

INFECTION OF OVARIAN CYSTS DURING TYPHOID FEVER;
REPORT OF TWO CASES; OPERATION; RELAPSE;
RECOVERY.

BY MORRIS J. LEWIS, M.D.

AND

ROBERT G. LE CONTE, M.D.

THESE two cases seem to us worthy of report for the following reasons:

1. The condition is a rare one, for it of necessity implies the previous existence of an ovarian cyst in a woman suffering from typhoid fever, and the combination is, perhaps, not common. When such a cyst does exist in a typhoid case we have no means of judging how frequently it will become infected during the course of the disease, for statistics are not obtainable on this point. We have been able to collect from the literature only six similar cases, five of which were observed in Germany; but if we remember that the recognition and cultivation of the typhoid bacillus has been possible only during the last ten or twelve years, the apparent rarity of the condition is readily explained. Several cases are on record previously to 1890 where operation was undertaken for the relief of suppurating ovarian cysts, and in which an antecedent attack of typhoid fever had been noted, and it is certainly probable that some of these suppurating conditions were due to the typhoid bacillus, although the bacteriological note is wanting.

2. They are the only cases we can find in which a relapse in the fever occurred immediately following the surgical procedures. In the other recorded cases the convalescence was uneventful.

3. With the exception of Sudeek's case they are the only ones that were operated upon within a few weeks of the beginning of the typhoid fever. In the other cases three to eight months elapsed before operation was undertaken.

CASE I. (Dr. Le Conte's case).—S. N., aged twenty-eight years, Russian, married, housework, admitted to the Pennsylvania Hospital September 10, 1901.

Family history negative.

Personal history negative. Has given birth to four children, one dying at the age of four months.

Present illness. Five weeks before admission was delivered of a full-term child, and nursed it at the breast for twelve days. She was then very wretched and sick with fever, and had been confined to bed for three weeks.

On admission, temperature was 104.8° F., pulse 120, respiration 32. Color pale; tongue coated, red edges and tremulous; heart and lungs

¹ Read before the College of Physicians of Philadelphia, June 4, 1902.

negative; liver dulness extends one and a half inches beyond edge of ribs; spleen large and palpable a finger's breadth beyond edge of ribs; abdomen soft, not distended, with several rose spots, some of which look typhoidal; leucocyte count 2600; urine reddish-yellow, flocculent sediment, specific gravity 1020, acid, albumin, granular and hyaline casts; diazo reaction positive. A vaginal examination was made, as the case was admitted under the diagnosis of puerperal sepsis, but, unfortunately, the resident physician made no note of the findings. A Widal test taken the day of admission was suggestive, and two days later it proved positive. For three weeks the patient presented symptoms of a moderately severe case of typhoid fever; the delirium and stupor were at times marked, and bronchitis developed, with some dulness at base of right lung. The pulse at times was very irregular, and always weak. The temperature averaged about 101° F. to 102° F., with occasional rises to 103° F. and over, and falls to 99° F. A blood count, September 21st, showed 5450 leucocytes. During the fourth week the character of the temperature changed, and it began to assume a hectic type. At this time also the patient began to complain of pain in the pelvic region, with slight tenderness. Dr. J. A. Scott, one of the hospital staff, who had the patient in charge, called one of the writers (Lo Conte) in consultation. A vaginal examination revealed a large, exquisitely tender, fluctuating mass in Douglas' cul-de-sac, which bulged in the posterior wall of the vagina and pushed the uterus up behind the pubis. The extent of the mass could not be well outlined, owing to the patient keeping the abdominal muscles rigid, but it was estimated that the cyst contained from one to two pints of pus.

The patient was transferred to the surgical wards, but for one week refused all surgical interference. Then she agreed to a simple vaginal puncture to evacuate the pus. A blood count showed 10,400 leucocytes, with 55 per cent. hæmoglobin.

Thirty-seven days after admission the patient was etherized and the abscess opened with a knife through the posterior wall of the vagina. About a quart of fetid greenish pus with many cheesy particles was evacuated. On introducing the finger through the opening, cartilage and bone were recognized in the cyst wall. The diagnosis of a suppurating teratomatous cyst was then assured. The pus removed was examined by Dr. Longcope, and showed the bacillus typhosus in large numbers and in pure culture. For the next three days the temperature for the first time went below normal, and did not go above 100.2° F. Pus was freely discharged from the vagina, and she received vaginal douches, 1:5000 bichloride of mercury. During the next week the temperature gradually rose until it reached 101.4° F. This rise was continuous and not of a hectic character, but as the discharge from the vagina was considerably less in amount, it was feared that the pus was being retained in the cyst. A drainage-tube was introduced through the vagina into the cyst, and this was flushed out twice a day with 1:10,000 bichloride solution. This, however, had no effect on the temperature, which continued to rise. The leucocytes at this time numbered 5500, and the Widal reaction was positive.

The spleen, which had retracted behind the ribs, again became palpable, and rose spots appeared upon the abdomen. A diagnosis of relapse in typhoid fever was made, and the patient again removed to the medical wards under Dr. Scott's care.

During this relapse the patient was very ill, the temperature reaching 106.4° F., and the pulse frequently being 140 to 160 and very weak. Twenty-seven days after the evacuation of the cyst the temperature reached normal, and soon thereafter became subnormal for the most part. Convalescence was uninterrupted, but a moderate discharge from the cyst continued. She left the hospital fifty-two days after operation, refusing further surgical interference, but promising to return in a few weeks for the removal of the teratomatous cyst.

Readmitted to the hospital March 12, 1902. Vaginal examination showed that the left ovary was the seat of the disease, and that the tumor was about the size of a small orange. It still occupied a position behind the uterus. March 14, 1902, ether was administered, and the cyst, together with the left tube, was easily removed through a median abdominal incision. It was lightly but universally adherent to the surrounding organs. A wick of iodoform gauze was passed through the vaginal sinus and the abdominal incision closed without drainage. The recovery was ineventful.

The following pathological report was kindly furnished by Dr. Longcope:

Macroscopic Appearance. The specimen consists of the left ovary and Fallopian tube.

Fallopian Tube. The Fallopian tube measures about 5 cm. in length. The surface, although somewhat injected, is free from adhesions, and the fimbriated extremity is open, the fimbria being delicate. The wall is not thickened, and the mucosa is normal.

Ovary. Occupying the position of the ovary is a mass the size of a lemon, which measures approximately 6 cm. in diameter. The surface is infected and contains adhesions. The mass is irregularly lobulated and feels as though composed of hard cartilaginous portions, varying with soft cystic areas.

On section, the tumor appears as a cyst containing grumous, foul-smelling pus, and its cavity is almost completely filled with irregular growths and projections from the walls. The walls, excluding the outgrowths, are about 4 cm. in thickness and covered with a reddish, velvety membrane. The largest outgrowth is about the size of a walnut. It is hard, and appears to contain cartilage and bone. Its surface is irregular and presents small, velvety cauliflower excrescences, which are sprinkled with minute yellow calcareous plates. Often smaller outgrowths project from the wall, being, in general, similar to the larger one. On section of these masses they are found to be composed of bone, cartilage, fat, and glandular spaces, all of which tissues are mixed indiscriminately together. The bony areas are, however, usually confined to the superficial portions.

Microscopic Appearance. Sections are made through different portions of the cyst wall, and the wall is found to contain many varieties of tissue. The cyst is lined by stratified squamous epithelium, with exaggerated papilla formation. No pigment is present, and the horny layer present in skin is likewise absent. Below the epithelium is a fairly dense connective tissue representing the corium. Many sebaceous glands are seen immediately below the epithelium, some of them opening through ducts upon the surface. No hair follicles are found. The

greater portion of the corium presents a marked round-cell infiltration. In the deeper portions of the wall, which is composed of a loose connective-tissue framework, several large areas of cartilago are found. In these there can be seen irregular masses, taking a deep eosin stain and containing a few contracted nuclei, evidently areas of beginning bone-formation. Small ducts and cysts are also met with, being lined by a single layer of high columnar ciliated epithelium. Their lumina contain an irregular stringy substance, which stains blue in hæmatoxylin. In one area they are very numerous, widely dilated, with low cuboidal epithelium, and give the appearance of a multilocular cyst. They are filled with a homogeneous yellow substance. The area is bordered on two sides by cartilage. In other sections masses of cartilago appear surrounded by ducts and glands, and in one place a large tubule lined with high columnar epithelium cells, with cartilago just below it, closely resembles a bronchus. In some sections the wall is filled with small round cells, lying between greatly congested vessels, and in others fat is present in large amounts. Frequently long bundles of spindle cells, which cross and interlace, are seen, suggesting smooth muscle. Occasionally an irregular mass of bone is present, or a large striated homogeneous mass, taking a deep eosin stain, probably calcified material. Surrounding the vessels are many cells of an epithelial type. In one section a large cyst is found, lined by several layers of columnar epithelium, and filled with granular material and red blood corpuscles. The Fallopian tube is perfectly normal, there are no adhesions about its surface, and the walls are thin and the mucosa is delicate.

Diagnosis. Teratoma of ovary; Fallopian tube of same side normal.

Perhaps the most interesting clinical features in this case are: 1. The question of diagnosis between puerperal sepsis and typhoid fever at the time the patient was admitted to the hospital. 2. When convalescence should have been established the fever did not touch normal, but assumed a hectic character, with coincident abdominal pain and enlargement. The leucocytes, which had previously been subnormal, doubled in number. 3. After the pus was evacuated the question of whether the steadily rising temperature was due to retained pus or a relapse. This was positively cleared up in a few days, when the leucocytes again returned to a subnormal number, the spleen again became palpable after having returned to a normal size, and the appearance of a new crop of rose spots. 4. To what should the relapse be attributed? This will be discussed further on.

CASE II. (Dr. Lewis' case).—Mrs. —, aged thirty years, family and previous personal history negative. Patient was married in September, 1900, and in May, 1901, had a miscarriage in the third month of gestation, apparently caused by overexertion in packing trunks, etc., preparatory to moving.

Curettement was performed, under ether, by Dr. B. C. Hirst, and the patient made an uneventful recovery. An examination made one month later showed the pelvic organs to be in a perfectly healthy condition. During the following summer the patient was said to be not quite in her normal state of health, although she menstruated regularly,

CHART I.

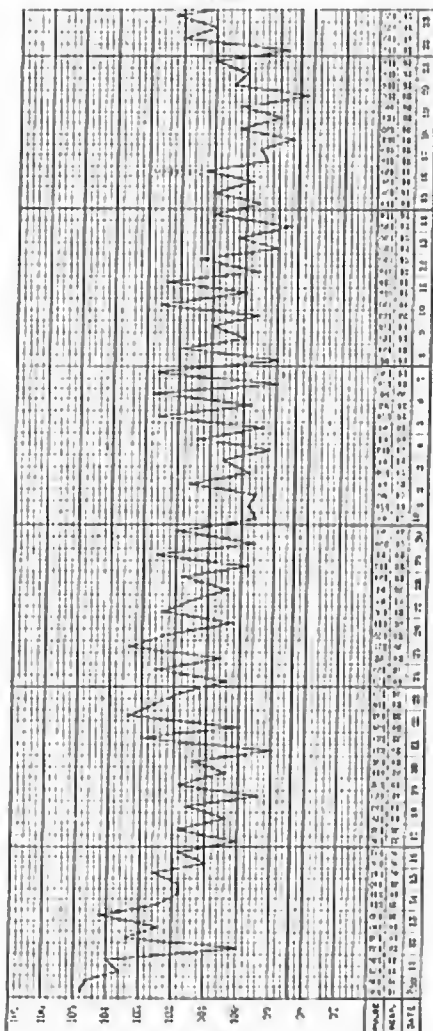
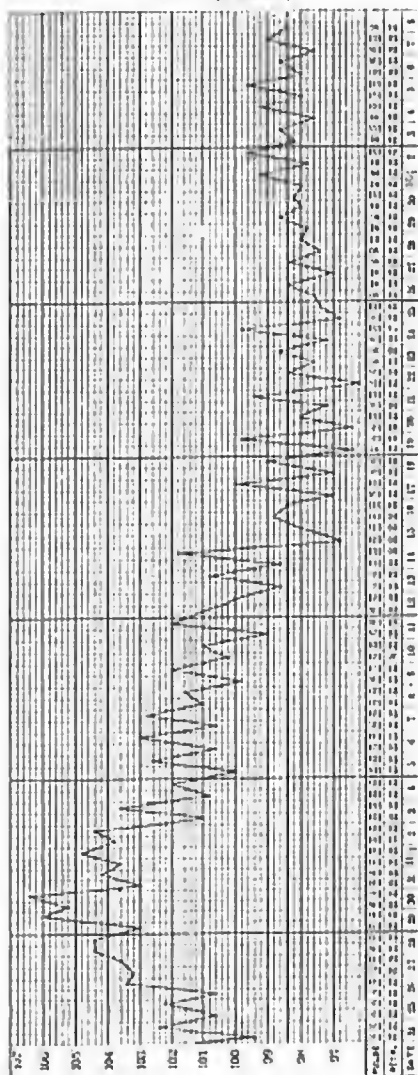


Chart I. (Continued.)



and considered herself well. On December 1, 1901, she contracted typhoid fever while in Philadelphia. The temperature by the end of the first week registered 101° F. and over, and the case assumed all the aspects of typical typhoid fever. Spots appeared, and Widal reaction was prompt and positive, and the spleen was slightly enlarged.

Nothing unusual occurred during the course of the fever, except that it was of long duration. For eighteen days the average temperature was about 103° F., after which there was a gradual decline until January 5th was reached, a period of thirty-six days. The treatment was sponging and ice-bags to the abdomen; β -naphthol was administered during the whole course of the disease, and whiskey, strychnine, and digitalis were given as seemed called for. The bowel movements, which for the earlier portion of the attack were typical in character, now began to be formed and normal in appearance, but the patient was far from well; she was occasionally slightly delirious and had persistent mild delusions. On the thirty-seventh day, when it was hoped that the patient was entering upon convalescence, the temperature rose to 102.2° F. in the evening, to fall to 97.4° F. by the next morning. There was no chill, and, with the exception of slight nausea, the patient felt fairly comfortable. Examination of the abdomen was absolutely negative.

During the next two days the temperature oscillated greatly, falling as low as 97.6° F., and rising once to 103.6° F. No chills accompanied this, and no true sweating, although there was rather free perspiration. Dr. Robert N. Willson's report of the examination of the blood on January 9th, the fortieth day, is as follows: "Blood flows easily and is of good color. Hemoglobin, 95 per cent. Coagulability normal. Red corpuscles, 4,962,000; white corpuscles, 7800. No malarial plasmodia. No pigmented leucocytes. No poikilocytosis." No differential count was made.

On the seventh day of the supposed relapse one doubtful spot was seen, and by this time the temperature range averaged over 103° F. She began to complain of pain in the legs, and by the tenth day had for the first time a decidedly chilly sensation. No cause for this condition could be detected. There was neither cardiac nor pulmonary complication, nor could careful search determine any spot of tenderness in the abdomen, although the latter was somewhat tympanitic. An examination of the urine showed specific gravity 1009, acid, amber, turbid, sediment abundant, white, flocculent, albumin none, sugar none, urea 0.972 gm. per 100 c.c. Microscopically, full of bacteria in active motion (typical motion and shape of typhoid bacilli), full of leucocytes, very few scattered renal cells, no casts, no crystals, few squamous cells.

By the twentieth day the temperature averaged a little over 100° F., and a second examination of the blood revealed "blood rather pale, coagulation normal, hemoglobin 70 to 75 per cent., red corpuscles 3,832,000, white corpuscles 4800, polymorphonuclear cells 90 per cent., no evident poikilocytosis." On the next day some pain in defecation was noted and also a slight asymmetry of the abdomen, the lower portion of the left rectus apparently bulging a little. No tenderness could be elicited on palpation; no mass was noticed, and the percussion-note was tympanitic, the whole abdomen being somewhat tympanitic.

On the twenty-fourth day there was some diarrhea and acute pain

in the epigastrium, which, however, entirely disappeared after the escape of a large amount of flatus. There was now considerable distress in the rectum. Feeling sure that some serious complication existed, a vaginal examination was made, not because the patient complained of abdominal or pelvic pain, but purely for purposes of investigation.

The examination revealed bulging in Douglas' cul-de-sac on the left side, quite sensitive to pressure. A sense of fluctuation was conveyed to the examining finger when percussio was made over the left lower quadrant of the abdomen.

A third examination of the blood revealed "blood fairly good color, coagulation normal, hæmoglobin 78 per cent. (color muddy, as of leucocytic influence), red corpuscles 4,264,000, white corpuscles 9200, polymorphonuclear cells 92 per cent., no poikilocytosis."

Dr. Richard H. Hurte was called in consultation. The diagnosis of pelvic abscess was confirmed, and operation immediately urged. The patient was at once conveyed to the Pennsylvania Hospital, and in one hour after admission was etherized and the operation performed by Dr. Hurte. The abdomen was opened in the median line, and immediately underlying the peritoneum a large cystic tumor appeared, which was adherent to the rectum and to the left Fallopian tube. In attempting its removal entire it ruptured and a large quantity of coffee-colored, rather grumous offensive material escaped, soiling the peritoneum. Owing to its close adhesion to the bowel all of the cyst could not be removed, although most of it was cut away, and the tube and remnant of ovary removed. The ovary and tube on the right side were normal. A small fibroid tumor on the fundus of the uterus was not removed, as the patient's condition did not warrant it. Canze packing was introduced for drainage.

A culture was made at the time of operation, from the pus from the ovarian cyst, by Dr. Longcope, and this showed subsequently pure culture of typhoid bacilli. The patient reacted well from the operation, the temperature rose during the next twelve hours from 100.2° F., which it registered immediately before, to 103.4° F., and then gradually fell to 99° F.

On the morning of the fifth day the temperature rose to 104° F., and subsequently remained at about 102° F., and the question arose as to whether there was further trouble in the abdomen or whether it was a relapse of typhoid fever. The abdominal condition seemed to be perfectly satisfactory, and after consultation it was decided that the patient was having a relapse of typhoid fever, a decision which was verified by the subsequent progress of the case.

A blood examination made at this time revealed red corpuscles 4,320,000, white corpuscles 7900, hæmoglobin 60 per cent., polymorphonuclear cells 72 per cent. A rose spot was noted on February 11th, seven days after the secondary fever. The surgical progress of the case was uneventful. After the fourteenth day of the relapse the temperature remained normal, and the patient made a perfect recovery, and is, at the time of making this report (June 4, 1902), enjoying apparent perfect health.

The following pathological report was furnished by Dr. Longcope:

Macroscopic Appearance. The specimen consists of the left ovary and Fallopian tube. Springing from the ovary is a cyst which has

CHART II.

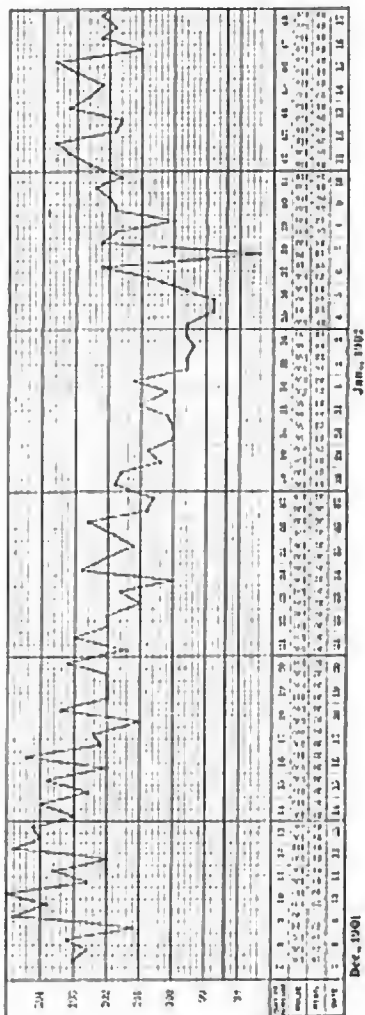
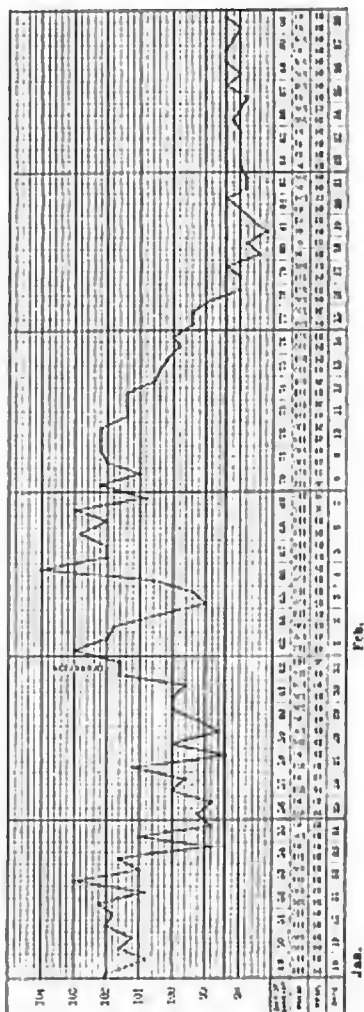


CHART II. (Continued.)



been opened; it apparently was the size of a small orange. The wall averages about 5 mm. in thickness and is covered by old adhesions; its inner lining consists of a soft, deeply injected tissue. The Fallopian tube is normal; its fimbriae are delicate.

Microscopic Examination. The cortex of the ovary contains many young follicles and one large follicle. The deeper layers of the cyst wall are composed of fairly dense connective-tissue. The superficial layers consist of young granulation tissue, made up principally of large cells of an epithelial type, many of which are phagocytic. Large amounts of yellowish-brown pigment and lematoidin are scattered through the middle portion of the wall, and a few polymorphonuclear leucocytes are found usually in the capillaries. The Fallopian tube is normal. Cultures from the ovarian cyst give bacilli typhosus. No other organisms found. Cultures from the Fallopian tube give negative results.

That relapse should occur five days after the operation in both of these cases is interesting, and the question as to whether the operation held any causal relation to the subsequent relapses was seriously entertained. At first the question arose as to whether it was possible that the operation might have liberated the imprisoned bacilli, like the lifting of the lid of Pandora's box, and reinfected both cases, for it will be remembered that the opportunity for infection was present, in the first case through the vaginal wound, and in the second on account of the rupturing of the cyst during its removal; but further study showed this to be unlikely, and that the relationship was probably coincidental. In Werth's case the cyst, containing thin, foul pus, was ruptured and a part of its contents spilled in the peritoneum, and in Sudeek's case part of the foul pus escaped and soiled the wound, and from an abscess of the wound which occurred later typhoid bacilli and staphylococci were recovered, and yet no relapse occurred in either case. This explanation of the relapse, therefore, does not appear probable, particularly when taken in connection with the short period of time elapsing between the operation and the time of onset of the relapse, and especially as it is believed that the typhoid bacillus must gain entrance to the intestines in order to infect specifically. We are still, unfortunately, much in the dark as to the cause of relapse in typhoid fever.

The blood examinations in both of these cases is of much interest, but in neither did the findings modify the views held as to the necessity of operative interference; they served merely as corroborative evidence. In the second case the leucocyte count was 1800 on January 24th, only seven days before the operation and just before the discovery of the abscess. This count is below the average count of the leucocytes in typhoid fever, which is placed by Thayer at 5860 ("Studies in Typhoid Fever," *Johns Hopkins Hospital Bulletin*, 1901, p. 500), while the percentage of the polymorphonuclear cells was above the average of health,

viz., 90. Six days later the white corpuscles had risen to 9200, and the polymorphonuclears to 92 per cent., a relative leucocytosis. A week after the operation the leucocytes had fallen to 7900, and the polymorphonuclears to 72 per cent.

Cabot (third edition, 1898, p. 107) states in substance that in some cases in which the absolute number of leucocytes is not increased we see a relative increase in the polymorphonuclear cells, pointing to the fact that influences are at work similar to those which produce an absolute increase; and again, on p. 195, he states that this increased percentage of polymorphonuclear forms generally betrays the presence of some complication, though no increase in the total leucocyte count is present, since during typhoid fever, if uncomplicated, the polymorphonuclear forms are diminished. This case is an interesting corroboration of these statements. In the first case the leucocyte count two days after admission was 2600, and ten days later 5450. Just before operation the white cells rose to 10,400, and a few days after draining the cyst they were down again to 5500. We regret that a differential count was not made in this case.

There can be no question as to the entire recovery of the second case after the miscarriage, and the theory that the ovarian trouble could possibly date from this event is not tenable. First, as the patient was carefully examined one month after the miscarriage, and found to be in an absolutely normal condition, nor had there been any sign to indicate infection, and second, the examination of the Fallopian tube after its removal proved it to be normal, and cultures from it gave negative results. The cyst in Case II. must have existed previously to the typhoid fever, and then have become infected and grown rapidly in the short time elapsing before the operation, or it may possibly have been an infected Graafian follicle.

The six cases that have been previously reported are appended.

CASE I. Werth (*Deutsche med. Wochenschr.*, 1893, No. 21, p. 489).—Woman, aged twenty-nine years; typhoid fever without complications, in October and November, 1891. In January, 1892, pain in lower abdomen began, and shortly afterward noticed swelling of the part—fever not mentioned.

Operation. June, 1892, eight months after beginning of fever. Large dermoid cyst, many adhesions and firmly bound to transverse colon. Cyst contained thin pus with foul odor. During removal the cyst ruptured and part of its contents was spilled in the peritoneum. This was sponged out, but not flushed. Recovery without relapse. Pus showed pure culture of typhoid bacillus.

CASE II. Sudeek (*Münchener med. Wochenschr.*, 1896, No. 21, p. 498).—Multiparous married woman, aged thirty-two years. Seven weeks before admission to the hospital the patient had typhoid fever. Three weeks before admission noticed swelling of the lower abdomen, with pain and fever of a hectic type.

Operation. Cyst size of a ten-year-old child's head; light adhesions; fluid chocolate-colored and of a very foul odor. During the operation a small amount of fluid escaped from the cyst and soiled the wound. Abscess of the wound later developed, from which staphylococci and typhoid bacilli were recovered. From the cyst fluid pure cultures of typhoid bacilli were obtained. On section, the cyst wall showed many single and diplococci, but no bacilli.

CASE III. Pitha (*Centralbl. f. Gynäkologie*, 1897, No. 37, p. 1109).—Woman, aged twenty-five years; typhoid fever in October, 1896. Five weeks later noticed a painful swelling in right lower abdomen; no fever.

Operation. February, 1897, four months after fever. Cyst punctured through vagina. Contents, thin yellow pus, without odor. Cyst was found to be a large multilocular dermoid, and could not be thoroughly evacuated through the vagina. It was immediately removed through an abdominal incision; many strong adhesions; recovery uneventful. Cyst gave pure culture of typhoid bacillus. Sections of the cyst showed the inner wall to be necrotic in places, but no organisms were demonstrable.

CASE IV. Wallgren (*Archiv f. Gynäkologie*, 1899, Band lxxix., p. 15).—Married woman, aged thirty-nine years. In 1893 patient noticed a fist-sized, movable tumor in lower abdomen, which very slowly increased in size, but never caused any particular inconvenience. During June and July, 1898, patient was in bed for six weeks with fever, but no physician was in attendance. After getting about again the tumor rapidly increased in size and became very painful. Irregular fever, with frequent chills.

Operation. September, 1898, three months after beginning of fever. Dermoid cyst containing one and a half litres of yellow-green fluid with stale odor; light adhesions, peritoneum edematous and thickened. Recovery uneventful. Cyst fluid gave pure culture of typhoid bacillus. Sections of cyst wall also showed bacilli.

CASE V. Englemann (*Centralbl. f. Gynäkologie*, 1901, No. 23, p. 633).—Married woman, aged thirty-eight years. Typhoid fever in November, 1900; four weeks in bed; relapse in January, 1901, with great weakness, loss of flesh, vomiting, and abdominal pain. Later fever became irregular.

Operation. March, 1901, four months from beginning of fever. Dermoid cyst size of seven months' pregnancy, containing one and a half to two litres of thin yellow-green fluid; few adhesions; recovery uneventful. Cyst fluid showed a pure culture of typhoid bacillus.

CASE VI. Vidal and Ravant (*Bull. et Mém. de la Soc. Méd. des Hôpitaux de Paris*, January 30, 1902, p. 15).—Married woman, aged thirty-four years. Entered hospital on the tenth day of typhoid fever. For ten days fever ran a normal course, then vomiting appeared, with a distended, tender abdomen. For four weeks these abdominal symptoms persisted, with fever, and then gradually disappeared. Fifty days after admission the temperature was normal, and the patient seemed convalescent. Three weeks later patient was out of bed, and abdominal symptoms reappeared, with fever. Abdominal section revealed a right ovarian cyst containing one and a half litres of blackish fluid. This fluid gave a pure culture of typhoid bacilli. The recovery was uneventful.

NOTE.—Since the writing of this paper there has appeared in the *American Practitioner and News* of June 1, 1902, a report by Edwin Walker, of a case of typhoid infection of an ovarian cyst. The case is briefly as follows: A young married woman, aged twenty years, contracted typhoid fever in July, 1901, the temperature rising to 103° F. and 104° F., with diarrhoea and rose-colored spots. In the fourth week pain was complained of in lower abdomen, with chills, increase of fever, and tumor. Widal reaction was present when the patient was seen by the reporter, in December, 1901. At the operation, on January 4, 1902, a large dermoid cyst was found which contained a gallon or more of pus. The cyst was firmly adherent, and ruptured during the removal, one quart of pus escaping into the peritoneum. The peritoneum was wiped out with absorbent gauze, but no irrigation of any kind was used, and the abdomen was closed without drainage. The patient recovered after mural abscesses. The pus from the cyst gave a culture of typhoid bacillus.

CLINIC OF DR. JOSEPH D. BRYANT.

1. EXCISION OF THE BREAST. 2. HÆMOPHILIA. 3. EXCISION OF THE KNEE.

REPORTED BY WILLIAM C. LUSK, M.D.,
CHIEF OF CLINIC.

CLINIC I.—*Excision of Breast.*

GENTLEMEN: I wish to-day to call your attention to the operation of excision of the breast.

The method of operative practice which we shall employ is known as the radical method of procedure, which means the removal not only of all disease manifestations that appear on gross examination to be pathologically associated with the growth, but also those tissues which one is taught to know by experience and observation are subject to cancerous infection because of their continuity with the seat of the disease.

It has been found that the tissues associated with the disease in malignant development are as follows: first, the fascia associated with the pectoralis major and minor muscles, particularly that of the former; second, almost invariably the lymphatics associated with the diseased breast. The lymphatics that suffer most frequently are those of the axillary and cervical regions; and second in frequency, especially in cases of well-developed tumors, the thoracic lymphatics of the anterior mediastinum.

It is sometimes suggested that lymphatic nodes are not to be removed except they be enlarged. I desire to say now at once and finally that