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SHALL THE OPERATIVE TREATMENT OF GONOCOCCAL SALPINGO-OOPHORITIS BE CONSERVATIVE OR RADICAL?*

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To determine a question of such great importance to women affected with gonorrheal salpingitis requires judgment based on many cases that have been observed for a long period of time. The simple fact that an operation has been done and that the patient recovered from the effects of the operation does not suffice because both abdominal and vaginal operations have been so perfected in technique that recovery from the surgical intervention is almost certain in 95 per cent. of the cases, barring an unlooked-for accident.

The larger part of the literature bearing upon the subject of conservative operations is absolutely destitute of value for the guidance of those who are without personal experience, because the authors do not, or, for reasons, are not in a position to, report on the ultimate results that were obtained by the operations, and it must be conceded that unless we can learn of these, the mere discussion of technique, and what opinion this one or that one has, must necessarily be without clinical value to us. It is very difficult to keep such patients under satisfactory observation, which may be evident from the few cases that I am in a position to report upon from among the patients operated upon in a period of three years. It would be still very much more difficult were we to try to learn the status of patients operated upon ten or fifteen years ago.

One may judge how important this question is for the human race when it is appreciated that the majority of those who have pus collections in the Fallopian tubes have contracted their ailment primarily through gonorrhea. James N. West, for instance, states that he has examined the reports of many thousands of cases on the bacteriological findings of tubal

*Read by invitation before the College of Physicians of Philadelphia on January 17, 1907.

contents, and consequently comes to the conclusion that 62½ per cent. of all such cases are due to gonorrhea. Still more astounding are the statements of Dr. Humiston and of Dr. Joseph Price, quoted by Dr. Joseph Taber Johnson that from 90 to 95 per cent. of abdominal sections for infections and adhesions and pus collections are due to gonorrhea.

When your president did me the honor to invite me to participate in the symposium and named the part which he assigned to me, I at once sent letters to those patients who had been subjected by me to operation for the disease under consideration during the three years prior to January, 1906, requesting that they call on me for reexamination, and, if that was impossible, to inform me as to their health now, compared to that prior to the operation, and also as to their status regarding menstruation.

I desire to call particular attention to the title of my part of the discussion, so that it may be clear that I do not consider at all whether and when it is necessary in cases of gonorrheal tuboovarian inflammation to resort to surgical intervention, or under what circumstances it is preferable to resort to nonsurgical methods of treatment. I am considering only cases in which it has been decided upon to resort to surgery.

I will first cite the cases accurately observed:

T. S., 27 years old. Conservative operation July 15, 1903. The right pyosalpinx was ablated, including its interstitial part, and the ovary implanted into the uterine cornu. The left adnexa, although not normal, showing an intense salpingo-oophoritis, were left untouched, because it was thought that a cure might ensue. On May 22, 1906, a radical vaginal operation was done, because of recurrent attacks of pelveoperitonitis and left tuboovarian abscess.

The pathological report briefly states that the uterine wall shows marked inflammatory changes. Bundles of muscle cells have been pushed apart by the serum, which contains a large quantity of leucocytes. The ovaries show very marked chronic inflammatory changes.

A. L., aged 24 years. Left adnexa entirely removed. Right salpingectomy; the ovary implanted into the uterine cornu. The uterus fixed to the abdominal wall. Symptomatically, the patient is in good health, menstruates at intervals of from

three and one-half to four weeks, two or three days' duration, normal quantity, only occasionally slight dysmenorrhea.

H. S., aged 20 years. Two years since primary infection. Right salpingectomy. The pyosalpinx is about one inch in diameter, and the ovary in a state of small cystic degeneration. Left adnexa retained, although not normal. Patient feels comfortable, though at times there is some pain in the left iliac fossa. There is some thickening of the left tube.

J. F., forty years. Left tube ablated and the ovary implanted into the uterine cornu. The right adnexa entirely removed. Patient in perfect health, menstruates regularly and in normal quantity. No dysmenorrhea.

S. S. Bilateral salpingectomy. Both ovaries implanted. At present the only complaint is of sterility.

L. W. Bilateral salpingectomy. Symptomatically, in perfect health. The pyosalpinges were nearly an inch in diameter.

B. W., aged 21 years. Both tubes removed and the ovaries implanted into the uterine cornua. The patient was in perfect health for some time after the operation, when she was again infected. Her second infection required nearly three months before gonococci remained absent on examination. No pelvic symptoms occurred during the second attack. Patient is now in good health.

R. W. Bilateral salpingectomy. Patient is in good health and menstruates regularly, but scantily.

S. K. Bilateral salpingectomy. Patient menstruates regularly, but not as much in quantity as formerly, and the dysmenorrhea is only slightly relieved.

S. J. L. On the left side, salpingectomy. On the right side, complete ablation of the adnexa, but immediately a small piece of comparatively normal ovarian tissue was transplanted into the right uterine cornu. Patient reexamined on January 5, 1907. Local condition excellent; all exudate existing prior to the operation has entirely disappeared. Menstruation is regular, of from six to seven days' duration; no dysmenorrhea. Prior to the operation the menstruation was very profuse, and of eight to ten days' duration, and the woman had unbearable dysmenorrhea.

D. T. Bilateral salpingectomy. Menstruation normal and no dysmenorrhea, otherwise also in perfect health.

L. W., 28 years old. Before operation the patient had in-

tractable menorrhagia and metrorrhagia. She was at no time free from pain in the iliac fossa, most marked on the left side. Her appetite was poor and she suffered much from indigestion. The left adnexa were completely ablated, and on the right side a salpingectomy was done. The ovary was cystic. No evidence of disease was found on reexamination, on December 31, 1906. Symptomatically, she was in perfect health. Menstruation is regular at intervals of four weeks, normal in quantity, and with no dysmenorrhea. Indigestion completely cured without any other form of treatment.

S. J. G. Bilateral sacculated pyosalpinx. Atypical uterine bleeding. Recurrent attacks of pelveoperitonitis. Never without pelvic pain. Bilateral salpingectomy. Reexamination twenty-three months subsequent to operation. Uterus of normal size, no pain on examination. Menstruation at regular intervals of four weeks, of from three to five days' duration, no dysmenorrhea. The patient is in perfect health.

There were forty-three conservative operations done for gonorrheal adnexal disease during the period mentioned, but unfortunately I could not personally interview and reexamine more of the patients than those mentioned, and it is obvious that it would be useless to draw conclusions from operations, unless we were in a position to learn something definite about the later results. Those here given about correspond with those attained from operations at previous times. In the cases cited, in all but four, gonococci were demonstrated in the pus, showing that the assumption that gonococci always disappear from the pus after the disease has existed about six months is erroneous.

The surgical technique consisted of a thorough dilatation of the cervix, with an equally thorough curetting, and then packing the uterus with medicated gauze. The interstitial part of the tube was exsected by a V-shaped incision, and the ovary implanted into the gap, and held there with a fine catgut suture. In chronic suppurative interstitial salpingitis there will not infrequently be found in the horn of the uterus, over the interstitial part of the tube, a hard nodular mass of variable size, usually a little larger than a pea. If one were to leave the interstitial part of the tube under such circumstances, it would be but natural that complete relief would not be obtained. I, therefore, lay much stress upon the exsection of the inter-

stitial part of the Fallopian tube. The tying off of the tube near or at the horn of the uterus is not so satisfactory in its results as is the technique described, because by tying off the tube a part of the diseased tubal mucosa is left, and, further, there is some risk of an inflammatory exudate forming about the stump. This is avoided when complete excision is made. I have always been able to control the bleeding in the uterine horn readily with properly adjusted sutures. About fifteen years ago attention was first called to the desirability of resecting the interstitial part of the tubes in cases of salpingitis nodosum by Friedrich Schauta.

All the patients operated upon, with three exceptions, had for an abundant time been subjected to palliative treatment, surgical intervention being adopted only as a last resort.

A question of much importance is, *When* is an ovary still in a sufficiently healthy condition to be retained? From the observations so far made, I have answered the question to my satisfaction. *Ovaries, because they are the seat of small cystic degeneration, need not be sacrificed.* If the follicular cysts are multiple and larger than a hempseed, igni-puncture is made; if not larger they are left undisturbed. The simple puncture of such cysts is, in my opinion, useless, because they soon fill again. If an ovary has one or more larger cysts upon it, the diseased area is entirely resected and the wound brought together with a thin catgut suture. If macroscopically I could determine the presence of a small circumscribed abscess, this was opened and, after wiping out the interior, the cavity was made free from danger of further suppuration by entirely cutting it out with a small sharp scalpel.

I have, in all except two cases, left the ovary attached to its ligament. In the two cases in which it was not done, the largest part of the ovaries were transplanted into the uterine cornua within a few moments after the interstital part of the tube had been exsected. I regret my inability to report on the subsequent condition of these two patients, the letters having remained unanswered, because the patients had moved and left no address, according to the report of a nurse whom I had sent for the purpose of interviewing them.

Some doubt may be expressed about the four cases in which no gonococci were found to be present in the pus, as to whether they were gonorrheal pyosalpinx cases, because the positive

distinction can be made only with the aid of the microscope. It is a clinical fact that gonorrhea usually attacks both tubes, but this also holds good for puerperal and tuberculous salpingitis. The other distinctive points between puerperal and gonorrheal salpingitis, which are dwelt upon by Nicholas Cukor that the puerperal infection is carried from the uterine mucosa to the lymphatics and blood-vessels, and thence into the parametria, while the gonorrheal infection spreads from the uterine mucosa to the tubal mucous membrane, and that the exudation which in puerperal infection takes place in the infected parametria is mostly extraperitoneal, while the exudation which, going from the tube to the peritoneum, is mostly intraperitoneal, is not likely to help us at the bedside sufficiently to make a positive diagnosis without knowing an exact history. So that in the four cases in which no gonococci were found, I depended upon the history in making the diagnosis of gonorrheal pyosalpinx.

Whenever it was at all consistent to be entirely conservative with one side, that tube and ovary were retained, because with other thorough treatment at the time of operation, and subsequent rational treatment, the diseased tube may become restored to a normal condition and its possessor may become pregnant. We should, however, always bear in mind that the leaving of the whole or a part of an inflamed tube in connection with an ovary more or less changed by an inflammatory process, involves decidedly more risk to further degenerative changes in such an ovary, or part of an ovary, than if a complete salpingectomy had been done, as is shown by clinical observation of the results of such cases. No salpingectomy or other conservative treatment on the tubes should ever, in my opinion, be resorted to when the abdomen is opened for chronic suppurative gonorrheal salpingitis, although even such a procedure has a number of advocates.

I now invariably prefer the abdominal route when I hope to be able to practice conservative surgery on the adnexa, because the field is clearer, and the technic can be carried out with more exactness; besides, the work is not so rude on the uterus, and the convalescence is just as rapid.

Flockmann, who likewise gives preference to the abdominal route, reports 88.9 per cent. of cures from conservative opera-

tions on the adnexa, although there seem to be some operations included that were not for gonorrheal infections.

The mere fact that a young woman knows that her pelvic organs have been entirely removed, has, in some cases, a very detrimental effect on her psychical condition; further, we have reason to believe that the ovary gives off a secretion which seems to be more or less essential to the well being of woman during her procreative years. Nature has provided in her own way a time when it is no longer essential, namely, after the menopause. If this secretion is suddenly interrupted, especially during the prime of life, by some form of surgical intervention, more or less serious disturbances do take place in the woman which last for a greater or lesser period of time. If this secretion, the exact nature of which we are as yet not acquainted with, is stopped gradually by destructive disease in the ovaries, then the disturbance in the general condition of the patient is not marked.

It is maintained by a large number of physicians that, if ovarian extract is administered to such patients as suffer from the effects of oophorectomy, the reflex symptoms are overcome. I have not yet been able to verify this assertion satisfactorily to myself, although very many cases have been so treated. On the other hand, S. W. Bandler states that he has followed thirty such cases and has never failed to see the disappearance of the symptoms of artificial menopause if ovarin was administered. But why should we resort to artificial means, which are at best only problematical, when we can positively avoid these disagreeable symptoms by the retaining of an ovary or both ovaries together with the uterus in suitable cases? I do realize that these symptoms pass off in the course of a few years; in fact, the grosser the pathological changes in the ovaries, the sooner they pass off; yet, why should we not always endeavor to save the woman the annoyance from them, if possible?

It is, on the other hand, occasionally necessary to supplant the former conservative operation by a subsequent radical operation, even in the cases where the adnexa had been entirely removed, although in the latter class a subsequent hysterectomy very seldom becomes necessary. On the whole, I am convinced that a conservative operation is the better procedure to follow whenever it can consistently be done.

From conservative surgical work upon suppurating tubes, like washing out pus or doing plastic operations upon them, I have failed to see any benefit. The patients so treated by me in former years, or operated upon by others, and subsequently seen by me, were not relieved, and usually had to be subjected to further surgical treatment.

My observation upon patients who were subjected to a radical operation, and by a radical operation I mean a complete hysterosalpingo-oophorectomy, has led me to the conclusion that unless the symptoms were very urgent, that is, consisting of constant or nearly constant pain, with or without uterine bleeding, uncontrollable by other means of treatment, and the local condition was such that it was unadvisable to retain the ovaries, as in instances where the uterus was very large and hard, instances of chronic metroendometritis, occasionally termed fibrosis of the uterus, or where the ovaries were in a diffusely suppurative condition so that it was evident that the retaining of a part of one or both ovaries could not be satisfactorily accomplished, it was an undesirable operation.

It may be mentioned here that Theilhaber says that there is no such thing as chronic oophoritis; also, that Dr. A. Koblanck says that every pyosalpinx has a gonorrheal origin. V. Francque states that the majority of his cases were of gonorrheal origin, and that many clinical cases of supposed puerperal infection are, in fact, due to ascending gonorrhea during the puerperium, but by the time the clinician sees the patient there is frequently no longer any evidence of gonococci.

Charles Greene Cumston recommends curetting and using gauze drainage for the cure of pyosalpinx, the purulent collections in the tubes being emptied out through the uterine cavity. Two of the patients seen by him in consultation, who were thus treated, subsequently became pregnant. In connection with this statement and those of authors who have reported cures of chronic pyosalpinx of gonorrheal origin by vaginal incision and drainage of the tubes with gauze, followed by subsequent pregnancy, the opinion of Dr. Amberger who, although an ardent advocate of conservative surgery on the adnexa, retaining, if possible, an ovary or part of an ovary with the uterus, says: "If pyosalpinx may be cured by puncture per vaginam and pregnancy ensue, it might be well to prove that it was a case of pyosalpinx."

S. J. McNamara has read an interesting paper advocating absolute conservative vaginal operations in such cases, and gives a lucid description of the technic usually employed in these operations. The question which, however, most interests us all, is missing, namely, that of what were the later results. My own results have not been satisfactory to the patients with such procedure.

It would also be of great interest to the profession to learn of the remote results achieved by Hunter Robb from his excellent conservative work. He quotes forty-one cases of positive gonorrheal adnexal affections, in which in some cases the whole or a part of the ovaries and the whole or a part of the tubes were saved.

A very interesting series of papers bearing on this subject was read at the meeting of the American Gynecological Society, in 1903, by Drs. Pilander Harris, I. S. Stone, Matthew D. Mann, and Charles P. Noble. Harris' paper is so thorough that it deserves most careful consideration in connection with the papers which follow it. On page 178-179 he, however, makes a statement which is not plausible. "With both tubes exsected, and the abscessed ovary remaining, we have but to incise the abscessed ovary per vaginam and drain it for a while to effect a cure." I maintain that if an abscess of the ovary is so that it can be made accessible per vaginam with safety to the patient, it must be comparatively large; further, it must be on the floor of the pelvis and in the cul-de-sac, and must there be adherent. I seriously doubt that one can positively make the diagnosis that such condition as described by me is really an abscess of the ovary; the only certain diagnosis that one can, under such circumstances, make, is intraperitoneal pelvic abscess. An abscess of the ovary, to be at all safe for conservative treatment, must be very small, circumscribed, and near the surface of the gland. This, of course, refers only to those small abscessed ovaries occasionally found in connection with pyosalpinx, and these it is impossible to treat as suggested by Harris.

A second statement that my experience does not coincide with, is, "that the surgically-produced menopause is less prolonged and less distressing than the physiologic one." My experience is just the reverse, especially in young women in whom the ovarian structure was not nearly totally destroyed

by disease. The views of Mann must be, in my opinion, coincided with by every rational thinker, so far as the surgical procedure advocated by him is concerned. In the discussion following, Noble calls attention to a weighty objection to radical operations, as the term is used by me, namely, the post climacteric atrophy of the vagina and vulva.

In the discussion following the paper of Carlton C. Frederick, which is similar to the one read by Harris, Bonifield mentions a very unusual case in which he had operated for double pyosalpinx, removing one tube in its entirety and one-half of the other, yet the patient subsequently gave birth to a child. Frederick states that the ovary is abscessed in a relatively small proportion of pus tubes operated upon. This corresponds with my experience.

Regarding sterility in these cases, it is indeed remarkable how much difference of opinion exists. Hector Treub of Amsterdam says: "In the cases of double pyosalpinx it exists as a result of the disease, and the operation, radical or not, can not change it."

Noble pleads for the radical operation rather than removal of the adnexa, when a suppurative condition is present in them, because of its lower mortality and its lower morbidity.

H. McNaughton Jones summarizes his views, which I think should meet with approval, as follows: "Given a case of adnexal disease demanding abdominal celiotomy, in which the adnexa of one side are seriously involved, the contingency of partially affected or unhealthy adnexa on the other side should be carefully discussed with the patient, and her deliberately-considered wishes ascertained as to the removal of or retention of these. The possibility of the need for a second celiotomy should be pointed out to her—the surgeon not merely obtaining what is known as 'a free hand,' but eliciting her express wish after the clearest possible explanation placed before her of the advantages and disadvantages of both courses. If there is a reasonable doubt of the future health of the adnexa in question, then I think the best course is to remove them, provided always that the patient has given her full consent to such a proceeding, should it be deemed necessary."

S. Dobrowolski and L. Friedman advocate the radical vaginal operation in all cases of obstinate and serious adnexal disease of gonorrheal origin.

Fehling advocates removal of the adnexa on account of the danger threatened by tubal pregnancy.

August Martin warmly advocates conservative surgery done per vaginam. Although he recognizes the difficulties attending the procedure, yet the results have been eminently satisfactory. Women that he has cured by this method have subsequently become pregnant, although they had extensive suppurative disease of the adnexa.

While I agree to Dr. Baldy's statements in a general way, I cannot agree that final results are not always reliable, if he means the symptomatic condition of the patient a year or more subsequent to the operation. We have no justification for allowing theoretical reasons to supersede practical results in forming an opinion as to what should be done, or what should not be done. We should endeavor to adjust our reasoning, regarding the effectual relief of her ailment, on the same plane with that of a patient. If, for instance, our observation has taught us that in most instances we can achieve good symptomatic results for a patient by removal of the oviducts alone, it is preferable to resort to such an operation rather than to sacrifice the ovaries with or without the uterus. If the condition is such that both ovaries must be sacrificed, then I believe it to be a better procedure to do a radical operation, because then the entire focus of infection is at one time removed completely. If, on the other hand, in certain cases, simple vaginal incision, etc., gives satisfactory results, that procedure should be practised.

I coincide with Dührssen that "Extirpation of both appendages and the uterus is only indicated when both ovaries present collections of pus." With regard to the latter part of the sentence quoted, "or when both ovaries had undergone total cystic degeneration," I am inclined to hesitate, not knowing what an individual operator may consider total cystic degeneration. I have seen so many ovaries that were called totally cystic degenerated ovaries, whereas it was a form of chronic oophoritis presenting macroscopically the picture of small cystic degeneration nearly over the entire surface of the ovary, and perhaps in the interior numerous small cysts. Yet there was present sufficient ovarian stroma of functional power to make such ovaries useful for the performance of the functions of ovulation and menstruation. I have, in patients who have such ovaries in connection with the disease under consideration, when the pyosalpinges had

been removed, split the ovaries, and in the interior used igni-puncture to destroy the cyst follicles, and also used a small actual cautery point on the exterior cysts if they were larger than a hemp seed. Then the ovaries, the condition always being bilateral, so far as my observation goes, were united by fine catgut sutures and implanted into the uterine cornua. The result was satisfactory. It may of course occur that some such patients will have further degeneration of the ovaries, or a continuance of symptoms, or a recurrence of symptoms that may eventually lead to the necessity of further surgical intervention. Such possibilities should, however, not deter us from making the attempt to be conservative in our procedure. I seriously doubt that many men could be found who would be willing to sacrifice both testicles if there was a possibility of treating them conservatively, even at the risk of the possibility or even probability of a subsequent operation for their removal, should the disease for which the first operation was done become so aggravated that no other course was left.

Dr. George T. Harrison says: "Before a radical operation is advised, the gynecological surgeon should let his patient know that she purchases her restoration to health at the expense of the loss of her internal genitalia, the faculty of generation, and libido." I coincide with him that such statement should be made for safety from legal complications which might arise if it were not made, but exception must be taken to the statement in its correctness as to the last point. I have found that most patients whose pelvic condition was such that such extensive operation was indicated, had decided objection to cohabitation because of the pain it caused them, whereas after operation they not only permitted it without objection, but, on the contrary, in many instances it then became a pleasure to them and they found a satisfaction which they had not experienced at any time before their illness. So far as the faculty of child-bearing is concerned, these women are sterile. I have never seen a single instance of double tuboovarian abscess or chronic double pyosalpinx which had become restored to such a condition that the woman became normally pregnant. We must always bear in mind the cause of the ailment.

Further, we know that a large proportion of the husbands

of such women have azoospermia, so that the question of fecundation from that man may also be dismissed.

Let us consider the acute form of gonorrheal salpingo-oophoritis, in which the Fallopian tubes are greatly distended with thin, creamy, or seropurulent pus. Sometimes the pelvis contains considerable serum or seropurulent fluid as the result of the acute pelveoperitonitis. It is my conviction that this particular class of patients are best served by still greater conservative surgical intervention. The Fallopian tubes in this class of cases are usually on or near the floor of Douglas' cul-de-sac, and can be readily approached per vaginam. I well remember the first such patient upon whom I tried a conservative operation. It was in the winter of 1895. The lady was seen in consultation with Dr. J. A. Irwin. She presented the typical picture of an acute pelveoperitonitis which could not be distinguished from a general peritonitis. The entire abdomen was distended and very sensitive to the touch. The abdomen was burnt from the effects of hot flaxseed meal poultices before Dr. Irwin had seen her. She had been in bed for more than two weeks and was suffering intensely. A posterior vaginal incision evacuated about 200 to 250 c.c. of thin seropurulent fluid. After its evacuation, the fingers introduced into the cavity readily palpated the enormously distended Fallopian tubes; they were both widely opened and evacuated and the cavities then washed out with a mild antiseptic solution. The uterus was vigorously curetted and irrigated with a similar solution. The uterus and the cul-de-sac were then lightly packed with iodoform gauze, a small strip of gauze having also been introduced into the incision of the enlarged tubes, so that the openings made therein could not immediately close. Every other day the dressings were changed until it was no longer necessary, the gauze being gradually diminished in quantity.

An examination about a year later showed comparatively good pelvic conditions. There was some thickening of the adnexa, and they were low down in the pelvis, the uterus was somewhat enlarged, but the patient was in fairly good health, only occasionally complaining of pelvic pains. I last heard from her in September, 1902, and she reported herself quite well and able to fill a position in one of the government departments in Washington.

Such is practically the kind of conservative surgical treatment that has been practised by me since then in all instances of acute or subacute inflammations, in which the adnexa were accessible per vaginam. In some instances it became necessary to again incise, and in about twenty per cent. of the cases more radical surgery was required at a later date, but fully eighty per cent. of such patients who could be reexamined, had their pelvic organs retained and the majority made a complete symptomatic recovery. *Restitutio ad integrum* was achieved in about one-third of the cases.

This nearly corresponds with the experience obtained in Chrobak's clinic.

Posterior colpotomy is also favored by Treub when the gonorrheal pyosalpinx is favorably situated, he, too, being in favor of conservatism whenever it can consistently be resorted to. The same course is pursued in the Greifswald clinic, under the supervision of August Martin, who also reports that in fifty per cent. of all cases of tuboovarian abscess the pus was found sterile.

Karl Fett also maintains that the majority, about eighty per cent., of the cases that are treated by simple vaginal section and drainage, are symptomatically cured. The opposite view is, however, taken by Fehling, of Strassburg; he leans to the side of more radical operations especially in all cases of longer standing. He says that the compartments in sacculated pyosalpinx are not amenable to treatment by incision or puncture, and, further, that the pus is by no means always sterile after the lapse of from six to nine months. He admits the possibility of spontaneous cure in very mild cases of purulent endosalpingitis, and the possibility of the subsequent occurrence of pregnancy, but denies that a spontaneous cure is possible if the pyosalpinges have attained a diameter as thick as a finger; if it should occur, he says, it would take a very long time. In young persons, so long as there may be a possibility of retaining even a part of one ovary, he resorts to abdominal section because of the clearer view that one can get of the operation field.

Steffeck, if an operation is indicated, chooses one of three methods—either simple vaginal incision, ablation of the adnexa, or the radical operation. In fact, nearly all operators select one of these methods if an operation is resorted to. Steffeck

prefers the vaginal route, and selects vaginal section especially when, in young persons, he desires to retain the function of menstruation; extirpation of the adnexa alone, when the uterus is not involved; and the radical operation when double adnexal disease with involvement of the uterus is present.

R. Mourlhou is also in favor of radical operations, selecting the abdominal route and preferring supravaginal hysterosalpingo-oophorectomy to the total extirpation of the uterus unless vaginal drainage is desirable. He considers vaginal incision as only a palliative operation to be subsequently followed by a more radical procedure.

H. C. Coe recognizes as a palliative operation the propriety of vaginal incision and drainage in the sense that it relieves a patient from immediate danger. It is assumed by him that eventually a radical operation may be necessary. He, Schauta, and a few others, emphasize the advisability of complete ablation of the Fallopian tubes without leaving a stump.

Kuntzch, from Mackenrodt's clinic of Berlin, speaks in favor of conservative vaginal operations in gonorrheal adnexal disease, especially in the earlier stages after infection, because, first, of the lower mortality rate, and the greater probability that in instances of early operations the adnexa of one side will be found more often in a relatively healthy condition, so that they may be retained with such functional ability that subsequent pregnancies may ensue, which is not the case after purely conservative treatment or late operations.

From his description I am led to believe that plastic operations on suppurating tubes are not infrequently done. Twenty-four pregnancies following conservative operations on typical gonorrheal tumors are reported by him.

Henkel, from Olshausen's clinic, advises against the retention of the other Fallopian tube, even if it is only in a state of simple inflammation, if the one tube has changed into a pyosalpinx. It is advised to operate so that no stump is left and to cover the wound surface with peritoneum. The ovaries are retained when possible, but neither he nor any other operator, so far as I have been able to see in the literature, speaks of what disposition of the ovaries is made, so that I must come to the conclusion that they are left where they were after salpingectomy has been done.

CONCLUSIONS.

In gonorrheal affections of the Fallopian tubes, if operative treatment is necessary, all the features of the case must be taken into consideration. If the case is acute, and the vaginal fornix bulges from the accumulation of serous or seropurulent exudate as the result of the existing pelveoperitonitis, the patient should be treated on the same principle as we treat one with a pelvic abscess; a large posterior colpotomy should be made and exit given to the secretion. For this purpose the pelvic abscess instruments devised by me and made by the Kny-Scheerer Co., are superior and safer than those generally used. Then, with the fingers introduced through the opening, the Fallopian tubes should be palpated and at the most accessible part incised, the cavity washed out as well as possible under low pressure, and a strip of gauze loosely packed into the cavity. The uterus should then be thoroughly curetted and packed with medicated gauze. Finally, the cul-de-sac is also packed with iodoform gauze. The dressing should be changed as often as may be deemed necessary.

In cases of chronic suppurative salpingitis the abdomen should be opened if there is a probability of saving some part or parts of the adnexa. If a tube then on inspection should be found to be nonsuppurative, an attempt should be made to save it, but if a suppurative condition is present in a tube, conservatism should be desisted from. Such Fallopian tubes, if one or both ovaries are not transformed into such abscess that conservatism with the gland is out of question, should be *completely* removed. The ovary, if it can be separated from the tube, should then be implanted into the gap caused by the exsection of the interstitial part of the tube, and there fastened by a thin, plain catgut suture. If the ovary cannot be separated, but a portion of it is seemingly still fit for ovulation, the entire adnexa should be removed and that part of the ovary which it is desired to retain should at once be excised and transplanted into the uterine cornu. The existence of small cystic degeneration is no contraindication to an attempt to retain the entire ovary or a part of it. The connection of the gland with the ovarian ligament should always be left undisturbed if possible. Ignipuncture on such ovaries should only be used if the cysts are larger than a hempseed. Neither is the presence of a small circumscribed abscess a contraindication to the making of the attempt at

retaining ovarian tissue so as to preserve the function of menstruation. Pregnancy has not been observed in any of the cases so treated by me, but menstruation has invariably been continued, and in nearly every instance there has been a symptomatic cure of the patient. A curetting should always precede the abdominal work.

When it is evident that ovarian structure cannot be retained, a radical operation should be done. In this class of cases it is preferable to remove the cervix also, so as to eliminate positively all specific germs in the pelvic organs, unless one can conclusively satisfy himself that the cervical mucosa is free from gonococci. In most cases the symptoms brought about by the enforced premature climacteric subside in the course of three years or less. The sexual desire is seldom diminished; in fact, in a number of patients it is increased, though in the majority no change in this respect is produced.

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