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INTERESTING CASES OF APPENDICITIS.

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Believing that the results of experience constitute the only true guide to the wisdom and efficiency of any measure, especially one of a surgical nature I have, therefore, no hesitation in placing before you now for the purposes of thought and practice a record of four cases of appendicitis that have come recently under my observation, together with the lessons they teach:

Case 1.—That of E. B. J., M.D., of Pennsylvania, aged 28, and of good habits in all respects. This patient came to my office for consultation and treatment June 13, 1894, with the following history:

1. Had always been in good health up to the time of the first attack of appendicitis.
2. Had suffered from four attacks of this disease before coming to my notice, from the last of which he had just recovered.

The first attack happened without apparent cause, during the last week in November, 1893, six months before I saw him. This attack was a slight one, lasting but three or four days, and was not severe enough to prevent proper attention to office duties. The second attack happened about six weeks later, and was not severer at the outset than the first one. This attack lasted four days, and on the second day a slight chill occurred, attended with some elevation of temperature. Subsequent to this attack, tenderness in the right ileo-inguinal region was constant in a varying degree. No definite tumor was discernible. The third attack was about three months after the second one, and it will be noticed that this was the severest attack of all. This, like the others, came without apparent cause, but unlike them was announced by a sudden, severe sharp pain which obliged the patient to go to bed at once, where he remained for the next four weeks. During the greater part of this time he had a marked elevation of temperature which, however, did not reach above 101 F. per rectum during the entire course of the attack. A hard, tender tumor made its appearance in the right iliac region during this attack which increased to the size of one's fist; then gradually diminished in size and sensitiveness but did not wholly disappear. The fourth and final attack occurred May 30, 1894, or only about two weeks after recovery from the third. This attack resembled in all essential respects the first and second ones. At all events, following this one the patient made a long journey by rail and reached this city June 13, 1894.

A physical examination at the time of arrival disclosed a hard, tender and somewhat movable tumor, about the size of a hen's egg, located in the ileo-inguinal region, somewhat nearer the brim of the pelvis than to the iliac spine. Rectal examination revealed nothing abnormal. In all other respects the patient was in as satisfactory condition as the fatigue of the journey and previous illness would warrant. Since the patient had come expressly for the benefits of an operation, and was professionally qualified to estimate the advantages and dangers attending it, and was anxious for immediate action, he was sent at once to St. Vincent's Hospital, where it was performed on the following day in the presence of many of the visiting and the house staff of the Hospital. I will not weary you with extended details of this operation, which are already worn threadbare by repeated description from other sources, but rather submit at once, in one, two, three order, those phases of it that are always

essential to advancement; that is, the disclosures attendant on the procedure. At this time it seems proper to say that, owing to the nearness of the tumor to the pelvic brim, and the mobility and ease of its delineation, I expressed the opinion before operation that the diseased appendix extended downward and inward to, and possibly over the brim of the pelvis, and had a long mesentery. The incision made through the abdominal parietes was about five inches in length, and was located about two inches from the anterior superior spine of the ilium and directly upon the inner portion of the ileo-inguinal tumor. No difficulty was experienced in exposing the tumor, which was found to consist of the major part of the appendix surrounded by abundant inflammatory exudation. Only the extreme end of the appendix—about one-half inch—was entirely free from the exudation. This extremity was attached slightly to the peritoneum covering the brim of the pelvis; so slightly, in fact that, although easily detached, there was great danger of rupture, as the structure was frail by reason of internal ulceration.

No adhesion between the tumor and the anterior parietal peritoneum existed, nor was there evidence of present or past suppuration. The tumor was located below the so-called cecum, was attached to its under surface and extended toward the cavity of the pelvis. No evidence of complete perforation of the appendix could be found. Great difficulty was experienced in exposing the portion of the appendix imbedded in the exudation. During the course of the manipulations directed to this object, the frail pultaceous extremity of the organ was easily torn off. However, this accident afforded the opportunity at once of passing a small grooved director into the remaining portion of the appendix for about one inch, then an obstruction was met which was found to be caused: 1, by a complete occlusion of the lumen at that point and 2, by a nearly right-angled bend of the organ. This portion of the appendix and the super-imposed lymph were divided with scissors, thus exposing the lumen to the point of constriction. Afterwards, with some difficulty, the constriction was overcome, and a probe was passed through the remaining inch of the appendix into the caput coli. This, the latter part of the appendix, was much dilated and contained offensive fluid material, while the remaining portion of the organ contained inoffensive pultaceous matter. The appendix was tied within one-half inch of the cecum and the remaining external portion was slit up in the manner before described and cut off at the seat of ligature. On account of the obstinate capillary oozing that attended all efforts to dissect the appendix from its environments, a complete removal was not accomplished. However, all offensive matter was scraped away together with much of the appendix itself, the external incision was reduced to two inches in length by wire sutures; the wound, after thorough disinfection, was lightly packed with iodoform gauze, and the patient was put to bed.

The remaining portion of the history is entirely uneventful. The temperature at no time rose above 101.4 F. per rectum, and after a few days subsistence on milk, koumiss and the like, he was permitted to partake of a more substantial diet. At the end of two weeks he was allowed to sit up, and was discharged about four weeks after operation. At the time of discharge there was a very small sinus, thread-like in size, leading down into the wound. This was due no doubt to the presence of the silk ligature there, employed to tie the appendix.

Case 2.—A. F. S., farmer, aged 45, temperate and with good family history. This patient came under my notice through the advisement of Dr. L. J. Brooks, of Norwich, N. Y., on June 18, 1894, with the following history:

Had always enjoyed good health until the summer of 1893, during which season he had suffered from occasional diarrhea and uneasy sensations in the "right side of the belly," as he expressed it. Suddenly, in September, 1893, he was attacked with severe pain at the right side of the lower

part of the abdomen, and for this reason was obliged to go to bed, where he remained for two weeks. Swelling occurred at the seat of the pain and it was tender there. However, the swelling gradually subsided as the attack "wore off." He made a slow recovery, resuming labor some time in November. He did not regard himself as well then, since he was unable to perform the usual amount of labor, and suffered from great despondency at the same time. Suddenly on April 9, 1894, he was again seized with severe pain in the same region, and was confined to bed for eight days.

Since the last attack the patient has had more or less soreness and dragging sensation in the right iliac region, and has been unable to work. The pain attending the attack radiated toward the ribs of the right side and down the right thigh. Following the attack he suffered frequently from a dull pain extending down the left thigh. Neither vomiting nor diarrhea attended the attack and his appetite was unimpaired.

Physical examination revealed no organic disease. In the right ileo-inguinal region a small, slightly tender and movable tumor could be easily outlined. It was situated about two inches from the anterior spinous process of the ilium and extended directly downward; this the patient said had been the seat of all previous acute local pain and tenderness. He was advised to submit to an operation at once, for the double purpose of removal of the appendix and relief from despondency. Accordingly, on June 20, 1894, he was subjected to operation in the presence of the visiting and resident staff of the Hospital. The operation developed the following items of interest:

1. The incision was made directly upon the tumor, as there was no reason to believe that it extended toward the pelvic cavity.

2. It was placed about two inches from the anterior superior spinous process of the ilium.

3. No difficulty was encountered until after the division of the peritoneum. Then there was found to be a thick layer of distorted omentum lying in front of the caput coli. This structure extended down to Poupart's ligament and was everywhere attached to the abdominal wall, except at the outer border of the incision.

4. The caput coli was bound down by old adhesions and rolled outward, so that the fibrous band leading to the base of the appendix could not be seen until after the separation of the gut from the abdominal wall and its normal replacement had been made.

5. The appendix was turned upward and outward below the caput coli in such a manner as to cause the apex to lie to its outer side.

The organ was entirely enveloped in dense lymph, somewhat vascular, but easily separable from the contiguous tissues. There was no perforation of the appendix. The lumen was distended with jelly-like inoffensive products.

6. At the outer side of the upper part of the caput coli was found a small amount of caseous pus, evidently the product of an antecedent inflammation.

Such were the conditions and in the order of their appearance. It may be well now to speak of the technique employed to meet the unusual conditions. The interposition of distorted and adherent omentum is not of common occurrence in my experience. However, the obstacle was easily though slowly overcome by tearing an opening through the tissue over the seat of the caput coli. It was believed that this bowel would promptly protrude as soon as the measure was taken, and consequently expose to view the fibrous band of the colon that leads to the base of the appendix. Such, however, was not the case, as only small intestines appeared and the caput coli was nowhere observable. The edges of the wound were then drawn widely apart, and after careful sponging, an "account of stock" at hand was taken. It was seen after careful scrutiny that the ilium appeared to rise from the anterior surface of the head of the colon instead of the accustomed location, and that the head of the colon was rolled outward, which explained the unique relation of the ilium to it. The adhesions were easily separated, the head of the colon placed in the proper position, the appendix and the surrounding exudate separated *en masse*, appendix tied with a silk ligature, cut and removed. The caseous pus was dissected and scraped away; hemorrhage checked, wound partially closed and dressed as in the preceding case. In this case I think the wound could have been permanently closed with safety. But, inasmuch as pus products might have tainted it, despite the closest attention, I deemed it wiser to treat it by the open method. The patient made an uneventful recovery, the temperature at no time going above 101 F. per

rectum, and this for a day only. In two weeks he was permitted to sit up, and in six weeks was sent home in a most cheerful mood.

Case 3.—Mr. S., aged 27, student, good family history. This patient came to my attention on July 3, 1894, in St. Vincent's Hospital, from a neighboring city. He gave the following history: Had been the subject of diarrhea for a long time, before the appearance of any complicating trouble. During the summer of 1891 he had an attack of diarrhea and vomiting, in the course of which he was seized suddenly with a severe pain in the right side, followed by tenderness there and an exaggeration of the first-mentioned disorders. As the result of these manifestations he was confined in bed for five days, but at the end of two weeks he regarded himself well again, notwithstanding slight tenderness yet remaining in the right inguinal region. He declares that he had a fever during this attack. Twice after this, at intervals which he is unable to recall, he was confined in bed for a short time with diarrhea and pain in the right side. Suddenly in November, 1892, he had a severe attack and was confined to bed for two weeks and unable to work for three weeks thereafter. During this attack the axillary temperature was somewhat increased. The exact record is in doubt and will not be quoted. After this attack he was able to attend to his duties with comparative comfort, although he suffered from pain in the side only as the result of indigestion and active exercise. During the last two winters he has been afflicted with a severe cough, which disappeared with the incoming of spring. Thinks he may have had malaria at that time.

Physical examination shows the patient to be organically sound. Slight tenderness can be elicited on deep pressure in the right iliac fossa at the place where previous tenderness had existed. The presence of tumor could not be detected. In view of the long continued trouble and the clear history of previous attacks of appendicitis, as diagnosed by very reputable physicians of his native place, and the seeming loss of courage to continue his labors without operative aid, I advised prompt operation, which was done on July 9, in the presence of many of the visiting and surgical staff of the Hospital. The following items will be of interest in connection with this case:

1. No tissues were cut except those lying on the aponeurosis of the external oblique and those beneath the transversalis muscle. The opening was made in each of the other tissues by separating the fibers of the respective structures in the long axis at a point directly over the caput coli. The sub-transversalis tissues were divided in the same direction as were those above the external oblique. It is apparent at once that this plan of procedure permits the separated fibers to return to their proper relationship when all restraint is removed, thus securing to the abdominal wall the greatest possible strength at the seat of the operation, and doing all that is possible at that time to obviate consequent hernia. The peritoneum and the integument with their associated tissues were united in the manner common to each. To Dr. McBurney belongs the credit of this which now appears to be a most valuable suggestion in the technique of abdominal incisions for this trouble. When this course is taken it is contemplated that the wound shall be closed at once, which was done in this case. However, I am of the opinion that similar steps are proper when the wound is to be treated by the open method, and for similar reasons also.

2. The appendix was not less than five inches in length and extended into the pelvic cavity. No evidence of present or past disease was seen, except that indicated by the congested appearance of the appendix itself, which was best marked near the middle of the organ. An incision into the lumen, made by Dr. Gouley, disclosed the presence of a small fecal concretion surrounded by a surface of well-advanced ulceration. The appendix was ligatured with catgut and removed, leaving a stump about one-half inch in length. This patient made a prompt recovery so far as the operation was concerned, the wound was healing by first intention without an unfavorable local manifestation. During the course of recovery, however, the patient experienced an attack of sub-acute pleurisy of the left side, and also of mild malarial fever. For these reasons it is impossible to properly estimate the symptoms dependent on the operation alone.

Case 4.—Lieutenant C. F. P., aged 32, member of U. S. Army. This patient's previous history is good in all essential respects. He came to my attention August 16, and was referred to St. Vincent's Hospital for operation two days afterward. On admission the following history was elicited: Was perfectly well until May, 1888, when, without apparent

cause he was seized with a sudden severe pain in the right inguinal region, which was so intense that he could not move. At the end of a week a considerable tumor was found in the right inguinal region which, however, gradually disappeared during the succeeding two months. During this time had an increased and varying temperature. Aspiration of the tumor disclosed no pus. A short time after recovery from this attack he experienced another of less intensity, which confined him to bed for six weeks. No tumor was noticed during this time. One year after this, he had a slight attack of one week's duration, and the outset of which was coincident with an attack of indigestion. From this time until the present attack (August 3, 1894) any intestinal disturbance was quickly followed by pain in the right side. Since the first attack (1888) the patient has suffered from constipation with attendant colicky pains.

The present attack began August 3, 1894, with pain and tenderness in the side, loss of appetite and vomiting. For the next three days he attended to his military duties, although with much difficulty on account of pain and tenderness. The temperature was above normal during the last two days. He was sent from the State Camp at Peekskill to St. Vincent's Hospital on August 11, 1894. At this time he had pain, tenderness and tension of the right side, and a tender tumor was easily located just inside the anterior superior spine of the ilium. Rectal temperature 103 F.; pulse 82; respiration 26 at this time.

The patient was subjected to operation August 12, 8:45 A.M., at which time the rectal temperature was 102½, and in all other respects the condition was similar to that of the preceding day. Before the operation I expressed the belief that the appendix, in this instance, was curled upward and outward below the cecum, the apex lying somewhere at the outer side of the caput coli. I ventured this prediction because of the fact that the entire painful induration was placed at the outer side of the caput coli, and also because the tension and tenderness were noted not only there, but also above the iliac crest of the same side. During the course of the operation the following facts were demonstrated:

1. The contiguous parietal peritoneum was adherent to the outer and upper surfaces of the caput coli.

2. Extensive induration was found at the inner side of the anterior superior spine of the ilium, extending upward and downward considerable distance.

3. An abscess containing about two ounces of offensive pus was discovered at the posterior and outer surface of the caput coli.

4. The appendix could not be seen. Evidently it was confined in the mass of induration, and was no doubt perforated at or near the apex, and opened into the abscess cavity. The base of the appendix could, I am sure, have been located by following downward the fibrous band of the colon that leads to it. But the realization of this proposition would have required the direct opening of the peritoneal cavity through the peritoneum mentioned already as adherent to the head of the colon. In view of the fact that it was deemed unwise to thus expose a healthy peritoneum to the septic influences of the abscess close at hand, the appendix was not disturbed. The abscess was drained through the loin, cleansed and lightly packed with iodoform gauze. The patient made a rapid and uneventful recovery. The induration disappeared quickly. At the present time the wound is nearly healed and the patient complains only of the constipation, which dates from the time of the first attack.

It will be noticed at once that each of these cases is a secondary one, and therefore of special significance, since the afflicted have thus far escaped fatal termination. The first case sustained four attacks, the second two, the third and the fourth three each, thirteen in all. Seven of these attacks were severe ones confining the patients in bed from two weeks to two months. Six were slight, causing confinement of some, four days to two weeks. The recorded intervals between attacks vary from five years to two weeks. Well marked fever attended the majority of attacks. The duration and degree of fever, however, could not be ascertained with sufficient certainty to be of reliable importance, except that of the fourth case, which was under the observation of Dr. Nelson Henry while at the State camp. Tumor was noted in six of the attacks. Pus was evacuated in the fourth case by

operation, and found in the second in a caseous state during the operation. The appendix extended downward and inward in two instances. In one (third) it was five inches long and extended into the pelvis. In the first the diseased apex was adherent to the peritoneum covering the brim of the pelvis. In the remaining cases it curved outward and upward below the cecum. In three-fourths of the cases intestinal disturbances were pronounced as an initiatory symptom or probable exciting cause. Mucopus was present in the appendix in two instances; a fecal concretion in one; in the other the appendix was not found. It appears to me that considerable importance can be attached to the fact that the tumor of the first case was movable, comparatively near the pelvic brim and easily defined, because these peculiarities indicate: 1, a long mesentery of the appendix; 2, circumscribed tumor contiguous with intestinal folds; 3, an appendix within or near the pelvic brim. All of which bespeaks great danger to the patient from general peritonitis if rupture had taken place.

If these conclusions be true, then prompt operative action should follow the detection of a tumor having these peculiarities. If no tumor were found following a perforation of an appendix thus located, then, indeed, is the danger enhanced and all possible operative dispatch is demanded. The presence of the softened extremity of the appendix in this case, of itself, demanded operation, for obvious reasons.

Case 2.—In this the tumor was below the cecum, of small size, and pain occurred in the right thigh. These facts indicated that the appendix extended downward, and that the diseased action had involved the crural nerves. Although less dangerous than the former under unfavorable conditions, still easy general infection could quickly ensue from a perforation of appendix or of abscess in this situation. The dragging sensations of the right side which annoyed the patient before the operation, disappeared after recovery. This suggests that they were caused by the adherent omentum that defined this case, the relief coming from the division and separation of it that was necessary to properly expose the caput coli.

Case 3.—No tumor was discernible in this case, but deep and long-standing tenderness, and occasional pain called for operation here. The presence of the fecal concretion near the middle of an ulcerating appendix, without the slightest external adhesions, emphasize the probability of subsequent sudden perforation, followed by pelvic inflammation and possible death.

Case 4.—The presence of the greatest pain, tension, tumor and tenderness, at and above the spine of the ilium in this case indicated that the appendix turned outward and upward below the cecum, and extended above the spine at the outer side of the caput coli. The situation of the abscess at this point, together with the fetid pus it contained and its limitation on all sides at this situation, is confirmatory of the fact that the appendix was thus placed. It is fair to assume that the environments of this appendix were such that the dangers from perforation, or from rupture of abscess, were reduced to a minimum. The long interval of time (over four years) between the last and the previous attack, emphasized the fact in no undoubted manner that one without operative relief is constantly menaced by this disease.

The appendices were tied about one-half inch from

the cecum, the end touched with cautery, and in two instances the tissues were turned inward by sewing. But recently I saw two other cases which resembled in the physical aspects the fourth of the series. One was a secondary case.

It appears to me that the results of these cases justify the following conclusions:

1. That prompt operation in the interval of attacks is an advisable and safe procedure.

2. That the physical characteristics of the local changes define quite clearly the situation of the appendix, and thus indicate with much certainty the prognosis of the case.

CRANIOTOMY IN MICROCEPHALUS.

Lecture delivered to the Post-Graduate Medical School, Chicago, 1898.

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(Concluded from page 646).

What has been done so far? I have been able to collect seventy cases of this operation, all being on record; all histories were not obtainable; many cases have not been published. Most of the reports come from France and America, only one each from Germany, Italy and Spain. This shows clearly that the German surgeons are conservative or reluctant in this question. They do not operate in these instances. Their standpoint is clearly shown in the discussion, which was held when Case 47 of our table was presented before the Medical Society of Vienna. The histories of all cases of Lannelongue, though I tried to get their details I could not obtain, and must only refer to his *résumé* before the Congress of French Surgeons in which he gives a detailed account of what he has done. I have purposely excluded all cases that have been trephined on account of other diseases, which were combined with idiocy but not of the microcephalic kind, because they do not belong to this class of arrested development.

In the accompanying table I give a short account of two cases of Lannelongue; two cases of Horsley; three cases of Keen; seven cases of Roswell Park; two cases of Lane; two cases of Maunoury; two cases of Wyeth; two cases of Chenieux; one case by each Heurteaux, Auger, Kurz, Largeau, Prengrueber, Frank Fuller, Lanphear, Miller, McClintock, Bauer, Gerster, Trimbl, Ransohoff, Larabrie, Cerne, Estor, Binnie, Duran, Shears and Van Lennep, Gersuny, and last, two of mine.

There are two claims of priority, one by Dr. Fuller, of Grand Rapids, who has done, we can say, a regular craniectomy with good success in 1874, and has reported it; one by Dr. Lane, who operated in 1888, but did not report this operation until 1892; nevertheless Lannelongue remains the pioneer.

I, myself, have operated for microcephalus twice, and I will now give the history and *decursus* of the cases:

Case 1.—Josephine McC., age 15 months; fireman's child; came Oct. 4, 1892, to the children's department of the Polyclinic, service of Dr. Detlefsen, who recorded the following history: Since the third month of her life, her mother noticed that the fontanelles were closed, and that the child had jerks in arms and legs, and spasms; the latter twice or three times a week, the former almost continuously. No hereditary disease. Present condition: Strongly built child, good muscles and structure of bones. The skull too

small for the face, fontanelles closed; slight depression on the left parietal bone. The head is not held upright but falls passively backward or forward. Pupils large, equal reaction. The eyes always directed toward the right side. Contractures in arm and shoulder muscles; good deal of resistance to stretching. The left leg seems less movable than the right one. No contractures in the legs. If the muscles are pinched there is no expression of pain noticeable. The spinal column is held very stiff. The patient referred to Dr. Beck's clinic. Oct. 10, 1892, Dr. Harnisch examines the eyes; negative results. October 16, capillary bronchitis. November 7, operation in chloroform narcosis, by Dr. Schalek. Assistants, Drs. Wagner and Gaffney. The head appeared, when shaved, very small in its frontal and parietal region; less disproportionate in the occipital. The measures have been taken exactly, but inasmuch as they have no weight, I omit to record them.

The operation was done in the above described manner; the skull exposed by an incision forming a large flap with the base toward the squamous portion of the temporal bone of the left side. The hemorrhage was not heavy, for we used Esmarch's compression. One button was removed with the trephine and anteriorly and posteriorly a strip taken out with Luers forceps. The craniotomy being done on the left side only and in an extension of about twelve centimeters length and one centimeter width, it seemed to me sufficient at that time for at least the first trial, and I closed the wound without drainage. It healed by primary union, without the slightest local reaction.

Immediately after the operation the parents, who were instructed to watch the child carefully, and who were intelligent enough, noticed a great change. The child had hardly a jerk for the first few days, looked brighter, did not roll the eyes and the contractures disappeared. It looked altogether like a healthy child. This very promising condition continued for a few weeks, when some jerking occurred again but no spasms; the parents sometimes thought that the child showed some intelligence. It looked around when its little sister passed by, and tried to laugh at her, but these slight improvements changed so very little for a long time that it seemed to me that the operation had only a temporary result. I had shown the little patient to several well-known physicians and nervous specialists before and after the operation, and they agreed that the child had improved some. Still the change was not so well marked as to warrant the truthful opinion that it was due to the operation alone, and not to the increased attention of the parents after the operation. At present, about one year after the operation the condition of the child is as follows: The physical change is remarkable, the head larger and if measured shows great difference between now and before the operation. There is no disproportion between face and skull. The jerks are still the same, but the spasms have disappeared. The mental condition is not very much improved; the child seems to notice the light, seems to turn the head toward her mother calling her name, but it has not learned to speak any or to sit up. The contractures of the muscles appear once in a while. Altogether the result is a slight but progressing improvement.

Case 2.—Anton Hopp, aged 2 years; cigarmaker's boy. Was referred to me by Dr. S. Goldmann, of Chicago. The father gave the following history: He and his family had been always healthy; there was no hereditary disease either in his or in his wife's family. The child was the fifth of his second wife. The confinement normal and nothing abnormal was noticed in the child during the first few weeks. At the age of about 4 weeks the parents noticed that the child bored the head constantly backward into the pillow, and tried to stretch it even when there was no pillow, but the hard table. A physician who was consulted at that time found that the child's skull was abnormally small and that there was no trace of fontanelles. From this time on the child grew worse, the overstretching of the head kept