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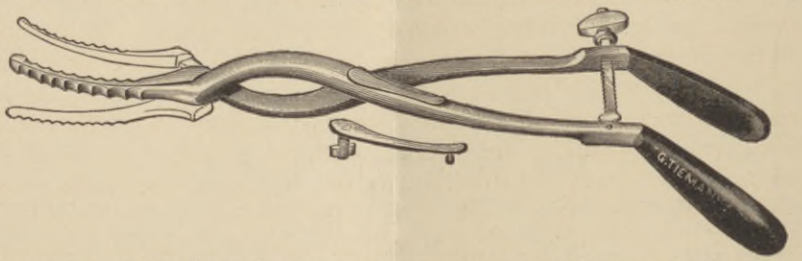
RAPID DILATATION OF THE CERVIX UTERI.

[READ BEFORE THE SECTION ON GYNECOLOGY AT THE MEETING OF THE NINTH INTERNATIONAL MEDICAL CONGRESS, AT WASHINGTON CITY, SEPTEMBER, 1887.]

Having learned, from experience and observation, the bad results obtained in efforts to dilate the cervical canal with tents, or to enlarge or straighten the canal by incisions, to cure dysmenorrhœa and sterility, I was pleased at the substitution of a method more satisfactory; so I beg to call your attention to rapid dilatation by the bi-valve or double-bladed metallic dilators, such as are now used by many learned operators of this country with better results and fewer complications than by other means.

Tents may be indicated in some instances, but I can hardly imagine a case where they would be preferable to the metallic dilators in operations to cure dysmenorrhœa and sterility. The prognosis is not encouraging in the use of tents, and the good results sometimes apparently obtained are usually temporary. They are not easily introduced, frequently cause serious complications, and dilate imperfectly and slowly, often requiring several days to complete the dilatation. Endometritis, pelvic hematocele, pelvic cellular or peritoneal inflammation, septicemia, pyemia



and tetanus are some of the dangers accompanying or following their use. These complications are encountered when we least expect them, and no one of much experience in the use of tents has failed to have his share of trouble, as the most rigid antisepsis is not a preventive in all cases. The tupelo tent is superior to any other material; it is less likely to cause septic infection than the sponge, and dilates more rapidly, regularly and better than the sea-tangle.

The two-bladed dilators are relatively aseptic, are easily used, complete the dilatation at one sitting, and the operation is comparatively free of immediate or subsequent dangers; it nearly always cures the dysmenorrhœa, and often removes the cause or causes of sterility. Briefly, the above has been the experience of the best workers in the field of gynecology. The results of incision of the cervix up to the vaginal junction, or through the os internum anteriorly, posteriorly or bilaterally, has been even more unsatisfactory than those following the use of tents. The

operation seldom cures, is often followed by serious complications, and sometimes it causes a pathological condition of the cervix that demands trachelorraphy, just as in laceration following labor. The graduated steel bougies possess no advantage over the double-bladed instrument; the treatment is tedious and protracted, the complications comparatively frequent, and any good results generally temporary. I have operated many times with the two-bladed instrument, and have had uniformly good results, with no complications. This has been the experience of Goodell, Mundé, Wylie, Goelet and nearly every one who operates after this fashion.

I have no concern about dilating the cervix in my office practice, without local or general anesthesia, to the extent of one-third of an inch to half an inch, the patients leaving immediately to walk or ride to their homes. They seldom suffer much pain during the dilatation, and in a few minutes afterward are free of pain, and never have serious complications. The dilatation should not be done if there is inflammation of the uterus, or the pelvic cellular or peritoneal tissue, or if there is tubal or ovarian trouble, nor until the vagina has been thoroughly cleansed and the instrument made aseptic. In dilatation from three-quarters of an inch to one inch and a quarter, chloroform should be used, but not to the extent of profound anesthesia. The patient should be carefully prepared for the operation, which should be done about ten days after the menstrual period; a hyperdermic of morphia and atropia should be given just before the administration of chloroform. It is best to put the woman on her back and use a large bi-valve speculum, but a Sims' speculum may be used with the woman on her left side. I never begin an operation without three dilators of different sizes, but it may not be necessary to use but two of them. I hold the cervix firmly with a tenaculum, and use the smallest instrument to prepare the way for the larger ones; occasionally the intermediate size may be first used, or the smallest may dilate enough to admit the largest dilator. The uterus tries to slip away from the dilator as it expands, but this is easily prevented by the tenaculum, with the dilators I use. In my experience this difficulty is increased with Goodell's Modification of Ellenger's dilator, and is not overcome by its roughened blades. Appreciating this, and for other reasons, I devised this large instrument. It is claimed for Goodell's dilator, that the blades being parellel, it dilates all parts of the canal equally. This is true in theory only, for the elasticity or yielding of the blades is greatest at the ends, while the greatest resistance is in the upper part of the cervix, so that when the external os is dilated one inch and one-eighth the internal os is dilated not more than an inch. The reverse should be true; for the part that most needs to be acted upon is generally near the uterine body. This dilator is more powerful, less complicated, and will not slip out of the uterus so easily when expanding, and when it dilates the external os seven-eighths of an inch, the internal os will be open about an inch. We should not dilate too rapidly, lest we lacerate the cervix, nor should we dilate a small cervix as much as we would a large one. When the woman begins to come from under the influence of chloroform, and feels pain from the presence of the instrument, it should be loosened and gently withdrawn. The results are probably better if the canulated intra-uterine stem is inserted just after the operation or during the second day. The woman should be kept in bed for a week, and the vagina should be washed out with hot water daily. Sexual intercourse should be proscribed for a month, and everything that tends to disturb the pelvic structures should be avoided, and the patient should be kept in bed

during her next menstrual period. In conclusion, I would suggest that rapid dilatation may be substituted for other means in nearly every case where dilatation is indicated.

DISCUSSION.

Dr. AUGUST MARTIN, of Berlin, Germany.—The opinion of the profession has undergone remarkable changes since the time of Sir James Y. Simpson. We can not but suppose that unlucky consequences have followed the use of tents, of whatsoever material, and have suggested the so-called rapid dilatation. But also in this method of procedure the development has been rather a limited one. Dr. Wathen's instrument seems to be well designed for the purpose, and Dr. Wathen is quite right to prevent, by the construction of the instrument, any slipping of the womb. The instrument allows an astonishing degree of dilatation.

As to my own experience, I have often felt to question: Is it necessary to dilate so often and to such an extent? We use dilatation in a much more limited way at present, particularly because dilatation does not give us knowledge sufficient for diagnosis in most of the cases of diseases of the *corpus uteri*. For these cases the curette is a much more useful instrument, for the use of which we do not require dilatation. I admit that there remain cases in which dilatation is unavoidable. For these, such instruments may be used. I prefer, and recommend to those accustomed to operate, the slitting of the uterus so far as to pass the the finger, and then sewing the divided parts at once, similarly to the operation of Emmet. This heals in quite a normal process, if sepsis has been strictly avoided. How to do so may be left out of the discussion. Incised wounds are more apt to heal than torn ones.

Dr. GRAILY HEWITT, of London, England, had listened with much interest to the two papers just read, one on cervical dilatation for dysmenorrhœa and one on sterility, both of which touched on subjects on which he felt tempted to offer one or two remarks. He would beg to thank Dr. Gordon for his complimentary and appreciative remarks concerning himself. In reply to the remarks of Dr. Reed, he had to say that he had no pretensions to compete with the late Dr. Hodge for his valuable discovery in regard to the treatment of retroversion and flexion by the well-known Hodge pessary. In fact, he himself had adopted the principal of Dr. Hodge in endeavoring to provide a pessary to prevent undue descent of the fundus anteriorily in cases requiring it, and in doing so by the "cradle" pessary had found the Hodge principle a valuable basis for that instrument. As regards the wide question embraced by the two papers, he thought one important point had not been touched upon in either of the two papers, viz: the question as to the cause of the improvement afforded by dilatation. He was of opinion that the narrowing of the cervical canal was very frequently due to compression of the anterior against the posterior uterine wall, whereby the canal becomes virtually closed in certain cases of flexion of the organ. Now, in dilating the canal it seems to be forgotton that the "canalization" of the uterus, as Dr. Mathew Duncan terms it, is not only a dilatation but a straightening of the canal, and as a result of forcible and wide dilatation, there would occur effusion of lymph in the uterine walls, followed by hardening and condensation, and the effect would be the same as if an anterior and a posterior splint were applied. In this way we would for a considerable time not only open the canal, but maintain it in a more straight condition than before.

This is exceedingly important to bear in mind in estimating the value and applicability of dilation as a method of treatment.

Dr. I. W. Faison, of North Carolina.—I arise to defend the operation. I have performed it twenty to fifty times a year for eight years, and have had no bad results. Our country air may have aided my patients in getting along so well. I have never used an antiseptic other than plenty of soap and clean water, nor have I repeated the operation on same patient; I always used hot water as a vaginal injection night and morning after the operation.

Dr. Balls-Headley, of Melbourne, Australia, said: It seems to me that waves of practice occur. Years ago the uterine canal was divided by some form of metrotome, which usually acted irregularly and excessively and created laceration of the cervix—more evident still after division by scissors—and was found unsatisfactory. It was dilated by mechanical dilators or by tents, whether of sponge, sea tangle or other material—also found to be bad; and intra-uterine stems are generally discarded. Then by the knife; and now forcible, extensive and rapid disruption by powerful mechanical dilators is in vogue in America. Any operation or injury of any part of the body must have a percentage of mortality, and while discarding all metrotomes and stems, and the creation of the lacerated cervix, I think the injury inflicted should be of the slightest and least irritating kind, and am not at present disposed to exchange this mode for that now advised—yet it may be that the more extended experience of the practice in American hospitals, which I hope shortly to have, may convert me.

Dr. Trenholme, of Montreal, Canada, remarked that cases of tubal or ovarian disease contra-indicated the operation. Diseases of the tubes were readily detected shortly after menstruation by the enlarged condition of the organ. The use of the curved stem, worn for some time afterward, was necessary to obtain any permanent good.

Dr. Lawrence, of Bristol, England, had used sounds for years. His patients are constantly coming back. In the unimpregnated uterus, with proper precautions, this treatment can be used, but the sound must not be left too long. He used gelatine-coated sponge tents, previously saturated with carbolic acid.

Dr. Goelet, of New York, said, in condemnation of division of the cervix, that it was unnecessary and objectionable because of the liability of cicatricial contraction to follow. Recently he dilated in the case of a lady who had had the posterior lip of the cervix cut by a distinguished physician of Washington. She was worse after the operation of division, and menstruated with great effort and pain. After dilation and the use of the stem (the laceration or incision of the previous operation being sewed up at the time) she was completely and permanently relieved. Cicatricial contraction had occurred after the first operation of division, and the mutilation was useless. It was permanently overcome by proper dilatation.

The paper was further discussed by Drs. Gordon, of Maine; Weeks, of Maine; Reed, of Ohio; Jackson, of Illinois; Clarke, of Massachusetts; Hoff, of Ohio; Leonard, of Michigan; Bond, of Missouri; Asdale, of Pennsylvania; Burns, of Pennsylvania; Nelson, of Illinois, and Lapthorn Smith, of Canada.

Dr. Wathen, in closing the discussion, said: I am pleased to recognize Dr. Emmet as authority on many subjects in gynecology, but I am surprised that he should be quoted as authority upon rapid dilatation of the cervix, as he seldom,

probably never, performs the operation, and positively refuses to recognize an obstructive form of dysmenorrhœa. To be logical, he can not perform the operation, and can have only a theoretical knowledge of its value; hence the relative insignificance of his opinion, compared with the opinions of gynecologists of large experience in this operation.

Rapid dilatation is also a valuable means of removing obstruction due to flexure of the neck, if, after the first dilatation, we reverse the concavity of the blades, and expand the instrument a second time, following the dilatation with an intra-uterine stem, to be worn until the local effects of the operation have mainly subsided. Dilatation may also be indicated in some cases where there is no permanent congenital or acquired pathological narrowing of the canal, but the woman has spasmodic contraction resulting from a so-called fissure at the utero-cervical juncture, similar to fissure of the rectum, and the operation cures the trouble, just as divulsion of the anus cures anal fissures. We can arrive at a reliable conclusion as to the relative dangers in enlarging the canal with tents, incisions and rapid dilatation, only by observing the experience of those operators who have carefully tested all these means; and the opinion of such men is universally in favor of the latter method. Having carefully given the indications and contra-indications for the operation, it is not necessary to repeat them, but I regret that the discussion should have assumed a latitude not contemplated in the paper, including, as it has, the operation for the removal of conditions that could not be expected, by any logical process of reasoning, to be benefited by dilatation.

SURGICAL TREATMENT FOR LACERATIONS OF THE PERINEUM AND PELVIC FLOOR.

[READ BEFORE THE AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS AT THE MEETING OF THE CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS AT WASHINGTON CITY, SEPTEMBER, 1888.]

I will not consume your time in discussing vague theories to prove the relative value of the so-called perineal body in holding the uterus, etc., in position, or its action as the key-stone of an arch, but will confine myself especially to the surgical treatment for lacerations or injuries of the muscular and aponeurotic structures that form the floor or diaphragm of the pelvis. There is probably no other subject in gynecology about which so much has been said that is of no real value, and hence a relatively simple operation has been made to appear so complicated that it is seldom correctly performed. We will pass by much of this immensity of pseudo-scientific rubbish, and take a practical view of the subject.

The fat in the areolar connective tissue of the perineum constitutes a valuable part of this structure, just as it does in other parts of the body, but it gives but

little strength, and with the muscles and fascia destroyed is of no use in holding the vagina, uterus, rectum or bladder in their normal positions. But all the perineum may be lacerated except the muscles and the fascia, and still we may have no displacement of the pelvic organs.

The muscles and the fascia in the perineum give it strength, and when they are lacerated no operation that does not primarily tend to reunite them will be followed by permanent good results. Prolapsus of the uterus, with recto-cele and cystocele, may result from subcutaneous rupture of these structures with no laceration or injury of the mucous membrane or other parts of the perineum. This condition is usually not diagnosticated by the attending physician, and the woman is subjected to various plans of treatment to hold the parts in position and relieve the annoyance from pressure, weight, etc., all of which give but little relief; nor can she be cured except by an operation to bring together and reunite the muscles and fascia. Nearly all the muscles that contribute to the formation of the pelvic floor are united to the bony parts of the pelvis—symphysis pubis, tuber ischii and coccyx—and are joined together by muscular or ligamentary union between the vagina and the rectum to give strength and protection to the perineum. The muscles are surrounded and protected by the three layers—superficial, middle and deep—of the pelvic fascia, which are also joined together in the perineal raphé, and give additional protection to the perineum, and hold the rectum, vagina and urethra in position.

The following are about all the muscles that constitute the pelvic floor, namely: the levator ani, the ischio-coccygeus, the sphincter ani, the constrictor vaginæ, the transversus perinei and the ischio-cavernosus; the levator ani and the ischio-coccygeus may be described together. The sphincter ani and the constrictor vaginæ are the most important muscles in the perineum, and in surrounding the rectum and vagina they unite and form a figure of eight.

When any or all of the perineal union of these muscles, or of the fascia, is lacerated, unless at once united and held together, the muscular contractions continue to widen the distance between the torn ends, so that the vulva gradually becomes enlarged laterally. The extent of this lateral separation is governed by the degree of laceration and the length of time since it occurred. If the foregoing is correct, then no operation will succeed that fails to bring these torn ends together so as to reunite them. This is a simple question that holds good in all operations to restore the perineum in complete or incomplete ruptures, and if we are controlled by it, and are familiar with the technique of the operation, success will nearly always crown our efforts.

I do not know of any operation that is not probably faulty in this particular, but the operations that accomplish this purpose best are performed by Marcy, Tait, Duncan, Simpson, Langenbeck, Saenger, Hart and Barbour; but, if I understand their methods correctly, they do not fully appreciate the importance of dissecting up and uniting the muscles and fascia. Emmet has done much to perfect the technique of the operation.

It would be a waste of time to mention the almost endless variety of operations that have been suggested or performed, most of which are of no real value to the patient, or, at best, give only temporary and imperfect relief. No permanent good results can follow secondary operations where the operator practices the usual form of denudation and removes only the superficial parts of the membrane covering the

lacerated surfaces. He gets union of the surfaces of the mucous membrane only; the ends of the muscles and the torn fascia are still separated, and the perineum gives no firm or sustaining support. The muscles and fascia can not be united in secondary operations unless we dissect up the torn ends by deep incisions, so as to bring them together and hold them in apposition. This is accomplished by a splitting process, something after the fashion of Marcy, Tait, Langenbeck, Saenger and others. The incision should go deep near the anus and on the lateral borders of the vulva, and the recto-vaginal septum should be split through the connective tissue between the vaginal and rectal layers, so that the vaginal flap may be thick enough to prevent sloughing.

In complete ruptures the incisions must expose the ends of the sphincter ani-muscle, and the lateral and the recto-vaginal splitting must be continued and widened until it exposes, if possible, the separated muscles and fascia, but the operator must be governed by the condition he finds and never make incisions more extensive than are necessary. In ruptures extending high up the recto-vaginal wall, and especially in ruptures of old standing, followed by atrophy of the tissues, where the ends of the muscles have become widely separated, the splitting will necessarily have to be made more extensive.

If the operation to restore the perineum is not done within twelve hours after the injury, it is hardly possible to get union. It is not necessary to give the reasons why the primary operation should be performed, as there are but few men of recognized ability in obstetrics or gynecology who are opposed to it. In this list the name of the distinguished Professor A. Charpentier, of Paris, is conspicuous. His objections are illogical and are not sustained in actual practice where the operation is correctly done. There are a few cases of profound shock, or where the tissues are so injured that the parts will surely slough, in which any operation is contra-indicated. But these instances are rare and the woman is nearly always benefited by the operation. I do not wish to be understood to urge the primary operation, or the secondary operation, where there is only a short rent that does not involve the perineal muscles or fascia. These lacerations do about as well without treatment, and, if they do not entirely unite, cause but little immediate or remote inconvenience. But if deeper lacerations are not operated on immediately, various complications may arise, including septicemia, uterine displacements, rectocele, cystocele, chronic inflammation of the bladder or rectum, subinvolution resulting in hyperplasia of the uterus, vagina and other pelvic structures, weakening of the uterine ligaments, a tendency to abortion, impaired sexual desire or gratification to the husband, and neuralgia in the site of the rupture, or reflex disturbances; and, if the sphincter ani is entirely torn through, incontinence of feces and gases. If the muscles and fascia are much injured, we can not expect the torn ends to perfectly unite unless held together by sutures. The union otherwise, if any, will be imperfect, and often of the integument and the superficial structures only. But if the operation is properly performed in partial or complete ruptures, union will be nearly perfect in most cases. Of course, the operator must be familiar with the correct technique of the operation and must observe absolute asepsis. The same general principles should govern us in the use of sutures that apply to the secondary operation. I have operated in such cases often, and have never had a failure; in fact, the success is usually more perfect than in the secondary operation. The torn ends of the muscles and fascia

are now easily held in apposition and unite within a few days. I operated on a typical case a few weeks ago for my friend, Dr. ——:

The woman was delivered of a large child when sixteen years old, and was torn through into the rectum for over an inch, and the vaginal wall and the connective tissue were torn two inches further up. The operation was done about an hour and a half after delivery. About fifteen sutures were used in the vagina and the perineum. The vaginal tear was united by silk sutures and the perineal by silver wire and silk-worm gut, using only one silver wire as a base suture to hold together the ends of the sphincter muscle. The sanitary and hygienic surroundings were not good, and she had but little after-attention. She passed her urine, the vagina was washed out but a few times, and her bowels moved daily, after the second day. At no time was there any pus, and the entire laceration healed by first intention. When I called to see her on the twelfth day, she had gone into a back room and was nursing her babe. In a final examination, the perineum was found as perfect as before labor, with no disfigurement of the vulva. I select this case out of many, as the conditions were less encouraging than in any of the rest. I have been so uniformly successful that I now have but little concern about getting a good result if the woman will obey instructions.

If the operation is well done, I doubt the necessity of drawing the water or tying the legs. Nor is it necessary to wash out the vagina often. The urine and the lochia are not poisonous, especially after the second day, if strict asepsis has been observed in the operation. I have used a variety of sutures, including silver wire, silk, silk-worm gut and catgut, but I am not prepared to assume any positive position in favor of one over another, if they are properly prepared. I have not used the kangaroo tendon, but I am told by my friend, Dr. Marcy, that it is more reliable than the catgut, never causes septic infection, and is easily absorbed, but retains its integrity long enough for strong union to occur. It is doubtful if the catgut will do this in complete ruptures, if used as a base suture, or to hold the ends of the sphincter muscle together. Then the catgut is not always reliable, and sometimes causes septic infection. The silk suture would be as good as any were it possible for the tissues to absorb it. It can be buried in the tissues more easily than the catgut or the kangaroo tendon, but remains there to be encysted, or to finally slough out. The silk-worm gut is in many ways a typical suture, and may be used alone or with other sutures. If carefully used, it is one of the most perfectly aseptic sutures, but it can not be absorbed, and is so sharp at the ends that it cuts the tissues as much as the silver wire. I have usually buried this suture, but was nearly always compelled to cut it out, as the sharp ends would finally protrude through the tissues and cause irritation and pain. The sutures should be buried in the ideal operation in aseptic surgery, but we should use sutures that will be absorbed when the parts have adhered with sufficient firmness to prevent separation. In complete ruptures I have always used a base suture of silver wire; but if the kangaroo tendon, or any suture that will be absorbed, will serve the same purpose in keeping the ends of the sphincter ani muscle in contact, I would adopt it.

In the secondary operation the patient must have preparatory treatment. Do not operate until the parts have healed. Have the woman in reasonably good health, purge her two or three times a day for nearly a week before the operation, and give her mainly liquid food that does not form much solid feces.

Just before the operation she should wash her entire person carefully with soap and hot water, and also wash out the vagina with a gallon of hot water. In cases where the cervix is abraded, so as to cause a profuse acrid discharge, it is best to

treat this condition and not operate until the surface is nearly healed. The operation should be done about a week or ten days after the menses. With one or two fingers in the rectum as a guide, in partial ruptures, the splitting may be done in five minutes. The knife should be introduced at the muco-integumentary junction, just in front of the anus, and pushed up under the tissues until they are divided as high up as is needed; then, by cutting deeply on each side, the muscles and fascia will be exposed. The outer line of the incision must follow the line that marks the junction of the skin and mucous membrane. If the rupture extends into the bowel, then the lateral incisions should go deep enough to expose the ends of the sphincter ani muscle, and be made on the sides of the labia, just as in the incomplete cases. The recto-vaginal septum should be separated up a quarter to half an inch by carefully dissecting the vagina from the rectum through the connective tissue. Bleeding is not so troublesome as that following the superficial denudation, and can usually be quickly stopped by sponging, irrigation, exposure or torsion, or a fine gut ligature may be thrown around the bleeding vessel.

Capillary bleeding does not delay the operation, for, if the parts are in perfect coaptation, the pressure will control hemorrhage, and union will not be interfered with. Where any form of an aseptic animal suture is used, the needle should be introduced, and brought out just within the lower or external edges of the raw surfaces, so that when they are united the suture will be concealed or buried in the tissues. Sometimes a few superficial sutures will be required. The sutures should be so introduced as to be entirely covered by the tissues, and to bring the surfaces into even and exact apposition. If the sphincter ani is ruptured, I always use the base suture after the fashion of Emmet. In incomplete ruptures the deep-buried animal suture, used after the fashion of Marcy and Schroeder, may serve an excellent purpose in the practice of an expert operator; and, where the splitting has been made extensive, the parts are brought more perfectly in apposition by using a continuous suture, or one or more separate sutures at the bottom of the wound before introducing the deep perineal sutures.

In complete ruptures, about three or four deep sutures will be required, and sometimes that number is required where the sphincter ani is intact. If the rent in the recto-vaginal wall extends up more than an inch, it is usually necessary to suture this part before introducing the perineal sutures, but the operations should be completed at one sitting.

When the tissues on each side and at the apex of the rent are deeply split, the recto-vaginal surfaces should be well separated and brought together by one or more sutures, after the fashion of Mr. Tait, in his vesico-vaginal fistule operations; or, if this can not be done, the split edges may be united by interrupted sutures, or by a continued suture, so introduced as to be buried in the flaps, going into neither the vagina nor rectum.

This operation exposes and brings together the ends of the perineal muscles and fascia, and the fascia that holds the rectal and vaginal walls in position, and restores the perineum and the pelvic floor to nearly a normal condition, with about the same resisting power as before the injury occurred. In operating for incomplete ruptures with rectocele, the recto-vaginal septum should be split up to nearly the apex of the vaginal protrusion.

No tissue should be destroyed except jagged edges in some complete ruptures; the dissected part assists in protecting the wounded surface against the dangers of

infection from uterine or vaginal secretions, and also increases the thickness of the perineum. I have never had a recto-vaginal fistule after an operation for complete rupture, nor do I believe it will often occur if the operation is correctly done. It is immaterial whether sponges are used or the parts cleansed by constant irrigation with clean water. It will be observed that I do not allude to antiseptics, but speak of asepsis, or perfect surgical cleanliness. Weak solutions of bichloride of mercury or of carbolic acid would probably do no harm; but if we depend on their use and do not observe the laws of absolute cleanliness, our operations will not always succeed. I do not wish to inveigh against the antiseptic craze, for it has resulted in much good by directing the medical mind to the necessity of a rigid observance of all the laws of cleanliness; and the technique of surgical operations, even in minute details, has been wonderfully perfected. Septic infection does not follow my operations, and I have but little fear of it so long as I continue to observe the rules that now govern me. I do not remove the deep base wire sutures for about one week, and allow the patient to get out of bed from the tenth to the fifteenth day. I have got equally good results by constipating the bowels and by allowing them to move daily, but I do not think it good treatment to constipate the bowels for from five to eight days, as was once the custom. In nearly every case I prefer to have a soft or a liquid stool each day after the operation, and especially after the third day.

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*A SUCCESSFUL VAGINAL HYSTERECTOMY FOR CARCINOMA UTERI.

[READ BEFORE THE SOUTHERN SURGICAL AND GYNECOLOGICAL SOCIETY AT BIRMINGHAM, ALABAMA, DECEMBER, 1888.]

I had written a paper on "Hysterectomy for Malignant Diseases of the Uterus," to read before the Southern Surgical and Gynecological Society in September, but after the meeting was deferred to December I read the paper before the American Association of Obstetricians and Gynecologists at the meeting of the Congress of Physicians and Surgeons in Washington. I again find my name in the new program to report upon the same subject. It would not be courteous to the members of this association for me to read that paper again, for an extended abstract has been published in many of the medical journals in different sections of the country.

But that I may in a degree fulfill my promise, I have concluded to report a successful vaginal hysterectomy which I did in October, and to make some remarks upon the improved *technique* of the operation, especially upon that part of the details relating to hemostasis. I operated in the forenoon of October 9th, at the Norton Infirmary, of Louisville, on Mrs. B. A., thirty-four years old, of Irish descent, and a mother of five children. When she consulted me, about the 1st of August, she was suffering with nearly constant bleeding, the blood being mixed

*This is probably the first vaginal hysterectomy for cancer performed south of the Ohio river.

with offensive matter. Her digestive and assimilative functions were not good, and she was badly nourished. She was losing flesh rapidly, and her general appearance indicated approaching cachexia.

I concluded from the history she gave me of her trouble that the disease began from twelve to eighteen months before I saw her. I found carcinoma of the cervix uteri extending up the endometrium, but not involving the vagina or any of the uterine adnexa. The uterus was in normal position and perfectly movable, and no enlargement of pelvic or other glands could be detected. I did not believe all the disease could be removed except by total extirpation of the uterus, and advised her to have the operation done as soon as I could succeed in temporarily improving her local and general condition. She lost but little more blood, and by the 1st of October looked and felt much better, and there was hardly any further extension of the cancer.

She was prepared for the operation by being well purged, carefully bathed, and the vagina washed out with two gallons of hot water. The hair was cut from her pubes, and the parts well washed with ether and a 1-2000 solution of bichloride of mercury. The instruments, sponges, etc., were prepared with all the aseptic care that should govern us in doing successful abdominal surgery. I was assisted in the operation by Drs. H. H. Grant, J. B. Marvin, J. M. Matthews, H. Orendorf and F. C. Simpson. The water was boiled, and the instruments and sponges were put by the nurse in weak carbolic acid solution. Chloroform was administered and the operation done after the following fashion :

The woman was put in the exaggerated lithotomy position, and the neck of the uterus exposed by a Sims' speculum and retractors, and drawn to the vulva with a heavy vulsellum forceps. The vagina was cut away from the cervix about one-fourth of an inch from its attachment, and two or three small bleeding arteries secured by catch forceps. Further dissections posteriorly and anteriorly were made with the finger. The pouch of Douglas was first opened and all posterior attachments of the uterus rapidly separated. Then the uterus was carefully dissected from the bladder, great caution being observed to prevent wounding this organ or the ureters. Finally, all that held the uterus in position had been divided except the folds of the broad ligaments. The index finger was now hooked well over the left ligament, and it was secured at a distance from the uterus by a catch forceps of my device, which I here show you. The right ligament was clamped in the same way. Both ligaments were then divided with the scissors near the clamps, and the uterus, ovaries and tubes were pulled away through the vulva.

The uterus was not inverted, and was removed in just twenty minutes. To prevent the possibility of hemorrhage, all bleeding surfaces or points were caught in catch forceps, so that when the operation was done eight pairs were left in the vagina. She did not lose more than one or two ounces of blood during the operation, and none after it. The small forceps were removed in twenty-eight hours, and the two large ones clamping the broad ligaments were removed in fifty-two hours. A small pledget of sublimated cotton was introduced into the vagina to hold the forceps apart and to aid drainage, and the vulva was well covered with absorbent cotton and a T bandage applied. No sutures were used to control hemorrhage or to unite surfaces, and the vaginal vault was left open. The cotton was removed from the vagina when the small forceps were taken off, and it was subse-

quently used only as a dressing over the vulva. The discharge of necrosed matter which had been destroyed by the forceps was rather profuse and offensive for a few days, but after a week it had nearly ceased and was not at all offensive in odor. No vaginal washes were used, but the dressing was removed twice daily, and the external parts carefully cleansed. She was allowed to lie on her back or sides, as she preferred, and her water was drawn for one week. Her bowels were moved on the sixth day with sulphate of magnesia, and moved every day or every second day afterward. She had beef peptonoids, beef tea and mutton broth for three or four days; then she began to take milk and a little solid food, each day increasing the quantity, and after the eighth day she took house diet. She suffered two days from the presence of the forceps, and for two days more from an irritability of the bladder. She was given during this suffering one-sixth of a grain of morphine two or three times daily. Her pulse after the operation and during the first day was sixty beats per minute. It then ranged from sixty to ninety, seldom getting above seventy-five. Her temperature reached nearly 101° on the second day, probably caused by the local annoyance and pain from the clamps. It then ranged from 98° to 100°. At no time was there any shock or sepsis, and she made an uninterrupted recovery. She was out of the bed on the fifteenth day, and left the Infirmary on the nineteenth day.

The vaginal vault had perfectly united at the end of one week. I have examined her several times since she left the Infirmary, and can detect no evidence of any return of the disease. Her general condition and appearance and all her functions had improved about twenty-five per cent. at the end of the second week, and she has continued to get better; in fact, she looks and feels perfectly well, and is going out on the street and is attending to her domestic duties.

I interdicted sexual intercourse for three months, but probably this precaution is not entirely necessary, as there has been neither pain nor tenderness on pressure, after the third week, in the vagina or in the pelvic or abdominal cavities.

A careful microscopic examination of the specimen removed was made by Dr. Simon Flexner, who reports as follows:

LOUISVILLE, KY., November 3, 1888.

MY DEAR DOCTOR: Herewith I beg leave to submit a report on the examination of a specimen handed to me. The specimen consisted of uterus, tubes and ovaries just removed. The uterus had suffered marked change in configuration. The cervix was changed most, and was the seat of evident degenerative change.

The degenerative process could be traced by the unaided eye through the cervix and about one-half the length of the fundus, where the tissue had a more healthy appearance. This limitation of degenerative process was subsequently confirmed by microscopical examination, as will appear. The tubes were apparently in a healthy condition, and the ovaries presented no abnormal features, save a few cysts.

On microscopical examination the growth involving the cervix proved to be adeno-carcinoma; as before indicated, the new process extending into the body of the uterus disappearing about its center. In the mucous membrane of this portion there is considerable hyperplasia of the normally present spindle cells, and foci of round cells are occasionally observable. The glandular structure, however, appeared quite normal. Microscopical examinations of one ovary, at the point where it is attached to the tube, shows no degenerative change. Some connective tissue proliferation had taken place. Beyond this I could observe no change.

The tubes were not examined microscopically.

Pieces from which sections were made were immediately removed and hardened in alcohol.

Very truly, SIMON FLEXNER.

Asepsis or perfect surgical cleanliness should be enforced in every detail of the operation. Weak solutions of disinfectants may be used, but I doubt their efficacy, and strong solutions are positively poisonous. I believe the success of vaginal hysterectomy depends largely upon absolute surgical cleanliness, rapidity in operating and a perfect hemostasis. When the operation is prolonged, and the woman is kept for one or more hours under the influence of an anesthetic, or loses much blood, she is in relatively greater danger of death from shock or sepsis. By the use of clamps to control hemorrhage, the *technique* of the operation is so much simplified and improved that the uterus, etc., can be removed in from ten to twenty minutes, and the loss of blood is no longer an important factor. The clamps also afford an excellent means of drainage, and do away with the necessity of a drainage tube. But if we follow the *technique* of Schroeder, Martin and others, and use sutures to control hemorrhage and to unite the vaginal and peritoneal surfaces, or to close the vaginal vault, it will require from one to two hours to complete the operation, and the hemostasis is not so perfect. Results have shown that it is best not to close the vaginal opening, and experience has demonstrated that the supposed dangers resulting from intestinal or omental protrusion in the vagina are mostly imaginary; at least, they are reduced to a minimum.

I believe that the mortality in vaginal hysterectomy can be reduced as low as that in ovariotomy, but I beg to repeat what I have said at another time, "that it is positively criminal for any one to attempt to extirpate a cancerous uterus or to do pelvic or abdominal surgery until he learns the anatomy, physiology and pathology of the pelvic and abdominal structures, and knows how to make a correct diagnosis where it is possible to do so. He should also know the general principles and the details of the most approved *technique* for such operations." Nor should the uterus be removed if there is any evidence of cancerous cachexia, or if, in a careful physical examination, any structure outside of the uterus in the pelvic cavity is found to be infected. A microscopical examination of a part of removed tissue by an experienced microscopist and pathologist may aid us very much in diagnosticating cancer of the uterus in its incipiency, when we may expect the best immediate and subsequent results from vaginal hysterectomy.*

THE PATHOLOGY OF ECTOPIC PREGNANCY AND PELVIC HEMATOCELE.

[THE ANNUAL ADDRESS OF THE CHAIRMAN OF THE SECTION ON OBSTETRICS AND DISEASES OF WOMEN, READ AT THE NEWPORT MEETING OF THE AMERICAN MEDICAL ASSOCIATION, JUNE, 1889.]

Nearly everything written upon the pathology and treatment of ectopic pregnancy prior to 1880 is of no practical value, and even a brief *résumé* of the views taught by a few of the then recognized authorities upon this subject would be taxing your patience beyond endurance; so I will pass by the superabundance of this

*Ten months after the operation there is no return of the cancer, and the woman weighs ten pounds more than at any time since her marriage, and feels perfectly well. She has sexual connection regularly, but does not experience any pleasurable sensation.

worthless literature, and hurriedly present to you what I conceive to be the accepted teachings of to-day, based upon thorough scientific examinations of the ectopic gestation sac and its contents in post-mortem examinations and in abdominal sections. And if I come to conclusions not entirely in harmony with the views of such distinguished authorities as Mr. Lawson Tait and others, I beg that you will bear with me and remember that in scientific matters the heterodoxy of to-day may become the orthodoxy of to-morrow. I will not theorize upon matters about which we know comparatively little, but will try to put facts in logical relation, so that you may judge if my premises and conclusions are correct.

1. The ovum is never impregnated in the uterus, and the conjugation of the male and female elements must take place before, or just after, the ovum enters the tube.

2. Ectopic pregnancy is always primarily tubal, with the possible exception of ovarian pregnancy; the tube ruptures before the fourteenth week into the folds of the broad ligament or into the peritoneum.

3. Abdominal pregnancy can not occur except as a result of primary or secondary rupture, and if the villous or placental attachments are destroyed the ovum immediately dies, because it can not form secondary attachments to other structures.

4. If, in rupture into the peritoneum, the ovum retains villous or placental attachments, it may be possible under certain conditions for the pregnancy to continue, though it is not probable. If the amnion is ruptured in the early months, the embryo or fetus will die.

5. So-called interstitial pregnancy does not *always* rupture into the peritoneum; it usually does.

6. If we define pelvic hematocele as an encysted or confined tumor formed of blood, then intra-peritoneal hematocele is not possible.

Mr. Tait is a recognized authority upon the pathology and the treatment of ectopic pregnancy, but he is nearly alone in his belief that in normal pregnancy the conjugation of the two elements takes place in the uterus. I have read all he has written upon this subject, and I do not believe that his premises are correct or his conclusions logical; and nearly all the facts that are known about the physiology of reproduction sustain me in this view. His assertion that the spermatozoids can not pass out through the Fallopian tubes unless disease has destroyed the ciliated epithelium, is based upon no positive evidence, and is contrary to what observations on lower animals have proven. It is true that the tubes in the rabbit, the bitch and other animals are not identical in shape or position with the Fallopian tubes of woman, but they serve in a degree the same purpose, and some of them are lined with ciliated epithelium, which sustains the same relations to the movements of the spermatozoids. In the bitch, each tube enters the uterus by separate communications about as small as the diameter of the cavity of the tubes in woman in their passage through the uterine parenchyma. Desquamative salpingitis, or other diseased conditions of the tubes, may obstruct the passage of an impregnated ovum into the uterus, but would also tend to obstruct the passage of the spermatozoids into the peritoneum, and by no means could such conditions facilitate their passage. The ciliated epithelium has no effect upon the movements of the spermatozoids; they move by an inherent force at a rate estimated by Ch. Robin at .78 inch in ten minutes; by Henle at one inch in seven and one-half min-

utes ; and Sims says they move their length in one second. They would easily overcome any possible obstruction caused by the ciliæ of the tubes, for Robin has observed that they push out of their way epithelial cells and crystals ten times their size. The inherent power of movement in the spermatozoids is proven in those cases where women have become pregnant with nearly an imperforate hymen, and with atresia vaginæ, with only a small fistulous and diseased canal leading to the uterus ; or where the spermatozoids entered the uterus through the urine in the bladder. In Koeberle's case the uterus had been amputated two years before for fibroid tumor, and the pregnancy in the *tube* resulted from the passage of the spermatozoids to the peritoneal cavity through a small fistula in the cicatrix of the cervix. Leopold has demonstrated that with one tube entirely closed an ovum may be impregnated by spermatozoids from the other tube. "He tied the right Faliopian tube in rabbits in two places and exsected a portion of the tube between the ligatures ; the left ovary was carefully removed, and the abdominal wound was closed. After recovery the rabbits were put to the male. In two such cases pregnancy followed." If the ovum is not impregnated before or just after it enters the tube, degenerative changes will destroy its vitality before it reaches the uterus ; and it is claimed by recognized authorities, including Charpentier, that after it passes the outer third of the tube it is covered by a layer of albumin which the spermatozoids can not pierce. Costé, in his observations upon rabbits, found the unimpregnated ovum in the cornu of the uterus so densely covered by a zone of albumin that the spermatozoids could not enter it, though they were found in great numbers immediately in contact with it. The impregnated ovum in the guinea-pig does not enter the uterus for three or four days, and in the bitch it does not enter for nine or ten days; by analogy we may infer that in woman it passes slowly through the tube, and is probably not in the uterus before the tenth day after impregnation. During this time the endometrium becomes succulent and thickened to give a proper nidus upon which the ovum may attach itself, and from which it may be nourished. This causes the ovum to be caught and held near the fundus uteri by the swollen tissues until fixation occurs. If the surfaces of the endometrium were not held in immediate contact, the ovum would gravitate to the lower segment of the uterus, where it would become attached and cause placenta previa, or it would pass out into the vagina.

The ovum can not form villous attachments until it is held immovably in the maternal structures, and this is not possible except in the tube or the uterus. If the ovum fails to enter the tube, it will soon perish in the abdominal cavity and then be absorbed, for it can not fix itself to the peritoneum, as this and surrounding structures are in nearly constant motion. I believe this important fact was first alluded to in my discussion published in the Transactions of the American Association of Obstetricians and Gynecologists, September, 1888. Many cases of ovarian pregnancy have been reported, and some of them by men of more than national reputation, including the names of Campbell, Spiegelberg, Kiwisch, Puech and Leopold, but their conclusions are based upon insufficient evidence, and it has probably not been positively shown that any specimen was an ovarian pregnancy. This can not be determined except by a thorough microscopical examination of tissues from all parts of the gestation sac by a careful and well-trained microscopist. An ovary may be greatly enlarged by cystic growth, but we can always identify the origin of the tumor by a miscroscopical examination.

In none of the reported cases of ovarian pregnancy has ovarian stroma been found, except confined to one side of the sac, and this condition may readily occur in cases of tubal pregnancy that have ruptured into the folds of the broad ligament; but the stroma should be found in all parts of the sac were the pregnancy ovarian. An examination into the history of most of these cases, and of the specimens that have been preserved, will exclude them from the list of ovarian pregnancy. But few of the specimens have been preserved, while those reported by Campbell have all disappeared, and the descriptions of them can not be accepted because of their great antiquity. In Spiegelberg's case, I believe the pregnancy was in the folds of the broad ligament, and pressure upon the ovary caused it to spread over and form a part of one side of the sac. In the case reported by Puech, there is no positive proof that the specimen was an ectopic pregnancy, as no characteristic embryo was found. Mr. Tait says, "Not one of the reported cases has been subjected to the necessary conditions of criticism, a satisfactory compliance with which alone can establish the occurrence of ovarian pregnancy." And he has closely examined all cases reported. He also reminds us that tubal pregnancy may so distort or change the natural conditions of the tube or ovary that their existence can not always be demonstrated; hence the belief in ovarian pregnancy.

In Parry's statistics we find cases of ovarian and abdominal pregnancy recorded; but as these statistics were collected from imperfect or mutilated records made by men of no experience in microscopical and pathological research, they are practically of no value as evidence to prove that pregnancy may primarily occur outside of the tube. Ectopic pregnancy may occur at any point in the tube from a little distance within the fimbriated extremity to the uterine cavity, and is caused by partial or complete closure of any part of the tube, usually the result of desquamative salpingitis, but sometimes the result of other pathological conditions. The tube ruptures into the folds of the broad ligament or into the peritoneum before the end of the fourteenth week. There are a few cases reported where it is claimed that tubal pregnancy continued to term without rupture, but the powers of observation in the men who made these reports were defective, and these were cases of rupture into the folds of the broad ligament when the sac was small.

The report of a case of tubal pregnancy continuing till term was recently made to the Kentucky State Medical Society, but the gentleman who made the report admitted that he was not positive in his diagnosis, not having made a careful examination by the microscope; and this is about the history of all these cases. The rupture is usually into the folds of the broad ligament, where the pregnancy may continue even to term, if the ovum retains villous attachments and the amnion is not ruptured; or it may rupture secondarily into the peritoneum and cause death, if not speedily removed by laparotomy. Sometimes the tube ruptures primarily into the peritoneum, resulting in death unless the sac is ligated and removed.

I again refer to the fact that primary intra-peritoneal pregnancy is impossible, because the ovum can not be held securely in any one place, and hence can not unite itself to maternal structures by villous attachment, and must finally perish for want of nutrition. The following is on page 59 of Mr. Tait's "Lectures on Ectopic Pregnancy:" "If the pregnancy had ruptured its way into the peritoneum, it would have been at once digested, for I am certain, from what I know of the digestive powers of the abdomen, no gelatinous fetus of the tenth week could resist them." The abdomen can not digest a fecundated ovum at any stage of its

development until it has become dead matter, the result of other causes; it first dies and then is absorbed by the peritoneum, for living matter can not be absorbed as such by the peritoneum. While it may be possible for the ovum to continue to develop in the peritoneum after rupture of a tubal pregnancy, I doubt if the evidence in any of the reported cases is absolutely conclusive.

If the woman survives the hemorrhage, shock or septicemia, the pregnancy could not continue, unless the villous or placental attachments to the tube are not separated; for if these relations are destroyed, the embryo or fetus dies immediately of asphyxia, just as it does where the placenta is separated in intra-uterine pregnancy. It is a sad commentary upon the intelligence of members of the medical profession to quote the following case of Dr. James Braithwaite, of Leeds, as one of secondary abdominal pregnancy: "It seems pretty clear that in my second case the placenta was detached from its original position and took root again in a fresh one." No one could arrive at such a conclusion except he be totally ignorant of even the elementary principles involved in the physiology or pathology of reproduction. It could just as easily have taken root upon the top of her head, for a placenta once separated is always separated. It is a recognized fact that the placenta in extra-uterine pregnancy may make epiphytic inroads on adjacent or surrounding tissues, but this must occur before it is separated from its original attachment.

The placenta may, in extra-peritoneal pregnancy, finally attach itself to the uterus, omentum, intestines, pelvic and abdominal walls, etc., by stripping off and carrying a layer of peritoneum before it, and many of these cases have been reported as abdominal pregnancy. In primary or secondary rupture of a tubal pregnancy into the peritoneum, the ovum will perish unless it retains its attachments and the amnion remains intact. In the latter months of pregnancy, the ovum may possibly continue to develop in the abdomen after rupture of the amnion. Jessop, Lechuyse, Matecki and Schreyer claim to have seen such cases, but the correctness of their diagnoses is not generally accepted. Jessop's case appears to be the most reliable, but Mr. Tait, in speaking of it, makes the following statement: "I have placed this case by itself, because it is the only one of its kind, and the only one which, after critical investigation, will admit of being termed 'abdominal' or intra-peritoneal pregnancy. Certainly those quoted by Parry will not do so, and I have met with no others."

Koeberle's and Kellar's cases, where the body of the uterus had been amputated, have been given as intra-peritoneal pregnancies, but they are typical cases of tubal pregnancy. Part of the tubes was left with the ovaries, and in an obstructed tube the ovum became imprisoned and was developed.

While interstitial pregnancy usually ruptures into the abdominal cavity, I can not agree with Mr. Tait that it always does so, and I am sure there are cases that justify this belief. In my discussion before the American Association of Obstetricians and Gynecologists at the meeting in Washington in September, 1888, I reported a case, treated in 1873, which I think was clearly shown to be interstitial pregnancy that ruptured into the uterus. Thomas' fourteenth case, and Parkes' case (*American Journal of Obstetrics*, vol. xx., page 536), and Maschka's case (*Wien. med. Wochenschrift*, 1885) were not cases of rupture into the peritoneum.

Pelvic hematocele sustains such intimate relations to ectopic pregnancy that it is not possible to describe the pathology of one of these complications without referring to the other; hence my reason for considering these two subjects together.

The generally accepted meaning of pelvic hematocele is an encysted intra-peritoneal or extra-peritoneal blood tumor in the pelvis, which may extend into the abdominal region. Thomas says that intra-peritoneal hematocele is much the more frequent, and Gill Wylie believes that any considerable effusions of blood in the pelvis are always intra-peritoneal. Nearly every author who has written upon pelvic hematocele teaches that blood may accumulate in the peritoneal cavity and become rapidly encysted and fixed by the effusion of a layer of lymph exudation. Mr. Tait and a few other authorities do not adhere to this belief, nor do I. It is impossible for an accumulation of blood in the peritoneum to become encapsulated so as to form a well-defined tumor in the pelvic or the abdominal cavity. Hemorrhage into the peritoneum causes an increased flow of serum, which encourages bleeding by further diluting the blood and thus preventing quick coagulation. It obeys the laws of gravitation and may change its position upon the movements of the body, so that it can not be confined by a layer of effused lymph. Mr. Tait has seen nearly one hundred cases of intra-peritoneal hemorrhage, and they all died except the two upon whom he did abdominal section ; and in post-mortem examination there was no fixed blood tumor, and but little, if any, peritonitis. Such cases are nearly invariably fatal. If the woman does not die of shock caused by pain and loss of blood, she may die of septic infection. If it were possible to have encysted intra-peritoneal hematocele, why does it never occur after abdominal sections for the removal of a diseased tube, ovary or uterus?

There are numerous cases reported of hemorrhage into the peritoneum, after abdominal section, where ligation or suturing was imperfect, but in no instance has this blood been found encysted. Encysted hematocele may result from a sudden cessation of a pseudo-menstruation that sometimes follows laparotomy, but the blood is poured out into the areolar tissues under the peritoneum and does not enter the cavity.

The fact that a blood tumor extends above the pelvis, or even to the umbilicus, does not indicate that the hemorrhage is intra-peritoneal. This may occur in extra-peritoneal hematocele. The peritoneum is a tough and elastic membrane, easily separated from its attachments, and hemorrhage into the loose pelvic connective tissue may dissect up the layers between the rectum and vagina, around the rectum, from its attachments to the sides of the pelvis or anterior abdominal wall, etc.

I have recently treated two patients with extra-peritoneal hematocele. In one, the tumor was between the folds of the broad ligament, the rectum and vagina, and around the rectum, causing annular constriction. It could not be easily felt above the pelvis. In the other there was no tumor between the rectum and vagina, nor was there much effusion around the rectum, but the enlargement extended up to the umbilicus.

In intra-peritoneal hemorrhage, no well-defined and fixed tumor can be felt per vaginam or by abdominal palpation, while in extra-peritoneal hemorrhage the subjective and objective symptoms, when carefully observed, are so nearly pathognomonic that an error in diagnosis is hardly possible. Intra-peritoneal hemorrhage is nearly always caused by primary or secondary rupture of a tubal pregnancy; and while it is barely possible to diagnosticate an accumulation of blood in the peritoneum in a physical examination, the history of the case, the profound shock, and other evidences of internal hemorrhage will usually enable

us to make a correct diagnosis. For this condition, abdominal section and ligation of bleeding vessels is the treatment indicated.

But I will dismiss this part of the subject and confine my further remarks to encysted or confined pelvic hematocele, which is always outside of the peritoneum. This may be caused by sudden metrostaxis of normal menstruation, or pseudo-menstruation following abdominal or pelvic operations, or by rupture of a tubal pregnancy into the folds of the broad ligament. The diagnosis can usually be made by observing the following symptoms: Sudden access of pain, and generally shock; a well-marked feeling of faintness, with accelerated pulse, and sometimes elevation of temperature.

The sudden development of a tumor in the folds of one broad ligament, or upon both sides of the uterus, fixing the organ, or between the rectum and the vagina, or above the pelvis, would exclude inflammatory effusion. The hematocele does not always extend high enough to be distinctly felt above the pelvis, but it often causes a well-defined rounded tumor that may extend above the umbilicus. The distinct vaulting of the upper surface of the tumor, the accumulation of blood around the rectum causing annular constriction, the concave vaulting of the lower surface of the tumor, and the sudden fixation of the uterus, are characteristic signs of extra-peritoneal hematocele which, if carefully observed by an experienced gynecologist, would prevent error in diagnosis, if he sees the woman very soon after the tumor has formed. Errors in diagnosis may occur if he does not see the patient for some days after the hemorrhage.

Extra-peritoneal hematocele nearly always results in speedy recovery, if the woman is kept quiet in bed, and her bowels, bladder, etc., are properly attended to. Within two or three weeks most of the blood will have been absorbed and convalescence well established. As it is quite exceptional that suppuration or rupture into the peritoneum occurs, surgical interference is not often necessary; but if the subjective or the objective symptoms indicate the presence of either of these conditions, then the abdominal cavity, or the hematocele, should be opened, thoroughly cleansed and a drainage tube inserted. If in suppuration the fluctuation can be detected through the vagina, it is best to enter the tumor through the vaginal vault; but if no fluctuation can be discovered in a vaginal examination, but is felt above the pelvis, laparotomy should be done and a drainage tube used in the lowest part of the wound. If the sac ruptures into the peritoneum, laparotomy should be done immediately.

[I did an abdominal section for Dr. Cleaver, of Lebanon, Ky., on August 3, 1889, for pelvic hematocele and intestinal obstruction. The hematocele was in the right broad ligament and extended to the under surface of the liver. It was extensively adherent to the intestines and to the lateral and posterior abdominal walls. It was entirely covered and confined by the dilated peritoneal layers of the broad ligament, and the connection could be easily traced. That part of the hematocele in the abdominal cavity was about five inches in diameter, but its connection with the broad ligament structures in the pelvis did not exceed two inches in diameter. The blood had separated the layers of the broad ligament, and had dissected them away from the side of the uterus. This case furnishes positive proof that an extra peritoneal hematocele may extend high up into the abdominal cavity.]