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Cases of Appendicitis.

—BY—

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DIAGNOSTIC PALPATION OF THE VERMIFORM APPENDIX.*

BY

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Nothing systematic has, to the writer's knowledge, as yet been published regarding diagnostic palpation of the vermiform appendix. The only conditions sought to be established by palpation have been either tenderness on pressure, or the presence of a tumor or of fluctuation. The idea that the normal or slightly enlarged appendix can, as a rule, be recognized by the touch, previous to opening the abdomen, seems never to have been seriously entertained.

This *a priori* judgment upon the case is, however, founded upon fallacious lines of reasoning and is not at all consonant with the facts. The size of the appendix, its deep situation, and the character of the structures overlying it, have all been deemed insurmountable obstacles to its successful palpation. It is the writer's purpose, in this communication, to show how all these obstacles can be easily and successfully overcome.

The author's practical studies upon palpation of the appendix vermiformis extend back somewhat over a year. It may be added that practically all of his experience has been gained upon women, only three cases of appendicitis in the male having, during that time, come under his observation.

* Read before the Medical Society of the State of New York, Albany, February 7th, 1894.

The following methods have been employed in the practical study of the subject :–

1. Palpation of the appendix vermiformis in practically every woman whom the writer has had occasion to examine during the past year.

2. Critical palpation of the appendix in every case upon which a cœliotomy for any purpose was contemplated, and, when practicable, comparison of the condition of the appendix, as ascertained at the cœliotomy, with that found at previous palpation.

3. Search for the appendix, during a cœliotomy, by palpation from without, and verification of the correctness or otherwise of the finding by the finger within the abdomen.

4. The establishment of the diagnosis, appendicitis, by palpation, with subsequent operation for removal of the appendix, based upon the diagnosis thus made.

The practice of palpation of the vermiform appendix, as a routine method, in the examination of every woman has led to a recognition of the facility with which the appendix may, under ordinary circumstances, be palpated. Such palpation is best performed in the following manner : After completion of the ordinary bimanual examination of the pelvic organs, the woman is drawn upward upon the table to the extent of a foot or so, her feet still remaining where they were placed for the vaginal examination. This is done mainly for the purpose of unfolding the flexure of the thigh upon the abdomen, and to render the right inguinal region more accessible to the palpating hand. One hand only, applied externally, is required for the practice of palpation of the vermiform appendix. No assistance can be rendered by a finger introduced into the vagina, and very little assistance, and that only very occasionally, by a finger introduced into the rectum.

The examiner, standing at the patient's right, begins the search for the appendix by applying two, three or four fingers of his right hand, palmar surface downward, almost flatly upon the abdomen, at or near the umbilicus. While now he draws the examining fingers over the abdomen, in a straight line from the umbilicus to the anterior superior spine of the right ilium, he notices successively the character of the various structures as they come beneath and escape from the fingers passing over them. *In doing this the pressure exerted must be deep enough to recognize distinctly, along the whole route traversed by the examining fingers,*

the resistant surfaces of the posterior abdominal wall and of the pelvic brim. Only in this way can we positively feel the normal, or the slightly enlarged appendix ; pressure short of this must necessarily fail.

It is just here that the analogy between the conditions necessary for a successful examination of the pelvic viscera, and those obtaining in a *correct* palpation of the appendix vermiformis, become apparent. A bimanual examination of the pelvic organs is the only one regarded as satisfactory at the present day ; by a vaginal examination alone, or by an external examination alone, we are able to determine nothing of practical value. We need the fingers of one hand to afford a point of counterpressure to enable the palpating finger or fingers of the other hand to recognize the structures they meet. Just so in palpation of the vermiform appendix. Here the firm posterior wall of the abdomen at this point, the iliac fossa and the pelvic brim, form a good surface for counterpressure.

Palpation with pressure short of reaching the posterior wall fails to give us any information of value ; the soft and yielding structures simply glide away from the approaching finger. When, however, these same structures are compressed between the posterior abdominal wall and the examining fingers they are recognized with a fair degree of distinctness. *Pressure deep enough to recognize distinctly the posterior abdominal wall, the pelvic brim, and the structures lying between them and the examining finger, forms the whole secret of success in the practice of palpation of the vermiform appendix.*

Proceeding in this manner the appendix is recognized as a more or less flattened, ribbon-shaped structure, when quite normal, or as a more or less rounded and firm organ, of varying diameter, when its walls have been thickened by past or present inflammation. When it is the seat of inflammatory changes, the appendix vermiformis is always more or less sensitive on pressure ; the normal appendix exhibits no special sensitiveness on being squeezed.

A good guide, in searching for the appendix, is formed by the right common and external iliac arteries, the pulsation of which can be easily and plainly felt. The line of these vessels corresponds to a surface line drawn from the left of the umbilicus to the middle of Poupart's ligament. The appendix is generally found almost immediately outside of these vessels. At its base it is

separated from the vessels by a space of one half to one inch, while lower down in its course it generally crosses very obliquely the line of the arteries.

Theoretically, two conditions mainly militate against the successful palpation of the appendix vermiformis after the method above described; practically, the difficulties offered by these two conditions amount to very little or nothing. I refer to the variable location of the appendix, and to the fact of its common deep situation behind the cæcum.

With the very rare exceptions of its situation *far* away from its usual site, the origin of the appendix vermiformis is practically always found at what is known as McBurney's point. In fact, it is this constancy of the situation of the appendix which gives its practical value to McBurney's point in the diagnosis of appendicitis. The tenderness elicited by extremely localized pressure at McBurney's point is due to the presence beneath the finger of the inflamed appendix; a fact of which I have had abundant opportunity to satisfy myself.

The origin and first part of the appendix are practically, then, constant in situation, or so nearly so, as not to interfere materially with the working rule to first search for the appendix at McBurney's point. Any deviations from its usual course, starting from this point, can be usually recognized by the examining fingers. Only that part of the appendix, however, situated above the level of the pelvic brim can be distinctly recognized by the finger. When the appendix in its course dips down into the pelvis, that part of it lying below the pelvic brim is recognized, if at all, only with great difficulty. The surface for counterpressure is lost below the iliac fossa.

The second condition, commonly assumed to render successful palpation of the appendix vermiformis impracticable, if not impossible, is a time-honored, traditional myth. I refer to the assumed constant or common filling of the caput coli with faecal matter. In my own experience this condition is *very* rare; in fact I cannot recall a case, during the period of over a year in which I have systematically practiced palpation of the vermiform appendix, in which I have found it. In quite a number of emergency cœliotomies, in which no opportunity was afforded for previous catharsis, I do not recollect ever to have found a faecal impaction in the caput coli. Indeed the systematic practice of palpation of the vermiform appendix, after the method described, gives us in

addition a great deal of information about the cæcum. We generally find it empty, collapsed upon itself from before backward, with the inner and outer borders distinctly recognizable by the fingers as they pass over them. The appendix, being in the large majority of all cases situated behind the cæcum, is of course palpated *through* the apposed anterior and posterior walls of the caput coli.

The second manner in which the study of the subject has been pursued has been by especially careful and critical palpation of the appendix in every case in which a cœliotomy was contemplated. When feasible, the appendix was then examined on the occasion of the cœliotomy, and its actual condition compared with that previously diagnosticated by palpation. With very rare exceptions we found our previous diagnosis of the position and size of the appendix correct.

In five cases in which cœliotomy was undertaken upon other indications, a diseased appendix, previously diagnosticated as such by palpation, was removed at the same time. The operations combined with the ecphyadectomy in these cases were: salpingo-oophorectomy for chronic salpingo-oophoritis in the first; removal of two pus tubes in the second; salpingo-oophorectomy and ventral fixation of uterus combined with plastic operations, for total prolapsus of uterus and vagina in the third; total extirpation of the uterus for fibromata in the fourth and fifth.

The third method of study, which has been pursued during the past two months only, has been found exceedingly satisfactory and instructive. After completing the intra-abdominal operation or operations for which a cœliotomy is undertaken, and before closing the abdomen, the appendix is located by palpation from without. While the palpating finger presses the integuments down upon the appendix from without thus marking its location as felt, and holding it down against the posterior abdominal wall, two fingers of the other hand are passed within the abdomen to verify or disprove the presence of the appendix immediately underneath the palpating outer finger. In the comparatively few tests thus made I have never failed to locate the appendix exactly and to diagnosticate correctly both its thickness and direction.

Finally, in a fourth series of three cases of chronic and one of acute appendicitis, the diagnosis was positively made by palpation and cœliotomy was performed *solely* for the purpose of removing the diseased appendix. These four cases are additional

to the five already mentioned, when discussing the second method —in which the diseased appendix was removed as a secondary or additional measure when performing cœliotomy for other purposes. The acute and two of the chronic cases of appendicitis were successfully operated upon by myself. The third case I turned over to my colleague, Dr. G. F. Shrady, for operation, after making the diagnosis of chronic appendicitis by palpation.

In reference to this case Dr. Shrady writes (*Medical Record*, January 6, 1894, page 2):—

"In this connection I may state that my attention has been called by Dr. Edebohls to the possibility of diagnosticating recurrent appendicitis by actually feeling the appendix through the abdominal wall, and demonstrating the cause of tenderness by direct pressure upon the organ. In one case I was able to do this, to recognize the appendix rolling under the fingers, to limit tenderness to direct pressure upon the process, and afterward to remove the organ by operation from that exact locality."

And again (*ibid.*, page 23) in summing up the discussion upon this paper:—

"He had expected some one would question the diagnosis of the appendix by touch through the abdominal walls, for he had not supposed this possible until it had been suggested to him to make steady pressure until resistance was encountered from the posterior walls, when, if the appendix was present in that locality, it might be felt as a cord rolling under the finger. Probably this would be possible only where the appendix was turgid and bulbous, as it was in one case in which he mapped out its location, and on cutting down found it directly under the mark made on the abdominal wall, about two inches and a quarter from the anterior superior spine, in line with the umbilicus."

It needs but a fair, unprejudiced trial of the method of palpation of the appendix vermiformis as described to convince others, as Dr. Shrady has been convinced, that it is possible to diagnosticate chronic appendicitis by palpation. The members of the house staff of St. Francis' Hospital who have worked with me during the past year have, by repeated practice, become expert in this method of examination.

It is within the memory of possibly each one of you that not ten years ago the man who claimed to be able, as a rule, to recognize and map out by bimanual examination the normal Fallopian tubes was looked upon with suspicion. Where to-day is the

gynecologist who cannot do this? And yet palpation of the appendix vermiformis, after a little practice, becomes quite as easy, if not easier, than palpation of the Fallopian tubes. Indeed, I would lay it down as an axiom that successful palpation of the appendix vermiformis, except in cases of acute appendicitis, is possible in all female patients, in whom the absence of excessive stoutness, abnormal rigidity of abdominal walls, or other more exceptional unfavorable conditions permits us to accurately define by bimanual palpation normal sized Fallopian tubes.

The practical importance of palpation of the appendix vermiformis is apparent at a glance. Chronic appendicitis, in the future, is to be diagnosticated, not on subjective symptoms but on objective signs. Unless, in cases of suspected chronic appendicitis, the surgeon can recognize by palpation the thickened appendix and to limit tenderness on pressure to the diseased organ, he will not be justified in operating. A strict observance of this rule will prevent in future a not infrequent error of the past that of performing a cœliotomy for appendicitis, only to find the appendix perfectly healthy.

One broad rule, governing the question of operative interference in appendicitis, should be, not to operate in chronic cases unless you can feel the diseased appendix, nor in acute cases unless by palpation you can recognize either the diseased appendix or the presence of a tumor. Anæsthesia may be necessary, in exceptional instances, to decide the question.

Palpation of the appendix vermiformis possesses practical importante in the *early stages* of acute appendicitis, at the time of operation, apart from its value as a diagnostic measure. In two instances in which I have operated early for acute appendicitis—in one on the second, in the other on the third day of illness—nothing but a small tumor could be felt in the right inguinal region before the patient was anæsthetized. After full anæthesia, the inflamed, enlarged appendix could be distinctly felt in both cases. This enabled me to make the incision *directly over the diseased organ* and thus to remove the strangulated appendix with greater facility and through a smaller opening than if the incision has been made further away.

In conclusion I may remark that I have on two occasions forestalled an operation for supposed chronic appendicitis, proposed by eminent surgeons, by being able to recognize a normal appendix by palpation, and on this finding to advise against operation.

REMARKS MADE IN CLOSING THE DISCUSSION.

DR. G. M. EDEBOHLS: As my own part of this subject, that which relates to palpation of the vermiform appendix, or the diagnosis of appendicitis by palpation, has not been discussed, I shall not have much to say in reply. But as in preparing my paper I have had occasion to go over all of my cases of the past year, I happen to be in a position to answer, in a degree, Dr. Mynter's question. As a consequence of this recent review of all my work in the field of appendicitis during the past year, the subject is very fresh in my memory, and my experience, limited though it be, may perhaps give some idea of what can be accomplished in some of the worst of these cases. I have removed ten appendices vermiformes during the past year; of these, five were removed in the course of cœliotomies performed for other conditions. In each of these five the diseased appendix was recognized by palpation before operation. Of the remaining five two were cases of what I prefer to call chronic appendicitis; some call them relapsing or recurrent appendicitis. These two chronic cases were readily diagnosed by palpation, *i. e.* by feeling the enlarged and tender appendix, and limiting tenderness on pressure *exactly* to the diseased organ. In these two cases the operation was undertaken and the appendix removed on the diagnosis thus made. A third case of chronic appendicitis in which I made the diagnosis by palpation I transferred to my colleague Dr. G. F. Shrady, who removed the diseased appendix on that diagnosis after first satisfying himself of its correctness. These are the cases to which Dr. Morris' inch-and-a-half incision applies.

Lastly come the cases of acute appendicitis, three of which I have operated upon during the past year. Two of these occurred in girls in their teens, the third in a man of twenty-eight. The first of the acute cases was operated upon sixty-three hours after the beginning of the attack; a gangrenous appendix as thick and large as my thumb was removed. The interior of the appendix was in direct and free communication with the peritoneal cavity, the gangrenous appendical wall having fallen away in several places. The adjacent peritoneal surfaces were smeared with pus, but there were no adhesions to limit the spread of infection. The patient made a good recovery. In the second case the alertness of the family physician enabled me to operate thirty-four hours after the beginning of the attack, and within six hours after perforation. We found a partially gangrenous appendix with a large perfor-

ation at its middle portion through which fluid faeces were, under our eyes, escaping into the *free* peritoneal cavity. Sixty grammes of mixed scrum and faeces were removed from the peritoneal cavity, the appendix was ablated, and the patient recovered both from the operation and from a severe pneumonia which occurred on the sixth day. Both of these cases I have recorded in detail elsewhere (New York Journal of Gynæcology, Feb., 1894.)

The third case of acute appendicitis, occurring in a man of 28, I operated upon within the past two weeks. The operation was performed 72 hours after the incipiency of the acute attack, the patient's second within a year. We found and removed an adherent appendix, almost black from intense congestion. No perforation and no evidences of peritonitis. It was a perfectly smooth and easy case in every way, and the prognosis immediately after operation seemed the most favorable possible ; yet the patient died 42 hours after operation of heart failure due to fatty degeneration of that organ.

Thus of three cases of acute appendicitis, two very bad ones with perforation and well-started peritonitis got well ; the third, without perforation and without peritonitis, succumbed. I may add that in the first of the acute cases the enlarged and diseased appendix could be readily palpated on the day preceding operation. In the two other acute cases the presence of a tumor was all that could be recognized, owing to excessive tympanites and tension of the abdominal walls. As soon, however, as the patient was relaxed by anæsthesia, and before beginning the operation, the diseased appendices could be readily palpated. As a result of such palpation we were enabled to make the incision *directly* over the diseased organ, thus minimizing the length of incision required and facilitating operative procedures. Such information from palpation can, in acute cases of appendicitis, only be obtained in the *early* stages of the attack.

A CLINICAL LECTURE ON PALPATION OF THE VERMIFORM APPENDIX.

Delivered at the New York Post-Gratuate Medical School, March 5, 1894

By Professor George M. Edebohls, M.D.

Gentlemen.—At the close of our meeting last week we spent five minutes in searching for the appendix vermiformis in two patients who happened to be upon the tables at that time. We were able to palpate a normal appendix vermiformis in each. From the lively interest you all manifested in the subject, and from the look of pleased surprise on the faces of some of you as you realized that you had for the first time, and perhaps at the first trial, succeeded in palpating distinctly a normal appendix, I hope that my proposal to bring the matter before you to-day in a more systematic manner, and to devote the hour to the appendices vermiformes rather than to the pelvic organs of our patients will meet your approval.

We have to-day some half a dozen patients, women of various ages and of varying degrees of stoutness. We will palpate the abdomen of each, in the order in which they happen to come before us, for the appendix vermiformis.

Now palpation and palpation are two quite different things, varying according to what region of the body and which organs are to be palpated. The external obstetric palpation of the parturient uterus in the latter months, the palpation of normal-sized tubes and ovaries, the palpation of a movable kidney, etc., etc., constitute, each of them, an art *sui generis*, and it by no means follows that having mastered one, one immediately becomes, by reason of such mastery, master of all the others. Each one requires special practice, patient and painstaking to produce the best results. Just so with palpation of the vermiform appendix; it has its own peculiar technic, and there is only one proper and best way of performing it.

The very possibility of palpating the appendix vermiformis depends upon the presence, behind that organ, of the firm and unyielding posterior abdominal wall. Palpation is practiced by the fingers of one hand only, applied externally. The fingers must carry the anterior abdominal wall down before them until the firm resistance of the posterior abdominal wall is encountered. As the fingers, flatly applied, now pass over the right inguinal region from the umbilicus outward to the right anterior superior spine of the ilium, it is absolutely essential that the posterior abdominal wall be distinctly felt along the whole route traversed. As the organs, and amongst them the appendix vermiformis, pass review, as it were, by gliding in succession between the fingers and the posterior abdominal wall, the touch soon learns to distinguish between them and to recognize the appendix. After the appendix is detected it is well to pass the fingers over it, backward and forward, a number of times in succession ; a more correct impression of its size, outlines, etc., is thus obtained.

As regards the position of the patient, palpation of the appendix, like the pelvic bimanual palpation, requires relaxation of the abdominal walls. The positions most suitable for both examinations are practically the same, except that palpation of the vermiform requires less flexion of the thighs upon the abdomen.

There are two useful landmarks in practicing palpation of the vermiform appendix : McBurney's point, and the line of the right iliac arteries, and for your guidance we will mark both of them on the skin of this patient's abdomen. The origin of the appendix from the cæcum, whatever course its continuation may run, is almost uniformly at McBurney's point ; hence the diagnostic value, in appendicitis, of pressure over this point. The iliac arteries are useful in a two-fold way : firstly, because to feel their pulsation distinctly means that the fingers have reached the posterior abdominal wall ; and secondly, because the normal appendix is very constantly found about a finger's breadth outside of the artery, on a line between the umbilicus and the anterior superior spine of the right ilium.

We have now examined five women in succession and in all of them but one, this very stout woman, I feel certain I have felt the normal appendix vermiformis. Some of you who examined the patients after me believe they also have felt the appendix, while a few of you remain in doubt. Further practice will lessen your doubts and give you greater confidence in the results of your findings.

Why I do say that we have felt a normal appendix? I say so first of all because there is absolutely no tenderness on pressure over the appendix; secondly, because the calibre of the appendix is not increased in size; and thirdly, because the appendix, as felt, is not hard and rigid, but a soft yielding structure. When ever so mildly inflamed, the appendix vermiformis is tender on pressure, and more or less rigid from inflammatory thickening of its walls.

We are therefore able to say, as a result of positively recognizing a normal appendix, that whatever these four women are suffering from, they certainly have not appendicitis. The practical importance of being able to decide this in cases where appendicitis may be suspected from the symptoms, is apparent.

Our last patient is a young married woman who came to us two months ago, complaining of pain in the right groin of three days duration. I recognized by palpation an enlarged appendix, very sensitive on pressure, and made a diagnosis of appendicitis. That same evening I presented her at a meeting of the New York Obstetrical Society, where she was examined by three of the most distinguished gynecologists of this country. Two of them reported that they could feel the enlarged appendix; the third was not certain that he could.

This patient's appendicitis, her first attack by the way, ran a favorable course and was over in two weeks. Still to-day, six weeks after the subsidence of the attack, the appendix can be felt, slightly thickened, rigid, and sensitive on firm pressure. I believe this appendix ought to be removed now, and have so advised; the patient, however, is timid, and we have compromised that the operation should be done either during or after the next attack, should such occur.

Her appendix is very easy of palpation, but in view of the fact that it is still slightly sensitive on pressure I will request you to be gentle in handling it. In discussing the subject of palpation of the appendix recently, a prominent surgeon warned against it, and took occasion to say that when you palpate an appendix you should be ready to operate. He fortified his position by narrating a case in which he felt for the appendix in the evening and, as a result, he thought, of such palpation, had to operate for acute appendicitis early the next morning. I am afraid the sarcasm which he meant to hurl at palpation of the vermiform proved a boomerang. (Our patient was examined by seven or

eight members of the class and no trouble of any kind followed.)

A few days ago a young lady was brought to my office by her physician, who suspected that his patient was suffering from movable right kidney. I made a physical examination without asking any questions, found both kidneys in place, the pelvic organs normal, the appendix vermiformis enlarged, thickened, tender on pressure. The diagnosis, chronic appendicitis, made solely on the physical signs, was corroborated by the history subsequently obtained from the patient.

It has been urged that while palpation of the normal appendix might be possible in women, in men it would prove impossible. While I have on several occasions palpated the *diseased* appendix in males, I have, until quite recently, not been in a position to speak from experience as to the palpation of the *normal* appendix in men. Through the courtesy of my colleagues at St. Francis' Hospital, I have enjoyed the privilege of going from bed to bed in the male wards to find the appendix, and have satisfied myself that the normal appendix may be palpated in men in about the same proportion of cases, and with practically the same facility as in women.

CASES OF APPENDICITIS.

New York Obstetrical Society, December 5, 1893.

Dr. G. M. Edebohls presented the specimens from five cases of appendicitis which he had recently operated upon, together with two of the patients upon whom operation had been performed. Two of the five were cases of

Acute appendicitis with perforation.

Case I. Miss O. B., aged nineteen, was seen in consultation with Dr. E. J. Gallagher, from whom the following history was obtained. Her periods, up to the last, had always appeared with regularity. On July 6, 1893, her menses appeared, one week overdue. On July 7, she was caught in a rain storm and wet through and through. During the night menstruation ceased, and sharp abdominal pains suddenly developed; these pains soon became localized in the right groin.

Dr. Edebohls first saw the patient with Dr. Gallagher on July 9th. They found her in shock; temp. 103¼°; pulse 140 and very small; bowels tympanitic; abdomen sensitive to pressure in several places, but especially over McBurney's point, where a thickened, rounded cord, running over the pelvic brim into the pelvis could be distinctly palpated.

Examination per vaginam revealed a tender mass behind and to the right of uterus. The mass was of about the size of the normal uterus, and was continuous outwards and upwards with the mass felt in the right iliac fossa. Uterus and left adnexa not palpable, being lost in the pathological mass.

Diagnosis: Acute appendicitis, with a mental reservation of possible ruptured tubal pregnancy.

Operation advised and performed at the patient's home on July 10, at 3 p. m., sixty three hours after the beginning of the attack, with the assistance of Drs. E. J. and Wm. Gallagher and John McParlan.

Ten centimeter incision along outer border of right rectus abdominis, the lower end of incision reaching down to Poupart's ligament. The presenting intestines were deeply injected and inflamed, and covered with a thick fibrinous layer, but not adherent in such a manner as to shut off the general peritoneal cavity. After lifting the intestines out of the right iliac fossa, the acutely inflamed and very much enlarged right Fallopian tube covered with plastic exudate and embracing a normal right ovary, was encountered. The condition of the tube was so bad that it was removed together with its ovary.

The appendix vermiformis was now sought for and found extending from behind the caput coli along the posterior aspect of the right broad ligament downward and inward into the pelvis where it occupied Douglas' sac, which, with its surrounding exudate and pus, it almost entirely filled.

The appendix measured fully eight centimeters in length, by about two centimeters in average diameter, being altogether the size and much the shape of a large thumb. More than half of its circumference, that distal from the attachment of the meso-appendix, was gangrenous along its entire length, the remainder of the wall being intensely congested and swollen. Parts of the gangrenous wall had fallen away, leaving the interior of the appendix in free communication with the peritoneal cavity. Two bean-shaped masses of hardened fecal matter were found inside of the appendix, which was surrounded by a great deal of exudate and a small quantity of pus.

The diseased appendix was shelled out of Douglas' sac, the intestines being held out of the way and the peritoneal cavity protected by sterilized gauze, tied off with fine silk and removed. The rotten condition of the cæcum at the site of origin of the appendix did not permit of the usual Lembert suture over the stump of the appendix.

The bed from which the pathological masses were removed, and the adjacent inflamed coils of intestine were dried with sterilized gauze, touched with gauze wrung out of 1-1000 sublimate sollution, and again dried. No irrigation. The bed was then packed with iodoform gauze, the end of which was led out of the lower angle of the wound. The upper two-thirds of the wound was closed with through and through silkworm sutures. Usual dressing of sublimated gauze.

Patient rallied well from the operation. Pulse and temperature became normal on the third day, and convalescence thereafter was uninterrupted. The united part of the abdominal wound healed by first intention and Dr. Gallagher took care of the cavity and the wound until complete closure some three weeks later.

Case II. Miss A. K., aged fifteen, was seen in consultation with Dr. D. J. Ruzicka, her attending physician, and Dr. H. C. Hoefling. She had been well all her life, with the exception of an attack of appendicitis in March, 1893, for which she was treated by Dr. Ruzicka. The attack was of a mild type, lasted about ten days, and was followed by a still milder relapse at the end of ten days.

From that time she was perfectly well, until Thursday, Nov. 16, 1893, at 11 p. m. Then, very suddenly, great pain in the right groin, radiating into thigh, and vomiting ; pulse 120 ; no elevation of temperature. No great change until the next day, Friday, at 9 p. m., when the temperature ran up to 102°, the pulse still remaining at 120. On Saturday, at 3 a. m., sudden, very acute

pain, restlessness and great prostration ; temp. 103, pulse 136, small and thready.

This was still her condition when Dr. Edebohls first saw her on Saturday, at 6 a. m. Dr. Ruzicka had diagnosticated acute appendicitis, with rupture occurring three hours previously, and in this diagnosis, Dr. Hoefling and he concurred. Immediate operation was advised and accepted by the girl and her family.

Operation, Nov. 18, at 9 a. m., thirty four hours after beginning of the attack, and six hours after perforation. Ten centimeter incision, slightly oblique, its centre corresponding to a point midway between the anterior superior spine of the ilium and the umbilicus. When the peritoneal cavity was opened, about sixty grammes of softened faeces, mixed with serum, ran out. There were absolutely no adhesions to shut off this collection in the free peritoneal cavity, although the angry congestion and some soft deposits of fresh lymph indicated the beginning of acute peritonitis.

Sterilized gauze was at once placed in such a way as to protect the general peritoneal cavity, and the fluid pieces were mopped up and removed by means of dry gauze serviettes, without irrigation. The appendix was found on the inner and posterior aspect of the caecum. It was but moderately thickened, partially gangrenous, and doubled up on itself in the middle so that the free end was attached by adhesions to its point of insertion into the caecum. The perforation had occurred at the point of flexure, on its inner aspect, and soft facal matter was escaping thence into the peritoneal cavity. The appendix was tied off at its base and the stump inverted into the caecum by suturing the peritoneum over it. After another dry cleansing and touching all approachable contaminated surfaces with gauze wrung out of 1-1000 sublimate solution, the region about the site of the removed appendix was packed with iodoform gauze, the end of which was led out at the lower angle of the wound. No irrigation whatever, the danger of spreading infection by means of it being considered greater than any possible advantage that might accrue from its use. The upper two-thirds of the wound was closed by through and through silk-worm sutures.

Patient bore the operation well. The gauze packing was removed three days later and a rubber drain substituted. An acute pneumonia, involving the lower two-thirds of the right lung supervened on the sixth day and sent the temperature, which had been normal for two days, up to 104½°. The pneumonia ran a pretty tempestuous course for five days when it subsided. The patient has since made a good recovery.

Chronic Appendicitis.

Case III. Miss M. B., aged 18, came under observation in January, 1893. She had suffered for nearly two years past with symptoms due to a movable right kidney, and had during that time had several attacks of appendicitis.

On examination there were found an endometritis and a right kidney movable to the extent of ten centimeters. The appendix vermiformis could be palpated as a distinct hard cord, about the diameter of a lead pencil, sensitive on pressure.

On Feb. 10, 1893, Dr. Edebohls performed curettage of the uterus, and nephrorrhaphy for fixation of the right kidney. During convalescence from these operations she had an attack of appendicitis, which was treated by blisters and internal medication. She was discharged on March 27, the appendix being still enlarged and sensitive on pressure.

The symptoms of appendicitis persisted, with exacerbations, until her readmission a month later. During this time repeated examinations showed the appendix more or less enlarged at various periods.

On April 28, he removed the appendix vermiformis by operation. The appendix was found elongated, thickened to the size of a lead pencil, and rigid, representing the so-called chronic catarrhal appendicitis. No packing or drainage, but complete closure of the abdominal wound with buried silkworm sutures.

She remained perfectly well until August, when some of the old symptoms returned. An examination showed the left kidney to have become movable to the extent of ten centimeters, the right kidney remaining securely anchored to the lumbar scar.

The left kidney, it may be added, was not movable at the time of operation upon the right kidney. He proposed to moor the left kidney by nephrorrhaphy in the near future. [Patient presented.]

Case IV. T. L., 31 years of age, married, mother of two children, was sent to him by Dr. Gerrit Blauvelt, of Nyack, N. Y. She considered herself fairly well up to the date of the birth of her first child, ten years ago. Since then she has suffered much from backaches, headache, leucorrhœa, nervousness and dyspepsia.

Following the birth of her second child, four years ago, all the above symptons became aggravated, menorrhagia and bearing down sensations in the pelvis being superadded.

In February, 1893, she was operated upon by a distinguished surgeon of this city, who performed trachelorrhaphy and shortening of the round ligaments at one sitting.

Although the anatomical results attained by the operations were perfect, no therapeutical results followed, the patient remaining the same as before the operation. In August, 1893, by the advice of her family physician, she consulted Dr. Edebohls.

Examination showed the uterus in normal anteversion, the cervix well repaired and a trifle conical, endometritis, bilateral catarrhal salpingitis of a mild type, and a right kidney movable to the extent of five centimeters.

The movable right kidney being held responsible for most of her symptoms, nephrorrhaphy was advised and performed on Oct. 20, 1893, curettage of the uterus being done at the same sitting.

During convalescence an attack of pain in the right groin, accompanied by digestive disturbances, first called attention to the appendix vermiformis. The patient volunteered the statement that she had had similar attacks repeatedly during the past eight years. On palpation the appendix was found to be of the thickness of a lead pencil, rigid and painful on pressure.

Ecphyadectomy was performed on Nov. 17, 1893, after the method practiced and advocated by Dr. Robert F. Morris of this city : an inch and a half incision over the appendix, carried in the direction of the fibres of the external oblique ; drawing the ascending colon out of the wound, and following its well marked band of longitudinal fibres down to the origin of the appendix; delivering the latter ; circular incision of its peritoneal and muscular sheaths close to the point of origin ; ligation of the mucous coat and ablation of appendix ; inversion of stump into the cæcum and closure of the peritoneum over it by the pursestring suture.

The method of Dr. Morris was followed in every detail, with the exception of the closure of the abdominal wound, which Dr. Edebohls preferred to do with the buried silkworm suture. He wished to embrace this opportunity of expressing his indebtedness to Dr. Morris for the neat and surgically perfect method which he had elaborated and presented to the profession, for the removal of the appendix in cases of chronic, or often so-called recurrent, ecphyaditis.

The patient made a smooth recovery, left bed on the eighth day and was discharged on the fifteenth day.

Case V. T. F., aged 30, married, was sent to him by Dr. S. D. McGauran. She had been ill ever since her marriage, ten years ago, with symptoms due to endometritis, bilateral salpingo-oophoritis and movable right kidney. She had received local treatment for about five years past without improvement.

On Nov. 24, 1893, he operated upon her for removal of the diseased appendages, curettage and ventral fixation of the uterus being performed at the same sitting. While removing the right adnexa, the appendix vermiformis, thickened, chronically inflamed and elongated to a length of thirteen centimeters was found broadly adherent to the posterior surface of the right broad ligament. It was tied off and removed with the adnexa, the stump being turned into the cæcum. He presented the case as parallel with those more or less frequently encountered by every operator, in which the appendix becomes involved in the course of inflammatory affections of the appendages and is removed together with the latter. He had thus incidentally removed it some seven or eight times.

Remarks.

Dr. Edebohls did not wish to open up for discussion the entire broad subject of appendicitis; he merely desired to comment

upon one or two phases of the questions. The first two cases—those of acute, gangrenous appendicitis with perforation—he had presented as a type of a class inevitably doomed to a rapidly fatal issue, unless saved by the knife. The difficulty lay in recognizing this class of cases as such, and great credit is due the attending physicians for their accurate diagnosis. The profound prostration, shock and involvement of the vital functions in these cases of early perforation, make it evident that symptomatic treatment can be of no avail; that the only hope for the patient lies in radical measures, promptly executed.

The only point of the technique that he wished to touch upon was that of irrigation of the peritoneum in these cases. He could not help but feel that the danger of spreading the infection by irrigation was greater than any possible good that might be hoped for from the measure. He had, therefore, contented himself with dry cleansing.

In regard to the cases of chronic appendicitis, he desired especially to emphasize the fact, that the time had arrived when we are to deal with these cases on indications parallel to those which govern us in dealing with cases of salpingo-oophoritis. Just as an operation for the removal of the uterine appendages is unjustifiable, save on one or two exceptional indications of comparatively rare occurrence, unless a lesion of these organs can be demonstrated by bimanual examination, so before proposing an operation for the removal of the appendix *in chronic cases* we should be able to recognize the diseased condition, the chronic appendicitis, by palpation. More than one abdomen had been opened for the purpose of removing a presumably diseased appendix, the latter being found in a perfectly healthy condition. In other words, we are to operate in cases of chronic appendicitis, as in cases of salpingo-oophoritis, on objective, not on subjective indications. He would not detain the Society longer with this subject of palpation of the vermiform appendix, to which he had given considerable attention for about a year past, as he was engaged in the preparation of a paper, soon to be published, detailing his observations in the matter and the practical deductions he had derived therefrom.

A feature of special interest to the surgeon as well as to the gynecologist, is presented in the reciprocal relations existing between appendicitis and inflammatory diseases of the right uterine appendages. Thus, the salpingo-oophoritis in Case I, was certainly the result, which in Case V, it was possibly the cause of the appendicitis.

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