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THE RATIONAL TREATMENT

OF

UTERINE DISPLACEMENTS,

BASED UPON A CONSIDERATION OF THE PATHOLOGICAL CONDITIONS PRESENT.

BY

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A STUDY of the pathological changes which bring about these conditions, and of those which result as a consequence of the unnatural position of the organ, is particularly necessary for a proper appreciation of the treatment required to effect a cure. I will consider them, then, in connection with each individual condition which they produce, together with such other changes as take place in the uterine structure itself, and endeavor to show the applicability of the method herein suggested.

I of course have in view those malpositions which have existed for a time, and not those of recent origin (the result of some accident). Unfortunately, we are seldom consulted before important changes take place rendering the displacement permanent. Hence little is necessary to be said about the treatment of these recent cases. When they do come under

[1] Read before the New York Obstetrical Society, November 4th, 1890.

observation, however, immediate replacement is indicated, and, when it can be borne, a properly fitted pessary should be used to maintain the normal position until the impaired natural supports can be toned up. While this may sometimes be effected by rest and general tonics, it is wiser and more certain treatment to bring to our aid certain agents at our command which will assist us in accomplishing this result, instead of depending too much upon nature and the pessary. The tonic effect of electricity is so well understood that it seems superfluous to dwell upon the method of its application in such cases. Both currents (faradic and galvanic) may be employed and have their separate indications. The faradic will be more effective used by the bipolar method in the vagina for strengthening the uterine supports, while the galvanic, especially the positive pole, may be used to exert a tonic and curative effect upon the uterus and its lining membrane, which is so often found in an inflamed state.

I come now to the consideration of displacements produced by inflammatory changes acting as a maintaining cause, and where pathological changes are to be found in the walls of the organ itself.

ANTEVERSION.

In anteversion there is usually a chronic metritis and endometritis; the uterus is infiltrated, thickened, and rigid; the normal curve of the organ is obliterated, causing the external os to point to the hollow sacrum, and the fundus by its increased weight rests heavily on the bladder. In addition we may, according to Schultze, expect to find a posterior perimetritis or parametritis in a chronic form. There may be posterior fixation and shortening of the recto-uterine ligaments as the result of this inflammatory process, and this must be taken into consideration in the treatment of the case. This condition may exist and still there may be moderate mobility of the organ, unless there is anterior fixation also, which is infrequent.

It is evident from the condition present that the first steps in the treatment must be directed towards relieving the morbid process producing it, instead of vainly endeavoring to remedy the malposition before this is removed. I know of

no agent equal to galvanism for accomplishing this end, if it is judiciously employed. The chronic metritis and endometritis can certainly be relieved by it, and probably also the deposit removed, and the adhesions may, in many instances, be relaxed and loosened under its influence conjoined with gentle massage. If there is much tenderness to pressure and the parts are irritable, treatment should commence with applications of positive galvanism to the vagina of 50 to 80 milliampères used for five minutes every second day, with the external electrode placed alternately on the abdomen and lower spine. When the irritation has subsided it is time to begin with applications to the uterine canal. The platinum electrode, moderately curved, and fixed in a rigid handle, should be introduced along the index finger as a guide. To facilitate its introduction the fundus may be gently lifted by pressing up through the anterior vaginal wall after the electrode has entered the cervical canal. The electrode should be arranged so as to come in contact with the whole uterine canal from external os to fundus; but the fundus must not be touched roughly with the point of the electrode, nor rest too firmly on its point during the application. The electrode to be used must be made of platinum or the prepared steel, and no larger than the ordinary uterine sound, so as to allow the escape of gas around it. The positive is the pole always to be used in the beginning, unless the cervical canal is small and insufficient for drainage of the secretions from the uterine cavity, in which case the negative may be cautiously employed first. Beginning at 30 milliampères, the dose with the positive pole may be increased at each sitting as tolerance is established, until a strength of 50, 80, or 100 milliampères is reached, and the external electrode may be applied alternately to the abdomen or lower spine as the condition indicates. (The larger doses are by no means always necessary.) When the chronic inflammatory condition has been subdued the negative pole may be substituted, but the dose need rarely exceed 50 to 60 milliampères, used inside of the uterus with the bare electrode, and it should start at 20 milliampères. If they are borne well, the applications may be made every second day and continue for five minutes. Massage or manipulation of the uterus with the electrode in position and while the current

is in action may be permissible after the negative pole becomes well tolerated.

The use of glycerin tampons after the applications, made of four thicknesses of plain gauze flattened out, with a string loosely attached, will prove an excellent auxiliary in the treatment of these conditions. The gauze is preferred to the cotton or wool tampon, because it may be spread out in the vagina and will remain so, while the other becomes a firm lump or ball when it is soaked, and often irritates by exerting undue pressure where it is not wanted. Even when it becomes advisable to lift up the fundus with a properly adjusted tampon, and the effect of the glycerin is still desired, it is preferable to use a gauze tampon next to the anterior vaginal wall and a vaselined cotton or wool tampon under it. The vagina being flattened antero-posteriorly in its closed state, the cotton-glycerin tampon will act as a plug, and the escape of discharges from the uterus will often be retarded by it. The proper use of vaselined tampons in the latter part of the treatment will be very much more satisfactory than a pessary.

Where there is relaxation of the vagina and uterine supports, something may be expected from bipolar faradization to the vagina. It will also prove useful (if the current from the long wire is used) in subduing a very sensitive condition which may exist primarily, prohibiting the use of the galvanic current, or which may occur in the course of the treatment.

In outlining this course of treatment for anteversion, it is not, of course, intended that it should apply strictly to all the different conditions in the same manner, for some cases will present themselves where the treatment may be commenced at once with the negative pole and the progress will be more rapid. Such cases are those where the exudation, if present, is in a quiescent state and not sensitive. But usually the inflammatory complications, or a menorrhagia which is so often attendant upon anteversion, demand the use of the positive pole until they have been overcome, before the negative can be employed.

The negative pole used in the uterus is prompt in its action, because it takes effect directly upon the endometrium and uterine tissue; and if the external electrode is placed so as to

include any deposit between the two poles, it comes as well under the influence of the interpolar action as when the electrode is placed against it in the vagina. When an effective dose cannot be tolerated in the uterus, however, it becomes necessary to resort to the vaginal applications.

A version may sometimes be completely cured by using the positive pole only, but these are cases where the uterus is not unduly rigid and where there is no parametric exudation, or, if so, it is recent.

ANTEFLEXION.

In anteflexion there is rigidity at the point of flexion, a shrinking of the tissues of the anterior uterine wall, and an increase in volume of the posterior wall. This is the result of an endometritis and metritis occurring after the flexion takes place, making it permanent. Some authors believe that there is often posterior fixation of the cervix from a posterior parametritis and shortening of the utero-sacral ligaments. In women who have not borne children, the parametritis may be subacute or chronic without having been preceded by an acute attack, and it is well to bear this in mind. It is not necessary always to trace such a condition to a badly managed labor, or abortion or gonorrhea, for it may result from obstinate constipation, or from pent-up catarrhal secretions in the uterine cavity because of the obstruction to drainage afforded by the flexion. Anteflexion may be congenital or acquired. When congenital—or, as Schultze terms it, puerile—there is generally found an imperfectly developed uterus with either amenorrhea or a very scanty menstrual flow. Unless an active endometritis is present there is a decided obstruction to the passage of the sound at the point of flexion. When acquired, it is primarily due to a want of tone in the muscular structure of the uterus itself, or, as Graily Hewitt claims, a "softness of the uterus."

These statements are subject to some modification, for all flexed, undeveloped uteri are not necessarily congenital. Their development may be interfered with by a poorly nourished condition of the system at the time of puberty, or some accident occurring before puberty, displacing the organ then, may so interfere with its proper circulation and nutrition as to stop its development. This is frequently the case with

retroflexions. I once saw a girl 19 years old with a retroflexed uterus the size of a girl's of about 8 years, and there was only an effort at menstruation. She had been thrown from a carriage at about that age, and was supposed to have injured her back. The uterus was probably displaced at that time, and, remaining so, its development was arrested.

Though the claim of Graily Hewitt, that there must have been a softening of the uterus before a flexion can occur, may be questioned, it is certainly true that the rigid uterus must be softened before the flexion can be permanently overcome. Hence the appropriateness of the treatment by galvanism. Attention to the different actions of the two poles will show which is indicated in commencing treatment. The negative, which produces a softening and relaxing effect, is the pole to be chosen. The indications for treatment are, first, to produce relaxation of the rigid uterine structure, as well as dilatation of the canal, to allow drainage from the cavity and promote absorption of any parametric deposit which may be present, and then to cure the metritis and endometritis and tone up the relaxed supports.

There are two ways of accomplishing the first indication, viz., either by moderate dilatation with the steel dilator and the intra-uterine stem followed by galvanism, or by galvanism alone. In certain cases, as where the flexion is congenital or where it is very acute and there is stenosis, the cure can be more speedily and effectually accomplished by beginning with forcible dilatation, if there is nothing to contra-indicate it. The usual method of forcible dilatation or divulsion, however, is not to be thought of, as it is harsh and unnecessary. A moderate dilatation, carefully done under an anesthetic, and a straight hard-rubber stem, perforated through its centre so as to facilitate drainage, introduced immediately after and worn for a week while the patient is confined to bed, will accomplish all that is desired, and is free from the objections to be urged against the other method.

The operation is carried out in this way, viz.: The patient, when thoroughly anesthetized, is placed in the Sims position and the vagina is rendered aseptic. Seizing the cervix with the angular tenaculum (which does not tear out) on its external surface, it is steadied and straightened out while the

dilator is introduced. The dilatation should be accomplished with as little force as possible, and should only be carried to that degree which will allow the introduction of the smallest-sized stem, No. 10. This is to be held in place by a loose iodoform or creolin gauze tampon. The stems are of three sizes, 10, 12, and 14 (English scale), and should be used successively as relaxation without further dilatation allows their introduction. The tampon and stem must be removed every day, cleansed, and replaced. After these stems have been worn for a week, the patient meanwhile being kept prone in bed, complete dilatation of the canal will be effected, while drainage from the cavity is perfect. Besides, the straight stem has acted as a splint, and the uterus has been made straight and the rigidity of its walls has been overcome. With care and the proper use of galvanism a cure may be speedily effected.

A few applications of negative galvanism to the canal at intervals of two days, in doses of not over 10 to 20 milliampères two or three minutes, may be used at first, after the stem has been finally removed, if a tendency to rigidity or too much recontraction occurs; but this is seldom the case. It is usually appropriate to begin, after a few days, with positive galvanic applications to the endometrium every second or third day in doses of not over 30 to 50 milliampères for three or five minutes. These latter applications tend not only to relieve the catarrhal condition of the endometrium, but also to tone up and stimulate the uterine muscular tissue, thereby aiding in effecting a permanent cure. It is appropriate also to follow every positive galvanic application by a five-minutes bipolar faradization of the vagina with the current of tension, which still further aids in restoring tone to the uterus and its supports and stimulates an increased and more normal menstruation.[1]

[1] In treating patients of very sensitive nervous organization I use the faradic current through the rheostat, and find that they stand the applications much better, and that the current can be used stronger as the increase is more gradual. The secondary coil is advanced only half over the primary at first, and the rheostat is turned gradually half-way on. Then, leaving it at that point, the secondary coil is pushed all the way up, and the rheostat is again turned slowly until all the resistance is cut off and the patient receives the full strength of the current. This is important, as, to be effective, the

Where galvanism without forcible dilatation is elected to be used, the treatment will be commenced with negative applications to the uterine canal, unless extreme sensitiveness is present, when a few positive vaginal applications, 50 to 60 milliampères, should precede the internal or intra-uterine treatment. These negative galvanic applications should be commenced with an electrode no larger than the uterine sound, fixed so as not to touch the fundus when introduced to its fullest extent—in fact, it is only necessary to enter about two inches, or just beyond the point of flexion.[1] The electrode may be passed preferably along the finger as a guide, or a speculum may be used if care is taken not to allow the metal portion of the electrode to come in contact with it. The current must be turned on as soon as the electrode enters the external os (10 or 15 milliampères will be sufficient), and no force is to be used in its introduction, but rather let it slip in by its own weight. As soon as it has passed the angle it should be slowly withdrawn immediately at the first sitting. The external or inactive electrode is placed on the abdomen. At the second or third sitting, if the application is well tolerated, it may remain in for two or three minutes and the strength of the current may be increased to 20 milliampères. As soon as the canal will allow it, the size of the electrode is to be increased one size at each sitting until the desired degree of dilatation has been accomplished; and the dose may be increased to 30 milliampères, and the duration of the application may be lengthened to five minutes, if desired. In no instance will it be necessary to exceed 50 milliampères, unless the tissues are unusually dense; and, when possible, it is best not to use even this strength, as

faradic current must be given as strong as possible; and it should be continued, where a sedative effect is desired, until it ceases to be felt by the patient.

[1] The electrode which I use is an insulated shaft larger than any of the metallic tips which screw into it, thus making a shoulder 2 or 2½ inches from its extremity. The tips are made of copper, nickel-plated, so they may be curved as desired, and are of different sizes, 9, 11, 13, 15, and 17 of the French scale. No. 9 corresponds in size with the ordinary uterine sound. The last two sizes are used exceptionally where an unusual degree of dilatation is required or when the uterus and canal are unusually large.

it is generally unnecessary and undesirable to cauterize the canal. In very old and obstinate cases of chronic metritis it may become necessary to exceed these doses in the later stages of the treatment, but generally it will not be required.

As soon as complete relaxation has been brought about by this treatment, the positive pole must be substituted for the negative for its tonic effect and for the cure of the endometritis. The platinum sound or the prepared steel must be used, and at first the strength of the current should not exceed 30 milliampères, used for five minutes every second day, but may subsequently be increased to 50 or 60 milliampères. Bipolar faradization of the vagina may be employed advantageously, as described above.

If more stimulation of the uterus is required, the faradic current may be applied to the cavity by means of the bipolar intra-uterine electrode. Used in this way it has a more direct effect upon the structure of the organ than when used in the vagina. But it is best not to do this until the galvanic applications have been dispensed with, or, at any rate, not at the same sitting.

RETROVERSION.

It will be necessary to separate the treatment of retroversion and retroflexion, although they are considered together by most authors, because they often exist separately and require a different line of treatment. Fixed retrodisplacements will likewise be considered separately, because their treatment presents certain difficulties which necessitate careful manipulation.

A retroverted uterus presents the same heavy, rigid condition as was shown to exist in anteversion, and there is likewise a metritis and endometritis, with sometimes a chronic posterior perimetritis or parametritis, or an exudation, as evidence of its previous existence. According to Schultze, there is relaxation of the utero-sacral ligaments, resulting from this posterior parametritis, in those cases which are permanent. The uterus can often be replaced when there is some exudation present, unless adhesions have formed, though pain may be provoked by the attempt.

The indications for treatment are the same as in anteversion. If the cervical canal is not free enough to allow proper

drainage, the negative pole in the uterus must be used at first, and this form of galvanism should be continued (unless a sensitive condition calls for the positive pole) until the rigidity of the organ has been overcome. The lateral posture of the patient, with the external electrode over the sacrum, is preferred, and the uterus, when reducible, should be thrown into proper position by the internal electrode and held there during the application. The applications may be repeated every second day, and the strength of the current may be from 30 to 60 milliampères, used for five minutes. After each galvanic application a five- or ten-minutes bipolar faradization of the vagina is advisable (current of tension), and the uterus is braced in position by vaselined tampons. (If there is a tendency to menorrhagia, the faradic applications would tend to increase it, and they should be postponed until this has been overcome.) If the organ is found soft, yielding, and sensitive, with a dilated canal, as sometimes happens, the positive pole may be used to the cavity of the uterus from the start.

As soon as the rigidity of the organ has been overcome, the positive pole is indicated for its tonic effect and for the cure of the endometritis. A suitable pessary should be fitted, and the applications are made every second or third day for five minutes each time. The strength of the current may vary from 40 to 100 milliampères. The faradic vaginal applications are continued throughout the treatment, at first the fine wire being used, and then the short, coarse wire coil.

RETROFLEXION.

Very much the same pathological condition is found external to the uterus with retroflexion as was shown to exist with retroversion, and the changes in the organ itself are similar to those found in anteflexion. There may be a posterior parametritis, with exudation and more or less relaxation of the utero-sacral ligaments, though this is more often the condition where version and flexion are combined. There is loss of tone of the uterine walls, the posterior being shrunken and rigid while the anterior is unduly stretched. The body of the uterus is enlarged and heavy, and there is endometritis, with possibly a metritis also.

The peri-uterine changes are not always constant or pro-

nounced, especially in the so-called congenital variety of comparatively recent date, for cases are frequently seen where the changes in the uterine structure are the only abnormal conditions present.

The indications for treatment are: (1) To secure drainage for the catarrhal secretions; (2) to soften and relax the rigid posterior wall and render the organ mobile, so that it may be retained in a normal position; (3) to remove any existing parametritis or deposit, and (4) to bring about resolution of the diseased mucosa; then (5) to tone up the relaxed uterus and its supports.

The same condition of retroflexion calls for dilatation and the stem as was described when speaking of anteflexion.

The electrical treatment of this condition is the same as that of anteflexion, except that the external electrode must be placed over the sacrum, because the interpolar action is desired upon the posterior wall. (The lateral posture of the patient will be found more convenient.) The negative pole is used at the commencement, and the electrode should be the size of the uterine sound and insulated to within two inches of its extremity. This is gently introduced to the fundus, while a current of 10 to 15 milliampères is turned on, and is withdrawn almost immediately at the first application if there is any sensitiveness at the point of flexion. If pain is provoked and continues after the removal of the electrode, it may be quieted by a faradic vaginal application with the bipolar electrode (current of tension).

It may be best not to increase the size of the electrode for the first two or three applications, but at the second sitting the uterus may be thrown forward into normal position by gently rotating the electrode as soon as it has entered its full length, unless the reposition causes too much pain, when it may be delayed. It is well always to replace the organ as soon as possible, however, and continue the application with the uterus in position for two or three minutes. There is no advantage to be gained in attempting to brace up the uterus with tampons until it has become softened and capable of free flexion forward as well as backward, though there is no objection to a flat glycerin-gauze tampon when it is indicated. After two, or perhaps three, sittings, the size of the electrode

may be increased, the uterus being replaced every time while the current is turned on, and the strength may be increased to 20 or 30 milliampères and used for two or three minutes only. In some cases, especially in the virgin uterus, the size need not be increased beyond the third size (No. 13 French), the others being used when an extreme degree of dilatation is required. And in the virgin uterus it will hardly be necessary to increase the current beyond 30 milliampères used for five minutes. But in old chronic cases in the multiparous uterus it may become necessary to increase the strength of the current to 50 or 60 milliampères.

When the uterus has become thoroughly softened and capable of retaining the normal position without support when the patient is in the lateral posture, the positive pole is to be substituted for the negative, and a five- to ten-minutes bipolar faradization of the vagina should be made immediately after. Also, the organ should receive sufficient support (at first from tampons and later a suitable pessary) to maintain the corrected position when the patient is on her feet.

This treatment by the positive pole, which should be at first every second day, and later every third or fourth day, should be continued until the uterus and its supports have been so toned up as to retain their normal position without artificial support. The strength of the current to be used will not need to be more than 30 to 40 milliampères, used for five minutes, or 50 to 60 milliampères for three or four minutes.

It may be added that there is much to be gained by lessening the pressure on the uterus from above by avoiding the use of corsets and exertions which increase it, and by avoiding constipation. The pessary should be worn for some time after active treatment has been suspended.

If a case is met which does not become toned up sufficiently under this plan of faradization, this current may be applied to the inside of the uterus by means of the intra-uterine bipolar electrode. This latter method of application acts more directly upon the muscular structure of the uterus and is more effective. The electrode must be introduced well up to the fundus, so that both metallic surfaces are within the cavity, as the application is very painful if one pole should happen to be in the cervix. Within the cavity, the current, when very

gradually increased, is quite as well borne as in the vagina.

This method of treatment has to recommend it the rational application of the different actions of the current in removing the cause and overcoming the effect of the malposition, and a fair degree of success may be reasonably expected if it is consistently carried out. Dilatation with the steel dilator produces a rapid softening of the uterine structure. The tunnelled stem allows free drainage from the cavity and produces further relaxation. Negative galvanism does the same thing in a more gradual manner. The uterine structure is softened, the canal is dilated, and the secretions, which are in the beginning thick and gelatinous, become liquefied and thin under its influence and drain away readily. Positive galvanism acts by toning up the muscular structure of the uterus; and by its direct caustic effect upon the endometrium a cure of the catarrhal conditions is brought about.

The effect produced by the faradic current upon impaired muscle tissue is too well known to require explanation here. But the equallizing effect upon the circulation of the pelvis of the secondary current from the long, fine wire, when used by the bipolar method, is not so generally understood, nor is its sedative effect half appreciated, or it would come into more general use.

FIXED RETRODISPLACEMENT.

When the uterus is fixed in this position by inflammatory adhesions or exudation, it can sometimes be restored by appropriate galvanic treatment, and if not always so as to retain the normal position without support, at least so that a pessary may be worn with comfort. Very careful manipulation is sometimes necessary to avoid lighting up a fresh attack of inflammation. In old chronic cases where there is little or no sensitiveness to touch, active treatment may be commenced at once, but otherwise the treatment must begin with positive galvanism of from 40 to 60 milliampères for five minutes, with the clay-covered carbon-ball electrode against the cervix or in the posterior cul-de-sac, and the external electrode over the sacrum. If this does not promptly relieve, bipolar faradization of the vagina every day for ten or fifteen minutes from the fine-wire coil should be used in addition. Cases which are

not relieved by this treatment, and where pain is a prominent symptom, must be given the combined currents (galvano-faradic), with positive pole and covered-ball electrode in the vagina and negative over the abdomen or sacrum. The switch-board of De Watteville will be found very convenient, but, in its absence, one pole of the galvanic battery is connected with the opposite pole of the faradic, and the other two poles used as if only one battery was in use. The galvanic is increased by means of the rheostat or the switch, according to the arrangement of the battery, and the faradic by advancing the secondary coil over the primary.

The active treatment consists of negative galvanism to the uterine canal with the bare metallic electrode the whole length of the canal, with the patient in the lateral posture and the external electrode over the sacrum. The strength of current to be employed is from 30 to 60 milliampères, used for five minutes every second day. At first no attempt should be made to lift up the uterus, and the electrode must have a suitable curve so as to enter freely without provoking irritation. A flat glycerin-gauze tampon may be introduced after each application, but no packing should be used until the tissues have become softened and relaxed.

After three, or at most six, applications of this kind, stretching and loosening of the attachments may be attempted with the electrode in position, and while the current is in action, by depressing the handle of the electrode toward the perineum. Following the applications now, vaselined tampons, packed well up behind the cervix and then filling the vagina, will prove a valuable aid. Each time a little more is accomplished. The size of the electrode is increased and the curve is lessened. After a while it will be possible to rotate the electrode in the uterus and hold it in position during the application. A systematic continuance of this method of treatment will in the majority of cases, after a variable length of time, cause an absorption of the deposit and allow the adhesions to be stretched and loosened, and the organ can be made to resume somewhat its normal position. It may be maintained by tampons until a suitable pessary can be borne, when it will be necessary to use, in addition to galvanism, the faradic current, first from the long wire, and later from the

short, coarse-wire coil; and it may be applied either by the bipolar method to the vagina, or with one pole in the vagina and the other over the sacrum or abdomen, as appears best suited to the case in hand.

Should there be a tendency to metrorrhagia or menorrhagia, the treatment must be commenced with positive galvanism to the uterine canal until this is overcome. Commencing with a current of 50 milliampères, it may be progressively increased to 100 or 150 milliampères, when necessary to accomplish the desired result. Then the negative pole may be used, as before described, with little fear of reproducing it. A bloody discharge from the uterus is sometimes kept up by the interference with the circulation caused by a deposit or an irritation of the endometrium by pent-up discharges in the cavity. This would only be aggravated by the positive pole, for the indication is to free the canal for drainage and soften and remove the deposit. In this instance the negative is the pole to be used, but the dose may be so modified as not to produce undue irritation.

It must be understood that if a distinct exudation tumor is present it should be attacked through the vagina by applications of negative galvanism with the ball electrode covered with cotton or clay, or by galvano-puncture into the mass. If sensitive and painful, the positive pole should be used first. When the ball electrode is used, full doses will be required, ranging from 60 to 150 milliampères, used for five minutes only. I prefer the galvano-puncture for these exudations, because it acts more promptly; but it is contra-indicated when there is any inflammatory condition present. If the tumor is sensitive to touch and much pain is complained of, the positive puncture with 30 to 50 milliampères for three or five minutes will afford marked relief, and rapid diminution in the size of the mass will sometimes be obtained. Negative puncture will be more effective in old chronic exudates which are painless and insensitive. The needle should be no larger than a small-sized exploring needle, and the penetration need not exceed one centimetre. The insulating sheath is passed along the finger as a guide, and is held firmly against the tumor as felt in the vagina, while the needle is passed through the sheath and into it. The puncture should not be repeated for a week

or ten days. Thorough antiseptic precautions must be observed by using an antiseptic vaginal douche both before and after the operation, and placing in the vagina a loose tampon of creolin or iodoform gauze, which is to be renewed every twenty-four hours.