

berculin, it is probable, in more than 75 per cent. of cases, that they have tuberculosis in some part of their body. Such large doses as were given by Koch's directions (up to 10 mgr.) are rarely required in the diagnosis of pulmonary tuberculosis. Dr. Baldwin thinks that the whole condition of the patient should be taken into consideration in the matter of diagnosis. If tuberculin is given it should only be in the most minute dosage. It should not be given on any consideration to a patient whose temperature at night is 99.5 nor to one who has not been under observation for some weeks. Therefore its field in diagnosis is very narrow. It is a very unpleasant experience to have a bad result attributed to the use of tuberculin. The best method, in his opinion, is the diagnosis by exclusion. He is quite certain that the tuberculin reaction can be obtained in healed tuberculosis except in those cases where the tubercles are wholly fibrous or calcified. In other words, in the greater number of persons who have had tuberculosis, this reaction may be obtained. He mentioned a patient who took tuberculin as a treatment until he no longer reacted to large doses, and was healed. That was six years ago. Recently tuberculin was again administered and a reaction occurred. Therefore, in Dr. Baldwin's opinion absence of reaction is no sign of a cure, because the susceptibility gradually returns. He has known unfavorable symptoms to occur after treatment with antidiphtheritic serum, antitetanic serum, and other kinds. These symptoms are very alarming and are liable to deter a physician from any kind of serum treatment. They may be explained on the ground that they are due to thrombosis in the minute capillary vessels and not to any specific ingredients in the serums. Dr. Baldwin agreed with Dr. Lowman that there is a great deal of what might be called the personal element with regard to the tuberculin treatment in Germany. Professor Koch has a great many critics and a great many enemies in his own country. The Berlin and Vienna schools are not always harmonious. We can not but admire the absolute thoroughness with which the Germans do their work; but we can not admire the personalities they indulge in, which are condemned by the scientific world, in Germany and in this country alike. With regard to the Adirondack Sanitarium cases and the results from tuberculin treatment, they can be criticised on account of the early character of the cases. Of course it would be of more convincing value if tuberculin should not be used in the treatment of pulmonary tuberculosis, until other methods have been given a fair trial.

## INJURIES TO THE RECTUM CAUSED BY GYNECOLOGIC EXAMINATIONS.\*

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Unfortunately, all risk to our patients is not incurred solely in the course of our aggressive modern methods of operating, as experience shows that the preliminary examination itself may even be a source of danger. The injury done by a gynecologic examination may fall on the structure which is being examined, or on the enveloping structures which constitute the wall of separation between the object and the examining fingers, occasioned by the effort on the part of the examiner to overcome the resistance offered by the barrier to palpation and the sense of touch.

The injury thus incurred may be due either to the delicate nature of the tissues examined, rendering them liable to damage from the slightest violence, or to an unduly rough examination such as we too often witness, or to both of these factors combined. The examiner may in this way rupture, intra-abdominally, a thin-walled papillary ovarian cyst, and so become respon-

sible for the dissemination of its contents over the previously sound peritoneum. He may rupture, as I have seen done, a vascular cystic sarcoma of the ovary in which the malignant elements had hitherto remained confined within the cyst walls.

I have seen an extrauterine pregnancy ruptured by an examination, and I have heard of one ruptured in this way, from which the patient died. Pelvic abscesses, too, are not infrequently spread abroad by unwise handling in the effort to make an accurate diagnosis; operators of large experience in diseases of the vermiform appendix have observed the disappearance of a well-defined collection of pus immediately after an unduly zealous palpation. In the hospital in which I was a resident twenty-two years ago, one of the attending physicians ruptured a liver abscess in this way, and distributed its contents through the abdomen, with a fatal result.

Lesser injuries, such as the rupture of the thin-walled large graafian cystic follicles, by the operator or by his assistants, in the course of an examination made just before an operation, have doubtless repeatedly been noted and verified within a few minutes at the operation by other operators as well as by myself.

These injuries, however, are all intra-abdominal and confined to collections of fluid within more or less thin-walled cysts or limiting membranes; injuries to the intervening structures, which separate the examining fingers from the object of the examination, are far less common.

The enveloping walls which are subjected to pressure in the course of a gynecologic examination are the strong musculotendinous and cutaneous walls of the abdomen, the tough musculomembranous vagina, and the more delicate musculomucosa of the rectum.

The only injuries I have ever seen sustained by the abdominal wall have been done to the capillaries, as evidenced by little effusions of blood under the skin, which subsequently pass through the characteristic color changes. I have never seen a distinct hematoma, or an abscess produced in this way. Sometimes the too long finger nails abrade the skin, and these lesions might easily become avenues of infection.

I have not yet seen any injury done the vagina by the examining fingers, although I have witnessed many cases of perforation of the uterus by a sound, and in one instance perforation and death by a dilator loaned to a physician; it is not my purpose, however, to dwell on injuries due to instrumentation.

Of all the avenues of investigation of the pelvis, it is the rectum which is the most delicate, and, I believe, the most liable to serious injury. I desire to report briefly four cases in which the coats of the bowel were actually perforated by the examining finger, which was thrust through the rectum and into the peritoneal cavity. All of these injuries have occurred in my own personal experience in my hospital practice within the past fifteen years, not in the hands of inexperienced students, but in the course of an examination made by a competent assistant, and once my own finger was responsible.

CASE 1.—Mrs. J. S., a married white woman, 52 years old, was etherized for dilatation and curettage for an excessive menstrual flow. During an examination of the pelvis by the rectum, the finger was pushed through the bowel into the abdominal cavity.

An incision was at once made posterior to the cervix in the vaginal vault, through which a vertical rent was found in the rectum 4 cm. above the cervix and 13 cm. from the vaginal ori-

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fice; this was closed with fine black silk sutures, and recovery followed without any ill effects.

CASE 2.—Mrs. E. W., a married white woman, 63 years of age, who had a cystitis. At an ether examination made in order to determine the condition of the pelvic organs, which were found normal, the finger was pushed through the rectum into Douglas' cul-de-sac. The opening into the peritoneal cavity was at once exposed by an incision in the vaginal vault back of the cervix, and repaired with fine silk sutures. An iodoform gauze drain was brought out through the vagina. Recovery followed, complicated by a fecal fistula, which closed spontaneously.

CASE 3.—Mrs. C. J., white, aged 58, had a large left ovarian cyst, widely adherent to the intestines and omentum, weighing, with the contents, 15,000 grams. During the rectal examination, which I made before the anesthetic was given, my finger was pushed through the rectum into the peritoneal cavity. As the abdomen was about to be opened and the rent was sufficiently plugged by the tumor filling the pelvis, I made the abdominal incision and removed the tumor, and so exposed the rectal tear, which was closed with fine silk sutures. There was no soiling of the peritoneum apparent, and no drainage was used. She made an uneventful recovery.

CASE 4.—Mrs. L. L., white, aged 28, suffering from excessive menstruation, was anesthetized August 25 for curettage and diagnosis. In the course of the rectal examination the index finger was pushed through in the peritoneal cavity. A piece of gauze was passed through the opening in the rectum and brought out at the anus, but as there was a manifest peritonitis coming on the next day, the abdomen was opened and the rectum closed with fine silk sutures and the pelvis drained. She made a slow recovery, leaving the hospital forty-five days later.

I think the cause of these injuries lies in the age of the patients (in three averaging about 57 years) and the weakened muscular tone of the bowel. In one it is significantly noted that the patient was very stout. In such cases not only is a greater effort made to reach the deeper seated structures in an examination, but the tissues are far more friable.

I believe the proper treatment is, in all cases, to open the peritoneum at once and carefully suture the rent from the peritoneal side. It would be better to use two layers of fine silk sutures rather than one. A washed-out iodoform gauze (Saenger) drain should be inserted through the vaginal vault. If the opening is accessible, the posterior vaginal cul-de-sac is the most convenient avenue by which to reach the tear, unless the abdomen is about to be opened, as in my case of ovarian tumor. If, however, the perineum and vagina are rigid and contracted, and the rent awkward to reach, it would be wiser to make an abdominal incision and sew it up in that way through the superior strait; in either case the operator must be skillful in sewing at a distance with long instruments. It is of the utmost importance that the sutures should be well placed, penetrating the thick coats of the bowel as far as the mucosa and securing accurate apposition. After such an operation the patient ought, as a rule, to receive no other food than albumin water for from five to seven days. The anal orifice should be thoroughly dilated, and if a rectal tube is tolerated it will serve to carry off gases and keep the parts at rest.

In order to avoid such injuries in the future, I would suggest that the rectal examination be made with the utmost gentleness, constantly bearing in mind the possibility of a rupture of the bowel, especially in stout elderly women. It is well to empty the bowel before the examination, and if the patient is then placed in the knee-breast posture and a speculum introduced, so as to secure a maximum air distension, on returning her to the dorsal position the rectum will be found expanded and holding a much wider and closer relation to the structures in the posterior pelvis.

An important point, not sufficiently emphasized, is that the examiner should avoid the natural impulse to invaginate the wall of the rectal ampulla on the end of the finger, pushing it to a point higher up in the pelvis. This error will not occur if, after introducing the finger into the ampulla, the next step made is that of seeking out the so-called "third sphincter"—that is to say, the rectal valves behind the cervix. The finger ought to be introduced between these distinct anatomic structures and then up into the pelvis, where the bowel lies in its natural relation in contact with the posterior surface of the uterus and the left broad ligament.

It is important, too, that the wrist and the fingers should be at ease and flexible during the examination. If the whole arm is made rigid in the effort to push in the perineum in order to gain a few centimeters in finger length, the hand also is apt to become rigid and the tactile sense impaired, and the movements less under control. I avoid this rigidity of the arm by resting my elbow against my hip and pushing the arm in from the hip and so setting it at ease. I trust this brief presentation of these few cases will serve the more important purpose of eliciting the experiences of many of the gynecologists who are here, as I feel sure an important new chapter will be written concerning the injuries produced in the course of gynecologic examinations when all the facts are known.

#### DISCUSSION.

DR. THOMAS S. CULLEN, Baltimore, mentioned two cases of injury to abdominal structures resulting from a vaginal examination. In one case there was a myomatous uterus, two of the nodules were sessile and one pedunculated. On opening the abdomen, after several students had examined the patient, he found about 200 c.c. of free blood in the abdomen. The pedunculated myoma had been partially torn from its uterine attachment and there was free oozing. Such an accident is liable to happen even when the utmost care is used. The slightest traction during operation is liable to partially separate a myoma from the uterus. As the abdomen was opened immediately after the examination the slight hemorrhage was of little consequence. Had there been merely an ether examination without operation the bleeding might in a short time have produced alarming symptoms or possibly have occasioned death. Several years ago Dr. J. W. Williams told Dr. Cullen of a case in which he made a vaginal examination and found pus tubes. Four or five hours afterward the temperature rose to 105 F. and the pulse became rapid. On opening the abdomen he found that one of the pus tubes had collapsed. The pelvis was full of free pus and acute peritonitis had already commenced. After removal of the tubes the patient made an excellent recovery.

DR. F. F. LAWRENCE, Columbus, Ohio, said that this paper emphasizes two points: first, that palpation, to be of value, must be light; second, to be other than that means great danger to the patient and great anxiety to the surgeon, not only in the cases mentioned, but in others. He has twice seen most disastrous results follow unnecessarily vigorous examination in strangulated hernia. In one case the manipulation resulted in perforation of the bowel above the neck of the sac intraperitoneally, with the escape of a large amount of the intestinal contents into the free peritoneal cavity. The result was fatal. Dr. Lawrence recently saw a case of extra-uterine pregnancy in which an unruptured tubal pregnancy was diagnosed. A relative of the patient was anxious to satisfy himself that an operation was justified and made a rather vigorous examination. In two hours the pulse went up to 140. The abdomen was found to be full of blood, and only the most vigorous efforts saved the patient's life. Injury to tissues other than the rectum are also to be considered. A rectal examination must be made even more delicately than a vaginal examination.

DR. GEORGE ERETY SHOEMAKER, Philadelphia, said that he could add one case of rupture of an appendiceal abscess by the hydrostatic pressure of an enema. The woman was in collapse when he arrived. Her physician had attempted to move the bowels. The nurse had placed the bag at least four feet above the level of the patient. The patient gave a sudden outcry and went almost immediately into collapse. Her condition being absolutely hopeless, he declined to operate. No postmortem was allowed, but undoubtedly the pelvis was full of pus because of rupture of the abscess into the peritoneal cavity.

DR. H. G. WETHERILL, Denver, said that there is another way in which injuries to the rectum may occur, incident to obstetric operations; as the head is descending and receding rather rapidly, he has seen the second finger thrust into the rectum and recession prevented in that way. This is a practice which should not be sanctioned under ordinary circumstances, not only on account of the risk of injury to the rectum, but because of the danger of infection.

DR. CHARLES P. NOBLE, Philadelphia, reported a case of rupture of a cyst of a graafian follicle on the examining table. This was followed by syncope, but no other ill results. He has had a number of similar cases, both in the office and in the operating room. The only serious case occurred in his clinic recently. The diagnosis was in question, whether a suppurating ovarian tumor, or a tumor, plus a pelvic abscess. One of the assistants, a very competent and careful man, made an examination and ruptured the abscess, a very serious situation, as the patient was profoundly prostrated at the time. Immediate celiotomy was performed with a fatal result.

DR. SAMUEL M. BRICKNER, New York City, asked Dr. Kelly whether he obtains as good results from a rectal examination by placing the patient in the dorsal position, after first placing her in the knee-chest position, as on the side. Dr. Brickner also has had a case of ruptured graafian follicle cyst. He examined by vagina and found a very small cyst. He asked one of his assistants to examine her. The young woman had been married recently and there were a number of raw edges on the vagina which were painful, so he asked him to examine by the rectum, which he did. He made hard pressure over the abdomen, but said that he could not feel the tumor. Dr. Brickner examined, but failed to find it again. She had severe pain in the abdomen, so he operated at once and found that the cyst had been ruptured. The patient recovered.

DR. H. A. KELLY said that the treatment of such an injury is an important matter. A patient in one of our inland towns who had a rent in the rectum caused by a proctoscope died. The best plan is to open the posterior cul-de-sac, sew up the rent and put a small drain into the peritoneum. If the physician is about to perform an intra-abdominal operation at once the wound may be closed through the superior strait and then drained below, but in all cases it is well to put in a drain.

## THE TREATMENT OF OTITIC SEPTICEMIA.\*

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The distinction which has been made between perforative and non-perforative inflammation of the middle ear or between its purulent and its catarrhal form is usually well grounded, and coincides with the differences of septic or non-septic involvement. Like all rules, however, this has its exceptions, and cases lacking all evidence of purulency can go on to the most serious results in a way that justifies us in urging that every case of middle ear inflammation shall at first be dealt with as though the outlook was serious in the extreme. Several of the most important deaths which have oc-

curred in my experience have been in cases where tympanic symptoms were moderate, trivial or even apparently absent, yet meningitis or intracranial purulency developed with fatal results. This question, therefore, of the septic character of a tympanic involvement must at times be inferred, in spite of the symptoms, rather than by their aid, and in all cases there is reason that we should adopt, beside the local treatment, general measures looking to a forestalling of such dire possibilities.

### GENERAL TREATMENT.

Rest in bed, with protection by compress and bandage of the whole aural region, bloodletting, purgatives, restricted diet, and heat or cold externally, are generally insisted on, and their value is well known to all who have employed them. In spite of all these and the free drainage by incision of the suspicious drumhead and of the edematous upper back wall of the canal—"internal Wilde's incision," which has rationally displaced almost entirely the older cut through the mastoid periosteum—we may have vague yet disquieting symptoms of variable fever, pain, headache, nausea, and possibly twitchings verging on convulsions. Of course, it is easy to be radical, and, if permitted, to chisel the mastoid and even explore the intracranial cavity or the cerebrum itself; but the rational demands for this are often lacking. The conservative man can not feel justified in urging this against opposition, especially if he has employed it vainly in a previous series of cases, in which the absence of findings to justify the exploration has left him of the opinion that recovery, if achieved, has been in spite of his intervention rather than because of it.

The absence of localizing symptoms may be such as to leave the steps of intervention utterly indeterminate. Evidence of sepsis may be present in the steeped temperature-chart, and yet the signs of even phlebitis of the jugular or lateral sinus may be lacking, or the irritative symptoms of meningeal involvement may leave us in doubt as to whether anything more than irritation is present. In such cases radical intervention will not always be accepted, even if the aural surgeon feels impelled to offer it. It is here that we may still hope for benefit from medicinal means, and mercurials, salines and sweatings may do much to eliminate the toxic materials from the system and to prevent the occurrence of the serious lesions which threaten.

*Hypodermoclysis.*—In addition to these, the latter days have given us great help in the employment of hypodermoclysis or enteroclysis. The value of the first of these is too well assured to need much urging, especially with any one who has employed it. Yet those who have not employed it will look with some hesitation to its demand for strict asepsis, and will regard it as a surgical procedure which few physicians, fewer trained nurses and no others can possibly undertake, while patients or friends will refuse it on the score of its painfulness and its unknown possibilities of evil. Yet it should be feasible to sterilize a fountain syringe by boiling and a large hypodermic needle by alcohol and to boil the water and its due proportion of salt, permitting the giving of such injections at any bedside without risk and with minimum trouble.

*Enteroclysis.*—The enteroclysis, on the other hand, is a familiar matter to every household, and will be readily accepted in many cases where the other might be absolutely rejected. Its value may be less, as its action is certainly slower and less striking; but it is so

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