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HISTORIES OF FOURTEEN CASES OPERATED UPON AND REPORTS ON SPECIMENS

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Reprinted from THE MEDICAL RECORD, *January* 24 *and February* 7, 1885

NEW YORK
TROW'S PRINTING AND BOOKBINDING COMPANY
201–213 EAST TWELFTH STREET
1885

DISEASES OF THE FALLOPIAN TUBES.[1]

In looking up the literature of salpingitis, minute descriptions of the pathological anatomy will be found in the writings of Kiwisch, Förster, Rokitansky, and later Martin Klob, Schroder, Henning, and other German writers; but little advance was made in the treatment until a few years ago, when Mr. Lawson Tait made known his wonderful success in removing diseased tubes. The writings of Battey and Hegar on removal of ovaries also had an influence in developing the proper plan of treating diseases of the uterine appendages.[2]

Dr. J. Marion Sims, for several years before his death, was much interested in the subject, and, as his assistant, I helped him in a number of cases. But it was not until I was appointed one of the gynecologists to Bellevue Hospital and began my clinics at the New York Polyclinic, in 1882, that I had an opportunity to study clinically a large number of cases. Since then I have made a careful study of the subject, and since May, 1883, when I did my first operation for removal of diseased tubes, I have operated upon fourteen cases for diseased uterine appendages, not including operations for ovarian or uterine tumors. Each of the fourteen cases were under my observation and treatment several weeks before the operation, and many had been kept in my ward at Bellevue three, six, and one

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[1] Read before the New York Academy of Medicine, January 15, 1885.

[2] The author does not desire to discuss the claims of Tait, Battey, and Hegar, but there can be little question that, among the English speaking profession, Battey first made plain that we should operate upon certain forms of ovarian trouble besides ovarian tumors, and Lawson Tait first taught us that we should and could remove diseased Fallopian tubes in many cases. Hegar may have done the same thing in Germany.

or two even nine months beforehand. By a careful study of each case and by the use of preparatory treatment to soften and relax the adhesions, I was able, in almost every case, to make a more or less exact diagnosis before operating. Of these, nine were operated upon in either the Sturges or the Marquand pavilion at Bellevue Hospital, the remaining five were in private practice. Twelve recovered and two died of septicæmia on the fifth day; the latter were hospital cases. Eight were cases of pyo-salpinx; two hydro-salpinx, and four catarrhal tubes with peritoneal adhesions. With one or two exceptions, there were extensive adhesions from local peritonitis and the ovaries were either diseased or more or less covered with adhesions, and, in three instances, abscesses were found involving the extremities of the tubes and the ovaries. Short histories of each case were read, and twelve of the fourteen specimens, with a report on the specimens by Dr. H. C. Coe, Pathologist ogist to the Woman's Hospital of the State of New York, were shown last night at the New York Pathological Society. Many other cases were kept under observation and clearly diagnosed, but either because the patients objected to the operation, or the subjective symptoms did not justify it, they were not operated upon.

I am satisfied that a careful study of the diseases of the Fallopian tubes will not only clear up most of those numerous and once incurable cases of local peritonitis (in this country commonly called cellulitis), but also most of the cases of retroversion, retroflexion, and lateral flexions with adhesions, and that their proper treatment will make plain the uselessness and danger of using pessaries in such cases. I do not mean to say that every case of local peritonitis will be found due to salpingitis, but that, in the large majority of cases, salpingitis precedes the local peritonitis, and that repeated attacks of local peritonitis are, as a rule, caused by salpingitis.

In my opinion when the frequency and the great importance of diseases of the Fallopian tubes is generally

understood, the fascinating teaching of the mechanical pathologist, namely, that most of the ills of women are due to uterine displacements, that the real disease is the version or flexion, and when this is corrected and the uterus is held by a pessary in an ideal normal position that all will be well, will fade to small proportions and the relatively few lines now to be found in our text-books on salpingitis will increase rapidly, and there will not be so many hundred pages on cellulitis, displacements, and pessaries.

Etiology.—Anything which causes endometritis may induce disease of the Fallopian tubes, and it is probable that in most cases salpingitis is due to an extension of disease from the lining membrane of the uterus directly to that of the tubes. In virgins it is comparatively rare, except from catarrhal disease. In imperfectly developed and delicate girls and women, the degenerate state of the mucous lining makes it an easy prey to catarrhal disease, and an endometritis may be extended to the tubes. Tubercular disease may also attack the Fallopian tubes.

Many of the profession, especially those who treat genito-urinary disease in the male, look upon gonorrhœa in women as a very trivial disease, probably because it does not produce urethral strictures. When Dr. Noeggerath read a paper on this subject before the American Gynecological Society, in 1876, his views on gonorrhœa may have been extreme, but on salpingitis they were well in advance of the general knowledge on this subject at that time, and now, if the gonococci causes the disease and he can find the gonococci in all, or in most of his cases of latent gonorrhœa, his theory will be proven to be true. There is no doubt but that gonorrhœa is a very frequent and in many instances an unsuspected cause of salpingitis. Among prostitutes this disease and septic endometritis following abortions, by causing salpingitis, accounts for the incurable sterility so universal among this class, even though they return to the paths of virtue. Early in its course, before the poison has reached the deep-seated

glands of the vagina, or the lining membrane of the uterus, it may be checked in its course by repeated applications of a solution of a mercuric bichloride or some other antiseptic, but when once it enters the uterus it cannot safely be treated locally until it has become subacute, for any attempt to introduce even a small probe may cause uterine contractions and pains which are pretty certain to be followed by local peritonitis within the next twenty-four hours, and the probability is, that this is caused by the tube becoming infected by the contractions forcing the poison in from the uterus. Even when treated with the greatest care, specific endometritis will in many instances cause salpingitis and local peritonitis. I have selected several well-marked cases and put them to bed, and watched the course of the disease from the vagina to the uterus, from the uterus to the tube and peritoneum. Salpingitis from gonorrhœa may result in active pyo-salpinx with a thick yellowish or greenish pus, or it may become chronic and the discharge gleety and thin in character. The tubes may close at the fimbriated extremity, and after the first attack of local peritonitis drain into the uterus, but frequently after a time the tube becomes distended on account of a stricture of the proximal end, and the patient may have repeated attacks of local peritonitis, indicating that the adhesions which nearly always seal up the fimbriated extremity have yielded or the poison in some way has reached the surrounding tissues.

Syphilis may cause salpingitis, just as it does otitis or ozæna. Some of the most obstinate cases of endometritis that I have ever seen have been in syphilitic subjects.

Septic poisonings after labor and abortions, especially after the latter, is a frequent cause of salpingitis. After abortions the cervix uteri is not so patulous as after full term labor, the cervix being more irritable and likely to contract and obstruct drainage, and any effete matter may be not only retained in the cavity of the uterus, but when the uterus contracts it may be forced into the Fallopian tubes.

It may be a disease that induces the abortion, and this extends to the tubes. Besides, after an abortion, neither the patient nor the doctor are as likely to keep up the usual precautions and give time for involution to take place. Sub-involution and endometritis are much more common after abortions than after normal labor. It is my opinion that in most instances it is through the tubes that septic poison causes local peritonitis. Septic material is, of course, often absorbed directly from the uterine tissues by the blood-vessels and lymphatics, but the poison is carried into the circulation, and does not directly enter the peritoneal cavity. Local peritonitis is much more common on the posterior surface of the broad ligament than on the anterior surface, for the tube opens on the posterior surface of the broad ligament. My experience leads me to attach much more importance to local peritonitis than local cellulitis, for, except after septicæmia, where the poison has become localized in the cellular tissue, producing a phlegmon, the cellular tissue is, as a rule, merely affected by contiguity with the inflamed peritoneal tissue, and I do not believe in so-called "chronic cellulitis." Hydro-salpinx may be due to other causes than venereal or catarrhal disease, but in what way it has not been made clear to me, although I must admit that I have seen some cases not satisfactorily explained by saying that it is the sequel of catarrhal disease or subacute inflammation. Small thin cysts may be found on the outside of the tube, but these more properly belong to the broad ligament. Diseased tubes are very commonly associated with diseased ovaries, and I think in most instances the disease of the tubes precedes that of the ovaries, and the diseased ovaries are but the result of an extension of the disease from the tubes to the ovaries and peritoneum. But certain diseases of the ovaries may cause disease of the tubes, such as cancer.

In several cases I have found cystic disease of the ovaries associated with catarrhal disease of the tubes, and it is this combination which I have noticed in the

worst cases of hystero-epilepsy. In fact, if I have a well marked case of hystero-epilepsy or hysterical patient to operate upon, I expect to find cystic or atrophied ovaries with catarrhal disease of the tubes.

Hemorrhages into the tube may result in more or less permanent distention, and anything which stops up or diminishes the size of the lumen of the tube may obstruct drainage and result in disease and distention.

Symptoms and diagnosis.—The subjective symptoms are very variable. A peculiar burning pain over the seat of the tube affected is, perhaps, more characteristic than any other symptom, but many patients have no such pain, and local sensitiveness and a dull pain over the tubes and ovaries is about the only constant symptom; sometimes a dragging pain or sensation will be present when the patient stands, or there will be backache and headache, such as is supposed to be due to displacement, which are so commonly associated with, and are often due to the diseased tubes.

Dysmenorrhœa is a common symptom in these cases, but in some the flow gives relief by lessening the congestion, and I am inclined to believe that the pain is often caused by the endometritis, or the result of the endometritis in producing contraction and hyperæsthesia of the mucous membrane, for in those cases where all stenosis and endometritis is cured by treatment, as a rule, the dismenorrhœa disappears. Menorrhagia or metrorrhagia is often associated with salpingitis, but I think it will most frequently be found to be due to vascular changes in the lining membrane of the uterus, and a thorough curetting with a good instrument may effect a cure, although great care must be exercised in preparing the case for operation lest the salpingitis be so disturbed as to start up peritonitis.

Sterility is the rule in salpingitis, and when both tubes are affected, which is usually the case, it is incurable, but when only one side is affected and the proximal end of the tube of the diseased side is closed, pregnancy is

possible and may go to full term, but as the uterus enlarges there may be severe local pain, and abortion is likely to occur.

Perhaps the most reliable indication of severe salpingitis is the occurrence of repeated attacks of local peritonitis, or active pelvic congestion without other evident good reasons for such attacks. Wet feet and exposure to cold may be an exciting cause and induce a catarrhal attack, and thus bring on endometritis, etc., but when exposure is followed by peritonitis, I would always look for a latent salpingitis or some such real cause.

Objective symptoms.—In acute cases there is usually so much swelling and tenderness that about all we can make out is a fulness or thickening of one or both broad ligaments, associated with more or less fixation of the uterus. Take such a case and keep her in bed until the painful symptoms completely subside. Then place thin pledgets of cotton saturated in pure glycerine against the cervix uteri two or three times a week, and, as the case becomes subacute, add alum to the glycerine and continue the pledgets for from three to eight weeks, and the inflammatory products will be so much absorbed or stretched that the uterus will become movable, and an expert may be able to define an enlarged tube or a mass that he can make out to contain a diseased tube or ovary more or less prolapsed and adherent in one or both broad ligaments. In subacute cases a diagnosis may be more easily made, but often a doubtful case can be cleared up by the same treatment recommended for acute cases. A diagnosis is especially easy when only one side is affected and the uterus is not retroverted. By the prolonged use of pledgets of cotton, soaked in a mixture of alum and glycerine, a distended tube can be readily defined by bmanual examination. Of course much will depend upon the thinness and laxity of the abdominal walls, and now and then a case will be found that, to get a clear diagnosis, it is necessary to examine the patient under ether. In some cases the floor of the

pelvis is so fixed by adhesions, and there is so much venous congestion or enlargement of the pampiniform plexus, especially of the left side, that a certain diagnosis cannot be made; a prolapsus of, or adhesions to the sigmoid flexure may complicate and make a diagnosis more difficult. In some cases of catarrhal tubes they are not distended, but feel like a thin band of adhesions. The ovaries are apt to be more or less cystic, or are often infiltrated and enlarged by inflammatory products, and are nearly always prolapsed with and folded under the tubes on either side.

Sometimes, when the proximal end of the tube is patulous, the discharge will enter the uterus, and I have seen one or two cases where, from an accurate knowledge of the state of the uterus and vagina, it could be made plain that the gleety discharge has come from the distended tube; after cleaning the vagina and uterus, fresh pus could be made to appear in the vagina by slowly pressing upon the distended tube. The fluid may escape intermittently into the uterus, and, if irritating, may set up each time an acute endometritis. Now and then a tube distended with fluid will empty a large amount of fluid into the uterus at once, which, for the time, flows freely from the vagina, and the tube will refill and again discharge.

Pathology.—In the literature of salpingitis comparatively little is to be found in English on the subject, and until very recently it was hardly mentioned in our textbooks. We are compelled to go to German writers, where, as before mentioned, we will find full and accurate accounts of the pathology. I will not attempt here to give the microscopical appearances, but to bring out more especially what may be called the surgical pathology. As has been before stated, salpingitis is nearly always caused by the extension of disease from the endometrium to the lining membrane of the tubes. Now, aside from the different character of the mucous membrane of the uterus from that lining the tube, the different shape,

size, and position of the tubes from that of the uterus also makes a marked change in the results of the same disease.

Inflammation of the endometrium causing enlargement of the uterus may result in displacement, imperfect drainage and parametritis, but this is not the rule; besides, the uterus is accessible and directly amenable to local treatment, while inflammation of the lining membrane of the tube which causes swelling is almost certain to result in prolapse of the tube and obstruction of the naturally small lumen, and thus cause imperfect drainage, and almost always induces peri-salpingitis on account of the open extremity emptying its contents into the peritoneal cavity. The tube cannot be directly treated; the lumen cannot be dilated, and perfect drainage secured as in endometritis. Hence salpingitis nearly always becomes chronic, in many instances lasting as long as the patient.

The first effect of disease reaching a tube, is to cause it to become engorged with blood; as it is loosely attached to the upper border of the broad ligament, it sinks lower in the pelvis covering or folding over the ovary, and as the beginning of salpingitis, after labor or an abortion, is so often associated with an enlarged uterus, this organ sinks lower, and as the patient during the acute stage is, as a rule, on her back, the fundus inclines backward. Now, suppose the uterus is enlarged, lying backward, and the disease affecting the uterus extends to the tubes, they swell, sag backward and downward, covering the ovaries, and as soon as the discharge or the disease reaches the peritoneum through the open end of the tube the peritoneum becomes inflamed, lymph is thrown out, gluing the different organs together. As the acute stage subsides, the lymph contracts, bands of adhesion draw and distort the organs, and the folded, twisted, and adherent broad ligament holds the uterus in its backward displacement. As a rule, the peritoneal tissue covering the fundus is not adherent to the tissues behind

the uterus, although this seems to be the case when an examination per vaginam is made. The uterus may sink lower, being drawn down by contraction of the adhesions, and it may become retroflexed when the adhesions are extensive and the contraction great. Again, the tube being smaller and displaced, the lumen is stopped, the discharge accumulates, distends, and leaks into the peritoneal cavity, a fresh attack of peritonitis sets in, more lymph is exuded, and as the acute stage subsides the tubes and broad ligaments are rolled back and folded in more and more; as the contraction goes on, the tissues harden and the tubes may form strong cords, which, being adherent to the floor of the pelvis, fix the uterus in its retroflexed and retroverted position. Thus we have cases of retroversion with adhesions, and it is the rolled up ligaments and the tubes which fix the uterus backward; and it is the imbedded ovary and diseased tube in the hardened tissues of the broad ligament which makes it next to impossible to insert a pessary and hold the uterus up without causing pain and running the risk of bursting or tearing a tube distended with septic or irritating fluid. By great patience and time, in many cases we can stretch the ligaments, and by force get the fundus uteri into that ideal normal position, but to keep it there is the rub; the rolled up broad ligaments won't unroll, and when put on the stretch by the uterus being held up by force, they soon begin to ache, inflame, and may cause local peritonitis.

Now suppose only one tube is affected, the retroversion will be less, and if the other side is not affected the uterus may be even a little anteverted, unless the inflamed tube drops to the floor of the pelvis. If the ovary and the tube of the affected side are prolapsed and inflamed, as contraction takes place the broad ligament is shortened, especially on its lower side, and unless the tube and ovary are very much distended, so as to displace the uterus bodily, the cervix is drawn to the affected side, the fundus being tipped toward the healthy or less affected

side, which is usually the right side, and the swollen ovary and tube may be forced backward somewhat behind the uterus. When one side only is affected, it is usually the left; the circulation on this side, from the formation of the veins and the proximity of the often-distended intestine to the left broad ligament, seems to make it more susceptible to congestion, prolapses, and disease than the right side. When both tubes are involved, the left is probably the first to become affected, this, together with the natural position of the uterus being that with the fundus inclining slightly to the right of the centre, accounts for the fact that where both tubes are affected and the uterus is not retroverted, the cervix is drawn to the left and the fundus to the right, the left ovary and tube being prolapsed, and the right usually much less prolapsed. In nulliparous women, especially in those cases where the uterus is anteverted or anteflexed, and where the disease is gradual in its progress, this condition of right lateral flexion with the fundus forward is most likely to be found, whereas, after labor and abortions salpingitis is more frequently associated with retroversion. Sometimes the prolapsed tube, especially on the left side, is adherent to the sigmoid flexure or to the small intestine, and the omentum may have slipped down, especially when the uterus is retroverted, and become adherent over and in front of all the pelvic organs, when it has been thickened and the blood-vessels greatly enlarged by repeated attacks of local peritonitis or general peritonitis. To the inexperienced it is a formidable barrier; years ago I saw even Dr. Sims close the abdomen rather than run the risk of going through it to reach the ovaries beneath it. These are the cases where eminent men will tell you that they opened the abdomen, but could not find the ovaries and tubes, therefore closed it. When describing the operation, I think I can make it plain that by a simple procedure this apron of blood-vessels can be safely removed. It has enabled me to complete the operation of removal in

even the worst cases. Where the local peritonitis is limited, as the tubes open near the ovaries which protrude through the posterior surface, the adhesions are, as a rule, confined to the posterior layer of the broad ligament, this accounts for the rarity with which the bladder is affected by the adhesions. The ureters are not uncommonly affected by the adhesions, especially when the adhesions are low on the floor of the pelvis, and in tearing up very old and firm adhesions the ureter may be lifted up (on one occasion it would have been tied had I not recognized it as it was lifted up by the operator).

Now, as to the tubes themselves, in cases of simple catarrh, especially those associated with cystic ovaries—a combination which seems to be the most certain to produce hystero-epilepsy, hysteria, and all kinds of reflex disturbances—the tubes may be very little enlarged, but very vascular and adherent, with the lining membrane in a mild catarrhal state. Later in the disease, more commonly the tube is distended by fluid and enlarged from the size of a lead-pencil to enormous dimensions, with the fimbriæ turned in and the end of the tube closed, or the fimbriæ may be spread out and adherent to the surface of the ovary, the latter acting as a plug to the mouth of the tube. The end of the distended tube may be adherent to the side of the pelvis, or the floor of the pelvis, to an intestine, or even to the other tube. The distended tube may be, and when large is, more or less convoluted, sometimes constricted at one or more parts, and usually with the outer end much larger than the proximal end. The fluid distending the tube may be clear, transparent, watery fluid, or milky or gleety, or thick greenish colored pus, or thin broken down pus. Ciliated epithelium is the chief microscopical characteristic of the clear fluids. When the tube is greatly distended and the adhesions slight, it is usually a hydro-salpinx, but when large with many adhesions it is likely to be pus that distends the tube. In my cases, in the majority of instances the tubes were infiltrated with pus and serum, and degenerated

rather than distended. In those where abscesses were found formed in the substance of the ovaries and tubes, the tissues were so rotten that in tying them off the ligatures cut through the degenerated stump, and I was compelled to pick up the arteries and tie them one by one. These might fairly be called cases of pelvic abscesses. In old cases the tissues may have atrophied and contracted down so that it is difficult to remove all of the ovary and have a stump long enough to hold the ligature. In most cases the ovaries are covered with the inflamed tube and shreds of adhesions, and in pyo-salpinx they may be inflamed and filled with small abscesses or infiltrated with pus, and are sometimes so degenerated that they are torn to pieces in being removed. Sometimes the interstitial tissue of the ovary is affected, and may be hardened and contracted, or the ovary may be found abnormally small and atrophied, but the most common condition of the ovaries, if affected by an independent disease at all, is that of cystic degeneration; usually the cysts are numerous—small ones filled with a gummy, translucent fluid. Superficial cysts with thin fluid are very commonly found, but deep-seated central cysts may fairly be called cystic degeneration, and it is to this class I refer when speaking of cystic degeneration of the ovaries.

In some cases, the cellular tissue may be infiltrated and thickened by lymph, but the preparatory treatment almost always, more or less, completely removes this lymph, and the real adhesions that bind and twist the organs out of place will be found to be peritoneal.

Prevention.—When the etiology of any disease is well understood the prevention is plainly indicated. It is important that the general health and strength of girls while developing into women should be kept up, so that the generative organs will fully develop and resist catarrhal disease. When there are symptoms of catarrhal disease, such as leucorrhœa and dysmenorrhœa they should be treated early, before it has reached the Fallopian tubes,

and if the endometrium is affected by disease the uterine canal should be kept patulous so as secure perfect drainage, and thus lessen the chance of the disease entering the Fallopian tubes. The serious nature and the almost certain consequences of venereal diseases should be explained to and impressed upon all young persons, and definite instructions should be given, especially to all male patients suffering with gonorrhœa, to avoid intercourse until complete cure is affected. No doubt many of the cases supposed to be due to septic poisons after labor are really caused by gonorrhœa contracted from husbands who have been led astray while deprived of their usual indulgence during the confinement of their wives. The serious consequences of even a slight septic endometritis in causing a salpingitis makes more forcible the great importance of cleanliness and the use of antiseptics or any other means that may lessen the chance of puerperal septicæmia. We know that subinvolution rarely exists without, sooner or later, the development of endometritis, and instead of taking it for granted that when a woman has passed the ninth day after labor that the doctor's responsibility in the case is at an end, every lying-in woman should be examined locally before she is allowed to go about her usual duties, and it is safer to keep the woman under observation until the uterus is normal in size, position, and condition, before dismissing her. If treatment is needed, it is better to begin it not later than the end of the second week after labor. A few stimulating applications of glycerine and alum made twice a week during the third, fourth, fifth, and sixth week after labor will prevent subinvolution, retroversion, endometritis, and a salpingitis in a delicate or weak woman that without it would be pretty certain to be affected with one or more of these serious affections.

When we have an endometritis it is especially important that we should secure perfect drainage from the uterus. After abortions the greatest care should be taken to prevent septic infection and insure removal of all the

placenta and membranes. Especial care should be taken to secure perfect involution and drainage of the uterus, for after labor nature generally accomplishes this without help, but not so in abortions. Labor is normal, but abortions are abnormal, and must be regarded as almost certain to result in disease.

Treatment.—During the acute stage complete rest in bed is the best treatment; anodynes and counter-irritants may be used; as the active symptoms subside, I begin the application of thin pledgets of cotton saturated in pure glycerine and applied to the cervix and vagina; they are left in place twenty-four hours, then removed and a douche of hot water given; on the third day another pledget is put in, and this is kept up for a week or two; and later a solution of one part of boro glyceride, one of alum, and fourteen of pure glycerine is used to saturate the cotton in place of pure glycerine. After a week or so this softens out the products of inflammation and renders the uterus more movable, and enables one to make a more accurate diagnosis. It improves the circulation, and often gives, for the time, more or less complete relief to all the local symptoms. While this simple local treatment is given, close attention should be paid to the general health, and the condition of digestion, and especially the bowels, should be carefully regulated, for impacted fecal matter in the lower end of the descending colon or rectum may materially add to the pain and the effects of the disease by pressing directly on the left broad ligament.

After getting the uterus movable, so that it can be pulled pretty well down with the tenaculum without causing much pain, it will be safe to sound the uterus, and, if the canal is contracted and hyperæsthetic, it should be gently dilated so as to secure good drainage and enable applications to be made to the mucous lining. If there is a history of excessive hemorrhage, and it is not corrected by tincture cannabis indica, twenty gtts. given twice a day, if the uterus can be gotten movable by the use of the medicated pledgets, it will be safe to curette

the uterus for the removal of granulations. I would always give the above treatment as preparatory to operation, except in those cases where the diagnosis was plain and indicated immediate action to prevent rupture of a painful cyst, or to prevent septic poison and death after rupture. In these cases I would resort at once to the operation for removal. Aspiration through either the abdominal wall or vagina can give only temporary relief by evacuating the contents of a cystic tube or ovary, but there is some risk and little or no permanent good attained. Where a large amount of pus had accumulated in three cases, and abdominal section would not be permitted, I have resorted to a simple method of opening and draining. With a long and curved trocar I punctured the walls of the abscess, being careful to pass the trocar directly behind the cervix so as to avoid large blood-vessels and the ureters. After passing the trocar the canula was withdrawn and the pus evacuated, and the cavity repeatedly washed out with solution 1 to 5,000 mrc. bichl. With canula still in place, I turned patient on her side in Sims' position, and introduced Sims' speculum in the vagina; then I passed through the canula a small probe without a handle, and slipped the canula out over the probe, using the probe as a guide; with Sims' uterine dilator I dilated the opening so that I could pass my finger into the abscess. By means of a pair of slender forceps I carried into the abscess a large-sized drainage tube of soft rubber; in this way I avoided the use of a knife and the risk of cutting a blood-vessel or the ureter. To prevent the tube from slipping or being forced out as the cavity of the abscess contracts I passed a silver suture through the posterior lip of the cervix and the wall of the drainage-tube and tied the tube to the cervix. The cavity was washed out with an antiseptic solution as was indicated by the discharge and temperature of the patient; as the discharge diminished, the large tube was replaced by a smaller one, and the opening kept dilated until all drainage ceased.

One of the three cases seemed to be permanently cured and all were helped, but I would not advise this treatment, except in those cases where abdominal section is not allowed, or where there seems to be only one large cyst, such as is sometimes found following a broken-down hæmatocele. In most cases the abscess or distended tube is too small to be reached safely in this way. If, after opening the abdomen and finding a large pus cavity, I wished to make a counter-opening through the vagina, I would make a small opening with a trocar and then dilate it with dilators. In case of a large pelvic abscess pointing toward Poupart's ligament, I would open by an incision in the groin and would not enter the peritoneal cavity above the abscess, except to secure complete removal or to get perfect drainage.

When diseased tubes are plainly made out and the patient is bedridden, or suffers to such an extent that after being clearly informed as to the effect and danger of the operation and consents, then we consider complete removal of both tubes and ovaries, if both sides are affected, to be justifiable. By softening the indurated tissue and improving the circulation of the pelvis we can help but not cure. By atrophy and absorption nature may cure, but chronic invalidism usually comes before nature has effected a cure. Or, by the bursting of a distended tube, general peritonitis and death may follow instead of the usual attack of local peritonitis. Many a case of so-called idiopathic peritonitis has been caused by the bursting of a diseased Fallopian tube, and the patient might have been saved by a bold surgeon even after the peritonitis set in.

Operation for removal.—I do not expect to improve upon Mr. Tait's work as an operator, but I think I can make the operation easier to others by describing a methodical way of doing the operation for removal of the tubes and ovaries, in cases where the adhesions are extensive.

After giving the preparatory treatment with glycerine

and alum pledgets as described, and having decided that an operation is proper, I have the patient's bowels well emptied and put her on pancreatized milk diet with very little other plain food for three or four days previous to the operation, the object being to remove all impacted fecal matter, and to lessen the amount of gas in the intestines, for the latter may be very troublesome by crowding down around the pelvic organs and out through the incision in the abdominal wall during the operation. When well prepared, there will be little or no gas in the intestines, and they will be found to be like so many slippery ribbons. The day of the operation the bowels should be well moved, but not excessively.

In all surgical practice I would place cleanliness first, drainage second, rest third, and antiseptics fourth. If we could be perfect in cleanliness, antiseptics would be useless. Some of us are willing to be considered fallible and use antiseptics to make up for it. Before Lister made perfectly plain the necessity of cleanliness and proved the value of antiseptics, not many of us were so particular about cleanliness, nor did we know how important it was to success in surgery. Cleanliness is better than antiseptics, just as prevention is better than cure. Before Lister's teachings, what surgeon spent hours in cleaning instruments and sponges, and placed over wounds a thick layer of absorbent cotton-wool? Cotton-wool is known to be the best thing to prevent the passage of germs and their spores, and he who uses it for dressing wounds carries out the principles taught by Lister.

Before operating, my patient is thoroughly bathed and clean clothing for her body and bed ordered; just before being etherized, one-quarter to one-third of a grain of morphine is given hypodermically. When under ether, the abdomen is shaved well down to the pubic bone, and thoroughly washed with soap and water, and before the skin is cut, again well washed with a solution of one to five thousand of mercuric bichloride. Instruments are

all kept in solutions of one to twenty No. 1 Calvert's acid. carbol., and sponges in a solution of one to ten thousand of mercuric bichloride. Besides the operator only four assistants are needed: one to give ether, one to handle instruments, one to clean sponges, and one to stand opposite the operator and sponge. Ordinarily the man to hand instruments can be dispensed with, and I do not use any one for this purpose except in my hospital clinics, for of course the number of persons helping adds to the danger of infection. All assistants are required to wash as clean as possible, and use solution of bichloride afterward.

In putting the patient on the operating table, I place a soft pillow under the shoulders and one under the head, and have the feet so fixed as to keep the knees about level with the abdomen. This relaxes the abdominal wall to some extent. The bladder is emptied, and the abdominal incision is made just above the pubes. The length of incision in the skin being from two and one-half to three inches, according to the amount of fat in the abdominal walls, the opening in the peritoneum being only large enough to allow the free use of my index and middle fingers at the same time. This opening is rarely made larger, unless the size of the distended tube or ovary makes it absolutely necessary in extracting them. A larger opening is avoided, because it adds to the risk of septic poisoning, and makes ventral hernia more likely to follow. When ovarian and other large tumors are removed, the abdominal walls are relaxed, and there is less tension on the sutures and perfect union is more readily secured than in those cases where the abdominal pressure is normal.

When the subperitoneal fat is reached, it may be troublesome to get through it, for there is no distended tumor directly underneath it to keep away intestines and hold the many layers of the peritoneum together, and where gas is in the intestines this difficulty is increased. Where the omentum is free from adhesion, it can be pushed up

as one would the end of an apron. When it is adherent, as it often is, to the broad ligament and anterior wall or top of the uterus, it cannot easily be separated by pulling it from below upwards, but by passing the two fingers well to one side and getting them underneath, and separating the adhesions, many formidable looking cases can be easily managed. As the adhesions separate, they should be lifted through the opening and any bleeding points tied. The principal vessels in adhesions of the omentum come from those of the omentum, and not from the pelvic organ ; therefore, the end of the omentum is the part to be tied. If the adhesions are strong and vascular, as they may be in those cases where there have been repeated attacks of local peritonitis, then the omental adhesion can be tied off, tied first as low as possible, and then a little above this, and cut between the ligatures. By pulling the sides of the abdominal opening laterally with retractors, we can do this without enlarging the opening in most cases. In handling and tying the omentum, care should be taken not to split or tear it, for it will invariably bleed up in the angle of the split, and may be very troublesome. Where the uterus is retroverted, the removal of the omentum, as a rule, frees the anterior part of the fundus and the anterior face of the broad ligaments ; often the small intestines will have to be separated, but are not often firmly adherent. The next step is to elevate the uterus by placing the fingers behind it. The back of the fundus may be adherent, but, as a rule, it is free and is held back by the twisted and rolled up state of the broad ligaments. The ovary will be found folded under the tube and broad ligament, and to get it up we must go down through the broad ligament, or we must unroll the broad ligament. I have seen the former done several times, and it always adds greatly to the length of the operation, and necessitates tearing or tying off the outer attachments of the broad ligament before the tube can be gotten up and tied off with the ovary. Now, by putting both fingers directly

down behind the uterus, and running the fingers laterally, guided by the Fallopian tubes, as it is given off from the uterus, and gradually separating the adhesions and unrolling till we get under the ovary, the tube and ovary can be gotten up easily in the worst cases; where the adhesions are very firm, an assistant's finger in the vagina as a guide may be useful, for in scratching loose the adhesions the ureter may be lifted up, and the sigmoid flexure or rectum may be torn up, for it may be adherent to the tube or ovary on the left side. When both sides are adherent it may be well to lift up both sides before tying either; although in some cases, where the bleeding is free, it may be better to tie the first one lifted up. In three cases I found the tissues so degenerated that my ligature cut through, and compelled me to slightly enlarge the abdominal opening and tie the arteries after picking them up with a bull-dog forceps. Where the tissues are frail and ligatures inclined to cut easily, it is safer to remove the tissues and tie the arteries separately. Two or three arteries will usually be found. Where the broad ligament is much enlarged, we may tie with two ligatures, one double ligature including the ovarian ligament and the tube within half an inch of the fundus, the other single and tying off the outer end of the broad ligament. The pampiniform plexus may give trouble, but I have seen it so degenerated as to pull to pieces in being tied. I use firmly twisted Chinese silk, and prefer to pass the ligature with a needle something like an aneurism needle, with a sharper point and longer handle than those found in the shops, to carry a double thread.

In tying, except in cases where one double ligature will suffice, I do not use Mr. Tait's Staffordshire knot, but I cross and interlock the two loops of all my double ligatures, and so far I have never had a ligature slip after the operation. After tying, before cutting off the tube and ovary, I catch the tissue with pressure-forceps close to the ligature, so that I can cut off my ligatures and not be tempted to use them to lift up the pedicle after

being once tied. Besides enabling me to keep the pedicle in sight, these forceps act as guides in cutting away the tube and ovary. Often the ovarian ligament is so short that it is not easy to get a satisfactory stump left and cut off all the ovary. I like to have a Paquelin cautery on hand, so as to touch any suppurating end of a tube in a stump or ovarian tissue that may be left on it after tying. The tubes and ovaries of both sides should be removed if there is the least sign of salpingitis; but in two cases I found only the left side affected, the right tube and ovary being free from even a single adhesion, and I removed only those of the diseased side.

The cavity should be thoroughly dried with sponges and time given for hemorrhage to make itself manifest before the wound is closed. Where there are extensive adhesions or any pus cavity disturbed, or especially where there is any ascites, a drainage-tube should be put into the pelvic cavity. I prefer a large-sized tube of glass with some small holes in the sides besides the ends being open, and I use a large-sized catheter attached to an ordinary syringe for washing out the tube when needed. If there is no drainage I remove the large tube in thirty-six hours and slip a small rubber drainage-tube in its place, and the next day a still shorter and smaller one, each day until about the seventh day, when the opening will usually be filled up from the bottom. In introducing the sutures in the abdominal wall, I am careful to secure not only perfect coaptation of the peritoneal coats, but also of the deep and thick abdominal fascia, for if good union of this is secured the risk of ventral hernia is very much lessened; for it is this tissue and not the muscles, which are longitudinal, that gives strength to the abdominal wall in the median line. For thirty-six to forty-eight hours nothing is allowed to be taken except teaspoonful doses of water or broken ice, and enough morphine is used to prevent pain and restlessness, for several days. An enema is usually given on the sixth day to move the bowels, and sutures are removed on the eighth day.

Either medium silk or silver wire is used in sutures for the abdominal walls.

If the abdominal walls are thick from adipose tissue, as a rule, the peritoneum will be found tense, and require more than usual care in closing properly. In such a case, after putting in from three to six silk sutures through the skin, fascia lata and peritoneum, the peritoneum should be carefully closed with catgut sutures, and the fascia lata also separately closed in the same way. Then the first silk sutures should be closed, leaving room between them, in two or more spaces, for short drainage-tubes placed upright so as to drain the adipose tissue between the fascia and the skin. Or if the walls are closed by silk sutures in the usual way, the skin, a little to the side of the cut, should be punctured so as to give vent to the grease that is certain to escape from the more or less bruised adipose tissue. I have seen mural abscess caused by this free fat, and it might enter the peritoneum and cause greater trouble. After sewing up and cleaning the wound, it should be freely sprinkled with iodoform and covered with a layer of absorbent cotton that has been squeezed out in one to five thousand mercuric bichloride, and over this several layers more of dry absorbent cotton, so that the whole abdomen will be evenly compressed when the adhesive straps and band are put on. Over the cotton a folded towel and mackintosh are placed, and firmly compressed by adhesive straps and a bandage. Except where a drainage-tube is inserted, this dressing can remain until the eighth or ninth day, when the sutures are removed, unless oozing appears through the dressing, or a rise of temperature takes place indicating septic poisoning, etc. In cases with extensive adhesions or in pyo-salpinx, especially where the tissues are infiltrated, we must expect a moderate rise of temperature during the first two or three days, caused by the small amount of septic material left in the pelvis ; but this is readily absorbed and the local peritonitis caused by it soon subsides, and on the fourth or fifth day the tempera-

ture falls. When the case fails to rally well, and has a temperature at or below normal, or in some cases where all symptoms are favorable and temperature low until the afternoon of the third or on the fourth day, the temperature makes a steady rise, you have, as a rule, a fatal case of septicæmia to deal with, that death alone will stop—which it usually does inside of two or three days. Sometimes a case begins as a local peritonitis and gradually spreads to general peritonitis, vomiting, and death. Still, I think the proper name for such a case is septicæmia.

Complications.—As endometritis nearly always precedes salpingitis, it is necessarily a frequent complication. It is rare to find salpingitis uncomplicated by local peritonitis, and this, by the formation and contraction of bands of adhesions, distorts and displaces the pelvic organs and makes more or less permanent any displacement that may have previously existed. This was fully brought out in describing the treatment. The most serious and dangerous complication is the rupture of a tube distended with septic fluid, causing general peritonitis and septicæmia. Should this happen and be diagnosed, or be indicated as the probable cause of peritonitis, it would be proper to open the abdominal cavity, remove the tube, and wash out and drain the peritoneum. The inflammatory process may become so intense in or about the tube as to cause the tissues to break down, and form so large an abscess that the surrounding tissues lose the power to protect themselves, and a perforation takes place into the rectum, vagina, abdominal wall, or through one of the openings in the pelvis, or into the bladder. This necessitates enlarging the opening to secure drainage, and often before a cure can be effected counter-openings are necessary, and if these fail, an operation for removal must be resorted to.

NEW YORK ACADEMY OF MEDICINE.

Annual Meeting, January 15, 1885.

FORDYCE BARKER, M.D., LL.D., PRESIDENT, IN THE CHAIR.

DR. W. GILL WYLIE read a paper entitled,

DISEASES OF THE FALLOPIAN TUBES: THEIR RELATIONS TO UTERINE DISPLACEMENTS AND THE USE OF PESSARIES.

DR. E. NOEGGERATH was invited to open the discussion, and said that he had listened with a great deal of pleasure to the scientific and practical paper of the evening, and that while there were very many difficulties and a great variety of opinion concerning the investigation of this class of cases, he would only direct attention to a few points which were still the subject of discussion.

First, he would repeat what had already been stated at the International Medical Congress of Copenhagen, that it was a misnomer to call the operation "Tait's operation." Hegar, in September, 1879, reported forty-two cases in which this operation was performed, with or without the removal of the tubes and performed to meet the same indications. Therefore, if Tait was to receive any mention in connection with the operation, it should be simply as to the number of cases in which he had operated.

Dr. Wylie had asked whether always in cases of salpingitis the disease was caused by gonorrhœa. Dr. Noeggerath had investigated this subject, and made special researches in this direction for the purpose of

demonstrating the presence of the gonococcus. Now, the gonococcus is a diplococcus, and of these four different species had been described as existing in the vagina. As yet, however, we had not been able to obtain a gelatine in which the gonococcus could be cultivated. Dr. Noeggerath had already tried four different kinds of gelatine and had had not yet been satisfied with the results—the microbes obtained by culture did not resemble the original ones. He had also compounded a coloring material which stained the gonococcus a peculiar red color, and the other tissues of a different color, but he had failed in this respect, because, as he now believed, in the uterus after a certain time—say six, eight, or ten weeks—if there be gonococci they exist in such small numbers that the micro-organisms can be demonstrated only by culture in gelatine, which as yet he had not succeeded in doing.

He could not say, therefore, whether the secretion of gonorrhœa in its chronic state was simply the result of a paralytic condition of blood-vessels, originally produced by the gonococcus, or whether the gonococcus still existed in small quantities, producing emigration of leucocytes. The demonstration of the gonorrhœal origin rested as yet only upon clinical facts.

As to the connection between salpingitis, perimetritis, and uterine dislocation, if there was anything which was characteristic of salpingitis and perimetritis, it was lateral version combined with anteversion.

He did not doubt that Dr. Wylie had seen retroversion with pyosalpinx, as there were probably such severe cases, but they were the exceptions.

If there existed nothing else upon which to make a diagnosis of salpingitis, the fact that there was diminished mobility of the uterus, with anteversion, or with light lateral version, and a certain form of uterine catarrh, was sufficient. Furthermore, with regard to retroversion, he was well aware that, eight or ten years ago, a certain number of gynecologists were of the opinion that this

dislocation, without the existence of adhesions, was a rarity. He did not, however, regard it as such, and believed that in ninety per cent. of cases of retroversion the uterus could be replaced and kept there, and that those cases in which it could not be replaced, in consequence of adhesions, were very rare.

With regard to the diagnosis of salpingitis, we had to divide the cases into two classes : first, ordinary salpingitis with slight exudation, and, second, the disease in its later stages, where we had pyo- or hydro-salpinx.

In the first instance it was not necessary at all to feel the tube, but if there was decided perimetritis, with catarrh, minute condylomata about the hymen and labia minora, and erosion around the orifice of the vulvo-vaginal glands, we knew that salpingitis existed, because the cases where perimetritis existed without salpingitis were so extremely rare that those cases in which it did not belonged to the exceptions.

In the second instance, the *shape* of the tumor was of great importance in diagnosis. The tumor in salpingitis was, as a rule, not a single one, but a tumor divided into two or three sections, and of the shape of a cone running in the direction of the lateral diameter of the pelvis. In very doubtful cases we could touch the tubes directly by the recto-vesical touch.

The large majority of cases of salpingitis were not ready for surgical operation, and the treatment in such cases was very much like that described by Dr. Wylie ; but there was one mode of treatment which he had found most efficient of all, and that was the prolonged use of the waters of Franzensbad, in Bohemia.

Dr. A. J. C. Skene said, with reference to pathology, that he accepted the position taken by Dr. Noeggerath, and, so far as his observation went, it was rare to see disease of the Fallopian tubes without having been preceded by gonorrhœa. On the other hand, he was inclined to take issue with Dr. Noeggerath with regard to the rarity of the occurrence of pelvic peritonitis without disease of

the Fallopian tubes, for he thought that such cases occurred not infrequently.

With reference to the question of diagnosis, Dr. Skene accepted what had been stated by Dr. Wylie and Dr. Noeggerath, but the practical difficulty seemed to be in distinguishing between simple ovarian cysts in the prolapsed condition and pyo- or hydro-salpinx; perhaps the difference was most marked with reference to hydro-salpinx. There was one point to which attention had not been directed, and that was differential diagnosis by aspiration. If it was true that ciliated epithelia were so generally present, what objection could there be to removing by aspiration a portion of fluid and examining it under the microscope? Out of twenty-one specimens which he had examined, ciliated epithelia had been found in eighteen, thus indicating the condition that was present.

This fact also raised a question with regard to treatment. If the operation for removal of the tubes could be avoided—an operation which, to his mind, was something of a fearful necessity—it was certainly a step which no one would hesitate to take. After aspiration, a hydro-salpinx might not refill, and the aspiration might be followed by recovery. If the diseased tube could be thoroughly evacuated, the chances were that the cases would terminate in recovery in many instances. He thought, therefore, it would be well, many times, to try aspiration more thoroughly than it had yet been tried, both as a means of diagnosis and as a means of treatment.

Dr. P. F. Mundé, since he had had opportunity to follow out Dr. Noeggerath's teachings, and since Tait had published his successes in operating, had investigated this class of cases with special reference to diagnosis, and it was yet the one point upon which he was not at all satisfied. Dr. Wylie had been unable to give any new information on this part of the subject, and Dr. Mundé thought it was impossible to make a diagnosis in the very cases in which it was most desirable. In cases of

pyo- and hydro-salpinx, the diagnosis could be made either with the fingers or by the use of the aspirator. The cases in which diagnosis was most desirable were not those in which there was a soft sausage-like tumor that could be distinctly felt, but they were those where there existed a diffuse thickening or infiltration of the tissues in each side of the pelvis, in which the patient complained of pain upon pressure, and pain at irregular intervals, with, perhaps, discharges of small quantities of pus. It was in such instances that the diagnosis was most difficult, and in those cases Dr. Mundé believed that the only positive assurance on this point rested in exploratory incision.

Furthermore, he did not believe yet that laparotomy would be very frequently performed. So long as we have no means of making a clear diagnosis, the operation will not be as popular as could be wished.

With regard to the influence of inflammation of the tubes upon uterine displacements, he agreed with Dr. Noeggerath that lateral displacements were the most frequent, but he had seen retro-displacements after chronic salpingitis, and thought that while they were not as common as lateral, they were more frequent than anterior displacements.

Concerning adhesions, he agreed with Dr. Noeggerath, that in the majority of cases of retroversion the uterus was not adherent.

With reference to treatment other than by laparotomy, Dr. Mundé thought we were rather at loss, and that but little could be done. He had in some cases in which there was nothing but a diffuse swelling, seen more benefit follow the local application of the constant electric current than from any other means, using from twelve to sixteen cells of the ordinary battery, with sittings of from fifteen to twenty minutes every day or every other day. The benefit which had followed this treatment, according to his experience, was not in the way of greatly diminishing the exudation, or in reducing the adhesions, but in allaying

the pain. This, however, did not cure pyo-salpinx with distinctly diseased tubes.

From our present stand-point he thought that Dr. Wylie's paper had been so complete as to leave but very little to offer in the way of discussion.

Dr. Wylie felt satisfied that if Dr. Mundé would take the pains to adopt his method of preparatory treatment, in those cases in which there was a marked diffuse induration, with fulness in the iliac regions, the diagnosis would become quite easy. In his first cases he was in doubt, as was Dr. Mundé, but in his later cases he had, by the use of glycerine and alum applied on a thin pledget of cotton two or three times a week, been able to so reduce the thickening as to enable him by digital examination to diagnosticate the exact condition of affairs within the pelvis.

Dr. Wylie doubted if hydrosalpinx would be cured by aspiration. With reference to diagnosis by means of the aspirator, he thought that, as a rule, if there was a large tumor, either a dilated tube or a cystic ovary, it would be much safer not to tap, as Tait had so well observed, abdominal tumors upon which it was proposed to operate. Probably it was only in the cases in which there was a single cyst in which any benefit would be obtained. With reference to retroversion being associated with salpingitis, he thought that, in women who had never borne children, lateral version of the uterus was the most frequent displacement; but that in the majority of cases occurring in women who had borne children, especially where there was salpingitis due to septic endometritis, retroversion was almost invariably present. His experience, therefore, was that, in cases in which salpingitis arose from septic-poisoning, retroversion was a frequent accompaniment.

NEW YORK PATHOLOGICAL SOCIETY.

Stated Meeting, January 14, 1885.

GEORGE F. SHRADY, M.D., PRESIDENT, IN THE CHAIR.

CASES OF SALPINGITIS—RESULTS OF OPERATION.

DR. W. GILL WYLIE exhibited a number of specimens of salpingitis removed by laparotomy, and made the following remarks:

"MR. PRESIDENT: I will read short histories of fourteen cases of salpingitis which I have operated upon since May, 1883, and I have here for presentation the specimens from twelve of these cases, with a report on each by Dr. Henry C. Coe, Pathologist to the Woman's Hospital of the State of New York. Nine were operated on in Bellevue Hospital and five in private practice. Twelve of the fourteen recovered, and two died from the effects of the operation. Both of the latter were hospital cases, and both died on the fifth or sixth day from septicæmia.

"CASE I.—Mrs. R——, aged thirty-two, married, the mother of two children, has had two miscarriages. Her present trouble dates from an abortion, three years ago, although she has always suffered from more or less dysmenorrhœa. She complains now of severe dragging pains on both sides of the pelvis. Two years ago she underwent an operation for lacerated cervix. Examination reveals the uterus movable, but retroverted, the tubes and ovaries prolapsed, sensitive, enlarged, and easily made out, while by slowly pressing the left tube a gleety pus can be made to appear in the vagina. Operation,

May 26, 1883. She made a good recovery from operation.

"*Examination of specimens.*—Both tubes are found dilated and adherent to the corresponding ovaries, which appear to be the seat of a chronic ovaritis. The distal end of one of the tubes has been so fused with the ovary, as the result of old inflammations, that the fimbriæ and opening have been entirely obliterated. In the other tube, which is less dilated, the lumen is patent. Microscopic examination of the contents of the most diseased tube showed it to consist largely of pus and fatty degenerated epithelial cells. A few ciliated cells were also noticed. A small amount of pus was observed in the fluid taken from the other tube.

"Notwithstanding the fact that both tubes were completely removed, the patient has menstruated, with one or two exceptions, regularly every month. The amount of flow became excessive, lasting eight or ten days. She was curetted; but three months later, after menstruating regularly, it was necessary to curette again, and nine months later curetting was repeated. Granulations were found each time, but nothing malignant was discovered by a careful examination made by Dr. W. H. Welch. Now, nearly two years after the operation, she still menstruates every month, but is able to go about, and except for a ventral hernia would be comparatively well. The uterus is a little above the normal size.

"Case II.—M. L.——, aged twenty-five, a native of France, married, but no childen. Was admitted May 30, 1883. She gave a history of gonorrhœa, and complains of pain over the ovaries, dysmenorrhœa, and leucorrhœa. On examination the uterus was found retroverted, and after some treatment a prolapsed tube and enlarged ovary were also discovered. Operation, June 25, 1883. The patient made a good recovery, but still complained of pains, notwithstanding both ovaries and tubes were removed. She was kept under observation till September, and then discharged. It was afterward heard that she had a ventral hernia.

"*Examination of the specimen.*—Both ovaries and tubes were removed in the operation. It was found that the one ovary and the fimbriated extremity of its corresponding tube were so fused together that they could not be separated. The appearance presented was such as to suggest a normal tube terminating in a cystic ovary. On passing a probe through the cut end of the tube, a portion of this cyst is found to be the dilated tube, though the line of separation between the latter and the cystic ovary could not be made out. Many adhesions were also present. A drop of the watery fluid obtained from the tube was found to contain a small amount of pus, broken-down cells, and granular débris. Some ciliated cells were still preserved, as if they had been among the last to suffer disintegration. The condition in this tube was one rather of hydro- than pyo-salpinx. The other ovary was small and atrophied. The tube was distinct from the ovary. Its fimbriæ had entirely disappeared, and at the distal end there was a small but distinct cicatrix marking the site of the inflammatory process which obliterated the opening. A probe can be passed through the tube from the cut end, but is arrested at this artificial septum. The tube contains a reddish fluid, a drop of which shows, under the microscope, pus, broken-down cells, and granular débris.

"Case III.—T. S——, twenty-seven years of age, a native of Italy, married, the mother of two children. Admitted April 28, 1883. She suffers from dysmenorrhœa and leucorrhœa. For more than a year she has had a severe pain in the right iliac fossa, which, since the birth of her last child in February last has been excruciating. She gives a history of gonorrhœa, which was confirmed by vegetations in the vagina. On examination the physical signs of a local peritonitis are found. Operation, October 28, 1883, shows a catarrhal state of the tubes and indurated ovaries. She made a good recovery, but still suffered much from the old pain, but gradually got better and was discharged cured December, 1883.

"*Examination of specimen.*—The ovaries [1] obtained from this case show a decided increase in the density of the fibrous stroma and thickening of the cortical zone. A few cysts are also present. The tubes are long and tortuous, but appear to be of normal size. Their fimbriated extremities are normal, and the lumina patent throughout. The specimen is so shrunken that it is impossible to say whether the tubes were originally diseased or not, probably they were not affected.

"CASE IV.—A. S——, a native of Ireland, thirty-one years of age, married, and the mother of two children. Admitted November 1, 1883. She is suffering from dysmenorrhœa. For the last ten years she has vomited several days every month, and besides suffers from severe pain in the right iliac region. Her general health is poor. On examination the uterus was found displaced to the left and more or less fixed; marked pelvic adhesions were present; the ovaries were sensitive. Operation, December 8, 1883. It showed that the omentum was adherent over the pelvic organs, and that both ovaries and tubes were fixed by fine adhesions. The pedicle was so short that both sides had to be tied a second time, and on the right side the arteries had to be picked up with artery forceps on account of the slipping of the ligature. To do this the abdominal opening had to be made larger and kept exposed for nearly an hour. All bleeding was, however, effectually stopped. The patient did not rally well, but there was little rise of temperature till the fourth day, when it steadily increased, and at the end of the fifth day had reached 106°. Death occurred from septicæmia.

"*Examination of the specimen.*—One tube showed but little change. It had become adherent to the ovary, probably as the result of an old peritonitis. There was marked dilatation and thickening near the fimbriated extremity, but the lumen was patent. The corresponding

[1] The specimen has been preserved for several months in chromic acid, and hence is nearly useless for gross examination.

ovary was cystic. The opposite tube was considerably enlarged, its wall thickened, and dilated near the distal end. The fimbriated opening was buried in a mass of old adhesions. The fluid removed from this tube contained pus in small amount, granular epithelial cells, and a considerable amount of granular detritus. Several groups of columnar epithelial cells were seen, a few of which still retained their cilia.

"This specimen was seen when fresh by Dr. Welch; he noted much congestion of the tubes, and marked pelvic peritonitis.

"CASE V.—Miss B——, a native of the United States, twenty-three years of age, single. She has suffered for several years from slight dysmenorrhœa and leucorrhœa. She gives a history of hystero-epilepsy commencing several years ago, and becoming more and more severe, till now she has sometimes a number of severe attacks each day. Physical examination showed the ovaries enlarged, and plainly to be felt, of the size of English walnuts. The uterus was movable and in its normal position. The tubes could not be made out as enlarged. Operation, December 3, 1883. The patient made a good recovery, without a single bad symptom. Both ovaries and tubes were removed.

"*Examination of specimen.*—Only one tube and ovary preserved. The ovary is of the size of an English walnut and extensively diseased. The capsule is thickened, and at the periphery a large cyst is seen. As the organ gives an obscure sense of fluctuation, it is doubtless cystic throughout. (The ovary in the specimen was entirely separated from the tube, and only a small piece, about one and a half centimetre, of the corresponding tube has been preserved, and this is hard to distinguish, except by laying it open and examining the lining mucous membrane under the microscope.) The fimbriated end was originally closed by a cicatricial mass, which was divided. There is a small cyst of the broad ligament just below the obliterated distal end. No fluid was found in the tube.

"CASE VI.—*Hydro-salpinx* (*hospital patient*).—M. B——, a native of Ireland, married, one child. Admitted, November 17, 1883. She is bed-ridden, and has been treated for menorrhagia. She complains of severe pain and tenderness over the left side. Examination shows the uterus retroverted somewhat, and a mass the size of a small hen's egg can be felt to the left of the fundus in the left broad ligament. Operation, January 27, 1884. Notwithstanding a slight rise of temperature the first three days after the operation, she made a good recovery. The left ovary and tube were found enlarged and diseased, but the right perfectly normal and free from adhesions, and were therefore left undisturbed.

"*Examination of specimen.*—Inspection of the diseased tube shows it to be enlarged to the size of a finger, and its walls much thinner than normal. Evidences of adhesion are to be seen all over its exterior. The distal opening has been entirely obliterated, evidently the result of previous inflammation. The accompanying ovary is enlarged to the size of an English walnut. It was evidently much larger before removal, as it contained a central cyst as large as a marble. The fluid found within the tube contained nothing but a large number of round and columnar epithelial cells. Many groups of well-preserved ciliated cells were found, looking as perfect as if they had just been removed.

"CASE VII.—L. D——, twenty-eight years of age, married but sterile. Admitted September, 1883. She suffers from dysmenorrhœa, has been bed-ridden for months at times, and has already been in four hospitals. She complains of pain in the back and head, and vomits almost every day. Her pulse is always over 100. For several years she has been unable to work, and is completely demoralized. When examined, the uterus was found retroverted fixed, the tubes and ovaries could be made out slightly enlarged. Operation, March 3, 1884. She did well for two weeks, when the temperature rose to 104°, but this was unaccompanied by pain or tender-

ness. She had also a slight cough, and this, together with the elevated temperature, was regarded of pulmonary origin. Gradually, however, she got stronger, and was discharged cured September, 1884.

"*Examination of specimen.*—The ovaries are found to be of normal size, but cystic. The corresponding tubes are enlarged and dilated. The condition is nearly the same as in Case I., except that here both distal apertures seem to have been obliterated by old inflammation. One tube is closely adherent to the corresponding ovary, the other only partially. They both give a distinct sense of fluctuation, and on introducing a needle, a watery fluid is obtained which shows under the microscope a few mucous corpuscles and normal epithelial cells. A considerable number of perfect ciliated cells were also present. The condition may be termed one of moderate hydro-salpynx.

"Case VIII.—Mrs. Mc——, a native of the United States, aged twenty-seven, married, and has had one miscarriage at four months, but no children. She has suffered greatly from dysmenorrhœa and menorrhagia. Her general health is poor, and she has been a confirmed invalid for the last ten years, being confined to bed most of the time. She complains also of an almost constant pain in the iliac region, back, etc. Examination shows the uterus anteverted; the left ovary and tube enlarged and adherent; the ovary also enlarged. Operation, March 13, 1884, and it was found that the right ovary was slightly adherent and cystic, while the left tube and ovary were enlarged and very firmly adherent. The patient recovered without a single bad symptom. Examination of the removed tubes and ovaries showed the one tube and ovary normal to all appearances, although the wall of the tube seems to be a little thicker than usual. The other tube was uniformly enlarged, and its mucous membrane swollen. The lumen was patent, bnt no fluid was present. The corresponding ovary was enlarged and cystic. The condition

was probably one of catarrhal salpingitis, leading to hypertrophy of the mucous membrane, and, perhaps, also of the muscular layer of the wall of the tube.

"Case IX.—H. D——, colored, a native of the United States, aged twenty-seven, married, but sterile. Admitted February 3, 1884. She is suffering from dysmenorrhœa, and has had severe local pains in the left iliac region for the past three years, making her a complete bed-ridden invalid. Examination showed the uterus anteflexed and firmly fixed, and the enlarged ovaries and tubes could be felt, especially on the left side. Operation, March 20, 1884. She had adhesions, about the worst I ever saw, the omentum, bladder, intestines, etc., being all involved. A pedicle on the left side could not be secured, and the arteries were picked up by forceps, necessitating a prolongation of the operation and exposure of the peritoneum. She gave symptoms almost identical with Case IV., and died of septicæmia on the fifth day. Both tubes and ovaries were removed in the operation.

"*Examination of specimen.*—Both tubes were found to be enlarged and thickened, but not dilated. They were buried in masses of adhesions, though the lumina seemed to be open. Both ovaries were the seat of marked cystic degeneration. In one broad ligament was a cyst the size of a large walnut. Microscopic examination of the mucous membrane of the tubes showed it to be much swollen and covered by leucocytes. No epithelial cells were preserved. In this case there had probably been a chronic catarrh of the tubes, which led to thickening of the mucous membrane. Some of the thickening could also be attributed to an old peri-salpingitis.

"Case X.—Mrs. O——, aged twenty-five, married two and a half years, but sterile. Before marriage she was perfectly well, but soon after this she began to suffer from dysmenorrhœa and leucorrhœa. For more than a year she has had severe pains first on the right and then on the left side. Lately she has also suffered from

menorrhagia. Examination showed the uterus anteverted and imbedded in a mass of indurated tissue, and the enlarged ovaries and tubes could be also made out. She was kept under observation and treatment for a year previous to operation. The operation was performed May 1, 1884. The omentum was found covering all the pelvic organs. Both ovaries were imbedded in a mass of adhesions and very much enlarged. The left ovary was of the size of a lemon and filled with abscesses. The corresponding tube is firmly adherent and infiltrated with pus. The right tube and ovary are not as much enlarged, but a number of small pus-centres were noticed as the adhesions were broken up. The patient made a good recovery, except that an abscess formed around the stump on the left side and the track of the drainage-tube discharged for several months. Pyo-salpinx and ovaritis. Specimen accidentally thrown away.

"Case XI.—M. H——, aged thirty-two, married, and has had one child and three miscarriages. Admitted September, 1884. She is suffering from dysmenorrhœa. She had a miscarriage six months ago, and for nearly two months has had a septic fever. She complains of a severe pain in the iliac region. On examination the uterus is found retroverted; the ovaries and tubes enlarged and sensitive. Operation, October 9, 1884. Extensive adhesions were found, the omentum, small intestines, etc., being involved. The tissues of the tubes and of one ovary were so softened and infiltrated that the ligature cut entirely through the pedicle, and the blood-vessels had to be picked up and tied separately. Abscesses on both sides, involving the ends of the tubes, were met with. A drainage-tube was inserted and the patient made an excellent recovery, and was discharged cured, November 18, 1884, all pains relieved.

"*Examination of specimen.*—The specimen obtained from this case is the best in the collection. It consists of two greatly enlarged tubes with their corresponding ovaries. The smaller of the tubes is about the size of a

large lead pencil, and shows on its exterior evidences of previous inflammation. The accompanying mesosalpinx is much thickened. The fimbriated extremity of this tube is patent, so that on compressing the walls a quantity of thick, reddish-yellow fluid escaped. This on examination was found to contain pus, fatty degenerated epithelial cells, free fat, fatty acid crystals, and bits of smooth muscular fibres, but no ciliated cells. The other tube is as large as the forefinger, much distorted, and its fimbriated extremity buried in a mass of adhesions, which also partly envelop the ovary. The distal end is completely closed. The corresponding ovary is cystic; its cortex greatly thickened. There are many evidences of recent peri-oöphoritis. The opposite ovary is nearly normal in size and appearance. The fluid removed from the larger tube contains a large amount of pus and fatty degenerated epithelial cells, and much free fat. Groups of columnar epithelial cells are found, but no ciliæ are observed. There are numbers of spindle cells from the muscular layers, pointing to advanced changes in the wall of the tube. This is a typical example of pyo-salpinx.

"Case XII.—Miss W——, twenty-eight years of age, single. She suffers from very severe dysmenorrhœa. She complains of pain in the back, head, neck, etc., and has been a confirmed invalid for several years. Examination showed the uterus retroverted and retroflexed, being held back by bands of adhesions, and very sensitive and boggy. The tubes could not be made out as enlarged. The ovaries are prolapsed and seem cystic. Operation, October 20, 1884. Extensive adhesions were found, although the tubes were the principal bands holding back the uterus. They were thickened, but not distended. The ovaries were cystic and fixed by adhesions. The patient made a good recovery. The specimen was lost.

"Case XIII.—Mrs. C——, a native of the United States, married, and the mother of one child. Admitted October 30, 1884. She suffers from dysmenorrhœa, and

has had severe pain in the left iliac region since the birth of her child. On examination the uterus was found laterally flexed, and the enlarged left ovary and tube could be plainly made out in the left broad ligament. Operation, November 29, 1884. The left ovary and tube were removed (the right being normal). The patient made a good recovery and left well when discharged, December 28, 1884.

"*Examination of the specimen.*—The ovary is atrophied and buried in a mass of adhesions. The peritoneal surface of the tube is thickened, intensely congested, and covered with adhesions. The same is true of the mesosalpinx. The tube is enlarged to two or three times its normal size, its walls are thickened, and it gives, on pressing it between the fingers, an obscure feeling of fluctuation. The fimbriæ are still preserved, and the constriction of the lumen seems here to be at the proximal rather than distal end of the tube. On pressing the tube pus flows from the fimbriated end. This examined microscopically is found to contain a large number of pus corpuscles, fatty epithelial cells, and granular detritus. Several quite perfect ciliated cells were also seen.

"CASE XIV.—M. C——, a native of Italy, married, has had three children and two miscarriages. Admitted October 15, 1884. She is suffering from menorrhagia, and complains of intense pain, chiefly in the right iliac region, for the last three years. On examination the uterus is found fixed and adherent, being drawn backward toward the sacrum. Under ether an enlarged tube can be plainly felt on the right side. Operation, December 8th. The patient made a good recovery and was discharged January 8th, the pain being completely relieved.

"*Examination of specimen.*—One ovary is about twice the normal size, and seems to be almost entirely made up of one large cyst. The other is considerably atrophied. The tube corresponding to the larger ovary is enlarged to twice its normal dimensions, and the fimbriæ have disappeared, the fimbriated opening being obliterated by

old adhesions. The proximal cut end admits a large probe, and a drop of yellowish fluid can be squeezed from it, which shows, under the microscope, pus, broken-down epithelium (some with perfect cilia), and a large amount of granular débris. The other tube is enlarged, much distorted, and is bent on itself near the fimbriated end, so that the fimbriæ seem to spring almost from the middle rather than from the end of the tube. A probe may be introduced into the distal opening for a short distance. There are evidences of previous inflammation, leading to thickening of the mesosalpinx and peritoneal covering of the tube. A drop of fluid, obtained from the distended distal end, is shown by microscopic examination to contain a moderate number of pus corpuscles, many round, pyriform, and columnar ciliated cells, free nuclei, and granular detritus.

No. of case.	Age.	Condition.	Children.	Miscarriages.	Disease.	Result.
I..	32	Married.	2	2	Pyosalpinx.	Recovered.
II..	25	"	0	0	"	"
III..	27	"	2	0	Catarrhal s.	"
IV..	31	"	2	0	Pyosalpinx.	Died.
V..	23	Single.	0	0	Catarrhal s.	Recovered.
VI..	29	Married.	1	0	Hydrosalpinx.	"
VII..	28	"	0	0	"	"
VIII..	27	"	0	1	Catarrhal s.	"
IX..	27	"	0	0	Pyosalpinx.	Died.
X..	25	"	0	0	"	Recovered.
XI..	30	"	1	3	"	"
XII..	28	Single.	0	0	Catarrhal s.	"
XIII..	26	Married.	1	0	Pyosalpinx.	"
XIV.	31	"	3	2	"	"

"The hospital cases were selected from patients presenting themselves for treatment at my clinic at the New York Polyclinic, where, during the past two years, I personally examined 607 individual women. Of this number 125 had unmistakable evidence of peri-uterine inflammation, and of these the tubes were plainly made out

as enlarged in 18 cases on the first examination. By the use of glycerine and glycerine and alum tampons in many others of the 125, diseased tubes could be made out after the thickened peritoneal adhesions had been stretched and softened. In those cases where diseased tubes could not be defined by the touch, all other symptoms often indicated that they were diseased, and my studies lead me to the conclusion that peri-uterine inflammation which is not associated with diseased Fallopian tubes is the exception, and that, as a rule, disease of the tube precedes the local peritonitis."

RG 421

Hyde

Disease of three Fallopian Tubes

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