

deepened the impression that the changes were bactericidal in their origin, and could be divided into two great classes; the specific or gonorrheal, and the septic. That in both classes the infection was conveyed to the patient and did not originate within her organism. The application of surgical or aseptic principles to the practice of obstetrics has greatly lessened the frequency of septic processes. The recognition that gonorrhea in its influence on the female economy is more deleterious than is syphilis, has caused the profession to be anxious to arrest it in its early stages and thus prevent its more serious ravages. The acceptance of the bactericidal origin of pelvic inflammation makes us chary of intra-uterine routine treatment. The sound, tent and uterine dilator are infrequently employed, and then only with aseptic precautions. In uterine inflammation drainage is promoted and this by the use of the dilator and curette. Where the inflammation is of such a character as to threaten the deeper structures, we no longer sacrifice both appendages when those of one side only are severely involved, but precede the abdominal or vaginal incision, as may be chosen, with a dilatation and curettement of the uterus.

While our investigations of the abdomen of the living woman teach us that the most frequent avenue for invasion is by the continuous mucous membrane of the uterus and tubes, it should not be overlooked that the blood vessels and lymphatics also afford ready entrance to the deeper structures. The recognition of this truth is of the greatest value from the standpoint of treatment. Inflammation involving the tubes, ovaries or peritoneum may be treated by either the vaginal or the abdominal route, according to the character of the involvement and the predilection of the operator, but in the majority of cases of cellular inflammation the election will be most frequently through the vagina. With the development of such inflammation we do not follow the already enunciated dictum of Thomas, but endeavor to afford free vent for the escape of exudation, and thus avoid cicatricial contraction. In involvement of the peritoneum we readily resort to the use of the curette, and at the same time break up pelvic adhesions and afford drainage. Each diseased patient is carefully investigated and where further invasion is threatened we endeavor to arrest its progress by the dual procedure of curetting and pelvic drainage, most frequently through the vagina.

The motto we now inscribe on our banners is, sacrifice nothing which we can save, keeping before us the purpose to restore our patient to health. Health in its true sense means not only freedom from discomfort, but also regained function.

### DRAINAGE VERSUS RADICAL OPERATION FOR SUPPURATION IN THE FEMALE PELVIS.\*

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It is my purpose in this communication to contrast the field of application of drainage with that of radical operation in the treatment of suppuration in the female pelvis. Recently I reported<sup>1</sup> my entire experience with the various operations which have been practiced for the treatment of suppuration in the female pelvis. This

paper covered so wide a field that it was impossible to discuss in detail all the advantages and disadvantages of the drainage operation. In this communication I propose to discuss more fully not only the merits of the drainage operation, but also its limitations.

The chief field for the drainage operation is in cases of large pelvic abscesses in patients acutely ill and in those prostrated from long-continued suppuration. The drainage operation in this class of cases gives a mortality of 2 per cent. as contrasted with one of 25 per cent. or more by abdominal section. In this field there is no question concerning the positive merits of the drainage operation. It is done quickly, does not cause shock to the already weakened patient, and permits her to recover from the critical condition in which she is placed by the large abscess. In most cases of this kind it is best simply to evacuate the large abscess, wash it out and do nothing further. When the strength of the patient permits, in addition to this, it is best to palpate for additional abscess sacs in one or both tubes, and to evacuate these; but in many cases of large abscesses it is better to postpone the opening of small pockets to a subsequent date. Where the abscess is single, as in puerperal phlegmon, ovarian abscess and intraperitoneal abscess without pyosalpinx, the simple incision results in a perfect cure. Where several smaller pockets exist in addition to the large abscess, it is necessary to open these either at the initial operation or subsequently in order to effect a cure.

The next class of cases in which the drainage operation is of signal service is that in which suppuration occurs during an acute attack of peritonitis, and in which the peritonitis tends to become progressive, with the usual accompaniments of distension of the intestines, tendency to intestinal paresis and prostration of the patient from septic absorption. In these cases the pus may be in the tubes, or in the ovaries, or within the peritoneum. A radical abdominal operation under these conditions has a high mortality as contrasted with the scarcely appreciable mortality for a drainage operation. An analysis of my own cases shows a very large percentage of permanent cures in cases of puerperal origin. I have operated on only one case of recent suppuration from gonorrhea.

The small group of cases of suppurating hematocele from extrauterine pregnancy is also best treated by the drainage operation. I have operated on four such cases. All four recovered from the operation, but in two it was necessary subsequently to do a radical operation, in the one case because of the development of a hydrosalpinx, and in the other because of the continued annoyance of a tubal mole.

In the usual typical case of pyosalpinx or abscess of the ovary, uncomplicated by intraperitoneal abscess, and in which the amount of pelvic exudate is moderate and the size of the tubal or ovarian abscess small, I have never practiced the drainage operation, but have treated all such cases (which make up the great majority of cases of pelvic suppuration in women) by the radical abdominal operation. On theoretical grounds the drainage operation does not seem indicated in this group of cases. The pus pockets are apt to be multiple and small, the risk of opening the peritoneum is great because of the lack of extensive exudate walling off the peritoneal cavity, and therefore the results of the drainage operation would probably be unsatisfactory because of the incompleteness of the drainage and the risk of setting up a general peritonitis. Moreover, the results of the radical abdominal operation in this group of cases is

\* Read at the Fifty-third Annual Meeting of the American Medical Association, in the Section on Obstetrics and Diseases of Women, and approved for publication by the Executive Committee: Drs. A. H. Cordier, W. E. B. Davis and Henry P. Newman.

1. The Treatment of Suppuration in the Uterine Appendages. American Medicine, vol. III, No. 13, March 29, 1902.

so satisfactory that it will be difficult to improve on it by any other procedure.

Within the limitations laid down incision has proved to be a most conservative operation, not only in the saving of life, but in the conservation of the sexual organs. In only three cases out of fifty-two was it necessary subsequently to remove more than one uterine appendage. The operation has saved many young women from the annoyance of a premature menopause, and has enabled some of them to bear children. Six pregnancies are known to have occurred, resulting in five children—one pair of twins, one miscarriage and one pregnancy now developing.

With the operation of incision and drainage in cases of acute inflammation of the uterine appendages without pus, as practiced by Henrotin, Pryor, Polk and others, I have had no experience, with the exception of a few cases in which an extensive puerperal pelvic cellulitis was incised with the expectation of finding pus. In all of these cases the incision promoted the early resolution of the exudate. It is my intention to practice this operation in puerperal cases in the future, as I believe it will promote an early recovery in this group of cases and prevent the destruction of a certain percentage of the tubes and ovaries involved.

Having emphasized the advantages of incision and drainage, it is well to refer to some of the disadvantages inherent in this method of treatment. These disadvantages grow out of the imperfections in the diagnosis of morbid conditions in the pelvis. At times an ovarian cyst with peritonitis will be diagnosed as a pelvic abscess. Incision and drainage not only will not effect a cure, but may cause a disagreeable complication when the cyst is removed at a subsequent operation.

When incision is practiced in cases of small pus tubes it is quite easy to overlook one or more of the pus pockets, and quite easy to open the general peritoneal cavity. Therefore, in this class of cases also the operation is contraindicated.

In a certain percentage of cases, at times because of the condition of the patient, at times because of the inaccessibility of some of the pus pockets, collections of pus are overlooked in the primary operation of incision and drainage. In these cases it may be necessary to repeat the operation once or twice in order to effect a cure or to obtain healing of the sinus. This has been my experience in a small percentage of cases. It is in this class of cases that the skill and experience of the operator is of most importance. The surgeon of experience, who will restrict the operation to the classes of cases in which it is indicated, and whose trained touch can differentiate between pus sacs and adherent intestines, will not have a large percentage of failures to evacuate pus sacs, and will have only a small percentage of accidents, such as hemorrhage, perforation of the intestine, wounding the ureter, etc. On the other hand, the inexperienced surgeon, unless he restricts his application of the operation strictly to cases of large abscesses, is likely, through inexperience, to overlook the smaller pus sacs, or to wound adjacent viscera, in a considerable percentage of cases.

The technic of vaginal incision and drainage for pelvic suppuration is extremely simple in some cases and extremely difficult in others. In cases of single large abscesses and cases of puerperal phlegmon pointing toward the vagina, the operation is very simple. The patient is anesthetized, the vagina cleaned, the cervix exposed and an incision made with a knife across the vault of the vagina behind the cervix, the incision ex-

tending through the vaginal wall. This incision may be continued, the tissue being divided layer by layer until the abscess is reached; or, what is usually preferable, a pair of scissors, neither sharp nor blunt, is passed through the vaginal incision and pressed against the projecting abscess and pushed through into the abscess sac. The handles of the scissors are then opened, tearing the perivaginal tissues and the peritoneum, and giving vent to the pus. In the case of broad ligament phlegmon the incision is made over the most prominent portion of the abscess. In selecting the point for the incision the ureters and the uterine vessels must be avoided. In case the abscess is connected with one or the other uterine appendage and does not fill up and cause Douglass' pouch to bulge toward the vagina, the incision through the vaginal wall should be made to one or the other side of the median line, and then the scissors be pushed on into the abscess sac. When the abscess sac is distinctly lateral and relatively high, it may be necessary to separate the folds of the broad ligament from below with the fingers until the abscess is reached, and then puncture it with the scissors. This I have found necessary to do in numerous cases, especially in cases of ovarian abscess of puerperal origin.

So far the operation is simple and easy to perform. The cases in which the experience and skill of the surgeon come into play are those in which the abscess is not so large and those in which the main abscess within the peritoneum is complicated by pyosalpinx or ovarian abscess. In such cases the trained touch of the surgeon is necessary in order to distinguish the pus tube or abscess of the ovary from infiltrated or adherent bowel. In many cases this is difficult even for the expert to do, and at times discretion is the better part of valor, and the surgeon having evacuated one or more abscess sacs may well hesitate to puncture one in which the diagnosis is uncertain, lest by accident he open the bowel and cause a fecal fistula. Large experience in dealing with the results of pelvic inflammation by abdominal section will prove most helpful in the exact diagnosis and proper treatment of pus collections when treated by incision and drainage from below.

In a small percentage of cases, usually of puerperal origin, it will be necessary to supplement the vaginal incision by an incision through the groin, and in a few cases in which the abscess points in the groin the only incision required can be made above Poupart's ligament.

The points to be emphasized are that in large abscesses in patients who are extremely prostrated and ill the least done the better; the large abscesses should be freely opened and nothing more done. In many cases it is best to avoid even washing out the sac and to leave this for a subsequent occasion, as the strength of the patient will not admit of the prolongation of the operation. In all cases the main object to accomplish is to make the opening in the dependent portion of the abscess and to make the opening a free one. The opening should be made wide and free and not a mere puncture. If this is accomplished, most cases will undergo spontaneous cure without gauze packing and without subsequent irrigation. Packing and subsequent irrigation are only to be employed when this is necessary to effect the thorough evacuation of the abscess and the closure of the sinus.

#### DISCUSSION.

DR. SETH C. GORDON, Portland, Maine—I am very glad that this subject has been presented. I brought up the same question two weeks ago, in my address before the American Gynecological Society. I have done this for more than twenty years.

It is the simple application of ordinary surgical principles. Operate and remove pus every time you can. There is nothing more settled than that. An abscess should always be opened and evacuated as soon as possible. I agree with Dr. Noble that ordinarily you had better let these cases alone, and not do too much at the time you open, unless it is an old abscess. It is not difficult ordinarily to make a diagnosis, because, first of all, you generally have a well-marked history of an inflammatory process, such as temperature, pulse, pain, etc. Second, if you are familiar with the touch you generally get a little indentation behind the uterus, and that is the point for making your incision. I use the knife only, and then dilate with a uterine dilator. Formerly I used an aspirator, and then dilated with a dilator or scissors. It seems to me that this has saved thousands of women, not only from long suffering but subsequent abdominal section.

DR. W. H. HUMISTON, Cleveland, Ohio—Time and experience will bear out Dr. Noble's statements. I had a case a year ago of streptococcus infection following labor, in which the temperature ran up to 105 F., the woman had daily chills and a very weak pulse. With a few drams of chloroform and fifteen minutes' time, I had the abscess evacuated and she went on to complete recovery. She became pregnant again in another year. This shows the effects of an early trivial operation. If the woman had been allowed to become profoundly septic, an abdominal operation would have been required and possibly the result would have been fatal. In acute infectious conditions of the pelvic organs, radical abdominal operation is attended with a high mortality, and where we have the conditions as mentioned by Dr. Gordon, it is best to open at the most convenient place. The operation is so slight in its effect, and the results so extremely gratifying, that it should always be done. If the radical operation is necessary later on, the woman will be in condition to stand it.

DR. E. W. CUSHING, Boston—I agree with Dr. Noble and Dr. Gordon. That is the way I began to treat these cases, but under the progressive impulse of the Philadelphia school some of us were induced to do everything through the abdomen. I know I have lost cases by trying to do such an operation when it could have been done with safety through the vagina and just as easily. It is not unusual for these collections to be very large, and be mistaken by the attendant and even the surgeon for an ovarian tumor. The acute symptoms may have subsided; the mass is as large as an infant's head, fixed so that operation by abdomen for ovarian tumor is sometimes done. In other cases which are acute, the pus is liable to be septic. It is safe to open the abdomen and let out the pus from an old pyosalpinx, but it is a different thing to let virulent streptococcus pus soil the abdominal cavity where there is every probability of acute infection, but no one can tell beforehand the nature of the pus. It is my general rule to let the pus out from below, if I can possibly get at it. It is easy, simple and harmless, and it can be done with a little cocaine in very bad cases where an abdominal operation would be fatal.

DR. T. J. WATKINS, Chicago—The difficulty usually lies in determining what class of cases are adapted to this method of treatment. Gonorrheal cases are bad ones for vaginal section and drainage, because of the large amount of exudate that occurs and because the germs are liable to remain latent and cause trouble after an indefinite length of time. Tubercular abscesses are also bad cases for this treatment. Puerperal cases are probably the most satisfactory, as the exudate tends to entirely disappear by absorption after the pus has been removed. It is seldom indicated in gonorrheal cases, except in the presence of large abscesses. I recently looked up my statistics of drainage cases for five years, and found that about 10 per cent. required subsequent operation.

I am glad Dr. Noble brought out the point that many of these cases are completely cured by this operation; 90 per cent. of mine were cured. I pack with gauze and remove it gradually, so that it is all removed by the end of the fifth or seventh day. With this method, convalescence is more rapid, less painful, and the amount of suppuration is less than with tube drainage. Exploratory vaginal section is of great value in selected cases of puerperal cases, and in my experience it has occasionally been a life-saving procedure.

DR. G. B. MASSEY, Philadelphia—I come from Philadelphia, but do not feel guilty of the Philadelphia error mentioned by Dr. Cushing. I remember protesting in the Philadelphia Obstetrical Society against flooding the abdomen with pus as long as ten years ago, claiming that mere lancing of the abscess at its lowest point was sufficient. In treating these acute abscesses, the vaginal puncture ought to be made early, to avoid perforation of the bowel.

DR. HUGO EHRENFEST, St. Louis, Mo.—The effect of vaginal drainage is dependent on the location of the pus. We must differentiate between an abscess in a tube, in the peritoneal cavity, or one in the parametrium. The results are undoubtedly excellent when pus is in the parametrium, but not so good in pyosalpinx, where the abscess cavity is lined by mucous membrane, which offers a good shelter to the germs. I am fully in accord with the statement made by Dr. Watkins that gonorrheal cases do not give as good results as puerperal cases, and we find the explanation in the fact that in gonorrheal cases the suppuration occurs in the tubes, while in puerperal cases the abscess usually is in the parametrium or pelvic cavity.

DR. THOMAS G. CULLEN, Baltimore—In those cases where the inflammatory exudate lies between the folds of the broad ligament instead of in the tubes or pelvic cavity we invariably drain extraperitoneally as advocated by Dr. Noble. We make an incision similar to the one employed in the appendix operation and on arriving at the peritoneum gradually by blunt dissection reach the connective tissue of the broad ligament without injuring the peritoneum. In one case the peritoneum was peeled back so readily that I thought we had perforated it, thereby entering the pelvic cavity. Fearing that some pus might have entered the pelvis, I made a median incision and found the peritoneum everywhere intact, but it was so thin that the dividing wall was thinner than parchment. Great care must be exercised in the evacuation of these extraperitoneal broad ligament accumulations.

Dr. Gordon's point is a good one. After making a transverse incision one inch in length through the vaginal mucosa just posterior to the cervix, I gradually peel upward, following close to the posterior surface of the uterus. As soon as the peritoneum is felt this is punctured with a uterine dilator which can not injure any pelvic structures. If the opening in the vault be too small two uterine dilators introduced simultaneously and at right angles to one another will easily afford the necessary space. Where there are purulent accumulations in the pelvis careful scrutiny should be made to determine if secondary pockets exist. Both tubes should also be examined and they can be split and drained if necessary. The mere opening of Douglas' sac with no further search is often of little value on this very account. In acute cases the walls of the abscess sac rapidly collapse, but in chronic cases the resultant scar tissue prevents obliteration of the abscess sac for some time, and great care must be taken to maintain free drainage.

DR. NOBLE, in closing—I am pleased at the unanimity of opinion on this subject. Dr. Humiston spoke of puerperal cases, to which I have alluded. The operation does the most good in puerperal cases. It not only cures the immediate trouble, but saves the woman's tubes. You will seldom have to take them out when you drain, provided the puerperal case is not one of gonorrheal infection. Ninety per cent. of cases, when properly incised, do best when drained with nothing at all. Leave them alone, provided you do not made a "puncture." Dr. Kelly's work has done us much good, and also some harm, because the term puncture indicates a little hole, and usually too small an opening is made. I oftentimes make an opening from one bone to the other, opening up the pelvis widely. If you make it that way, big abscess cavities will collapse and cure themselves without any trouble. If we have a small abscess, and that is the class of cases in which the operation is least applicable, we may have to pack to get it to close up. I almost never drain with gauze or tubes. It often lessens the value of the work.

I, too, have suffered from the teaching of the Philadelphia school, and the best result I have been able to get with the radical operation is 27 per cent. mortality in the complicated cases. This is shocking when you can get a 2 per cent. mortality with the drainage operation.

As to the comparatively bad results in gonorrhea, this agrees with my own opinion, and is indicated by the fact that I state in my paper that I have operated on but a single recent case of gonorrheal abscess. In old gonorrheal cases, however, where the woman has had pus tubes for years, incision and drainage have given good results. I am fully in accord with the view that the gonorrheal cases are least adapted for the drainage operation.

In one point I can not agree with Dr. Cullen. Instead of going in from above, I think it far better to work from below. I never make an incision above Poupart's ligament, unless the abscess distinctly points in the groin. If the subcutaneous tissues are infiltrated, so that you know the abscess is coming out along the round ligament, or just under the skin, then make an incision there, but where the exudate is deep in the broad ligament, it is much more easily and better reached through the vagina. Neither need you fear a hernia afterwards. In almost every case drained above Poupart's ligament a hernia results. So far as I know, I have operated on about sixty of these cases, and I have never injured the ureter, have never had any hemorrhage, nor injured the bowel.

### Clinical Report.

#### SUPPRESSION OF THE SECRETION OF URINE FOR SEVEN AND ONE-HALF DAYS

WITHOUT SEVERE SYMPTOMS OF UREMIC POISONING,  
THE PATIENT RECOVERING.

GEORGE SEILER, M.D.

ALMA, WIS.

I. B., a saloon- and store-keeper in the country, aged 48, was taken sick with "lumbago" June 6, 1902. This lasted about three days. On June 9, the patient had an attack of renal colic and passed about 75 to 100 renal calculi the size of a millet seed and some as large as small peas. The urine passed contained a little blood. June 14 he had another attack of renal colic and from this day on the excreting faculty of the kidneys was entirely suppressed for seven and one-half days.

The patient is a very heavy-set man, weighing 250 pounds. His abdominal walls are so thick from fat that palpation of the abdominal organs is very difficult. He was never seriously sick up to last September, when he had his first attack of renal colic after and during which he passed a number of renal calculi of the size of small peas. He was then free from an attack up to the present time.

Previous to the suppression of urine, which occurred June 14, he passed a little less than the daily usual amount of urine and complained of some pain, especially in the right lumbar region on deep pressure and without it. In the afternoon of June 14, he had an attack of colic again for which I gave a hypodermatic injection of morphin, which relieved the pain. I then gave him nitrate of potassium with extract of henbane,  $\frac{1}{2}$ -grain doses of calomel and bicarbonate of soda every fifteen minutes followed by sulphate of magnesia. The next morning, as he had not passed a drop of urine, I introduced a soft catheter, but did not get any urine. The same was the case June 16.

Treatment was continued, with the addition of warm wet applications to the lumbar region and later wet packs twice a day. In the evening Dr. Tenney of Alma saw the case with me and suggested tincture of digitalis in 10-drop doses every three hours and Rochelle salts repeated oftener. I had also given a hypodermatic injection of pilocarpin, one-third grain at 6 p. m., which produced a copious sweat lasting fifteen or twenty minutes. June 17 the patient became drowsy and vomited often greenish slimy water with great force; no urine by catheter; bowels moved often.

June 18 and 19 the patient was in almost the same condition but more drowsy and vomiting oftener, no urine secreted, pulse and temperature normal. I kept up the wet pack and pilocarpin injections twice a day and also gave two drops of

croton oil in glycerin. June 20: condition the same, treatment continued. Towards evening patient had a severe spell of pain in the right lumbar region with pains lancinating toward the right testicle and glans penis, probably caused by the stone, which was suspected to blockade one ureter, moving towards the bladder. A hypodermatic injection of morphin and atropin relieved the pain.

On the morning of June 21 his condition was unchanged, save that he was not so drowsy and did not vomit so often; no urine by catheter. Dr. John Lyman of Eau Claire, Wis., who was called in consultation, advised continuation of treatment and  $\frac{1}{2}$ -grain doses of calomel every one-half hour continued for forty-eight hours as advised by Senn. As there was some dullness over the region of the right kidney he introduced a trocar at three different places, but only withdrew some blood, no urine. This excluded a hydronephrosis. Any other operation was, of course, out of the question. That evening the patient passed about one-half pint of almost clear straw-colored urine, which showed slight traces of blood under the microscope. The same treatment was continued and the patient passed almost a gallon of urine in the next twenty-four hours, vomited from one to four times a day, his drowsiness disappeared and urine was passed without pain, but the patient suffered a great deal of pain at the point where the trocar was inserted and temperature went up to 100 or 101. The pain diminished in the course of four days.

June 23: patient was very much improved and urinated freely more than a gallon of clear urine without a trace of blood. His bowels were kept open by Rochelle salts; the hypodermatic injections of pilocarpin were discontinued, as was also the calomel, as traces of ptialism appeared. June 26 the patient was able to sit up and improved steadily. July 17: patient passed some gravel about the size of small peas and of irregular form; he has continually a sensation as if needing to pass water and a drawing feeling in his penis and still some deep-seated pain over the right kidney; otherwise he improved steadily and attended to his business.

The principal questions in this remarkable case are: First, what was the cause of the suppression of the secretion of the urine? 2. If there was an obstruction of one ureter—probably the right one where patient complained of the most pain—why did not the other kidney secrete urine? 3. Is it, as some authorities say, possible that if one kidney does not work the other one will in a sympathetic way refuse to work? The greatest wonder is that the patient did not show more profound symptoms of uremic poisoning and that he did not die in coma.

Is there such a case on record? I have heard there is nothing new under the sun, but I thought the case remarkable enough for publication.

**Organization of the Medical Profession.**—The medical profession has a power for good in the community which is not equaled by that of the clergy or the legal fraternity. Its power is, however, not exerted. It is dissipated by lack of concerted effort, and wasted by internal difference of opinion. . . . Why is it that after a hundred years of practice among the people, the educated and the ignorant alike, our influence is so transient, so feeble, that the most absurd fad, the most hare-brained delusion, the most fantastic fraud that comes along spreads its pernicious poison as rapidly among the people as fire in tow? Where is the educational power over the people of which we boast in our addresses and applaud in our after-dinner speeches? How loyal are the people to us, because of our single-mindedness and devotion to them in their sickness and affliction? How much weight has the opinion of the medical man in a public matter, and with what smiling indifference do not those who make the laws listen to his protests? There is something wrong here. There is manifestly some foolish want of thought in this ridiculous situation. . . . There are doubtless many things to which this state of affairs can be ascribed. One cause, however, stands out as first in importance. It is lack of organization.—Sweeney, in *St. Paul Med. Jour.*