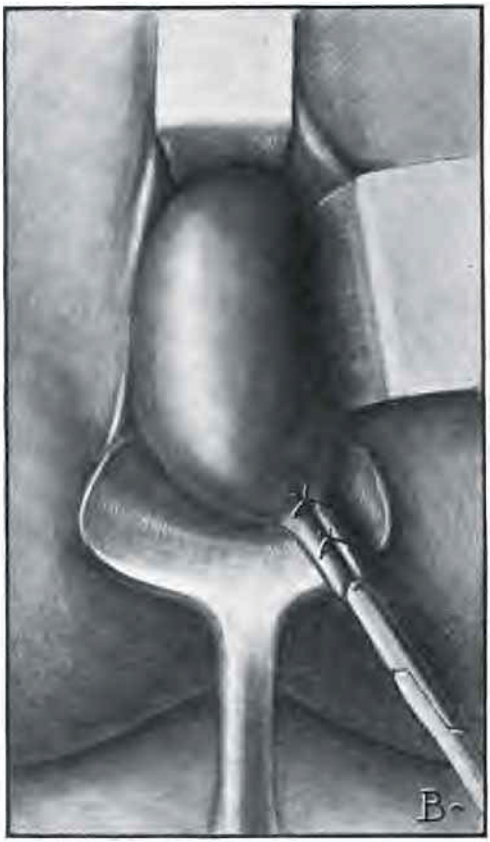

Fig. 5. Shortening the round ligament, first two sutures tied.

technic after the adhesions have been broken up by the finger. Where the adhesions extend to the bottom of Douglas' pouch and are difficult of access, a posterior vaginal incision is made, and through this the separation of the adhesions is completed.

Resection of Tubes and Ovaries.—It is my custom always in these cases, after delivering the uterus into the vagina, to bring down the appendages also, first one side and then the other, and do such conservative work upon them as their condition indicates. This work consists of such procedures as puncturing multiple cysts of the ovaries with a Pacquelin cautery, in some cases resecting portions of the ovaries, at the same time freeing the Fallopian tubes from adhesions, opening up the fimbriated ends, and under

a stream of normal saline solution massaging the tubes, squeezing out any retained secretions, probing the tubes to discover their patency or constriction, disinfecting them with pure carbolic or tincture of iodine on a probe, and, when necessary, amputating them at a point that will afford a patulous tube from there on to the uterus.

My work in this department of conservation of tissue and function of the ovaries and tubes in connection with shortening the round ligaments has been most satisfactory. In cases of pyosalpinx where the tube is hopelessly destroyed, the greatest facility is afforded for dissecting out the tube from the horn of the uterus and closing its bed with sutures. The fundus lies in the introitus vaginae where the tube and ovary are easy of access and one or both can be taken off by the angiotribe or by ligature. If the tube is dissected out of the horn of the uterus its bed is closed by suture. My cases illustrate all forms of complications, from the simple removing of diseased appendages through the whole range of conservative procedures to the removal of the products of conception in ectopic pregnancy, dermoid cysts, myomectomy for small fibroids and hysterectomy by morcellation for large fibro-myomatous tumors.

It is a nice question to determine how far active surgical interference is advisable in cases of acute infection of the uterine appendages. Polk, Pryor and Henrotin have advocated and practised opening of the *cul-de-sac* and drainage in cases of threatened or early involvement of the appendages as a prophylactic or function saving procedure. During the past month I have gone a step further and in two cases of acute salpingitis with constitutional symptoms, one of which had reached the stage of pus formation—a tubo-ovarian abscess—and have boldly attacked the disease through both the posterior and anterior incisions.

CASE 1.—Mrs. S., the mother of two girls, who six weeks after her second confinement was infected with gonorrhea. Six weeks later she entered one of the large New York hospitals where she was told that the only thing that would cure her was the removal of her uterus and appendages—a pan-hysterectomy. To this she would not consent because, as she said, she wanted a boy baby. She therefore left and through an acquaintance with some of my hospital clientele came to me at the Polyclinic. She had a temperature, 101°, a foul tongue, irritable stomach, a mass as large as one's first involving the left appendages and a large adherent tube on the right side, also an effusive leucorrhea. I told her I thought it very probable that I could save the right ovary and tube if the operation were done promptly, and if I were success-

ful it would be possible to secure her longed-for boy. She consented. The uterus was thoroughly curetted, swabbed with pure carbolic acid and packed with iodoform gauze. The *cul-de-sac* was opened, adhesions gently severed with the finger, and some iodoform gauze carried up to the promotory of the sacrum. Then the anterior incision was made, the balance of adhesions surrounding the inflammatory mass separated and the fundus of the uterus delivered into the vagina. The appendages which were the less involved were then drawn down, the tube found enlarged, inflamed, occluded, the fimbriae being adherent to the ovary. Under an irrigation of hot saline the ovary was washed, the fimbriae were massaged and opened out, the contents of the tube consisting of a few drops of muco-pus was milked out and a silver probe loaded with tincture Iodine carried into the tube its full length. The fimbriae and ovary were also brushed lightly with iodine. These were replaced and adjusted upon the gauze which had been inserted in the *cul-de-sac*. The involved mass of appendages of the left side were then brought down to the vulva, a collection of pus involving the ovary and tube was set free and the appendages removed with the angiotribe, the uterine stump of the tube being dissected out and the horn of the uterus stitched. The uterus was then restored to its normal position, the peritoneum and bladder adjusted, the longitudnal vaginal incision stitched, the transverse incision being left open and the vagina packed with gauze. On being placed in bed she was immediately adjusted to the Fowler position and kept there for several days.

This position is attained by elevating the head of the bed, thus facilitating drainage of the pelvic and abdominal cavities. The head of the bed is raised two and a half to three feet. To prevent the patient slipping down toward the foot of the bed, a sheet attached at both ends to the head of the bed is passed down around the buttocks like a sling, a pillow being placed between it and the buttocks for comfort. The expression of the faces in the illustration indicates how comfortable they are.

Case II.—Miss L., a young hairdresser, who was sent into the hospital by her physician to be curetted for leucorrhea and menorrhagia. She had had a miscarriage a year before. Upon examination under ether it was discovered that she had a retroverted, adherent uterus and double salpingitis. As nothing had been said to her about opening into the peritoneal cavity only curettage was done. Following this she developed temperature and sensitiveness over both ovarian regions and ten days later she was subjected to vaginal section. Old adhesions were firm and extensive over the posterior face of the uterus reaching to the top of the fundus, both tubes were occluded and adherent to the ovaries with collections of muco and sero-pus at the infundibula of the left and right sides respectively. The adhesions were broken up, the uterus and appendages, first of one side and then the other, delivered into the vagina. The fimbriae of the left side were separated from

their grip on the ovary, massaged and opened out. On the right the fimbriae were obliterated hopelessly and the tube saculated. The adhesions to the ovary were separated, the sack incised and evacuated. Both ovaries were washed with saline solution and bichloride, the tubes irrigated with the same, using sufficient pressure to dilate them throughout their entire length, and disinfected with iodine on silver probe. Gauze was packed in *cul-de-sac*, draining through the posterior fornix. The round ligaments were shortened and anterior incisions closed. Gauze was also packed in the vagina. Patient placed in bed in Fowler position.

Both patients are making a smooth and satisfactory convalescence. One is in her third week of convalescence and the other in the fourth*.

Anterior colpotomy is used by different operators for accomplishing the relief of displacements in various ways. Duehrsen and Wertheim shorten the round ligaments sometimes by doubling them upon themselves, as I have described, and sometimes by fastening a loop of the round ligament to the vaginal incision. The latter method is advocated by Vineberg, of New York. In certain instances the uterus is attached to the vaginal wall by the method known as vaginal fixation. The dangers of this method, I think, have been greatly exaggerated, and the unfortunate consequences that have followed in the cases reported have undoubtedly been due to an unnecessary and unwarranted extreme anteversion of the uterus. Judgment must be used in determining the point upon the anterior uterine wall at which the vagina should be attached. I frequently put a sustaining suture through the anterior uterine wall, attaching it to the vagina, in cases in which I find undeveloped round ligaments or in which the inflammatory deposit at the base of the broad ligaments tends to hold the cervix forward in the pelvis, thus making undue tension upon the round ligaments.

*Both of these patients made perfect recoveries.

(To be continued.)

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(Concluded.)

Utero-Sacral Ligaments.—In this connection I might refer to the comparatively new procedure of shortening the utero-sacral ligaments for the relief of retroversion. Your honored president, Dr. Bovee, has resorted to this in a greater number of cases, perhaps, than any other operator, sometimes reaching the ligaments through an abdominal incision and sometimes through a posterior vaginal section. I have used it in connection with shortening of the round ligaments in a number of cases and found it a feasible procedure in cases of procidentia and those in which the vagina is relaxed and the cervix low in the pelvis. I reach the ligaments through the posterior vaginal incision and shorten them by doubling them on themselves as I do the round ligaments. My conviction is that the utero-sacral ligaments are a most important factor in retaining the uterus in its normal position. They are, indeed, the all-important factor. Whether they are shortened and made to perform their normal functional support by direct operation upon them or whether the indirect result of some other operation enables them to involute and recover their tone and sustaining power, certain it is that unless they come to the aid of the other ligaments and hold the cervix high in the hollow of the sacrum, sooner or later the condition of displacement will be reproduced. I regard the utero-sacral ligaments as the most rational structures to utilize for the cure of retrodisplaced uteri, but find it difficult to apply except in selected cases.

Speaking from my own experience, although, like most of us, I have had more or less experience with all the operations that have been suggested for the relief of displacements, I have not found one that has given me such universal satisfaction as shortening of the round ligaments through the vaginal incision. So far as my knowledge goes, I know of but three failures in a series of over 200 cases, and these were due to some departure from the regular procedure in which a modification was attempted. Among the 200 cases, 8 private and 4 charity patients are known to have become pregnant and 10 have gone to full term, pregnancy proceeding most comfortably and satisfactorily, and the uterus retaining its proper position thereafter. Doubtless many others have borne children since the operations but of them I have no knowledge. Of the miscarriages one was in a syphilitic negress, and in the other the cause could not be learned.

In my experience the most frequent cause of retrodisplacement of the uterus is suppurative disease of the appendages, involving from 75 to 80 per cent. of all cases coming under my observation requiring surgical interference for this affection. Because of these complications the Alexander operation, pure and simple, is applicable to an extremely limited number of cases; it becomes necessary, therefore, in order to treat the remaining cases satisfactorily and effectively to open into the peritoneal cavity, and the question is, shall it be done through the abdomen or shall it be done per vaginam? The advantages of the vaginal operation are that the healing process goes on unconsciously to the patient, without any more constitutional or local disturbance than that which attends a simple trachelorrhaphy. The patient is not mindful of having had an incision made, nor does she bear upon her person any trace of a surgical operation. There are no adhesive plasters to be applied, no stitches to be removed, no bandage or supporter to be worn; there is no ugly scar, and there is no danger of a future hernia.

This procedure has its most appropriate application in cases of congenital or acquired retrodisplacement in unmarried women. Among my cases I have 9 of congenital retroversion or flexion in unmarried women, whose ages range from nineteen to twenty-seven years. In these cases, although the vagina was small and the hymen intact in all of them, I was able to perform this operation, and effect a cure. In most of these cases I found it necessary to incise the vagina on one or both sides at the seat of the hymen, extending the incision one or two inches into the canal.

The condition in cases of congenital displacement is rather peculiar. In them the utero-vesical ligament is shortened, the utero-sacral ligaments are lengthened, and the cervix is drawn forward into the axis of the vagina. The anterior vaginal wall, too, is attached low down on the anterior lip of the cervix, thus drawing down the short arm of the lever (the cervix) and throwing the long arm or fundus back into the hollow of the sacram. The operation through the anterior fornix necessarily severs the utero-vesical ligament at its attachment to the cervix and sets the latter free so that it swings back into the hollow of the sacrum and allows the fundus to come to the front. In these cases, in closing the vaginal incision, after the round ligaments have been shortened, the attachment of the anterior vaginal wall is carried up on the anterior face of the uterus. This brings the pull of the utero-vesical ligaments on the long arm of the lever or the fundus.

Congenital cases of retrodisplacement are notoriously difficult to cure, but with these combined procedures my results have been uniformly successful, all the cases now being under observation for periods ranging from five to two years. These women bear no mark upon their persons of having been submitted to an operation except that the hymen has been destroyed.

Myomectomy.—The trend of gynecologic work in all its departments for the past ten years has been strongly toward conservatism, seeking not only to preserve anatomic structures, but also to conserve physiologic functions. This has nowhere been more conspicuous than in the application of myomectomy in preference to hysterectomy in the treatment of fibroid tumors of the uterus, and the further it is extended the more numerous become the cases in which it is apparent that myomectomy can be applied and the uterus preserved. It has been demonstrated that when tumors are small they can be reached through the vagina, and the advantages of this route of attack secured in their removal. The bed of the tumor requires careful and delicate treatment to avoid hemorrhage and, in my experience, the anterior vaginal incision, in selected cases, offers these advantages to a most satisfactory degree. In many instances I have removed fibroid tumors in this way. If the tumor or tumors are in the anterior wall they are brought into view as the bladder is dissected from the uterus, and removed in succession, the bed of the tumor being closed with a buried catgut suture. If they are at the fundus they are brought into view and reached by lifting the bladder strongly on a retractor, the fundus being gradually brought down into the

vagina as the tumors are removed and the peritoneum closed over their site by Lembert suture. And so the uterus is rotated into the vagina as the work proceeds till the posterior aspect of the uterus is in view and tumors removed, even as low down in the posterior wall as the cervix.

Uterine polypi are as a rule removed per vias naturales, but even in cases in which the intrauterine is large and requires morcellation for its removal, the work can be greatly facilitated by performing the anterior vaginal section, thus carying the bladder high in the pelvis and making room for manipulation. There is no objection under these circumstances to splitting up the anterior uterine wall as far as may be necessary to reach the seat of the growth. After removal the uterus contracts down and can be easily restored to its normal condition. It has been found that the danger of infection from the interior of the uterus, which was formerly thought to be very great in these cases, is of no serious importance, except in cases of sloughing polypi. As an illustration of the inocuousness of the interior of the uterus I might cite the following case. In a myomectomy recently, in which a large tumor was removed from the fundus uteri by abdominal section, I broke through into the uterine cavity and, finding the mucous membrane extensively degenerated, I curretted the uterus through the opening in the fundus, swabbed it out well, and then carried some gauze down through the cervix into the vagina. There was no infection following the procedure, the patient making one of the most afebrile convalescences that I have ever seen. Dr. McCosh has made cultures of scrapings from the endometrium in a number of cases in which the uterine cavity was entered in myomectomy, but in only one instance did he get any culture, and even that was thought to be an accidental contamination.

Martin, of Germany, is strongly in favor of the vaginal route in dealing with fibroids of the uterus. He insists that the size of the tumor is not in itself a contraindication, since growths of large size can readily be removed per vaginam by morcellation. On the other hand, in the presence of firm suprapelvic adhesions, especially intestinal, the abdomial route is preferable; but deep pelvic adhesions and intraligamentary tumors are best handled from below. Martin fears injuries to the bladder and uterus more than he does hemorrhage, especially the former. He has never injured the ureters during vaginal myomectomy, though this accident has frequently occurred in his abdominal operations. When it is possible he enuclates tumors without removing the uterus. In

young women he aims to leave one ovary. During three years he has performed 87 vaginal and 31 abdominal myomectomies. The latter were all complicated, and 6 terminated fatally. Of the vaginal operations 35 were total hysterectomies, with no deaths, and 52 were enucleations, with 2 deaths.

The possibility of dealing with small tumors per vaginam seems to me to change radically the viewpoint in cases of fibroid tumor. Between the waiting policy of those who take the position that an unmarried woman suffering from a fibroid tumor, however insignificant, should not be permitted to marry but that nothing should be done looking to its removal, unless, after months or years of waiting and watching, the tumor shows signs of growth—between this position, I say, and the attitude of those of the radical wing of the profession who insist that in all cases of fibroid tumor of the uterus nothing suffices but prompt and sweeping hysterectomy, we have now a middle ground, which seems to me a golden mean, in which we can say to a woman suffering from a fibroid tumor, "Have it removed at once." This will not only relieve her present and anticipated troubles, but it will also set her mind at rest. If the tumor or tumors be small, they can be removed per vaginam with the least possible traumatism, danger or discomfort. If the tumors are too large to permit of this procedure, they are amenable to myomectomy by the abdominal incision, radical work of hysterectomy being confined to an extremely limited number of cases, and those usually in women at or beyond the menopause.

Sterility.—At the recent meeting of the American Medical Association at Saratoga, I presented a paper on vaginal section for the relief of sterility, and christened my paper, "Is It Justifiable to Enter the Peritoneal Cavity Under These Circumstances?" In this paper I took the position that in cases in which the husband has been eliminated as the cause of sterility, the casual factor can be located either in the easily approached condition of anteflexion and endometritis, or in some occluding pathologic condition that prevents the progress of the ovum from the ovary to the uterus. In many instances the latter condition is caused by the most trivial mechanical interference, such as cobweb adhesions surrounding the ovary, or restraining the fimbriae and binding the tubes in tortuous and constricted positions. These conditions are in many instances the result of remote infection from a chronic endometritis, and are frequently impalpable by abdominal manipulation. While I have never felt justified in subjecting a woman to lapar-

otomy in cases complaining simply of sterility, I now deem it entirely justifiable in cases of sterility, after dilating the cervix and curetting the uterus, to open into the pelvis through the anterior vaginal fornix as an exploratory procedure, dealing with the appendages according to the conditions found. I am doing a good deal of such work and with most satisfactory results, three more patients having reported to me this autumn as being enciente. Of course this work can be done through the abdominal incision, but from the standpoint of the patient, the simplicity of the operation per vaginam and its freedom from danger indicate that the vaginal route is the more desirable for the treatment of these conditions.

Ectopic Pregnancy.—Much criticism is always heaped upon the man who dares to propose the vaginal operation for the relief of ectopic pregnancy. And yet after considerable experience with this method in ruptured and unruptured tubal pregnancy it seems to me the most rational and direct route of attack. The difficulties of the situation, as a rule, are not to be compared with those incident to an acute or chronic tubo-ovarian abscess. In the majority of instances there are no adhesions to deal with and there is no infection or pus focus. If the tube is not ruptured its removal per vaginam is about the simplest proposition the gynecologist is called upon to deal with. If the tube is ruptured and active hemorrhage is in progress the main channel supplying the blood—the ovarian artery—is easily reached and controlled, after which the products of conception and the blood clots are removed at leisure. In the great majority of cases active hemorrhage has ceased at the time of operation and all that the surgeon finds necessary to do is to remove the blood clots, and that not very thoroughly, and the products of conception. This can all be done with as great thoroughness through the vagina as through the abdomen, and with as extreme consideration for the appendages of the opposite side.

The latest refinement of a conservative character in dealing with tubal pregnancy consists in shelling out the contents of the oviduct and leaving the tube in situ. The rent may or may not be closed. This is being done in Europe and in this country, and by both the abdominal and the vaginal method. It would seem to need no argument to commend it to all operators. In cases of active hemorrhage the ovarian artery can undoubtedly be reached with greater despatch by the abdominal incision than by the vagina. Moreover, the vaginal method necessitates the lifting of the patient to a table, whereas in desperate cases the abdominal opera-

tion can be done in bed and further loss of blood instantly prevented. But in the less urgent cases the vaginal operation is preferable.

VAGINAL CAESAREAN SECTION.—The latest applications of the vaginal method are vaginal Caesarean section and the reduction of inversio uteri. The most recent contribution on the subject of vaginal Caesarean section is the paper of Dr. Stamm, presented at the recent meeting of the American Association of Obstetricians and Gynecologists, in which he reported two successful cases of his own and commented upon sixty reported by other operators. The majority of these were undertaken for cancer of the uterus, but the number performed for puerperal convulsions is increasing rapidly, and this condition will furnish the chief indication for such an operation in the future. He stated that to Duehrssen, of Berlin, the credit is due for having introduced this valuable method into practice. The indications for the operation, as given by Duehrssen, are: "(1) Abdominal conditions of the cervix and lower segment of the uterus (carcinoma, myoma, rigidity, stenosis, parital pouch-like distention of the lower uterine portion). (2) Dangerous conditions of the mother which may be removed or relieved by prompt emptying the uterus; affections of the heart, lungs and kidneys. (3) Condition of the mother where death is imminent and can be foreseen." The last two indications have value only in cases in which the cervix is closed and not dilatable, or where the depressing influence of labor pains should be obviated, as in affections of the heart and lungs. In pregnancy complicated with cancer of the uterus Duehrssen advocates immediate vaginal section, with subsequent extirpation of the uterus, no matter at what time of pregnancy or at what stage of labor this condition is encountered.

INVERSIO UTERI.—In the vaginal operation for inversion of the uterus we have a procedure that for safety, simplicity and efficiency surpasses all methods that have been suggested. The operation is so rational that the wonder is that it was not the very first procedure to be proposed for the relief of this condition rather than the last. The technic is probably familiar to all: The cervix is seized with traction forceps and dragged down into view, the operator electing whether he will incise the constricting band anteriorly or posteriorly. If the latter, that lip of the cervix is drawn down, allowing the fundus to rotate up behind the symphsis, and an incision made with scissors or knife in the median line extending through the constriction. If the anterior incision is the

one of choice that lip is drawn down and similarly incised. The latter method offers the advantage of being more convenient both for the incision and the final suturing. Each, however, has been used with eminent satisfaction to the operators.

Dr. Reuben Peterson, of Ann Arbor, read a paper on this subject at a recent meeting of the Chicago Gynecological Society and reported a case:

The patient was an American, aged twenty-six, and married three years. Her family and personal history were negative. Her menstruation first appeared at the age of twelve, and up to the time of her present trouble was entirely normal. Her first confinement occurred about fifteen months before her entrance to the hospital. It was an easy labor, and was terminated by forceps, the instruments being applied only about five minutes. The patient did not remember about the delivery of the placenta and felt nothing give way. She flowed very profusely and was given ergot, probably. She stopped flowing soon after the completion of labor, and there was no further hemorrhage until the seventeenth day, at which time she had been up and about the room for a week. Two weeks later she consulted her physician, who told her there was something wrong with the uterus. He made a number of unsuccessful attempts "to fix it." Dr. Peterson saw the patient soon after this. Vaginal examination disclosed a typical inverted uterus, with rather a small fundus, situated about one and a half inches within the introitus. High up in the vagina could be felt the cervical lips, forming a complete collar or rim at the extremity of the uterus. The inverted uterus was grasped with the volsella and pulled forcibly outward and downward. Another volsella caught the anterior vaginal mucosa in the median line just above the anterior lip of the cup and pulled it sharply upward. Through the vaginal mucosa thus made tense, a horizontal incision was made some two and a half inches in length. To avoid opening the bladder, the incision was made as close to the cervix as possible. The vesico-uterine peritoneum was opened, and the cervix exposed. A volsella was placed on the anterior lip to either side of the median line, and the cervix incised between. This incision was carried upward in the anterior median line of the uterus to within one-third inch of the fundus. The inversion was now easily reduced. The fundus going upward and each half of the divided cervix being carried through half the arc of a circle and finally meeting, so that the two halves formed a complete cervix situated downward, not upward. He now adopted the suggestion of Taylor, and removed a wedge-shaped piece of the bulging uterine wall on either side of the incision. This was done to enable retracted edges to come together. The uterine incision was next closed by a continuous catgut suture. The needle was passed from the peritoneal surface down to, but not through the uterine mocosa. There was some gaping in one or two places, in spite of the utmost care to bring together the peritoneal edges.

An unsuccessful attempt was made to close in the spaces by interrupted sutures, but the stitches tore through the uterine wall when much tension was placed upon them. A catgut suture was passed around each round ligament close to the uterus, and each end passed through the anterior vaginal wall and tied, after the fundus was returned within the pelvic cavity. This brought the defective sutured line of incision up against the bladder peritoneum, at the same time giving support to a fundus which had been prolapsed for months.

A few words in reference to the preparation of the patient for vaginal operation and the aftertreatment and I am done.

To prevent unpleasant experiences from movements of the bowels during operation no rectal injections, high or low, are allowed within twelve hours of the operation. For cleaning the intestinal tract three Compound Cathartic Pills U. S. P. are given the day preceding the operation. The instructions to the nurse are: Three compound cathartic pills about two o'clock P. M. (not later). If the bowels move the third time give one-half dr. tinct. opii. camph. and repeat every time the bowels move thereafter. The pills will as a rule produce two or three thorough evacuations before bedtime. In rare instances the catharsis will be excessive unless checked, and for that reason the order is given to check it with paregoric. If no paregoric is required, trional, gr. xv, is administered at bedtime to tranquilize the nerves and produce sleep. If paregoric has been required the trional is not indicated. In no instance where these instructions have been carried out in all details (especially the hour of administration) has any leakage from the bowels given annoyance during the operation.

The vagina is sterilized by vaginal douches of bichlorid solution 1-3000, given twice each day for several days preceding the operation. The day before, the vagina is packed to the degree of slight distention with iodoform gauze, 10 per cent., immersed in and wrung out of hot solution of bichlorid, 1-5000. This is removed by the operator immediately before beginning the operation. The vagina is then douched or swabbed with normal saline solution.

In dressing the case after operation iodoform gauze is used freely. This gauze is 10 per cent. iodoform that has been soaking for weeks in sol. bichlorid, 1-500 (one to five hundred). Upon beginning the operation as much of this as is considered necessary is put to soak in sterile *hot* water and there it remains till required, when it is wrung out as dry as possible and used for drainage or packing or both as indicated. The excess of iodoform and of the bichlorid is washed out by this process and a safe gauze that is

not only aseptic but antiseptic is the result. In all cases of hysterectomy the vaginal incision is left open and gauze packed into the pelvis, carrying the intestines up beyond any possibility of contact with the broad ligament stumps. If extensive adhesions between the intestines and the uterus and appendages have been severed or the pelvis has been stripped of peritoneum, the gauze is placed in contact with the denuded surfaces and the pelvis packed full of gauze, carrying the intestines up out of the pelvis. The gauze is packed in one long strip. The presence of this gauze stimulates a profuse outpour of serum which washes down on the gauze any

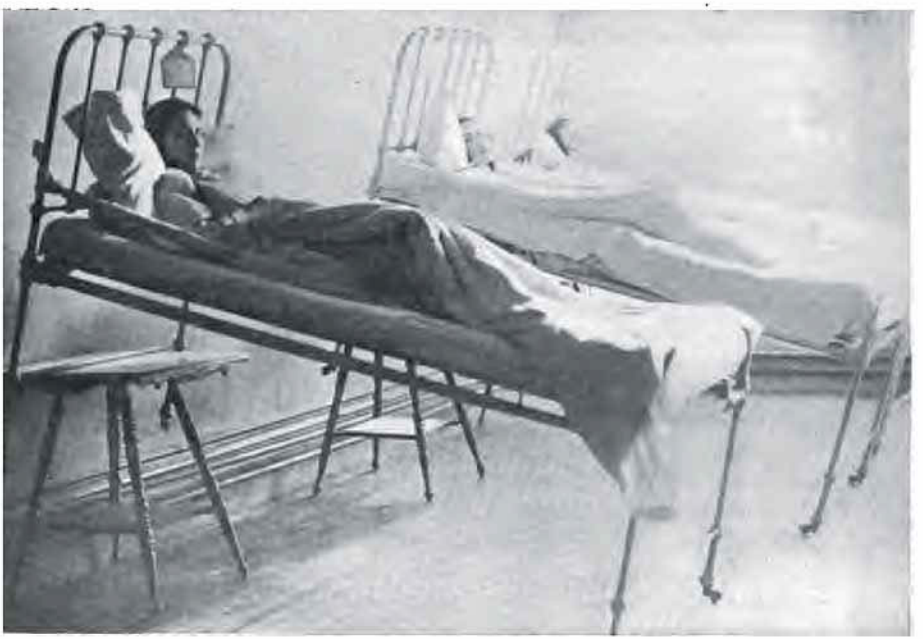

Fig. 6. The Fowler position for pelvic drainage.

debris or sepsis, where it is disinfected and drained away by the gauze.

There is no more perfect drain for the pelvis or peritoneal cavity. This gauze is left undisturbed, if all goes well, till the fourth day, when a beginning of its withdrawal is made. From four to six inches of gauze is drawn out each day, the protruding amount being cut off at the vulva and the proximal end returned to the vagina. In the meantime, vaginal douches of boracic acid, saturated solution, are given twice each day. This solution is carried

up by the capillary attraction of the gauze, dissolves any adhesions that may have formed and sets the gauze free. The last of the gauze comes away usually on the seventh or eighth day. The gauze being in one continuous strip there is no danger of any stray piece being left and this entire aftertreatment is done by the nurse without removing the patient from the bed. As the gauze is being thus gradually drawn out the intestines, the head of the vagina and the surrounding parts gradually settle down to their normal positions and when the last of it comes away the head of the vagina collapses and entrance to the pelvic cavity is sealed. The presence of this gauze in the pelvis drains away all infection and renders the surface aseptic. The plastic exudate that may be thrown out, unless infected, is reabsorbed and no permanent adhesions remain.

In all cases requiring the most complete drainage obtainable the patients, on being put to bed, are at once placed in the Flower position as shown in the diagram. This favors drainage by gravity and is a life-saving device in cases of acute infection. Two of the patients shown in the cut are those whose histories have been recited in this article—cases of acute pelvic infection.

I have not gone into the minute details of all these various procedures, nor have I burdened you with long reports of cases, my effort being simply to present, as it were, a birdseye view of the possibilities and the technic of pelvic work along the vaginal route.

On general principles, I believe all of us are ready to subscribe to the dictum that so far as the patient is concerned any operation that can be as well done through the vagina as through the abdominal incision is better done along the vaginal route. The possibilities of this will undoubtedly vary with individual experience, but the more experience I have, the broader becomes the field of application, until it seems to me that any pathologic condition that is confined to the true pelvis can be dealt with as satisfactorily, with as permanent results and with far greater safety to the patient through the vaginal than through the abdominal incision. My cases have embraced every variety of disease from simple retroversion with or without adhesions to prolapsed and cystic ovaries, unilateral and bilateral salpingitis, ectopic gestation, fibroid tumors of the uterus and dermoid cysts. The method lends itself to every form of conservative work upon the uterus and its appendages that has been suggested in the trend of recent modern gynecology. The successful application of it requires patience, experience and skill, but when once the profession has been convinced of its superiority I believe it will steadily and rapidly grow in favor and become the accepted method for the man who practises the specialty of gynecology.