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VAGINAL HYSTERECTOMY FOR PELVIC SUPPURATION.

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In an old edition of Thomas' work on gynecology, the following sentence occurs: "A guarded prognosis should always be made as to the time of recovery in pelvic cellulitis, for no amount of experience can foresee the course of the affection; whether the effused *liquor sanguinis* will disappear by absorption in three weeks; whether the discharge of one abscess will end the patient's suffering; or whether a chronic induration will exist a great length of time."

The pathology of pelvic suppuration has undergone some modifications since this was written, but the prognosis, unfortunately, remains practically the same. Many women have the so-called "chronic induration" which makes them confirmed invalids, and in many instances bedridden. Various operations have been devised for their relief, and various treatments. Perhaps no branch of gynecology has received more careful attention than the one we are now considering. It has been made the subject of dispute and is now far from settled. What one surgeon approves of and practices, another derides and condemns, and yet the results of each may be the same. Under these circumstances it is apparent that any new method of dealing with this class of cases must of necessity be open to severe criticism before it is generally adopted. If to this is added the fact that such a method is attended with great technical difficulties the criticism becomes the more severe, and frequently it is condemned before it is even tried. Such has been the case with vaginal hysterectomy for pelvic suppuration. Inaugurated in France by Péan in 1886, it was received with opposition by the French surgeons, and it was only after repeated proofs of the efficacy of the method that it finally gained a foothold in Paris. At the present time it is the method of choice in cases of long-standing severe inflammatory disease of the appendages. The keynote of the operation is one word—drainage—good, free, unobstructed, surgical drainage. The abdominal route has been studied to the point of exhaustion. It was entirely overlooked that the vaginal route was the logical one, and why? Simply because it had never occurred to anybody to remove the uterus which was in the way so that there should be a large, unobstructed highway down which the pus could flow. So much care has been bestowed upon the appendages that the uterus escaped its share of attention. Not only is the uterus a mechanical obstruction in pelvic suppuration, but it also may be a constant source of

future danger to the woman by reason of germs which it may contain, and which may excite active inflammation at a subsequent period. Many a woman has been celiotomized over and over again for inflammatory trouble of the appendages without relief. Dr. Pryor, of New York, told me of a case in which celiotomy had been done seventeen times by various surgeons.

Jacobs' summing up of the operation and its indications is as follows: "Let us now review the indications for vaginal hysterectomy, beginning with the most difficult cases of suppuration complicated with adhesions. There is pus in the dilated tubes, in the ovaries, in the adjacent cellular tissue. The uterus is fixed, and the coils of intestines are glued together above these lesions like a solid roof. In such a case celiotomy displays the adhesions, which can not be separated without opening the bowels, with a chance that we may reach the purulent focus limited by them, open, empty and drain it; and the result may be that the woman will slowly recover, or that she will have an intractable fistula. Often we are confronted by a similar condition in which the pelvis is occupied by adhesions, in the middle of which the uterus is imprisoned, and yet without the presence of purulent foci. In such cases, owing to fear of accident, the surgeon is induced to relinquish the operation as an exploratory incision. It is, of course, always possible to finish the operation, but we have to consider the life of our patient. In just these cases vaginal hysterectomy gives results little short of marvelous—not wholly without danger, but with a security far greater than the abdominal. The collections of pus are opened into the vagina without infecting the peritoneal cavity; the adhesions are severed if possible, but should the finger encounter too great resistance they are abandoned and in a few days they will soften and become absorbed. In pelvic suppuration, and with extensive complicated adhesions, both equally formidable for the celiotomist, vaginal hysterectomy is triumphant."

Recently it has been the practice of many surgeons to remove the uterus as well as the appendages at their celiotomies, for suppurative disease, and the reason was because they found that their patients did not all get well when they removed only the appendages. Pathologic changes of the uterus certainly demand as much attention as those of the appendages. Possibly the reason they have been overlooked heretofore is the difficulty of recognizing their presence. A uterus affected with metritis, and not giving rise to any enlargement, is difficult of diagnosis. In comparatively simple cases the uterus and the appendages can be removed by the abdominal route very much more easily, and perhaps very much more quickly, than by the vaginal route; but to compensate for these advantages the degree of shock attending the vaginal operation is insignificant; added to

this is the fact there is no possibility of subsequent ventral hernia which makes the life of the patient so uncomfortable. In the operation of vaginal hysterectomy, the bowels are neither seen nor touched until the end. Special emphasis must be made in regard to the lesser degree of shock; it is one of the strongest arguments in favor of the operation.

In those cases in which pelvic suppuration is complicated with rectal, vesical or intestinal fistulæ, vaginal hysterectomy is the operation of choice. A celiotomy under such circumstances is always dangerous; but by the vaginal method the peritoneum is not soiled; the discharges flow down a natural incline, and the fistula closes by itself. The conditions are favorable for such a result, the healing being aided by cicatricial contraction of the pelvic contents *en masse*. It is rare that a secondary operation is needed. How great this cicatricial contraction is, may be inferred by the fact that in one of Ségond's cases, in which all the feces were passed *per vaginam*, complete closure of the fistula occurred spontaneously after a vaginal hysterectomy. But perhaps the most wonderful result of vaginal hysterectomy is the immediate disappearance of the inflammatory masses. There is no doubt whatever about this. The explanation is probably to be found in the excellent drainage and in the removal of the cause. There is no reason why cicatrization should be any different from that in any other part of the body. An almost analogous condition is to be found in appendicitis. Before operative methods were in vogue in treating this disease, its frequent recurrence was its most distressing feature; the appendix removed, the patient got well. Whether or not leaving behind the appendages, or parts of them influences the final result is perhaps at present unsettled; in most instances, however, it is feasible to remove them with the uterus.

And now a word in regard to the objections to the operation. It has been contended that it is unsurgical, that it is brutal, that it is blind, and that it is unsafe. Furthermore, it has been contended that hemorrhage is likely to occur during the operation; that the ureter and the viscera may be wounded. In regard to the first of these objections, it is not necessary to say much. They have been raised by men who know but little about it, and who have never seen it done properly. To see a skillful surgeon perform the operation is a pleasure. The steps are carefully followed; there is no embarrassment; there is no hemorrhage; and the operator sees exactly what he is doing at each step. The fundamental principle of the operation is never to work at haphazard. It is not a blind operation. If the operator has a hemorrhage it is his fault; if he makes a misstep he is lost, and he must be a skillful man if he would recover himself. The laws which govern the procedures must be as rigidly followed as an algebraic formula, otherwise there is no security against mishap. Heretofore, the operation of vaginal hysterectomy has been to get the uterus out in the best and quickest way possible, each individual operator having perhaps his own method, there being no special rules laid down, beyond the incision of the vaginal attachments and the securing of the broad ligaments. No one before Péan attempted to remove the uterus piecemeal, although the simplicity of the thing is evident on reflection.

In regard to wounding the bladder or rectum, it

may be said that this occurs not more often than in celiotomy with a skillful operator, probably not as often. Ségond has done the operation 400 times and he never lost a patient from hemorrhage. He opened the bladder three times; the wound was sutured at once and recovery followed. Nine times the rectum was opened; three times it was accidental, six times there was a preëxisting fistula; of these, two died several months after the operation from pulmonary tuberculosis; a third still had a small fistula, but it was a recent case; the other six recovered spontaneously without interference, notably the case already cited of the woman who passed all her feces *per vaginam* before the operation. Ségond in all his 400 cases never clamped the ureter once. He uses a special incision in incising the vagina, which gives more room and at the same time allows the ureter to slip away from the bite of the forceps. The viscera can not be injured if the retractors of the Péan model are used. They are long, flat blades which raise the bladder and rectum away from the cutting instruments, and if properly used are an absolute safeguard against accident.

Statistics are unsatisfactory and to many they are no proof; yet in what other way shall we judge the merits of a new method? Jacobs' are among the best. He has done the operation of vaginal hysterectomy for double inflammatory diseases of the appendages 166 times; he had 162 recoveries and 4 deaths—a mortality of 2.4 per cent. On analysis we find that in 113 there were double purulent collections; of these 111 recovered and 2 died—a mortality of 1.8 per cent. The bladder was perforated twice, the intestines once; the opening was closed and no fistula resulted. In ninety-eight of these recoveries the patient was followed for a period varying from one to four years; eighty-eight were absolute cures; of the others a few suffered somewhat from vesical disturbances due to adhesions, and a few from pelvic pain; a few were not relieved at all.

Péan's results are even better. His first 150 cases all recovered with but one exception; she was moribund at the time of the operation. But perhaps the most instructive cases are those of Landau's. He always does celiotomy when there appears to be a chance of succeeding, reserving the more difficult operation of vaginal hysterectomy for those cases of suppurative disease which, if attacked by the abdominal route, would prove perilous to the patient. "These are cases complicated with rupture of the tube into the bladder, rectum, or intestine; reference also is made to multiple abscesses which are intra- or extra-peritoneal." He has done thirty cases of this sort without a single death. It is questionable if statistics of celiotomy can compare favorably with these.

In a short paper of this kind anything but a brief description of the operation is impossible. In the first place, a word about clamps. In a case of adherent uterus they must be used; ligatures will not do on account of the impossibility of securing them properly beyond a certain depth in the vagina. But in cases in which the uterus is low down, for instance, a retroversion with disease of both ovaries requiring removal, ligature holds the preference because of the greater comfort to the patient. Dr. E. W. Cushing, of Boston, has devised a method of ligating the broad ligament which I would like to refer to here because of its neatness, and because it avoids entirely a sloughing stump in the vagina. After amputating the uterus,

which in a simple case can be done in a few minutes, he draws down the broad ligament of one side into the vault of the vagina. Then he passes his needle through the upper edge of the vaginal incision near the outer angle, and then encircles the uterine artery, which has been temporarily held by a clamp; he then finishes the stitch by emerging at the lower edge of the vaginal incision. The uterine artery is thus firmly ligated, and at the same time the ligature closes over the stump of the broad ligament by approximating the lower and upper edges of the vaginal incisions. The rest of the broad ligament is secured in the same way, on each side, by additional ligatures, two or three more being required. The ovarian artery is ligated separately. By this means the vault of the vagina is closed with the exception of a small hole through which a piece of iodoform gauze is thrust for drainage. Necessarily this method is applicable only to those cases in which there is no pus. In cases in which the uterus is adherent and high up, and in which there may be pus on one or both sides, the following method of operating is the one to be adopted:

Briefly it may be described as having three stages; 1, removal of the inferior segment of the uterus; 2, removal by morcellation of the anterior wall of the uterus; and 3, eversion anteriorly of the stump.

The patient lying on the back, four retractors are put in position, one on each side, and one anteriorly and posteriorly. The cervix is now seized with a bullet forceps and a circular incision is made around the cervix; an additional incision is made on each side parallel to the lower border of the broad ligament, two-thirds of an inch long; it gives more room and protects the ureter. Directly the incision is made, the top of the anterior retractor is forced into the wound and pulled upward and backward along the cervix. The sectioned tissue yields a good deal—surprisingly so in fact—and it is just this maneuver that makes the Péan instrument of so great value. While the retractor is pulling back the tissue, blunt-pointed, curved scissors separate by short snips the attachments between the bladder and uterus; with each snip of the scissors the retractor takes a fresh hold, being introduced into the part just cut by the scissors. The finger will sometimes help a great deal in the dissection. Having separated as much as possible in front, the same should be done behind. The forefinger of the left hand is now placed on the anterior surface of the cervix and glides along outward toward the base of the broad ligament; it penetrates between the anterior peritoneal fold and the ligament proper and pushes aside the ureter. The same is done behind. Then two fingers grasp the broad ligament and serve as guides to the first forceps, which seizes the ligament at least an inch from its lower border. The ligament is then cut the whole length of the forceps close to the uterus; the same is done on the other side. The cervix is now split transversely from side to side up to the point of the forceps; two flaps are thus made, an anterior and a posterior. The posterior flap is now amputated and strong forceps seize the anterior flap and pull it downward; the uterus begins to roll anteriorly, thanks to the void which has been created behind by the amputation of the posterior flap. At the same time fresh separation is effected between the uterus and the bladder. The anterior flap is then amputated. If the uterus is not very adherent it may be pos-

sible to make two more flaps which are amputated in the same way after preliminary hemostasis of the broad ligament. But if the uterus is very adherent, the rest of the operation deals with the anterior wall of the organ. Placing a bullet forceps on each side of the canal, the stump is pulled down as much as possible and separation effected between bladder and uterus. After separating as much as feasible, the anterior uterine wall is morcellated in the median line in small pieces. The part removed should include all the tissue down to the uterine cavity. Two more bullet forceps are now inserted on the upper parts of the edges of the excavation; renewed traction is made, more denudation effected and morcellation carried higher up. By repeating the process the peritoneal cavity is reached. The uterus may now be hooked with the finger and everted anteriorly with ease. It is a simple matter to clamp the rest of the broad ligament and to remove the organ. In many instances the appendages are dragged into the vagina and are clamped separately.

If, during the operation, a pus sac has been opened, the operator waits until the flow ceases, then washes out the cavity and proceeds exactly as before. But if it has not been opened, it must be searched for with the finger, for, if undiscovered, it will cause further trouble.

When it is possible to remove the appendages it is proper to do so; otherwise they may remain behind and in the majority of cases will cause no trouble.

The dressing consists of iodoform gauze placed above the tips of the forceps and between them and the vaginal walls. The forceps are removed in forty-eight hours; the gauze not until the sixth day. Pain is controlled with morphin, and in three weeks the patient is up.

The following case which came under my notice is typically illustrative of the sort of patient that is cured by vaginal hysterectomy:

M. J., 29, 2-para, was admitted to the Broca Hospital Aug. 12, 1894. Ever since her last confinement, three years before, she had been suffering from inflammatory pelvic trouble which had confined her to bed most of the time. The longest period of quiescence was three months; the rest of the time she had been practically bedridden from pain and prostration. She had had four attacks of pelvic peritonitis which were severe, the last one eight days before entering the hospital. Examination showed a uterus which was fixed, immovable, and surrounded by inflammatory adhesions; on the right, a mass the size of a good-sized fist filling the pelvis and impinging on the rectum; on the left, a smaller mass. Vaginal hysterectomy was done by Pozzi's first assistant, Dr. F. Jayle. No pus was found. There was no shock to speak of, although the operation lasted over an hour. In three weeks the patient was completely well, suffering no pain and walking about.

I had examined the woman before the operation and easily made out the large masses; when I examined her again, three weeks after the operation, I was astounded to find that on the left side almost nothing remained, and that on the right side there was only a mass the size of a small hen's egg. She told me that she was perfectly well and she looked so, and yet both ovaries and tubes remained behind.

I can not refrain, in conclusion, from referring briefly to the further scope of the vaginal route in dealing with pelvic diseases. In the pre-antiseptic

days it was the only route, and the impunity with which ovaries could be removed through an incision in Douglas' pouch served to put Battey's operation on a sound basis. Not only were ovaries of normal size removed in this way, but also tumors of considerable size. Dr. W. H. Baker, of Boston, assures me that before the celiotomy period he had several times removed a dermoid or other cyst of the ovary through an incision behind the uterus. Perhaps the most prominent advocate of the vaginal route in this country is Dr. Polk, of New York. It was a pleasure, a few weeks ago, to see him operate on a woman who had a cyst of the right ovary the size of a hen's egg. Her left ovary had been removed some time previously by celiotomy and she was much averse to having her abdomen opened again. Most women would be. An incision was made in the posterior vaginal wall close to the uterus, and the peritoneal cavity was soon reached. By means of two large retractors, made after the Ségond model, the operative field was clearly exposed and the cyst brought into view. A few adhesions were readily freed with the finger and the cyst aspirated. The sac was then grasped with a fenestrated forceps and removed. It proved to be a cyst of only a portion of the ovary. Enough of the ovary was left behind to assure the continuance of the catamenial flow. A bit of gauze was thrust into the wound and the patient put to bed. The operation took perhaps fifteen minutes to perform.

Dr. Polk told me that he treats extra-uterine pregnancy in the same way. He never fears hemorrhage, for it is a simple matter to clamp the ovarian artery which supplies the sac. His method is to introduce his forceps along the finger as a guide; to pierce the middle of the broad ligament with one jaw of the forceps, while at the same time the forefinger seeks the top of the broad ligament and protects the intestines, preventing them from being caught in the forceps. The clots may now be turned out at leisure and the cavity washed out. There is no shock to speak of.

In the same way, Jacobs, of Brussels, has removed a very large ovarian cyst, tapping it through the vagina and tying the pedicle, very much as in a celiotomy. Fibroid tumors of the uterus can safely be removed through the vagina. Here the laws of morcellation as set down by Péan must be closely followed, otherwise the operator will be disappointed in his results. A skillful operator has a mortality of almost nothing. It has been shown that fibroids reaching even to the umbilicus may be safely removed by this method. The mortality in 400 cases of fibroids of all sizes was 1.7 per cent.

From these facts it seems as though, in the near future, there must be fewer celiotomies and more vaginal work. The technical difficulties encountered in performing operations through the vagina will perhaps delay the adoption of the method for a time at least, but as the experience of those who are firmly convinced that it is the route of choice in selected cases accumulates, the vaginal route will become more and more popular, and will finally be assigned the place which rightfully belongs to it.

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THE TREATMENT OF THE STUMP IN OOPHORO-SALPINGOTOMY—A NEW METHOD.

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There are three serious objections to the method almost universally employed of treating the pedicle and stump in the operation for the removal of the Fallopian tubes and ovaries. They are:

1. In consequence of many adhesions of the tubes and ovaries and the inelastic condition of the broad ligament, it is not infrequently difficult, indeed, impossible to form a pedicle without producing so much tension upon the extremities of the stump as to render them prone to retract and thus loosen the ligature, or even to pull away so far as to leave unprotected a raw surface, which is liable to bleed, or if the tissues do not retract, the tension may be so great as to induce cutting of the tissues by the ligature and thereby lead to oozing or active bleeding. Again, by the *en masse* ligature it is sometimes found impossible to include the Fallopian tube near the uterine cornu.

2. The constriction of the nerves included in the *en masse* ligature is a source of pain, which will sometimes persist for many days or even weeks.

3. An incised surface is left exposed to engender adhesions, which, if formed, result in painful action or occlusion of the bowels. This is a grave objection to the method and one generally acknowledged. The milder forms of adhesions are a prolific source of pain and obstinate constipation, so serious indeed, in some instances as to demand a second operation for their relief, while not infrequently the intestine will so adhere as to lead to ileus and death, if prompt interference is not instituted. Three cases of obstruction of the bowels, the results of intestinal adhesions to the stump, have been reported to our local society within the last two years. One of the cases occurred in my own practice, one in the practice of a colleague in which I assisted in re-opening the abdomen, to find a coil of intestine so attached to the stump as to induce an acute flexion of the intestine and complete occlusion, and the third one resulted from an operation done by a member of this Section.

Various methods have been resorted to, to avert the danger of adhesions, such as the cauterization of the stump and cutting out a wedge-shaped piece from the distal end of the stump and turning the raw surfaces in by sutures. That cauterization is not efficient is demonstrated by the fact that in two of the cases above referred to this plan was adopted. It is seldom possible to turn in raw surfaces, because the ligatures can not be applied far enough away from the tubes and ovary to leave sufficient tissue beyond the ligature to make the procedure a safe one.

For two years the writer has been earnestly striving to devise some method that is safe and free from the objections of the *en masse* method. He does not claim to have found a method safe and applicable to all cases in which it is necessary to remove the tubes and ovaries. He does claim, however, that when the method he proposes is applicable it is far superior in its results to the older method.

The method is as follows: after proceeding in the operation in the usual manner until the adhesions

POTABLE SEA WATER.—The salts may be removed from sea water by drawing it, by means of a vacuum pump, through a block of wood in the direction of its fibers.—*Western Druggist*.