

## Original Articles.

## CHOICE OF METHODS IN HYSTERECTOMY.

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Six years ago a memorable discussion on hysterectomy took place in this Society which led rapidly to a complete change in the customary methods of performing this operation, and was the starting-point of a great increase in the frequency with which it was employed. It has seemed to me that it will not be without interest now to discuss certain points of the technique of the operation, and to compare different methods, in order to discover in how far we agree in our procedures and to what extent a consensus of opinion has been established. I therefore venture some observations based on my own experience in the hope of eliciting the opinions of the other Fellows of this Society.

For the removal of the uterus we have to consider the following methods, each of which is or may be preferable in certain cases, so that it is of interest and importance to examine the indications which would cause either one or the other to be chosen in a given case:

I. Suprapubic amputation	Extraperitoneal.	{	Cervix cauterized and drained.
	Intraperitoneal		
II. Total extirpation.	{	Abdominal	Vagina open (peritoneum open or closed).
			Vagina closed, choice of catgut or silk.
	{	Vaginal.	Combined operation, by vaginal and abdominal incisions. Methods of Doyen, Martin, Richelot.
			Clamps (morcellation). Ligatures, abdomen drained or closed.

I. (a) The extraperitoneal treatment of the stump by pins and the *serre-nœud* or elastic constrictor has been, I presume, abandoned by all of us, except under exceptional circumstances. Nevertheless, it is well to remember that it remains a precious resource as an expedient of emergency when, by reason of shock or weakness from previous hemorrhage, it is advisable to terminate an operation immediately. In some cases also of Porro's operation where the great vessels of the pregnant uterus are a formidable factor, or where there has been a rupture of the uterus during labor, and an operation of emergency is performed, this method of treating the stump will always have certain advantages for those who are familiar with it. The rising generation, however, will have no opportunities of seeing this operation or becoming familiar with its niceties, so that practically it is to be classed with the abandoned methods.

I. (b) The method of treating the stump intraperitoneally by dilating and cauterizing the cervical canal and draining it with gauze, as first introduced by Eastman, and recommended by Chrobak in 1891, was used by me in 1892 in some twelve cases with the happiest results; but I have now abandoned it, and I think that it has been generally given up, because in cases where there is especial reason to fear infection from the cervical canal, it is better to remove the whole cervix.

Careful experiments have shown that the healthy cervical canal is not septic, and the preparation for hysterectomy now universally adopted includes thor-

ough cleansing and disinfection of the whole uterine cavity, so that when the opening of the stump is closed by suture it is found safe and preferable not to cauterize it, and thereby a better union is obtained.

If, when the stump is divided, the incision is made quite conical by traction on the body of the uterus and an oblique incision, there is very little of the cervical mucous membrane left, and there is a flap of uterine tissue in front and behind. I pass a long curved probe through the canal from above downward, and let an assistant draw down through the canal a strip of iodoform gauze wet in sublimate solution; this wipes all mucus and secretion from the mucous membrane, including any secretion which may have descended from the uterus during the operation, and prevents any infection of the cervical stump from the vagina after the operation. Even this procedure is not necessary in most cases. Then I unite the flaps of the cervix with catgut in continuous suture above the mucous membrane of the canal, and, returning, unite the peritoneum over the uterine tissue.

This seems the proper place to consider the indications for removing the whole of the cervix, or for leaving some of it—a point on which there is still much difference of opinion. The burden of proof seems to be on those who advocate total extirpation, for it prolongs the operation from ten minutes to half an hour, while frequently there is some blood lost before the lateral and posterior vaginal arteries are controlled. It may be added that the field of operation is brought nearer the ureters, and accidents have happened from this reason. It would seem that the opening of the vagina would increase the chance of infection, in spite of the most careful disinfection before the operation, and often when the vagina is short and the abdominal walls are thick or rigid the difficulty of operation is perceptibly increased. It is claimed that the pelvic floor is injured and the support of the intestines is diminished if the cervix is removed; but of this I have had no proof in my own experience. It is not to be denied, on the other hand, that the cervix uteri is the seat of sexual sensation to a considerable degree, and in many women it probably has a part to fulfil in the sexual orgasm, so that it is desirable to leave it intact unless there are indications for its removal.

Nevertheless, whenever hysterectomy is performed for malignant disease of any part of the uterus, the extirpation should be total; when the cervix itself is diseased, so that it is enlarged, eroded, or secreting profusely an unhealthy mucus or pus, it is better to remove it; when the uterus is removed with the tubes for tubercular conditions, or for gonorrheal disease which manifestly involves the uterine mucous membrane, so that there is presumably an infectious condition of the secretions, it is better to perform total extirpation, especially as in these cases it is often essential to provide for drainage. The same necessity for drainage may be a reason for total hysterectomy in cases where subperitoneal growth of fibroids has lifted up the peritoneum and left large raw surfaces.

If it is decided to remove the whole of the cervix, instead of amputating it, the incision is carried down at each side, keeping close to the uterus and pinching the lateral cervical arteries until the vagina is opened; or with a knife a median posterior incision may be made, cutting against the cervix, until the vagina is opened; or the same end can be reached by passing

one blade of a pair of scissors into the cervix and cutting through it posteriorly until the posterior cul-de-sac is entered. I prefer the first method; but it is immaterial. When the whole cervix has thus been removed the operator has the choice of three methods: either (1) the vagina may be left wide open for drainage, or (2) the peritoneum may be closed and the vaginal raw surfaces may be left open, or (3) the vagina and peritoneum may be wholly closed.

Of these alternatives I would reject the second, which has only the advantage that it permits ligatures to come away in due time, after an annoying period of suppuration. It seems to me to be one of the transition stages in the development of the operation, and to be obsolete in the days of perfected technique. If the vagina is to remain open, then a stitch on each side (using catgut) will close the little lateral vessels, and may be so placed as to cover the stumps of the uterine arteries with peritoneum and to narrow somewhat, but not too much, the opening into the vagina. It is well to split the posterior wall of the vagina for half or three-quarters of an inch and whip it with catgut, so that the gauze which is left for drainage lies at the bottom of the pelvis and not at some distance above it, as is otherwise the case.

Nevertheless, in some cases where drainage is necessary, and they are less frequent now than they used to seem some years ago, I prefer to close the vaginal opening entirely, using the glass drainage-tube. This is only advisable, however, when the case is in a place where I can watch it afterward, and when I have a nurse who is thoroughly trained in the care of the glass tube.

In my opinion the method of election is that of closing the opening in the vagina with a continuous catgut suture, and afterward uniting the peritoneum with another continuous suture of catgut, so that there is an unbroken line of union from the free border of one broad ligament, across the pelvis, covering the stumps of the arteries and the line of union of the vagina, to the free border of the other broad ligament. When this is completed there is no raw surface whatever in the pelvic cavity; there is no need of drainage, and the convalescence is astonishingly smooth and painless. It makes it easier to unite the peritoneum smoothly, burying all raw surfaces, if, instead of applying mass ligatures, the broad ligaments are held by the fingers when severed, seizing and tying each artery as it is cut. Of course, if it is desired to show in how small a time the uterus can be removed the arteries will be at first secured with catch-forceps and only tied after the uterus has been removed. Sometimes the difficulties of the operation are such that this is the only practicable method; but I think that on the whole it is better to tie each artery when it is cut, for the time must be spent, in any case, before the abdomen can be closed, and there is no real advantage in removing the uterus in a given number of minutes if the whole duration of the operation is not thereby diminished. At any rate, when the vagina is cut open it should be sewed together at once, being held together meanwhile by double tenacula forceps, so that the chance of infection from this source is minimized.

It is indispensable that in the preliminary cleansing of the vagina and uterus all septic material shall have been removed or sterilized, but although this is easy to say it is not always accomplished satisfactorily. In foul or suppurating cases it is well, after curetting and

washing out the uterus with sublimate solution, to pack the cavity with gauze, and even to sew up the cervix with a few stitches, so that afterward when the uterus is handled it shall not discharge an infectious secretion into the vagina. This can be done by an assistant, so that the operator may keep his hands clean.

This brings us to the consideration of the question whether it is not well to proceed, after cleansing the vagina and uterine cavity, to the separation of the vaginal tissues from the cervix and to the ligation of the uterine arteries from the vagina; in other words, to the method known as the combined operation. I do not know of any particular objection to this method if the operator has to clean out the vagina himself, or if he has an assistant who is competent to liberate the cervix and tie the arteries. The fact that it was formerly in rather extensive use, while the present methods were in evolution, and that it has been abandoned by all operators of the first rank, leads me to place this method among the transition stages in the development of hysterectomy. In cases of fibroids the finished surgeon will never have any difficulty in performing the whole operation from the abdomen. In the exceptional cases, where a huge fibroid polyp has been extruded, and the thick pedicle passes through the os uteri, it is better to tie and cut the pedicle and pack the uterine cavity with gauze, and sew up the os, and then proceed to the abdominal operation as usual.

In cases of pyosalpinx or other obscure conditions it is not well to complicate matters by performing an important part of hysterectomy from the vagina, when on opening the abdomen it may be found that the uterus with the appendages on one side may be saved, or that it may be unnecessary or inconvenient to remove the whole cervix.

In certain cases of cancer of the cervix, however, it may be a great advantage to remove all the tissue which is apparently diseased before opening the abdominal cavity, if it is thought preferable to finish the operation by celiotomy.

I should not have mentioned the combined method of operating as a method of election before this Society, since I do not think that it is practised by any one present, were it not that it has recently been recommended by a gentleman of great experience, and I have reason to think that it is still in use among general surgeons. To facilitate the liberation of the cervix, and to prevent hemorrhage, it has also been recommended to separate the vagina from the cervix by the thermo-cautery, thus taking it for granted that the vagina will not be united and that time will be given for the silk ligatures to come away after weeks of suppuration. Now, although this use of the thermo-cautery has been highly recommended in performing hysterectomy with the aid of clamps, precisely for the reason that it prevents the edges of the vaginal wound from uniting too early and so preventing the escape of the inevitable discharges, and also for the reason that it probably diminishes the chance of cancerous infection of the incised, or rather cauterized, vaginal wall, yet in the case of hysterectomy for fibroid I would emphasize the fact that we ought to finish the operation, whenever it is possible, so that the wound shall be united throughout, so that on the inside every raw surface shall be covered in by the peritoneum, and in the vagina there shall be a complete union without suppuration.

Although, if the peritoneum is closed, it may not be

any great disadvantage to any given patient to have the vaginal wound heal by granulation, yet in a hospital every occasion for the propagation of pathogenic germs should be avoided. I often have had seven or eight cases of hysterectomy in my sanitarium at once, and certainly if all the abdominal wounds were suppurating I should not only be ashamed, but should think it a dangerous place to perform abdominal operations. Now, what is the difference in principle whether the suppuration be in the abdominal wound or out of sight in the vagina? The air is fouled, the nurse's fingers are infected, there is every chance through bed-pans, douche apparatus, etc., for the hospital to breed sepsis. There is even greater chance that the patient get a cystitis, or that she have chills and other serious symptoms from the damming up of the secretions by premature closure of the vaginal incision.

For these reasons and others which could readily be adduced, I maintain that the rule of all finished hysterectomy, either abdominal or vaginal, should be to close the wounds entirely, unless there is a positive indication for drainage or pressure packing.

It remains to consider the methods of Doyen and Martin, in which in the beginning of the operation the posterior vaginal fornix is opened from the abdominal side, the cervix seized and dragged upward; the broad ligaments are divided while compressed by the fingers of assistants, each artery as it is cut being seized with pressure forceps and tied afterward. Martin ties the broad ligament before opening the post-vaginal vault. Richelot's method is somewhat similar, except that he separates the bladder from the uterus first, and makes the incision between the bladder and the cervix, seizing the latter and drawing it up through the wound.

These methods in simple cases are rapid and showy, especially in the hands of their distinguished authors, who can make any method of operating seem easy and admirable. Nevertheless, I have no hesitation in classifying them as transition stages of the method of performing hysterectomy. They are all outgrowths of the combined operation, by which part of the operation was done through the vagina; in the case of the French operators by the introduction of clamps from below after the vagina was opened from above. They were evolved as a means of operating without the advantage of the Trendelenburg position, and for the convenience of an operator standing or sitting between the legs of the patient. The fact that such French surgeons as Segond and Jacobs, who have taken the pains to visit this country to study our methods, have renounced all other ways of performing hysterectomy and have adopted our procedures, is in itself an indication that we have nothing to gain by trying to copy a technique based on that of Doyen.

This brings us to the consideration of the relative advantages of abdominal and of vaginal hysterectomy, which was the principal object of the visit to this country of the distinguished gentlemen just named, and was also the motive of a visit which I made to France three years ago. I have given the subject much attention since that time, and from the results of my experience have arrived at pretty definite conclusions.

It is hardly necessary to point out that in a question of this kind the personal equation of the operator counts for a good deal. Some men have learned their art and achieved their distinction by operations in the vagina, while others are better trained in abdomi-

nal than in vaginal work. The training of the operator then, his possession of all the instruments necessary for the best work in vaginal hysterectomy, his surroundings, the length of his fingers, and even the rules of the hospital in which he operates may have an influence on the choice of the operation. It is not right, but nevertheless, it is a fact, that there are many hospitals in which the gynecologists are prohibited from performing operations by abdominal incision, where they may remove a fibroid by morcellation, or take out the uterus with the appendages by vaginal hysterectomy for salpingitis, but where they must transfer the case to the surgeons of the staff in case the abdominal wall is to be incised. Taking human nature as it is, we can readily foretell the resultant bias in favor of certain methods of operation. Contrary to the opinion generally held, it is, in my judgment, necessary to have a much greater dexterity, experience, and resource to perform vaginal hysterectomy in really the best manner in difficult cases than to operate by the abdominal incision. The burden of proof, therefore, is rather on those who recommend the substitution of the former for the latter in cases which are susceptible of operation by either method.

The advantages claimed for the vaginal method are: less danger of hernia, absence of cicatrix in abdominal wall, less time spent in operation and less shock. All of these advantages have become relatively far less by the improvements in the technique of the abdominal operation within the last few years; for hernia now is rare, the scar is reduced to a minimum, the difference in time is not sufficient to be usually of importance, and when abdominal hysterectomy is properly done without hemorrhage there is very little or no shock.

On the other hand, the abdominal operation has solid advantages which are founded on great principles of surgery and can never be shaken, for it gives greater certainty of diagnosis, greater facility in work by sight, the possibility of recognizing and overcoming unforeseen complications; greater security against wounding intestines and ureters, better control over hemorrhage.

There are certain special considerations which may further influence us in the choice of the method of removing the uterus, such as the age and physical condition of the patient, the amount of fat in the abdominal wall, the calibre of the vagina, the space between the pelvic bones, the preference of the patient, or even the possibility of obtaining consent to a necessary operation, which cannot be obtained if the abdominal wall must be incised. I need not repeat what I have said above concerning the objection as to the fouling the hospital by the vaginal method if clamps are used, nor refer to the pain and misery which the clamps produce. If these must be used there must be some reasons for the employment of a method which to-day seems crude and almost barbarous, whatever may have been its claims six or eight years ago, when abdominal hysterectomy was done by the extraperitoneal method.

The conditions, then, which would indicate the choice of the vaginal method with the use of clamps are, first, inflammatory conditions where the presence of pus in large amounts is certain, and the weakness of the patient is such that an abdominal operation would be probably fatal; in other words, where the operation is for the evacuation of pus in the pelvis,

the removal of the uterus being incidental, if found necessary; secondly, when the patient is old or weak, or the abdominal walls are very thick, while the vagina is capacious and the uterus freely movable, so that the vaginal operation promises such a saving of time that it seems preferable. Under favorable conditions it can be done in ten minutes or even in half that time, and in some cases this is of real importance; thirdly, in cases of cancer of the cervix when the conditions make it undesirable to close the opening in the floor of the pelvis, and the abdominal operation seems to give danger of sepsis.

Except under such rather exceptional circumstances, if vaginal hysterectomy is to have any standing in the present state of surgery, it must be as a very finished procedure of a very finished operator, and it must have a technique which will compare with the abdominal method.

While not attempting to enter into all the points of the requisite technique, I may say that the operation should comprehend the same improvements which have made the abdominal operation so perfect; that is, the vessels should be secured with catgut ligatures, the peritoneum should be accurately brought together, covering all raw surfaces, and the vaginal wound should be united, preferably with catgut, in such a manner as to bury the stumps of the broad ligaments, and to give a linear cicatrix, which may be expected to heal by first intention. While aware that it is possible to remove the uterus without using any ligatures and without cutting the uterine arteries, yet this does not appeal to me as a safe and surgical method, and if the appendages are to be removed also, the absence of ligatures becomes too risky to make it a practical procedure. Supposing, therefore, that the ligatures have been applied and the uterus removed, we should try to do what we would do in operating from above; that is, we unite the anterior and posterior peritoneal layers of the broad ligament on each side from the ovarian down to the uterine artery, with a continuous catgut suture. Then stitches can be passed through the vaginal walls and the peritoneum in such a way that both the peritoneal and the mucous surfaces are accurately united, while at the same time the raw surfaces at each side are included so that there will be no oozing. If drainage is thought to be desirable, a small roll of gauze may be left in the centre of the incision, instead of closing it completely; but although I always used to do this, I have now largely abandoned it in clean cases.

Performed in this way vaginal hysterectomy has a standing in favorable cases in comparison with the abdominal operation. But the admirable results obtained by the latter method leave little room for the former.

**VACCINATION IN GERMANY.**—We learn from the *Philadelphia Medical Journal*, that according to the latest official reports, the total number of cases of small-pox in Germany during 1896 was 92, of which 10 were fatal. The cases occurred along the Russian and Austrian frontiers. We commend this record to our American and English readers as an excellent commentary upon the wisdom of thorough compulsory vaccination, and as one in marked contrast to those presented by Austria and Italy, in which countries the vaccination-laws are much less rigidly enforced than in Germany. In Austria there were 2,663 cases, with 410 deaths; in Italy, 9,036 cases.

## THE EDUCATIONAL TREATMENT OF NEURASTHENIA AND CERTAIN HYSTERICAL STATES.<sup>1</sup>

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In recommending a treatment for neurasthenia and certain hysterical states, it must be understood that reference is made to the severer types of these neuroses only—to cases which have resisted all the ordinary methods and called for more extraordinary ones. Mild cases are usually amenable to simple procedures, like change of scene, cessation of wearing occupations and ordinary hygienic measures. As to the more obstinate cases, I think I am right in saying that we are still in need of a practical method of treatment which shall be applicable to the general run of cases. Neurasthenia differs from the organic diseases in that while on the one hand it is usually susceptible of cure, on the other it is not a self-limited disease, but may continue indefinitely,—growing, so to speak, on itself, and, like a snowball, taking upon itself bigger proportions from its surroundings.

A marked advance over all other methods was that originated by Dr. S. Weir Mitchell and bearing his name. It has unfortunately and mistakenly been called the Rest Cure. The logical basis of this method is, or perhaps was, the principle that faulty nutrition is the basis of neurasthenia, and that by curing faulty nutrition—making “fat and blood”—neurasthenic and hysteric symptoms disappeared. In the practical making of fat and blood, this primitive idea became associated with various other principles, inasmuch as the systematic procedure upon which successful treatment depends requires the combination of forced feeding, absolute rest, passive exercise and isolation. Rest and the other three agents are theoretically only devices to secure improvement in nutrition.

It should be noticed that by rest is meant absolute rest, so far as it is practically possible to make it. The patient is not allowed even to turn over in bed or feed herself. Passive exercise (massage and electricity) is only a device to prevent the deleterious effects in other ways, of rest, and to help the assimilation of food. Isolation is almost a *sine qua non* of the treatment; without it, the rest cure, although efficient in a certain proportion of cases, is still usually abortive in severe cases. This is a most significant fact. Now it is common knowledge that while the influence of isolation is complex, its chief mode of action is mental. This is so patent and so well recognized that I need not take the time to consider its mode of action in detail.

It is therefore apparent at once that along with the primitive idea of making fat and blood, another and essential factor has been introduced, namely, a mental one. And it must also be apparent to any one who is practically familiar with isolation in mental and nervous diseases, that the effect of mental influence can be enormously augmented or impaired according to the individuality and therapeutic attitude of the physician. As to the assumed pathological principle,—faulty nutrition,—I think there has been a growing conviction that this is not the real underlying principle of neurasthenia, and that the cures effected by the rest treatment are due to other influences, largely moral and educational, quite as much as, if not more than,

<sup>1</sup> Read before the Massachusetts Medical Society, June 8, 1898, and recommended for publication by the Society.