THE
CHICAGO MEDICAL
RECORDER
MAY, 1894.

Original Articles.

THE TREATMENT OF PELVIC ABSCESSES BY LAPAROTOMY, WITH A REPORT OF EIGHTY-TWO CASES.

By FRANKLIN H. MARTIN, M. D., Chicago.

Pelvic abscess means pus in the pelvis outside of the uterus. This accumulation of pus may mean a few drops, a drachm, an ounce, or a quart. If it is a few drops or a drachm, its recognition is somewhat more difficult than when it reaches ounces or pints. In the former state it is often diagnosed by physicians who received their training six, eight, ten or more years ago, and who have not been able, or taken the trouble to keep themselves abreast of the times, as chronic pelvic cellulitis. When the pus is considerable in quantity it may be diagnosed by the tumor and fluctuation. Frequently these are the only cases of pelvic abscess which the careless or the inexperienced physician ever recognizes.

The importance of diagnosing pelvic suppuration by the general practitioner cannot be over-estimated. Cancer may be more dreaded, but it is no exaggeration to say that neglected pus in the female pelvis has destroyed many more women than has cancer. We are constantly keeping the war cry before general practitioners "Make early diagnosis of cancer of the uterus so that the patients may be saved by a radical operation." With equal justice, in the same warning voice we should urge them to diagnose incipient and obscure pelvic abscesses.

The general physician must eventually be made to recognize that there is no such thing as chronic pelvic cellulitis. He has discovered in his reading of the debates of the last decade that

chronic pelvic cellulitis has become an unpopular term with operators, but the fact that he still finds it current in pelvic literature coming from the pens of the exclusive electro-hydropaths and gynecologists who exclude all forms of radical surgery from their treatment, and the fact that he is constantly meeting cases in his practice which seem to tally exactly with his idea of what chronic cellulitis should be, makes him adopt with complacency the so-called conservative pathology. The result constantly is chronic invalidism or death.

Why are abdominal surgeons so positive that there is no such thing as chronic pelvic cellulitis? Because no competent surgeon, no matter how many times he has examined the pelvis through the abdomen, has ever discovered a single case of chronic pelvic cellulitis, although the diagnosis might have seemed very conclusive prior to the operation.

What then, is that mass of exudate which seems to completely surround the cervix, and renders the uterus more or less immovable, and gives the impression that melted paraffine has been injected into the cellular tissue and allowed to harden; and which on pressure causes pain, and gives rise to the long train of pelvic symptoms which we have been accustomed to attribute to pelvic cellulitis? It is the result of suppuration of tissues in the pelvic cavity, frequently involving the peritoneum. This can be proven every time we open the abdomen for the condition described, because the whole mass can be enucleated from within the peritoneum without leaving a vestige of the so-called cellulitic mass. Many of the cases in my present list have been the means of dispelling, at least temporarily, the fallacy of chronic cellulitis to some honest friend of mine who for once was sure that he had a genuine case. On opening the abdomen, however, with the patient in the Trendelenberg position, we would find in place of a bulgin peritoneum beneath which could be felt a mass of cellular inflammation and hardened exudate, a pelvis full of large corrugated tubes containing pus, thoroughly adherent as the result of local peritonitis, and matted together so firmly that it was not surprising that, when palpated through the abdominal walls, it had been mistaken for a uniform cellulitic exudate. The local peritonitis which resulted in these adhesions was caused by infection extending to the peritoneum from the suppurating tubes.

One or two such cases do not convince the non-operating gynecologist that there is never such a condition as chronic cellulitis. If he should from this time on, however, open the abdomen

in every case which it seemed clear to him was severe chronic cellulitis, and should find notwithstanding his careful diagnosis, that not one of say seventy cases proved to be cellulitis, but instead, some form of intra-pelvic suppuration, he would begin to become convinced that Lawson Tait, Joseph Price, and others were right, and that he had been mistaken; that is that there is no such thing as chronic pelvic cellulitis; that which he and his other so-called conservative friends had been calling chronic cellulitis was nothing more than the result of suppurating tubes, ovaries, or vermiform appendices. If the same skeptic, after finding no cellulitis in his seventy cases, would look up the literature of the subject and find that chronic cellulitis was never found by operators, but frequently by non-operating gynecologists, it would begin to dawn upon him that he together with all other men who talk glibly of chronic cellulitis had always been wrong.

Joseph Price states, according to Maury, that in over fourteen hundred abdominal sections he has not once observed an exudation from cellulitis. In over three hundred laparotomies I have never seen a case in which a definable exudate as the result of chronic cellulitis was present.

The point I wish to make is not that all pelvic abscesses or collections of pus in the pelvis, are the result of disease of the tubes and ovaries, but that the condition which has been so long mistaken for chronic cellulitis with exudates, is invariably the result of intraperitoneal infection, either from diseased Fallopian tubes, ovaries, the vermiform appendix, infected hematocele, ovarian or uterine tumors, perforated intestines or bladder, extrauterine pregnancy, infected broad ligament tumor, or broad ligament abscess.

I may be criticized for my definition of a pelvic abscess: Pus in the pelvis, outside of the uterus. Many authors limit a pelvic abscess to a collection of pus which cannot be enucleated. For instance, Pozzi gives the following: "Certain forms of hematocele which have suppurated and become transformed into a purulent mass." "A real abscess, which adheres on every side to the soft or hard portions of the pelvis and which cannot be removed." These definitions seem vague and unsatisfactory, because a collection of pus under that definition would become an abscess only when the particular operator failed to accomplish its enucleation. An operator of experience, in other words, no matter if he were enucleating pus-sacs from the pelvis every day, would scarcely ever find a pelvic abscess, while some beginner would solace him-

self for his incompetency in every second or third case by declaring that in his practice pelvic abscesses preponderated.

If we do not include collections of pus around the vermiform appendix, except when such collections extend into the pelvis and involve the Fallopian tube or broad ligament, we may safely say that ninety-five per cent of all pelvic abscesses are of tubal origin; one per cent of pelvic abscesses are the direct effect of infection of broad ligament cellular tissue, broad ligament phlegmon following labor, abortion or miscarriage. The other four per cent will include infected broad ligament hematoceles, extrauterine pregnancies, ovarian cysts, broad ligament cysts, or direct traumatic injury of the tissues of the broad ligament, with infection.

TREATMENT.

The treatment for pelvic abscess which I advise here is not recommended solely because of outside authority, or because of some one's peculiar pathology, but because it is based on the results of a large amount of abdominal surgery; and the line of treatment is deduced directly from a visible pelvic pathology as a direct result of treating in the last four years eighty-two cases of pelvic abscess by laparotomy, and eight cases by vaginal incision or by the expectant plan.

I have never regretted one of my eighty-two laparotomies for pelvic abscesses of all kinds, but in the five vaginal incisions I have had reason to regret the procedure in all but one case. In my experience, which coincides with that of many other operators, lies the key to the proper treatment of these difficulties. Ninety-five per cent of all abscesses of the pelvis include pus tubes, and are of such a nature that it is almost certain that they can be successfully enucleated, and four per cent of the remainder are enucleable. Therefore if but one form of treatment were permissible, laparotomy should always be the treatment. Unfortunately, however, the day of specifics in medicine and surgery has not arrived, and we must admit, that in possibly two per cent of all pus collections in the pulvis, other means than laparotomy may give us satisfactory results. The reason for this is that about two per cent of pelvic abscesses, including suppurating broad ligament hæmotoceles and ectopic pregnancy, are subperitoneal and cannot be enucleated.

While these cases may be treated by laparotomy, the fact that they cannot be permanently eradicated by enucleation makes it feasible, if not desirable, where positive diagnosis can be made, to drain them from the vagina. This makes us realize how desirable it

would be to be able to lay down a definite iron-bound rule in regard to the treatment of these important troubles. For who, no matter how skilled, can invariably differentiate between a pelvic abscess of the broad ligament and one in the peritoneum, when their relative frequency is as one to fifty, and their physical signs, symptoms and history are so nearly identical? I must confess I cannot. If then, the ordinary man cannot positively distinguish between these two classes of cases, let us inquire what would be the result if these particular cases of subperitoneal or non-enucleable abscesses should be treated by laparotomy. Laparotomy would not succeed in removing them, we must concede; it would, however, enable us to definitely locate them. By attaching them, when large enough, to the abdominal wall, by shutting them off from the general peritoneal cavity by well established methods, by free incision, thorough cleansing, disinfection, and packing with iodoform gauze, ideal results would be obtained. If, after definitely locating the abscess, it should be found impracticable to treat it through the abdominal incision, vaginal drainage could be more safely accomplished with the guidance of the knowledge gained by the exploratory incision. What could be gained in these cases by vaginal incision? If the abscess pointed low and definitely, and the patient were weak or moribund, a shallow incision through the bulging mucous membrane, dilatation and exploration by the finger, thorough cleansing with antiseptic fluids, or when permissible with the dull curette, followed by irrigation and drainage with either rubber tubes or gauze might occasionally give satisfactory results. Here, however, there is nothing in the procedure to ensure the correctness of the diagnosis. One can never say definitely after vaginal section that the abscess was not the result of tubal infection, or that another abscess may not have been left on the opposite side which would be sure to cause future trouble.

If the abscess be unilateral, is the vagina as favorable a route for drainage as can be furnished through the abdominal wall, where the Mikulicz drain can be employed? The vagina is proverbially non-aseptic. It is also more unsatisfactory to accomplish drainage through the vagina because of the difficulty in reaching the abscess incision.

Finally, the natural history of these cases, the great preponderance of intraperitoneal over extraperitoneal abscesses, the fact that all intraperitoneal abscesses are enucleable, that they are almost invariably bilateral, that a large proportion of the five per cent of extraperitoneal abscesses are amenable to treatment by

laparotomy, the insurmountable difficulties of making differential diagnosis between the two varieties, the danger in the vaginal treatment of mistaking a bilateral for a unilateral abscess and of wounding important organs while making an incision into a suspected abscess, the difficulty of proper vaginal drainage to insure closure of the abscess fistula and prevent a permanent pus fistula, the satisfaction and possibility of definite knowledge gained by the complete exploration possible in a laparotomy, the fact that ninety-eight per cent of all pelvic abscesses cannot be treated rationally in any other way than by laparotomy, and lastly, the fact that all modern abdominal surgeons who are in the habit of studying the pathology of pelvic abscesses in the uncovered light of facts, not theoretically, agree that laparotomies are more and more indispensable in the rational treatment of these difficulties; these facts, let me repeat, make me favor in all cases where the patient is not moribund, laparotomy as the universal treatment for pelvic abscess.

In the eighty-two laparotomies for pelvic abscess which I have made, seventy-seven demonstrated beyond a shadow of doubt that the trouble arose from one or both Fallopian tubes. The percentage of tubal abscesses in this series was therefore ninety-four, all other varieties being included in the remaining six per cent.

In the seventy-seven tubal cases included in this list, pus in quantities to be recognized easily was present. This series does not include cases of simple catarrhal salpingitis, so-called cystic ovaries, or tender tubes or ovaries, for which laparotomy unfortunately has been too often done in the past; it includes only those cases in which pus actually existed in quantity sufficient to be recognized macroscopically. These seventy-seven cases are naturally divided into five classes :

1. Cases in which the infection was confined entirely to one or both tubes, with no extension to the peritoneum. Of these, nine cases were operated on with complete recovery with no fistula or other complications.

2. Cases in which both tubes were infected, and general adhesions existed from extension of the infection to the peritoneum, cases usually diagnosed as chronic cellulitis. Twenty-one of these cases were operated on with one death. In the twenty cases which recovered all were cured without permanent fistula.

3. Cases with universal adhesions from both tubes, with abscesses so large that fluctuation was distinct and that the temptation to vaginal puncture was often great. Of these there were forty-one cases, in all of which laparotomy was performed and com-

plete enucleation accomplished. Of these, one died from the laparotomy, and in one a fistula still exists which for a year has stubbornly refused to heal; the others completely recovered.

4. Large single tubal or tubo-ovarian abscesses which as far as could be ascertained were unilateral. As these were found to have already formed adhesions to the abdominal wall, they were incised and drained directly through the abdominal walls, no attempt at enucleation being made. It is a question whether further watching of these cases will not develop the fact that the opposite tube was also infected. These cases, three in number, recovered and the fistulas promptly closed.

5. Four cases in which the right tube alone was infected, were complicated with appendicitis. The fact that but one Fallopian tube was infected in each of these cases makes the disease appear to have been due to the appendicitis. The appendix and tube in each of these cases were enucleated. One patient died from the operation and three recovered.

In the eighty-two cases operated on there were five cases which were not tubal. Of these one was a suppurating dermoid cyst with a single adhesion to the large intestine, through which it was undoubtedly infected, and four were suppurating ovarian cysts, all of which had been infected from lying in contact and forming pressure adhesions with the large intestine.

In the last five years I have observed carefully, and treated eight cases diagnosed as pelvic abscess in which the treatment was on so-called conservative lines. In one only of these eight was I satisfied that the abscess was extra-peritoneal or a direct result of infected broad ligament phlegmon. Two were the result of tubal infection and peritoneal extension in fibroid tumors of the uterus, in one of which a spontaneous cure resulted from the successive discharge of the two pus sacs through the uterus. In the other spontaneous discharges occurred repeatedly from one side into the bowel, and while preparing for a laparotomy the opposite side discharged into the peritoneal cavity although not at first recognized, because the symptoms resembled those of similar previous attacks. In this case death resulted promptly from septic peritonitis. A fourth was a case I saw several times in consultation with another physician, which was diagnosed as pelvic abscess complicating a fibroid tumor. The abscess pointed in the rectum, and unfortunately was opened into that septic canal. It has been going through a process of filling and discharging, and the woman has been in a complete state of invalidism ever since.

There can be no end to her difficulty except by a laparotomy, although the laparotomy would have given much better chances of success before the rectal fistula had been established. The other four, the records of which are not complete, were fluctuating abscesses pointing low in the pelvis, which were opened per vaginam, as a matter of routine, and irrigated and drained with a rubber tube. These cases have been lost track of. I know, however, that in all the long, irritating aftertreatment with the uncertainty as to the closure of the fistula, and as to the probabilities of a similar abscess developing from another center arrising from another tube, made the cases much less satisfactory, both from the patient's and the physician's standpoint, than they would have been had they been treated by laparotomy. One patient had a discharging fistula for more than a year, and still had it when I saw her last. Not one of these cases healed promptly and satisfactorily.

Only one of these eight cases was better off without a laparotomy; that was the first case mentioned where the history, the position, and the result demonstrated infected broad ligament phlegmon as result of a puerperal sepsis. The history was perfect health previous to confinement, a midwife at confinement, a profound chill during first week of convalescence, later on fever, pain in left side, night sweats, emaciation, and finally a large fluctuating tumor in left broad ligament pointing low to the left of the cervix and through the side of the vagina. The result was subsidence of all symptoms as soon as the abscess was evacuated, the cavity cleansed and drainage established, the complete contraction of the abscess cavity and healing of the fistula within a month, and the perfect recovery of the patient within two months without pelvic tendencies of any kind.

BRIEF SUMMARY OF RESULTS.

In eighty-two pelvic abscesses of all kinds treated by laparotomy there were three deaths, one permanent fistula remaining after one year; all others recovered.

In eight pelvic abscesses treated by the expectant plan or by vaginal incision, one died, one has a chronic fistula of three years duration, several had fistulas lasting several months each, and permanent recovery is certain in only one case.

DIAGNOSIS. So much has been hinted on this importont branch of my subject in what has preceded, that I will only attempt to make a summary here. The diagnosis may be accom-

plished by considering, *a*. Predisposing and Actual Causes: Marriage, abortion, miscarriage, improperly managed, childbirth, gonorrhea, syphilis, tuberculosis, infection from use of dirty instruments, syringes, catheters, etc., in local treatments.

b. History. In the history inquire for miscarriages, abortions and confinement and the particulars of the course of each. Infection at one of these times must be looked for. Is there a history of acute vaginitis or peritonitis following the marriage relation at any time, indicating gonorrhea? Are there repeated miscarriages indicating syphilis? Look out for history of endometritis or metritis. Has there been history of sudden rises in temperature following slight chills? Has there been a history of slight elevation of temperature extending over some time with lateral pains in pelvis? Has dysmenorrhea or ovarian pain suddenly developed at any time. There is sometimes a history of repeated discharges of pus following rises of temperature indicating recurrent accumulation and discharges. A history of severe pain following a douche, a local treatment such as a uterine probing, a placing of a pessary, or an electrical intrauterine treatment, may aid in reaching a solution of the mystery.

c. Subjective symptoms: Dysmenorrhea, dull aching pain which begins with the menstrual discharges and which persists in the region of the tubes for several days after the flow ceases, followed by profuse leucorrhea, scalding urine, bearing down pain with severe dull pain in the region of the ovaries when the patient exercises, severe backache, lack of tone, mental depression, increasing nervousness and irritability, impaired nutrition, loss of flesh, slight elevation of temperature, particularly in the evening. These symptoms develop gradually until they become aggravated to the point of complete invalidism.

d. Objective symptoms: Endometritis, metritis, an hypertrophied uterus, frequently infected vulvo-vaginal glands, vaginitis often accompanied by urethritis. On bimanual examination will be found considerable masses in the region of the appendages, which are easily palpated, which at times will give a sense of fluctuation, at other times a boggy sensation. Frequently they can be moved or dislodged from their position, but not often. The masses are so sensitive that it is often difficult to palpate them, and the patient cannot refrain from making the abdominal muscles too tense to allow of proper examination. Anesthesia will eliminate this difficulty of diagnosis. To differentiate between a diseased tube and ovary it is only necessary to remember that the tube is

given off directly from the horn of the uterus, and that the ovary is situated below and a considerable distance from the uterus.

e. Exploratory abdominal incision as a method of diagnosis is rarely justifiable and scarcely ever necessary because of the comparative ease of diagnosis without it. The exploration of course makes the diagnosis positive.

DIAGNOSIS OF DOUBLE TUBAL ABSCESSES WITH EXTENSION TO THE PERITONEUM.

Predisposing causes are similar to simple tubal abscesses. The history is similar with the additional history of one or more attacks of peritonitis, as the result of tubal leaking or other extension of infection beyond the tubes to the peritoneum. Sudden pain, shock, and more or less prolonged fever with abdominal tenderness are the milestones of these attacks. The subjective symptoms include those of simple tubal infection but more aggravated, together with the additional symptoms arising from peritonitis. The objective symptoms include those mentioned under the simple pyosalpinx with the additional symptoms of a general fixation of all the pelvic organs, the old symptoms so long attributed to cellulitis, with extreme general tenderness. The sensation imparted to the examining finger is one of indistinct fluctuation or doughyness. One side may be more fixed than the other. Occasionally the peritoneal extension has been so marked that no definite outline can be distinguished. Exploratory incision will expose a seemingly inextricable mass of large corrugated tubes, adherent intestines, omentum and uterus. By this exploration alone, however, can the true state of affairs become appreciable.

DIAGNOSIS OF DOUBLE TUBAL ABSCESSES WITH UNIVERSAL EXTENSION IN WHICH THE COLLECTIONS OF PUS ARE SO LARGE THAT IT RESEMBLES ONE LARGE PELVIC ABSCESS.

The predisposing and actual causes, history, subjective symptoms, objective symptoms, are much aggravated as compared with the last three, but similar in nature to those classed as smaller abscesses with extension. On bimanual manipulation it is frequently more difficult to differentiate two abscesses because of the large size of one or both, causing a pressure which obliterates the line of demarkation. The masses give a distinct fluctuation and are differentiated from ovarian and dermoid cysts by the irregularity of the tubal enlargement, its general fixation, and its bilateral position. Among the subjective symptoms will be found more severe pain, greater loss of flesh, aggravated nervous symptoms,

and a state of almost if not quite complete invalidism, with history of chill and fever. Exploratory incision reveals large, generally adherent, fluctuating masses originating from the cornu of the uterus.

DIAGNOSIS OF PELVIC ABSCESSES OTHER THAN TUBAL.

Abscesses arising from ovarian or dermoid cysts will have the early history of an ordinary nonsuppurating cystic tumor. The suppuration is ushered in with a chill, followed with fever which may extend over a considerable period; that is, there is a history of a tumor, followed by all the symptoms of infection. These suppurating cysts are extremely sensitive and eventually become excessively painful. They can be differentiated from tubal abscess in being almost always unilateral, of larger size, more regular in outline and of a different history.

Abscess of the broad ligament is difficult of differentiation from tubal abscesses of large size. The broad ligament phlegmon however is more liable to be unilateral. It invariably follows labor, abortion or miscarriage, and dates from an infection acquired at the time of or following the expulsion of the contents of the uterus. The symptoms develop more rapidly and are of a more profound nature than those arising from extension of puerperal infection through the tubes, unless peritoneal infection occurs when the symptoms of peritonitis will serve to make clear the distinction. There are seldom peritoneal symptoms with the broad ligament phlegmon variety of suppuration. Finally after the chill, the fever, the night sweats, or even earlier, the mass in the broad ligament, low and fluctuating will be discerned by the diagnostician, by proper bimanual examination. Taking into consideration, then, the history which will exclude prepuerperal infection, will exclude symptoms of endometritis, tubal infection and peritonitis, in fact, will present a history of health previous to the conception, together with the symptoms enumerated above a diagnosis of abscess of the broad ligament may with some degree of certainty be ventured.

OPERATIONS.

One of the easiest cases for a laparotomist is the removal of simple nonadherent tubal abscess. This is not to imply that any laparotomy is easy and nonimportant. Every laparotomy, no matter how simple, requires that every detail, on the part of every one who, in the remotest way comes in contact with the operation, from those preparing the gauze, the catgut, the silk, the instru-

ments, the room, the patient, the clothing, shall be carried out with the most unrelenting conscientiousness and intelligence. One weak link in the chain of details may kill the patient, no matter how simple the pathology requiring the operation. It is to be taken for granted therefore, that the details are as perfect as a painstaking and watchful experience with several hundred successful laparotomies in a well conducted institution can make them.

The abdomen is opened with a small incision, the tubes are rapidly but carefully examined with a sweep of the index finger from behind forward. If the tubes are small enough to deliver without rupturing through the ordinary incision, they are carefully delivered together with the ovary, and with great care are ligated as close to the uterus as it is possible to tie. They are then severed from the pedicle, the pedicle rendered sterile with carbolic acid or bichloride solution, carefully applied so as not to reach the peritoneum and after sponging off, the pedicle is dropped. Both sides are treated alike. If the tube is cystic and too large to deliver without danger of rupturing, it is emptied with a small aspirator before it is delivered, care being taken to place a pair of forceps over the aspirator puncture before delivery. Where there has been no adhesion and no pus has escaped into the peritoneum, drainage and flushing are unnecessary. The abdominal incision is closed, the patient is put to bed, with a nurse to watch her for the first week. These patients invariably recover if the operation has been done properly. In the series of this variety I had nine cases with no deaths and complete recoveries in all.

OPERATION ON DOUBLE TUBAL ABSCESSES OF SMALL SIZE WITH PERITONEAL EXTENSION, SO-CALLED CELLULITIS.

These cases should only be handled by the expert. The operation is the same as the foregoing until the peritoneum is opened. Here universal adhesions are found and the mass must be unraveled without tearing an intestine and if possible without tearing the peritoneum or rupturing the tubes. Enucleation is easily accomplished by one who has had experience. This is not a process of tearing. There is a definite line of demarkation between the peritoneal surfaces which have become agglutinated, which must be followed. There are two points at which enucleation may be begun; one is just posterior to the isthmus of the tube as it joins the uterus, the other at the fimbriated extremity. Take the uterus for the landmark in enu-

cleating and pass off from its posterior surface on to the tube. With a little pressure it will begin to peal off from the tissues posterior to it. By following this lead, separating not tearing, one will soon find the whole tube enucleated and lying in the half opened hand. Work from behind, forward and from within outward. Occasionally a little care is required at the outer edge, especially on the left side, to separate the ampulla from the descending colon. After enucleation is accomplished the treatment is the same as for the simple tube. The bed from which the tube has been pealed will show many slightly oozing points on which a sponge is placed until the opposite side is treated. Before beginning to insert the sutures in the abdominal wall a glass drainage tube is placed in the most dependent part of the pelvis. Through this the oozing blood from the raw surfaces is removed. If there is half a drachm of clear blood in the tube after five minutes of waiting when it had been previously dry, the tube should be left until the oozing has ceased, the nurse siphoning it out at intervals of from one to six hours. These cases usually recover without the slightest temperature or discomfort. Of this variety I had twenty-one cases in this series with one death. All cases recovered without a fistula.

OPERATION FOR DOUBLE TUBAL ABSCESSES WITH UNIVERSAL ADHESIONS IN WHICH THE COLLECTION OF PUS IS SO LARGE THAT IT RESEMBLES ONE LARGE PELVIC ABSCESS.

In these cases one proceeds to open the abdomen in the ordinary manner. Before regular enucleation can begin it is frequently necessary to peel back one or more adherent intestines, or masses of omentum from the surface of the fluctuating tumors. Then if the more prominent mass, one tube is usually much more prominent than the other, is not too large or too thin, thus endangering its rupture by slight manipulation, beginning at the isthmus of the tube as with the smaller ones, careful effort is made to enucleate it from its bed before emptying it, as it is easier to follow the outline of the tumor and accomplish its enucleation when it is distended and full. Experience must teach one, however, when not to go too far. When there is danger of rupturing it, it should be carefully emptied of its pus by the aspirator and before commencing the enucleation, the aspirator should be withdrawn and a catch forceps securely locked over the point of puncture. It should then be pealed out, if possible, without rupture. The opposite side should be handled in the same manner, the bed of the former in the mean-

time being packed with small sponges or clean gauze for the purpose of checking the oozing. Great care must be exerted in ligating the pedicles of these old masses, as they are frequently brittle and the ligature cuts through it with but little tension. Fortunately the pedicles in these cases have been such a small source of the blood supply that the hemorrhage from their macerated surfaces soon ceases. Great care should be employed to render the pedicle aseptic when it has been ligated with silk, in order that there may be no subsequent trouble arising from an infected ligature. These stumps are advantageously treated by the thermocautery when ligatures are inefficient. The use of the glass drainage tube is always a safe procedure after these extensive enucleations, in order to relieve the already overtaxed peritoneum from the task of taking care of the blood which will flow from the raw surfaces.

If by any mishap pus has escaped among the contents of the abdomen, because sponges were not properly placed as a protecting wall, it should be carefully removed by sponges and the abdomen thoroughly flushed with sterilized water, temperature 108° F. until the water comes away clear. After this a drainage tube should be introduced. If there is reason to believe from its disposition to point in that region, that the abscess lies in contact with the rectum or lower bowel it should always be rendered perfectly aseptic by repeated enemas, and should be especially prepared by antiseptic douches and iodoform powdering in order to provide against infecting the pelvis if by chance there should have been an opening between the tube and the rectum, or to guard against an accidental opening from the enucleation. If an actual fistula exists, the bowel should be carefully prepared and then moderately packed with iodoform gauze, through the center of which should pass a strong half-inch rubber tube for the escape of gases. The packing may be removed in forty-eight hours, and the fistula will give no further trouble if the abdominal operation has been successful. In my first cases I was afraid that the pelvis would become infected from the rectum. I have operated on several cases and such an accident has never occurred. A good operator can almost invariably enucleate tubal pelvic abscesses. I have never failed to do so in any case that I have attempted and I have operated on some very desperate ones. I have had forty-one cases of this variety in this series with one death, from the operation.

Tubal abscesses complicated with appendicitis should be treated on the general principles laid down by good surgery, for

these difficulties when uncomplicated. Enucleation is desirable when feasible without undue risk. When isolated, incision and drainage offer less risk.

Large single abscesses caused by suppurating dermoids, ovarian cystomas, and infected ectopic pregnancies should be enucleated if possible and treated as noninfected tumor, except that due care should be exerted to render the pedicle aseptic. When the abscess is the result of extrauterine pregnancy, is imbedded in the folds of the broad ligament and is nonenucleable, it may be attached to the abdominal incision, incised, cleaned, and drained, or if too small may be subsequently drained per vaginam.

Pelvic abscess due to broad ligament phlegmon which is seldom encountered, should be treated as broad ligament abscesses due to infected ectopic pregnancy, namely: by attachment to the abdominal incision, and drainage if of large size; if small, drainage subsequently from the vagina. Occasionally these abscesses will be found to have lifted the peritoneum to such an extent that they can be easily entered through a lateral incision without opening the peritoneal cavity. If this condition is found to exist even after median abdominal section, it may be well to close the incision and to subsequently open the abscess extra peritoneally. It should be thoroughly evacuated, cleansed and drained.

VENETIAN BUILDING.