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THE PLACE OF VAGINAL HYSTERECTOMY IN PRESENT-DAY GYNECOLOGY*

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DURING the past few years a number of papers have been presented to this Society upon the technic and indications of total and subtotal hysterectomy and upon the management of prolapse. As a sequence to these contributions I wish to discuss the indications and technic of vaginal hysterectomy. While I do not believe that all excisions of the uterus should be vaginal, I do believe that in many clinics a greater use might be made of this operation. Until five years ago this operation was done very rarely by us. This was because, in my earlier years, I became prejudiced against the operation. A few years ago my associates and I became convinced that a mode of treatment which was, in some cases, very valuable, was being neglected, and that, in order to give our patients the benefit of the method best fitted to their individual cases, we should make use of either the abdominal or vaginal route. Since that time we have done vaginal hysterectomies 266 times. During the same period 541 abdominal hysterectomies have been performed. This will evidence that we have not displayed the zeal of the convert in employing this procedure in all of our work. We believe, in the light of our experience up to this time that vaginal hysterectomy may be wisely employed in a number of groups of cases.

INDICATIONS

Functional bleeding	48
Prolapse	97
Fibroids	30
Retrodisplacement	33
Moderate descensus—outlet relaxation	55
Carcinoma of corpus	3
	266

Functional Bleeding.—We have done vaginal hysterectomy in 48 cases to control nonmalignant bleeding. Some years ago we gave up irradiation in these cases except in women in the later forties, as our experience showed that the discomforts of a menopause brought on some years sooner than it otherwise would have appeared were greater than those accompanying a surgical procedure. The removal of the uterus vaginally, unless the operation is otherwise contraindicated, affords a very satisfactory method of dealing with this condition. The cervix in many of these cases is in an unhealthy condition. The operation disposes of

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it and any needed plastic work can be done at the same time. While there appears to be reason for believing that, if menstruation is stopped, the ovaries continue to function but a few years longer, these added years are usually sufficient to carry the woman to the time at which she would normally have had her menopause. The women treated in this way have been far more comfortable than those formerly treated by irradiation.

Fibroid Tumors.—In women in whom parturition has caused the uterus to be fairly movable, so that the cervix may be pulled down into the lower third of the vagina. We would exclude tumors too large to be easily delivered through the vaginal incision. We have in a few cases removed by morcellation tumors too large to be easily delivered, but we prefer in most cases to remove the larger tumors by abdominal section. Certainly morcellation is not an operation for the surgeon unskilled in this field. Intraligamentous tumors do not lend themselves to vaginal removal, and fibroids which have invaded the subvesical space are not good cases for vaginal operation. Fibroids associated with previous inflammatory disease which has left residues which diminish the mobility of the uterus and which may have left extensive adhesions, are best excluded from vaginal operation. We have done 30 operations for the removal of uteri containing fibroids.

Retrodisplacement.—In women in whom further childbearing is undesired or unwise, whose uteri are heavy and large, and in whom the uterus is fairly movable, this operation may serve a useful purpose. It is best reserved for the women who are in or near the menopausal years. It should not be done in the younger women. Often in these cases outlet relaxation demands attention and an unhealthy cervix is present. I believe that at least part of the relief which follows vaginal hysterectomy done for this condition is due to the fact that it disposes of the varicose veins of the broad ligament which so often accompany it. We have done 33 operations for this indication.

Prolapse and Descensus.—In cases in which the uterus protrudes partially or wholly from the introitus, we, in almost all cases, make use of vaginal hysterectomy. An occasional Manchester operation is done. Rarely, in a feeble old woman a LeFort operation is employed, and, occasionally, in women past childbearing or who are to be sterilized, and when the descensus does not cause the cervix to pass the introitus, we employ transposition of the uterus, with or without amputation of the cervix. Occasionally, in minor degrees of descensus, the bases of the broad ligaments are detached and fastened in front of the upper part of the cervix, often with amputation of part of the cervix. In all other cases vaginal hysterectomy is the procedure of choice. For extensive descensus or prolapse no form of abdominal suspension is used. We have done 97 vaginal hysterectomies for this indication.

Contraindications.—Our experience has impressed upon us that certain conditions make it unwise to adopt this method of approach. One of the most important of these is changes in intra-abdominal conditions produced by a previous operation. Adhesions of omentum or intestine

may cause the operation to be far more difficult and hazardous than it would otherwise be. Certain procedures, as retrodisplacement operations and ventral fixations, when the uterus has subsequently come down, cause vaginal excision to be particularly difficult. We have done a few such cases. The great majority of these should be attacked from above. Ventral fixation should be an obsolete procedure but upon two of the women upon whom we performed vaginal hysterectomy this operation had previously been done. In these two cases, although the uterus had later come down, the elongated band which connected the fundus uteri to the abdominal wall rendered it impossible to deliver the uterus either anteriorly or posteriorly. Pressure over the lower abdomen by the hand of an assistant aided materially in reaching the band at the fundus which it was necessary to divide. It is usually wiser to deal with these cases otherwise than vaginally. When doubt is felt as to the practicability of the vaginal operation because of adhesions, a posterior colpotomy may be done. If the uterus is of normal, or nearly normal, size, its surface may be palpated and information obtained as to the presence or absence of adhesions. The operation may continue vaginally or the colpotomy would be closed and the uterus removed abdominally after completing any needed plastic work. In general, if doubt is felt, it is best to operate abdominally.

It is better not to attempt to remove the uterus vaginally if there has been a preceding pelvic inflammation sufficiently severe to cause adhesions of bowel or omentum in the pelvis. A deft and experienced operator may deal with these cases but it is usually better to attack them from above.

We have, in a few cases, removed by morcellation, fibroid tumors which were too large to be delivered vaginally. This is a procedure which may be carried out by one who has developed a considerable skill with this operation but should not be attempted by others. It is very useful, if one has misjudged the size of a tumor, for it may be removed by morcellation with far less trauma to the patient than would be caused by forcefully delivering a large mass through an opening of insufficient size. We use it only occasionally.

In many cases of carcinoma of the corpus uteri the size and mobility of the uterus would render vaginal removal possible. In addition, many women with cancer of the uterine body have more or less outlet relaxation which would facilitate the operation still more. We do not believe, however, that vaginal removal is wise and have done it in only 3 cases. In performing abdominal hysterectomy for corporeal cancer, our first move is to place straight clamps close to the uterus on either side to prevent carcinoma cells from being pushed into the parametrium through the lymphatics and blood vessels by unavoidable manipulation of the uterus. The upper part of the broad ligaments cannot be blocked off if the operation is being done vaginally until a late stage of the operation. If there were also a marked descensus, this disadvantage might be less. The tenaculum in delivering the uterus is a disadvantage as it should be traumatized as little as possible. In these cases the ab-

dominal operation is usually preferable. We have not considered vaginal hysterectomy as a means of managing carcinoma of the cervix as our usual means of treatment is irradiation.

Ovarian Tumors.—If hysterectomy is to be done upon a patient who also has an ovarian cyst, it is usually wiser to operate abdominally. We

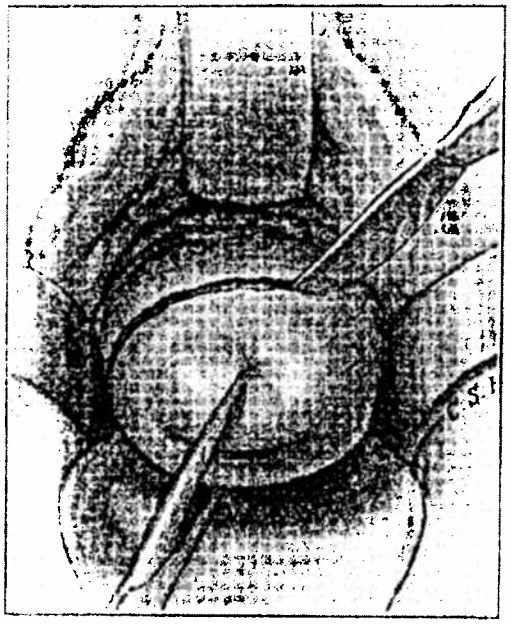


Fig. 1.

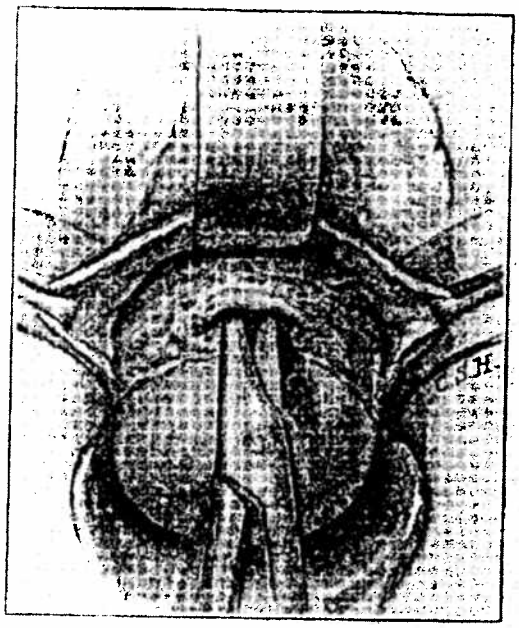
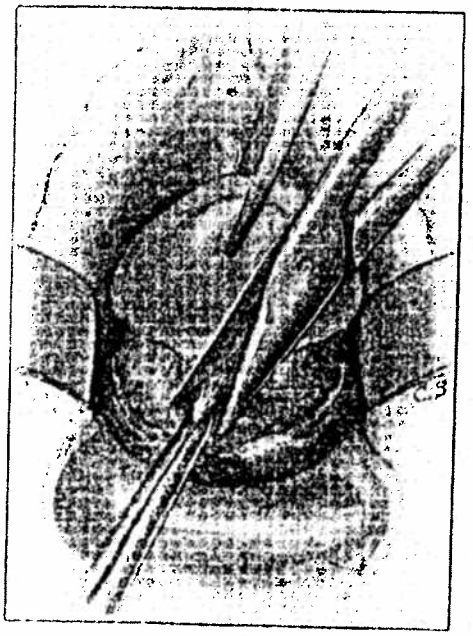


Fig. 2.



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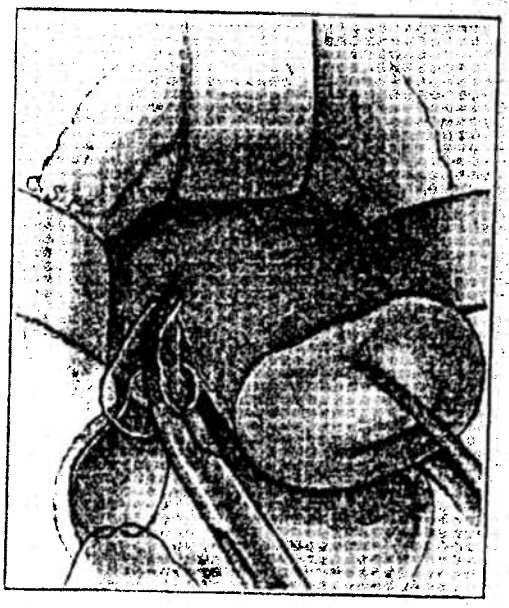
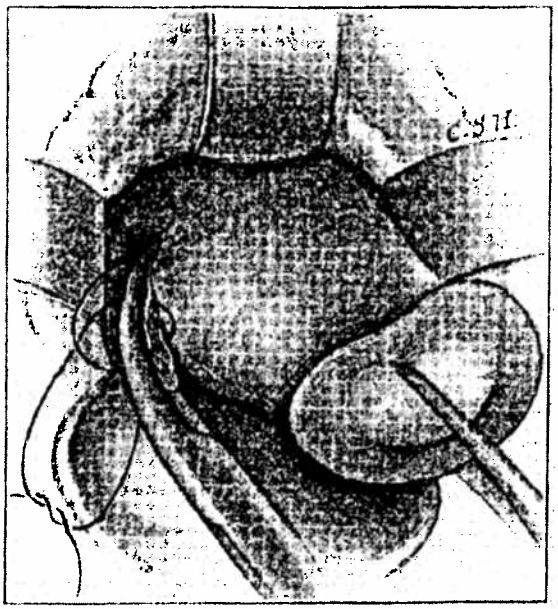


Fig. 4.

have, however, removed a number of cysts while doing vaginal hysterectomy. Cysts of moderate size and which are not adherent may often be removed easily. In one case unexpected adhesions were encountered, which rendered the operation more difficult, but did not prevent its completion without incident. Our present position is, that if hysterec-

tomy is to be done and an ovarian cyst is present, unless the cyst is freely movable and of such a size that it may be removed with reasonable ease, and unless the operator feels at home in the vaginal field, abdominal section is preferable. Should either a dermoid or a malignant cyst be suspected vaginal approach should not be considered. Unless the cyst is small it must be punctured before removal, which is unsafe in either of these. In some European clinics vaginal removal is practiced even though the cyst be large. We prefer a more conservative attitude.

In stating a number of quite definite contraindications, we indicate clearly that we do not feel that this procedure should be used in all cases. We believe that the gynecologic surgeon should be master of both



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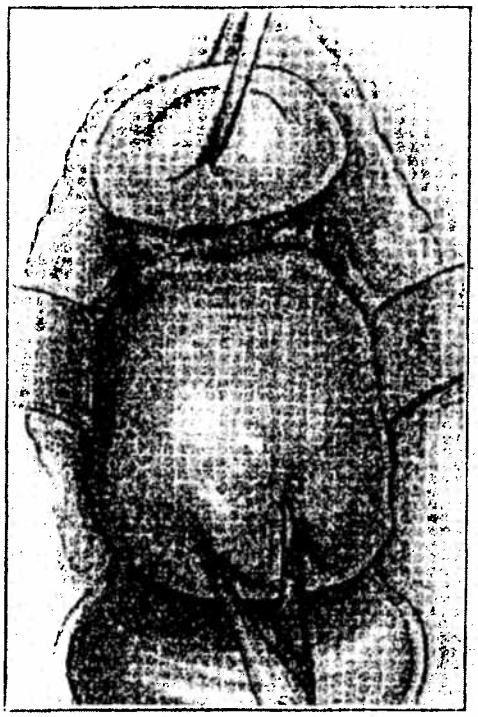

Fig. 6.

methods, and that his choice of the procedure to be used in a given case should be based wholly upon the conditions found in that case and not influenced by a preference for one or a feeling of inability to use the other.

TECHNIC

After trying various ways of doing the operation we have settled fairly well upon two procedures. For the marked descensus with the uterus protruding partly or wholly from the vagina the procedure sometimes called the Mayo operation, but which was probably first done by J. Riddle Goffe, has been very satisfactory. The technique of this operation has been well described and illustrated by George Gray Ward. It is of the greatest importance that the uterosacral ligaments be united by transverse sutures and in some cases in which the descensus is extreme, that the pouch of Douglas should be dissected out. This removes the hernial sac through which the accompanying enterocele descended and closes the hernial opening. Failure to attend to this essential point of technic may cause a later protrusion at the posterior vault. Failure to appreciate this fact caused one recurrent enterocele,

the anterior portion of the repair in this case remaining intact. In one other case a complete failure occurred necessitating later operation.

The uterosacral ligaments, after being transversely united, must be attached to the posterior margin of the united broad ligaments in order completely to close the posterior portion. The anterior edges of the united broad ligaments are attached on either side of the urethra underneath the rami of the pubes in order to retain the bladder. Incontinence of urine may be dealt with as the operation proceeds, and, if fascial flaps are available in the anterior wall, they are dissected free and united. A perineal plastic completes the operation. A small rubber or gutta-percha drain is usually used at the mid-point of the suture line in the vault.

For the cases in which a marked descensus is not present, it is not necessary to open the anterior vaginal wall unless incontinence, cystocele, or urethrocele is present for which plastic work is needed. A simple incision at the lower limit of the bladder is made. The bladder is freed from the anterior uterine wall by scissors dis-

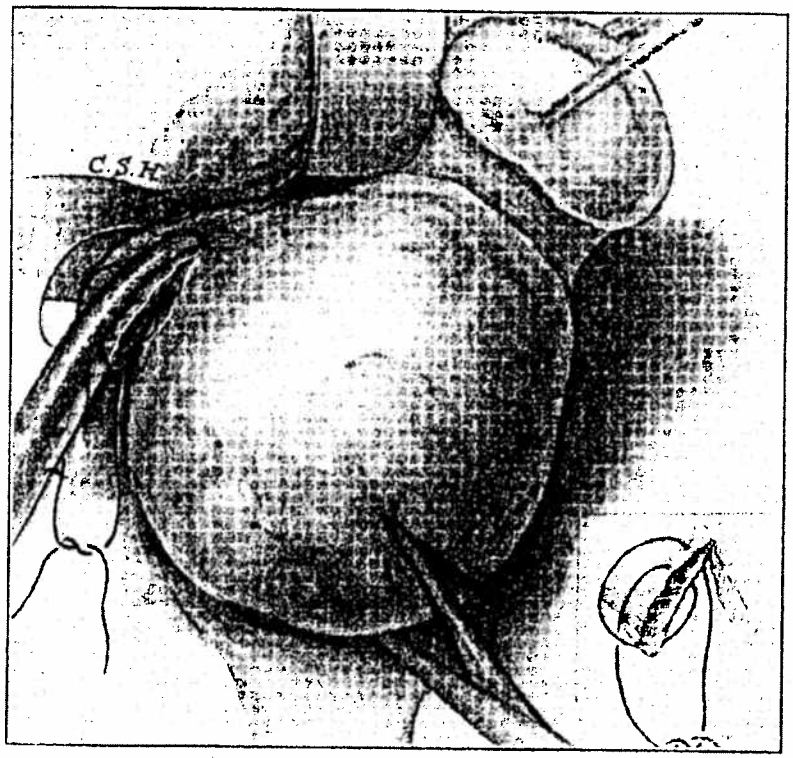

Fig. 7.

section and pushed upward. The anterior peritoneum is opened, or, if it is not easily identified, it is left until later. The incision is extended around posteriorly and the posterior peritoneal pouch opened. The uterosacral ligaments are caught on either side with clamps, cut and the clamps replaced by suture ligatures. It is better to replace all clamps at once by suture ligatures for two reasons. First, a clamp allowed to remain may slip and cause bleeding, and, second, the removal of clamps at once gives more space and greatly facilitates later work. As the uterosacral ligaments and the bases of the broad ligaments are divided the uterus may be brought lower, and, if the anterior peritoneum has not been opened, it may now be done easily. When sufficient of the uterine supports have been divided the corpus is delivered. We have found the delivery of the uterus through the posterior vault, instead of anteriorly as is usually suggested, a very satisfactory measure. This was suggested to me by Heaney, but I have since learned that it was done forty years ago by Joseph Price. It is easier and usually requires less force than delivery anteriorly. Two clamps are placed on either side, and the uterus is removed.

In closing the wound, it is best to attach the stumps of the broad and round ligaments and the uterosacral ligaments to the vaginal angles. This is done by passing a suture through the anterior vaginal wall and peritoneum, through the stumps of the broad, round, and uterosacral ligaments, and lastly through the posterior peritoneum and vaginal wall. This supplies support for the vaginal wall and also brings together the peritoneum of the anterior and posterior leaves of the broad ligaments and of the pelvis, thus leaving a good peritoneal covering. Closure is completed by interrupted sutures between these two. Occasionally a suture outside one or both of the two first sutures is needed to bring the vaginal wall together completely. Drainage is needed only exceptionally. The most annoying bleeding is usually from the cut edge of the posterior vaginal wall. A temporary suture is sometimes used to control this. This mode of closure approximates the vaginal walls so that the anterior and posterior walls lie smoothly in contact. Approximation of the wound in the vault by an anteroposterior suture line disturbs the normal relationship of the anterior and posterior walls and also may, as the lateral vaginal structures are drawn inward, tend to displace or kink the ureter. A transverse suture line is preferable.

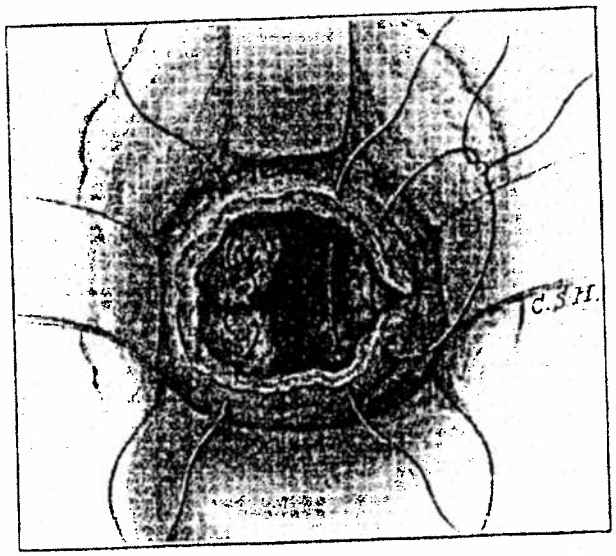

Fig. 8.

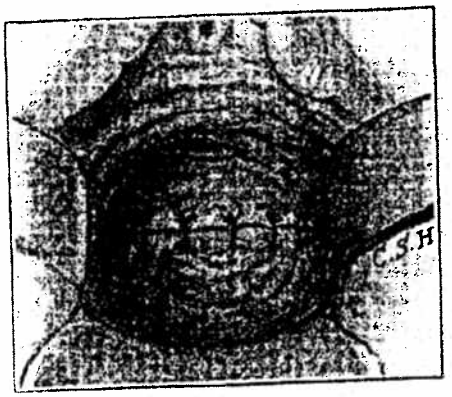

Fig. 9.

RESULTS

In this series of 266 cases there were no deaths. This statement does not mean that the operation is without mortality and we freely admit, while every care has been used, that good fortune has also played a part and we do not expect to operate indefinitely without mortality. During the time covered by this report, 451 subtotal hysterectomies were done. In this same period 90 total hysterectomies were done. The freedom from symptoms referable to the cervix in our vaginal cases has caused a greater use of the total operation during the latter part of this time. Of the total number of hysterectomies 31.5 per cent were done vaginally.

The postoperative course of these cases has been smoother, on the average, than a similar number of abdominal hysterectomies. The advantage of vaginal attack is most apparent in older women, particularly those operated upon for marked descensus. While the morbidity was a little greater in this group than in those operated upon by the simple technic used in operations done for other indications, recovery

has been far smoother than would be expected in a group of similar age upon whom a combined vaginal and abdominal operation had been done. The fact that in the cases of marked descensus or prolapse the operation is almost extraperitoneal doubtless contributes a great deal to the smoothness of the recovery.

COMPLICATIONS AND MORTALITY

Cystitis and pyelitis	6	2.26%
Postoperative bleeding	4	1.5 %
Phlebitis	2	0.75%
Pelvic abscess	1	
Total morbidity	9.02%	
(American College of Surgeons Standard)		
Mortality	0	

In this group we had a morbidity rate of 9.02 per cent, using the American College of Surgeons standard, that is, a rise to 100.4 per cent on any two days excluding the day of operation. An attempt to extend the applicability of the vaginal route greatly beyond the limitations already stated would almost certainly be followed by an increased mortality and morbidity. This would certainly be so in the hands of operators not thoroughly at home in the vaginal field.

An objection which is sometimes made is that the vaginal operation shortens the vagina. This we find to be true in many of the patients operated upon for prolapse. The shortening is not extreme and in many of these older patients is of little importance. In the women operated upon for indications other than prolapse, in whom the technic shown in the illustrations is used, there is no shortening.

OPERATIVE COMPLICATIONS

In two cases an injury of the bladder occurred. Both were recognized at once, the wound closed, and recovery was uninterrupted. In one case active bleeding from the uterine artery occurred due to the slipping of a clamp. This was controlled before serious loss of blood. There were 4 cases of postoperative bleeding. In one of these the bleeding had nothing to do with the hysterectomy but came from the perineum, upon which a plastic operation had been done. In the 3 others it came from the region of the uterosacral ligaments and was controlled by placing a six inch clamp, which was left for thirty-six hours upon the bleeding area. Closer attention to this area in closing the operative wound has prevented further bleeding.

In one case a serious thrombophlebitis followed operation. Recovery followed conservative management. In one case a pelvic abscess developed six weeks after operation. This was opened and recovery followed. In two patients who were operated upon for prolapse unsatisfactory results followed. In one case the anterior portion of the reconstruction was satisfactory but an enterocele followed. This was an early case in which the patient was operated upon before we had come to appreciate the importance of careful closure of the posterior peritoneal pouch and the approximation of the uterosacral ligaments.

Our present opinion is, that vaginal hysterectomy is a procedure of great value and that it is worthy of more extended use than it receives in many clinics today. Strongly to advocate its adoption by occasional operators, or by the general surgeon without gynecologic training would probably not be to the advantage of the patients of these men. While a clever general surgeon may learn the technic of this as of other operations, in the hands of most of the individuals who make up these groups, morbidity and mortality would be too high. It is a procedure for the gynecologically trained surgeon. It is more difficult, in some cases much more difficult, than the average abdominal hysterectomy.

In cases to which the operation is well adapted, convalescence is, on the average, smoother than in abdominal cases. Mortality should, in expert hands, be essentially the same in uncomplicated total abdominal hysterectomy and vaginal hysterectomy. A painstaking vaginal toilet is an essential part of either operation.

Although I ascribe a high value to the operation I think that its application should be kept within logical limits. If used in cases such as those discussed under the head of contraindications, the dangers of the operation increase. A careful evaluation of the anatomic and pathologic characters of each case is essential, and the choice of the route of operation must be based upon a consideration of these.

DISCUSSION

DR. JOSEPH L. BAER, CHICAGO, ILL.—When we decide that we are going to try out an operation, we try within reasonable limits to make the patients fit that operation until we have had one, two, or three years of experience with that operation. That is entirely justifiable in the hands of men who are careful of the ultimate welfare of their patients. We did this in our prolapse series when we worked first with the interposition operation, then vaginal hysterectomy, and now parametrial fixation.

Nevertheless we sometimes give way to departmental reactions. For instance, vaginal hysterectomy gives way to total hysterectomy when the supports of the uterus are good, or when the cervix does not come down reasonably well. The vaginal approach is indicated when the cervix is bad and the uterus is mobile, and especially when a plastic operation anteriorly or posteriorly, or both, is necessary. I like parametrial fixation particularly in those instances of greater degrees of prolapse than those which Dr. Danforth prefers. Partial protrusion of the uterus is usually protrusion of the cervix, and I see no reason for not utilizing parametrial fixation for that type of prolapse instead of vaginal hysterectomy. We likewise use the Le Fort operation more than do Dr. Danforth and his group. I like it for the elderly woman with the atrophic uterus.

The essentials of technic in vaginal hysterectomy are these: First, during the closure of the opening which we have created at the top of the vagina, we must anchor the vaginal vault one way or another. Second, when the bladder has prolapsed, bladder and urethra must be elevated and the supports properly reconstructed. Third, when there is a deep cul-de-sac, that must be completely repaired. We do not drain either in the ordinary types or in the prolapsed types of vaginal hysterectomy. There should be no necessity for drainage in the vaginal vault nor packing of the vagina.

In the actual technic my associate, Dr. Reis, is trying to convert me to the amputation of an unduly long cervix after it has been completely separated and before rotating the uterus on its transverse axis. In that way the uterus is almost ball-like and can be rotated equally freely anteriorly or posteriorly.

When the cul-de-sac is opened I think it worth while tipping the table and putting the patient in a partial Trendelenburg position. Occasionally the patient strains and exerts a little intra-abdominal pressure so that loops of bowel may present at the vaginal vault. It is simpler to tip the table at that stage of the operation than to pack bowel away.

I like the transverse closure of the vault. Ordinarily I do not unite the uterosacrals in the midline. I do, however, when they are unusually long, or when there is enterocele.

Our morbidity is more than double that shown by Dr. Danforth. We had one fatality in a private patient of my own which I think it proper to report at this time. After an ordinary uneventful hysterectomy she developed fever and on the fourth day we instituted sulfanilamide therapy in rather considerable doses. The patient developed an intense rash with urticaria, which went on from pink to purple in color, and in the week following, in spite of every measure that we could institute, the termination was fatal.

DR. LILIAN K. P. FARRAR, NEW YORK, N. Y.—Dr. Danforth has called attention to other conditions than prolapse that might be operated upon by the vaginal route. I am glad to learn that he prefers to do a vaginal hysterectomy rather than apply radium in functional bleeding in women at the time of menopause. By vaginal hysterectomy the cervix does not remain a menace for the rest of a woman's life, as after irradiation of the fundus, and a more comfortable menopause is secured for the patient if the ovaries are left at operation and not destroyed by irradiation. By restricting the vaginal operation to uteri and to ovarian neoplasms that are not so large but that one can be sure of their easy delivery through the pelvis, to retroversion or to chronic adnexa if not adherent, one may do vaginal hysterectomy and all needed plastic work in less time than a combined vaginal and abdominal operation, and with less shock. I believe though that a known or even suspected carcinoma of the fundus should be done by the abdominal route with clamps applied to the sides of the uterus as Dr. Danforth does.

There are several points in technic that I would like to speak of and the first is the closure of the wound anteriorly. Dr. Danforth says, "The anterior edges of the united broad ligaments are attached on either side of the urethra underneath the rami of the pubes in order to retain the bladder." This is never necessary in total abdominal hysterectomy, why is it necessary in vaginal hysterectomy? It causes distortion of the upper pelvic floor, displacement of the ureters and may produce an enterocele.

The bladder was in its normal position resting upon the uteropubic fascial plane, with a split in the fascia which was the beginning of a cystocele. Dr. Danforth says, "If fascial flaps are available in the anterior wall they are dissected free and united." I have never seen a case where these flaps could not be dissected free and when sutured together the constructed fascial plane may then be sutured by its posterior edges transversely to the broad ligaments exactly as we do in total abdominal hysterectomy and restore the bladder to its normal position in the pelvis.

The final point is the repair of an enterocele. This condition has long been of interest to me since I saw the monumental work of Tandler and Halban ("The Anatomie und Atiologie der Genital Prolapse"). I believe that to repair an enterocele correctly one must dissect it out and suture the uterosacral ligaments together.

PROFESSOR LUDWIG ADLER.—Dr. Danforth's mortality record has been excellent and I must confess that we have not been as fortunate as he has been. This may in part be due to the fact that our indications are somewhat different from Dr. Danforth's. A great number of his cases were of prolapse or of descensus. We have used for such cases either the interposition operation or a procedure similar to that of Fothergill, or in old women the Le Fort operation. Following hysterectomy for prolapse we have seen quite a number of recurrences in the form of hernia of the vagina, and therefore, prolapse in our country is rarely considered an in-

dication to perform a vaginal hysterectomy. On the other hand, we do vaginal hysterectomy as a method of choice in fibroids if the tumor is movable even if the uterus is double the size of a fist.

For the treatment of bleeding in a uterus which has no fibroids, I personally have been using intrauterine radium treatment, but with so small a dosage that the troubles of menopause do not occur. It seems to me that this treatment is less dangerous than the complications which sometimes follow vaginal hysterectomy.

As to the technic I usually bring out the uterus from the anterior plica. In some cases the procedure of bringing it out from the pouch of Douglas is advisable. If the uterus is not easily movable or if the uterus is large, amputation of the cervix is useful. If there is difficulty in bringing out the uterus, as in inflammatory cases, or when large fibroids are present, we split the whole uterus or perform a morcellement. One point which seems very important to me is that all the stumps should be placed extraperitoneally. Furthermore, if we remove the adnexa, we take care that the corner suture of the peritoneum catches the infundibulopelvic ligaments. We do this for two reasons: first, to prevent adhesions, and second, because if there is hemorrhage from one of the vessels it can be controlled without opening the peritoneum. After closing the peritoneum I always tie the stumps to the corner of the vagina so that there is a retraction of the vagina which prevents later descent.

We do perform the vaginal operation as a routine operation for cancer of the body if the uterus is not too large.

May I add that personally within the last twenty years I have done nearly all of my vaginal operations, including uterine cancer, under twilight sleep and local anesthesia. It has not only the effect of lessening the shock of operation, but the bleeding is less and the dissection of tissues becomes very easy.

DR. N. SPROAT HEANEY, CHICAGO, ILL.—Since using ethylene gas for anesthesia I have done 831 vaginal hysterectomies in nonmalignant disease with 3 fatalities as previously reported. Most of the operations were done for fibroids. Among these cases were 197 nulliparous patients. Some of these were with intact hymens so that the hymen had to be incised in order to enter the vagina. In the last 369 vaginal hysterectomies, it was necessary to morcellate 93 times. In this list I have not included cases of carcinoma of the body of the uterus which I prefer to operate upon rather than to irradiate. Whenever possible I operate upon these cases vaginally, because they are for the most part elderly women and will stand a vaginal operation much better than an abdominal one. There has been no mortality in these cases of cancer of the body of the uterus.

For a considerable length of time now I have been operating upon the cases of carcinoma of the cervix after they have been treated with radium and have healed, hoping in this way to increase the number of ultimate cures. I do either a Schauta or a Wertheim on these cases, depending upon the conditions.

DR. DANFORTH (closing).—Recently we have been doing two-thirds of our hysterectomies by the abdominal route and only one-third from below. The choice of procedure is an individual matter. One who has developed a great deal of skill can take out almost any uterus vaginally if he chooses to do it. Whether it is wise to do so from the standpoint of the patient's safety is another thing and I think one should choose the operation which is safer for the patient and that causes certain limitations.

Transverse closure has a definite advantage in that it does not drag in the walls of the vagina and is rather less likely to produce kinking of the ureter.

Dr. Adler's point about bringing the stumps of the ligaments into the vaginal angle is very important. We find it useful except when we are dealing with prolapse.

As our skill increases with an operation we are inclined to use it more and more. We find ourselves sometimes getting a little more liberal in the use of the operation, but I think this should not be done until one increases one's skill.