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TUBAL AND PERITONEAL TUBERCULOSIS

WITH

SPECIAL REFERENCE TO DIAGNOSIS.

BY

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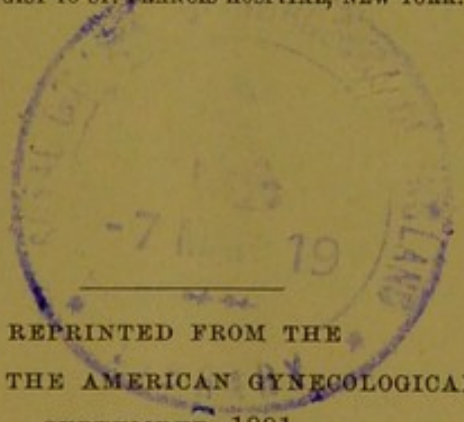

REPRINTED FROM THE

TRANSACTIONS OF THE AMERICAN GYNECOLOGICAL SOCIETY,

SEPTEMBER, 1891.

PHILADELPHIA:

WM. J. DORNAN, PRINTER.

1891.

TUBAL AND PERITONEAL TUBERCULOSIS, WITH SPECIAL REFERENCE TO DIAGNOSIS.

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The following remarks upon the diagnosis of one of the obscurer affections with which the gynecologist is liable to be confronted are based upon the personal experience, limited as it is, of the writer. In attempting to reach a diagnosis, he has found the teachings of the text-books to be of little value as a guide. But close observation of cases both before, at the time of, and after laparotomy has served to evolve a combination of symptoms, mainly of an objective character, which, when found coexisting, point with considerable clearness to the existence of peritoneal tuberculosis, either alone, or combined as the primary or secondary affection with tuberculosis of the tubes.

For the purposes of this paper the writer has utilized only those cases which he has personally studied with a view to their symptomatology, and in which the diagnosis of peritoneal or tubal tuberculosis, or both, was subsequently verified either by laparotomy or by exploratory puncture. These cases number eight—all of them occurring in females. Of these, one was proven by exploratory puncture, the remaining seven by laparotomy. All of the cases occurred in the writer's own practice, except one of the cases proven by laparotomy, which was seen with Dr. Florian Krug. The writer would take this occasion to express his obligations to his friend Dr. Krug

for his kindness in permitting the use of this case for the purposes of this paper.

In addition to the cases forming the basis of this paper, the writer has made or witnessed autopsies on five or six cases of peritoneal tuberculosis, and in perhaps the same number of cases has witnessed the performance of laparotomy by various abdominal surgeons. In none of the cases coming to autopsy, including one which the writer himself had treated, was peritoneal tuberculosis diagnosticated, or suspected, before death, and no history or examination of any value for the purposes of this paper was recorded. Of the cases which were subjected to abdominal section by surgeons other than the writer, and in which the writer had the privilege of witnessing the operation, the majority proved surprises to the operator; in but one was the diagnosis positively made and in a second strongly suspected. But inasmuch as the writer had no opportunity to examine any of these cases before operation, they have not formed part of his personal experience in the diagnosis of tubercular salpingitis and peritonitis, and are therefore excluded from consideration. For obvious reasons, also, are excluded a few cases in which the writer has ventured the diagnosis of peritoneal tuberculosis, but in which laparotomy was declined by the patient.

Of the six cases in which the writer performed laparotomy, two were twice subjected to the operation. In the one case the second laparotomy was performed for the removal of a sero-purulent intra-peritoneal exudate formed after the first laparotomy and for ventro-fixation of a prolapsed uterus; in the other for removal of a double tubercular pyosalpinx, the enucleation of which the writer had not the courage to attempt at the first operation.

The object of this paper is not to deal exhaustively with the subject of the symptomatology of peritoneal and tubal tuberculosis, nor to review the literature, ancient and modern, of the theme; but rather to dwell upon those points which in the

writer's individual experience have seemed to be of practical aid in reaching a diagnosis.

Dr. William Osler, in a recent most valuable contribution ("Tubercular Peritonitis," *The Johns Hopkins Hospital Reports*, vol. ii. No. 2, 1890), has entered into a very exhaustive clinical and analytical study of the subject, and has dwelt, with delightful fulness, upon the symptomatology and diagnosis. The recent appearance and the completeness of this classical treatise renders a second elaborate disquisition superfluous at the present time. I shall take the liberty of making free use of Dr. Osler's work in the following pages for a comparison of observations.

Dr. Osler classes all cases of tuberculosis as occurring in the peritoneum under one of three anatomical forms:

1. Acute miliary tuberculosis.
2. Chronic caseous and ulcerating tuberculosis.
3. Chronic fibro-tuberculosis.

For the purposes of clinical study, especially in so far as it concerns diagnosis, I consider the classification of peritoneal tuberculosis into two forms sufficient:

1. Tuberculosis with ascites, free or encapsulated.
2. Tuberculosis without ascites, or with ascites so small in amount as to be inappreciable by the ordinary physical signs.

I will begin with a consideration of the symptoms and signs common to both forms, and afterward attempt to point out the features peculiar to each.

The *family history* is probably more often found pointing to tubercular disease than has happened in my eight cases, in three of which it was found good, in three indifferent or fair, and in only two bad.

The *tuberculous habitus* has been well marked in all but two of my cases. The condition known as "clubbed fingers," bulbous enlargement of the ends of the fingers with incurvation of the nails, was common, although my notes fail to throw light upon the exact frequency of this condition.

One feature, however, not mentioned by Osler, existed in a marked degree in all of my cases—a pronounced and very striking *expression of apathy and listlessness.* This corresponded with a marked indolence of the cardiac and respiratory movements except when passingly accelerated by increased pyrexia.

One of my patients was sixty-four years of age, the other seven were between twenty and thirty.

Two of my patients developed a notable appetite after laparotomy, although both finally succumbed to general tuberculosis.

Osler lays great stress upon the diagnostic value of *involvement of the pleura and pericardium.* All of my patients were carefully examined before operation as to the condition of the heart and lungs. In but one case were the latter found involved, a tubercular infiltration, without loss of pulmonary substance, being discovered in the apex of the right lung. In all the other cases, and with the exception mentioned in this one also, the lungs, pleura, heart, and pericardium were found normal as far as physical signs go. One can readily understand, however, that cases with involvement of the circulatory and respiratory organs would be more likely to come under the care of the specialist in internal medicine than of the gynecologist. In none of my patients—not even the one with tubercular infiltration of one apex—was *cough* a symptom.

All of my patients, with the exception of one in whom the temperature was normal, had persistent *mild pyrexia.* The *subnormal temperature* alluded to by Osler was not found.

In one of the cases a deep brown *discoloration of the entire integument* developed during the course of the disease. The others all maintained remarkably clear and delicate complexions.

Tympanites was a feature of one case only, and in that one case it developed after laparotomy. An enormous amount of

ascitic fluid was evacuated at the operation. The abdomen, however, remained large, although the fluid never reaccumulated, its place being filled by the distended intestines, as denoted by the percussion note.

The first symptom pretty uniformly (six out of eight cases) complained of by the patients was *pain and distress in the lower part of the abdomen.* The only two patients who did not complain of this symptom were the two in whom the peritoneum alone was involved. The pain seems therefore to be fairly attributable to the tubercular affection of the tubes.

Enlargement of the spleen, as determined by percussion, was observed in four of the eight cases. In three of the remainder no note was made of the condition of the spleen; in the eighth case it was found of normal size.

Judged from my limited experience, enlargement of the spleen, taken in connection with other symptoms, would appear to be a sign of some importance in diagnosis. It is not mentioned as such by Osler.

Tuberculosis of Tubes and Peritoneum without Ascites.—The diagnosis of peritoneal tuberculosis, in the absence of ascites, is based mainly upon the detection of localized, irregular thickenings—*tubercular tumors*—in various parts of the abdominal cavity. These tumors are caused by thickened, rolled up omentum, agglutinated intestines, enlarged mesenteric glands, etc. Their existence presupposes a tolerably well advanced stage of the disease, and they are consequently rarely available for an early diagnosis.

The writer desires to call especial attention to one sign which has proved to him of the greatest value in the early diagnosis of peritoneal tuberculosis without ascites, and which he has thus far failed to find mentioned by any author. It has been the sign which led him to a correct diagnosis in all the early cases in which he has been able to make a positive diagnosis before laparotomy. It consists in *plaque-like, localized thickenings of the deeper portion of the abdominal parietes,* perceptible to *gentle* touch. They impart to the palpating fin-

gers the sensation as if the peritoneal surface of the abdominal walls were occupied by urticaria wheals or pomphi, of various sizes. The author has met them from one up to eight centimetres in diameter. They may be quite numerous in a given case, or but two or three may be found scattered over the anterior and lateral walls of the abdominal cavity. By marking their site before laparotomy and carefully examining during the performance of the operation the structures underlying the marks, the writer has satisfied himself that this sign—the plaque-like, localized thickenings—depends for its existence upon a localized hyperæmia and swelling of the tissues of the abdominal wall immediately underlying the peritoneum—*i. e.*, of the subperitoneal connective tissue. The peritoneum was frequently found unchanged and not the seat of tubercular deposit at the precise spot where the induration had been felt. Indeed the sign may be especially well marked in cases where the peritoneal tuberculosis is in its very incipiency, a few solitary tubercles being found scattered here and there in the peritoneal sac. This was notably the case in Dr. Krug's patient (Case VII.), in whom the peritoneal tuberculosis was difficult to recognize at the operation, owing to the paucity of tubercles. When the tubercular peritonitis has led to universal and uniform thickening of the entire peritoneum, the sign becomes less available for diagnosis. I consider it, therefore, of especial value in the diagnosis of the very early stages of peritoneal tuberculosis, and when it can be plainly made out in parts of the abdominal walls not overlying a solid viscus, I regard it as almost if not quite, pathognomonic. The only other disease in which, to my mind, it might occur, is disseminated secondary carcinosis of the peritoneum. Inasmuch, however, as in the latter instance it could occur only toward the end of the disease, while in peritoneal tuberculosis it is an early manifestation, the differential diagnosis ought rarely to present any difficulty.

Our knowledge of the differential diagnosis of tubal tuberculosis from other diseases of the tubes leading to enlargement

is as yet very meagre. Hegar has advanced the statement that in tuberculosis of the tubes the uterine end of the tube is more likely to be the principal seat of enlargement than in other diseases affecting the tubes, and thinks this fact may be made available for diagnosis. The writer's limited experience has not been that of Hegar; he has invariably found the outer half of the tube principally affected and enlarged by the disease.

Osler offers us more valuable aid in the following sentence: "The association of a tubal tumor with an ill-defined, anomalous mass (tubercular tumor) in the abdominal cavity should arouse suspicion at once."

I would go a step further and respectfully submit the following proposition: *The coëxistence of tubal tumor or tumors with plaque-like thickenings of the sub-peritoneal tissues, above described, points with great positiveness to tuberculosis. The tuberculosis, under these conditions, may fairly be assumed to be primary in the tube or tubes, if no other deep-seated tumors can be palpated in the abdominal cavity.*

Exploratory puncture of the tubal tumor may, in exceptional instances, make positive the diagnosis of tubal tuberculosis, as in Case VIII., in which it demonstrated the existence of pyosalpinx, and examination of the pus withdrawn from the tube proved the presence of the bacillus tuberculosis. This is, as far as known to the writer, the first and only recorded case in which an absolutely unquestionable diagnosis of tubercular pysosalpinx was made *intra vitam* without laparotomy. In two other cases in which exploratory punctures secured pus from the tubes, and which were on subsequent laparotomy proven to be cases of tubal and peritoneal tuberculosis, no tubercle bacilli could be found in the pus. The method of exploratory puncture employed was that described by the writer as "abdominal puncture guided by combined vaginal and rectal touch."[1]

[1] "Exploratory Puncture of the Female Pelvic Organs: A Diagnostic Study," Medical Record, November 22, 1890.

*

Peritoneal Tuberculosis with Ascites I consider more difficult of diagnosis: In the first place, because large accumulations of fluid in the abdominal cavity render palpation of the tubes difficult, and thus prevent our obtaining the evidence to be derived from recognizable enlargement of the latter. Secondly, because with the abdomen distended it becomes more difficult to be sure of the presence or otherwise of tubercular tumors or of the plaque-like thickenings of the sub-peritoneal tissues.

Peritoneal tuberculosis with ascites has been most commonly mistaken for ovarian cystoma. From non-adherent ovarian cystoma it may be differentiated by the irregular and indistinct outlines of the ascitic tumor, the intestinal percussion note here and there overlapping and encroaching upon the area of dulness. In adherent ovarian cystoma this distinguishing mark becomes lost, and the diagnosis becomes exceedingly difficult, perhaps impossible. The difficulty is increased in the rare cases in which the two neoplastic formations, ovarian tumor and peritoneal tuberculosis with ascites coexist, as in Case III.

Exploratory puncture and microscopical examination of the ascitic fluid has been made by me in two cases with considerable, and in one with moderate, ascites—the fluid in all three cases being examined, with negative results, for the presence of tubercle bacilli. In all three cases subsequent laparotomy showed peritoneal tuberculosis.

In five of the eight cases herewith reported, the diagnosis of tubal and peritoneal tuberculosis, singly or combined, was made previous to operation; in a sixth, a probable diagnosis only was reached. In the two remaining cases the correct diagnosis was not reached until after opening the abdomen; one case, previous to operation, being mistaken for ovarian cystoma, the other for gonorrhœal pyosalpinx.

However difficult the diagnosis may be before operation, it can generally be readily made on the operating-table while working down to the peritoneum and before the latter is

opened. The vascularity of the abdominal wall is greatly increased, often requiring ligature of a considerable number of vessels. Especially is this the case in the thickened subperitoneal tissues. The occurrence of this excessive vascularity should always arouse a very strong suspicion of peritoneal tuberculosis. The brisk hemorrhages from the abdominal wound and on the separation of adhesions, coupled with the already far advanced anæmia of the patient, have been the chief reasons which have often deterred operators from an attempt to remove the tubes when the tuberculosis was evidently primary in the latter.

In five of the eight cases here reported, the tubal tuberculosis was the primary affection, the coexisting peritoneal tuberculosis, present in all five, being secondary. In three of the five cases of primary tubal tuberculosis there was pyosalpinx; double in two cases, unilateral in one. In the two remaining cases of primary tubal tuberculosis no pus was found in the tubes.

Peritoneal tuberculosis existed as the primary affection in three cases; in one of these the tubes were secondarily involved; in the remaining two they were found normal.

Seven of the eight cases came under observation at periods varying between six and twelve weeks after the beginning of the disease, the average duration having been eight weeks. One case was six months advanced at the time of operation.

Case I. *Tuberculosis of tubes and peritoneum.*—R. S., aged twenty years; single; admitted to St. Francis' Hospital July 8, 1889. Father and three sisters living; mother and one brother died of consumption. Patient dates her illness from April, 1889. Pains in lower part of abdomen the chief complaint; no cough, and but little cachexia or emaciation.

Examination shows on either side of the normal uterus an irregularly enlarged tube, averaging about 1½ cm. in diameter. Exploratory puncture of both tubes, with negative results. No ascites. Physical examination of heart and lungs negative. Slight pyrexia, with remissions.

Laparotomy not at first entertained. While under observation the tubal tumors very rapidly increased in size, until they were nearly 4 cm. in diameter; corresponding increase in pains and fever. Rapidly filling double pyosalpinx diagnosticated—without a second exploration by puncture—and rupture feared. Operation now advised; tuberculosis not suspected.

Laparotomy, July 24, 1889. Entire peritoneum studded with tubercles, most of which were miliary in appearance; others undergoing caseous degeneration. Tubes greatly thickened, enlarged to 4 cm. in diameter, and completely covered with tubercles; no ascites. The free hemorrhage and the extensive adhesions deterred me from an attempt at removal of the tubes. Abdomen closed without further interference, after removal of a small piece of peritoneum for microscopical examination. The latter demonstrated the presence of the bacillus tuberculosis.

Two months after operation the patient developed cough for the first time in her life. Acute miliary tuberculosis of the lungs supervened and led to the death of the patient on December 8th, four and a half months after operation. The abdominal wound closed by primary union, but toward the end of life reopened and discharged a thin purulent secretion.

Case II. *Acute miliary tuberculosis of peritoneum.*—A. G., aged thirty years; married; mother of seven children; came under my care April 28, 1890. Family history indifferent; formerly suffered from some uterine displacement, for which she wore a pessary. Present illness dates from February, 1890. It began with stabbing pains in right groin, which soon became general all over the abdomen. These pains have kept her in bed for two months past. Appearance that of a person greatly run down in health; anæmic, emaciated, listless, and cachectic. Mild pyrexia.

Abdomen tumid, irregular in outline. Tympanitic resonance on percussion everywhere except low down in right flank.

Uterus normal in size and position; mobility impaired. In region of right tube an elongated induration, about 5 cm. long, can be felt; left tube enlarged to about half this size. Douglas's pouch is boggy to feel. Two or three enlarged sacral glands are found in the hollow of sacrum behind rectum. Spleen consider-

ably enlarged and very hard; can be distinctly felt reaching downward to 5 cm. below the costal margin. At various parts of the abdomen a few small nodular masses can be felt behind the thin abdominal walls and moving with them. Exploratory puncture of tubes negative. Puncture into retro-uterine space on two occasions gave yellowish serum. Although especially examined for their presence, no bacilli of tuberculosis were found in this fluid. The exploratory puncture, however, revealed the presence of ascitic fluid in the peritoneum before it had accumulated in sufficient quantities to be detected by other signs. The discovery of this fluid, coupled with the general symptoms and the nodular indurations of the parietal peritoneum, led to the diagnosis of tuberculosis of the tubes and peritoneum.

Laparotomy, May 24, 1890. About 1½ litres of ascitic fluid. Peritoneum thickened and studded with recent and older miliary tubercles. Tubes and ovaries, thickened and studded with tubercles, were curled up to the side of and behind the uterus. Their size and feel did not impress me with the idea that the tuberculosis was primary in the appendages. Removal of the latter was, therefore, not attempted. About one-half the amount of ascitic fluid was removed by sponging, and the abdomen closed without further interference and without drainage. Convalescence was uneventful; the wound healed by primary union, and the patient was discharged June 18, 1890.

I saw nothing of her until ten months after operation. She then presented herself at my office, and stated that, with the exception of pain at her periods, which are regular but profuse, she considers herself a well woman. She has done the work of a large household ever since leaving the hospital.

Examination shows the tubes of same size as at time of operation; distinct thickening in the region of the ileo-cæcal valve. No other localized thickenings and no ascites. Patient has changed so greatly for the better in appearance and has gained so much flesh that I failed to recognize her.

Case III. *Acute miliary tuberculosis of peritoneum; cystadenoma of both ovaries.*—M. B., aged sixty-four years; married; mother of four children; came under my care September 28, 1890. Menstruation began at sixteen years of age, and ended at fifty-

five years of age. One brother died of phthisis; with this exception her family history is good.

Her present illness dated from April, 1890, and began with pains in abdomen around and below umbilicus and with vomiting. The abdominal pains and vomiting continued until June, when patient first noticed beginning enlargement of the abdomen. Appetite poor; bowels constipated; pains in back and sides.

On her entrance into the hospital the patient was placed in the medical division, her extreme feebleness seeming to indicate a moribund condition.

On my first examination, October 8, 1890, I found the abdomen enlarged to about the size of an eight months' gestation; circumference at umbilicus, 94 cm. Distinct fluctuation could be had across the abdomen from any point to almost any other Dulness on percussion over entire left half of abdomen from loins to 4 cm. beyond the median line in front. Right half of abdomen resonant on percussion, except in supra-pubic region. No distinct, well-defined outlines of the fluid collection could be made out by palpation. On exploratory puncture a slightly viscid, yellowish-green fluid was obtained. As a cystic tumor of the kidney or hydronephrosis was among the possibilities, this fluid was examined, with negative results, for urinary constituents. Lungs presented nothing abnormal.

Uterus normal in position and size. No fluid in Douglas's sac, which was found occupied by two small, hard bodies.

Probable diagnosis. Ovarian cystoma of left side. Tuberculosis not suspected.

Patient's general condition exceedingly poor. Pulse intermittent, every third pulsation being lost.

Laparotomy, October 11, 1890. Ether. The incision, 10 cm. long, led directly into the cavity containing the fluid. The walls of this cavity were composed of thickened peritoneum thickly studded, on both its parietal and visceral surfaces, with miliary tubercles. The viscid, greenish-yellow fluid weighed 7100 grammes. Floating about in the fluid near the bottom were found two ovarian tumors anchored one to either broad ligament. The larger, on the right side, formed a lobulated oval, 13 by 7 cm., containing colloid, very viscid fluid. The tumor on the left was

a reproduction, on a smaller scale, of that on the right; it measured 5 by 6 cm. Tubes normal; both tubes and ovaries tied off and removed. After removal of the fluid the tuberculous peritoneal cavity was washed out with a 1 : 5000 sublimate solution, the latter in turn being removed by flushing with sterilized water. After sponging dry the peritoneal cavity, the abdomen was closed without drainage.

Patient began to improve immediately after operation; especially was this noticeable in regard to the pulse. Convalescence afebrile and without complications. Sutures removed on ninth day; primary union. Patient discharged November 10th, feeling perfectly well and without any fluid in abdomen. I have been unable to ascertain her further progress.

Dr. Eugene Hodenpyl kindly examined the removed ovarian tumors. He reported them as typical examples of cystadenoma of the papillary variety. No trace of tubercular formation entered into their structure.

Case IV. *Chronic tuberculosis of peritoneum; complete prolapsus of uterus.*—D. M., aged twenty-four years; single; was sent to me by her family physician, Dr. A. Shannon, with an abdominal enlargement and complete procidentia uteri. Family history good; menstruation began at fourteen years of age, and has continued regularly, five or six days every four weeks, until the present, she being unwell at the time I first saw her, February 16, 1891.

Five years ago the uterus began to come out through the vulva. At first the patient could replace it at night; latterly it has been out of her body day and night. For the past two months has noticed an abdominal enlargement. Bowels regular; mild pyrexia; never any cough.

Physical examination of lungs gave a slight dulness on percussion at either apex, anteriorly and posteriorly, with high-pitched inspiration and prolonged expiration. Rude vesicular respiration over balance of both lungs. Spleen decidedly enlarged. Owing to entire absence of cough and sputa, no examination of the latter for tubercle bacilli could be made.

Abdomen symmetrically distended by an accumulation of fluid to size of a seven months' gestation. Circumference at

umbilicus 80 cm.; pubis to umbilicus 20 cm.; umbilicus to sternum 17 cm. Fluctuation well marked. Dulness on percussion from 5 cm. above the umbilicus down to pubis, the limits of the dulness extending laterally 10 to 12 cm. from the median line on either side. Resonance in both flanks. The outlines of the tumor ill-defined, shading off gradually into surrounding viscera. Complete procidentia of vagina and uterus; vaginal outlet greatly distended. The fluid accumulation was readily palpated from the vagina after replacing the uterus.

At the first examination a diagnosis of ovarian cystoma was made; at the second examination, two days later, this diagnosis was abandoned and that of tubercular peritonitis was substituted.

Laparotomy, February 20th, in the presence of Drs. T. G. Thomas and Clement Cleveland. Ether. Incision 5 cm. long. Peritoneum found greatly thickened in line of incision. On opening it about five litres of deep-yellowish-tinted fluid of slightly viscid consistency escaped. The interior of the peritoneal sac felt roughened. The intestine forming the upper wall of the cavity could not be brought down to incision for inspection. Diagnosis of tubercular peritonitis made from the appearance of the peritoneum near incision, a piece of which was cut out for microscopical examination. Ovaries and tubes not greatly changed, the serous covering of these organs appearing merely to participate in the general tubercular thickening of the peritoneum. The tubercular cavity was washed out with 1 : 5000 sublimate solution; this in turn displaced by sterilized water. The prolapsed uterus was now returned into the body and ventrofixated by scraping raw the anterior aspect of the fundus and attaching it by three deep sutures to the lower end of the abdominal wound. The relaxed perineal outlet was closed by perineorrhaphy. The exact time required for these various operative procedures was fifty-five minutes.

The exsected piece of peritoneum was pronounced by Dr. E. Hodenpyl, after microscopical examination, to be typical tubercular tissue.

A pulmonary hemorrhage occurred a week after operation, followed by the development of cough. Perineal wound healed by primary union.

The fluid in the peritoneum reaccumulated, slowly undergoing a purulent degeneration, reopening the lower end of abdominal wound after having first detached the uterine adhesions by lifting the anterior abdominal wall away from the fundus.

Second laparotomy, March 19, 1891. The abdominal wound was reopened and the peritoneum freed from the now purulent fluid by thorough washing. An opening made into the vagina from Douglas's sac, and through drainage, by double rubber tube, established from abdominal wound to vagina. Uterus again brought up, the fundus denuded, and a second time sewed to the anterior abdominal wall.

The patient recovered from the operation. Acute pulmonary tuberculosis, however, carried her off on April 10th, seven weeks after the first and three weeks after the second laparotomy.

Case V. *Double tubercular pyosalpinx; miliary tuberculosis of peritoneum.*—K. G., aged twenty years, single, chambermaid. Father died at thirty-five of stomach trouble; mother alive and well. Has two sisters, one of whom has a cough and is considered delicate; the other enjoys good health.

April 15, 1891. With the exception of a temporary vesical disturbance four years since, patient enjoyed excellent health until about six weeks ago. At that time her feet began to swell, and she had attacks of dizziness and faintness. A week or two later pains developed in lower part of abdomen which have increased to date. Flatulence, aggravating these pains, is greatly complained of. Patient has never had a cough. She is anæmic and delicate in appearance, but not to an extreme degree. Slight pyrexia. No albuminuria.

On examination the uterus is found imbedded and immobilized by a mass on either side and behind. The diameter of the mass to the left is estimated at 15 cm., of that to the right at 10 cm. Nothing definite can be palpated in the mass on the right. In the left mass and in Douglas's sac the contours of an enlarged, greatly thickened tube can be plainly discerned. Exploratory puncture of this tube gives four grammes of pus. Spleen moderately enlarged. Abdomen perfectly flat; no ascites. Physical examination of heart and lungs reveals nothing abnormal.

The diagnosis narrowed down to either tubercular or gonorrhœal pyosalpinx. Patient denies ever having exposed herself to the danger of gonorrhœa, and there seemed to be no reason to doubt her statement. A careful examination of the pus was made by Dr. Hodenpyl, who failed to find either gonococci or tubercle bacilli.

Laparotomy, April 21, 1891. Incision 7 to 8 cm. long. Very vascular abdominal walls, a large number of vessels requiring ligature. Omentum and intestines adherent to anterior abdominal walls and to pelvic viscera. Peritoneum contains about 100 grammes of yellowish serum.

A large tubal sac bulges high up on the left side, reaching the anterior abdominal wall; a second smaller pus tube (the right) is found behind the uterus. Intestines, omentum, tubes and parietal peritoneum everywhere quite thickly studded with miliary tubercles; the tubal tuberculosis evidently primary. A piece of peritoneum exsected for pathological examination. Enucleation of the tubes seemed a rather formidable undertaking in view of the excessive hemorrhage following the slightest separation of adhesions. Sixty grammes of pus were drawn out of left tube by the aspirator, and the abdomen closed without washing and without drainage. Duration of operation, twenty-seven minutes.

Sutures removed eight days later, when primary union was found to have occurred.

The operation produced no change in the patient's condition, except that the pelvic pains were less complained of. The mild pyrexia continued, and the feebleness and emaciation progressed in spite of a greatly improved appetite. Toward the fourth week a deposit of tubercle formed in the lower part of the scar of the abdominal wound.

The pelvic conditions remained unchanged, and still regarding the tubal tuberculosis as the primary affection, I offered to attempt the removal of the diseased tubes by a second operation. The proposition was accepted, and a second laparotomy was performed on May 21, 1891.

The incision was carried through the old scar, being extended a little above and below. The tubercular infiltration of the

scar, miliary and yellow, was exsected. The abdominal and pelvic organs were found in much the same condition as at the first operation, except that the peritoneum was more reddened and vascular, and more thickly studded with miliary tubercles. The entire right tube was enucleated from behind the uterus and removed with its ovary. It measured 2.5 to 3 cm. in diameter in its external two-thirds and contained 5 grammes of pus. One-half of the left tube was enucleated from a large tubercular mass and tied off; as much of this mass as possible was removed and hemorrhage was controlled by ligature of both ovarian and uterine arteries. After free flushing of the peritoneal cavity, partly with 1 : 5000 sublimate solution, the abdominal cavity was closed without drainage.

Microscopical examination demonstrated the pyosalpinx to be tubercular in character on either side.

Patient's general condition improved after the second operation; the appetite continued good; the pyrexia and extreme weakness gradually disappeared. A small fecal fistula formed in the abdominal wound in the third week, which still persisted on June 30th, the date of her leaving the hospital.

Case VI. *Tubercular pyosalpinx of left side; miliary tuberculosis of peritoneum.*—E. W., aged twenty-three years, a widow. Family history good. During the past three years has had two attacks of acute articular rheumatism. Menstruation of irregular type and scanty, but without pain. Has had two children and one miscarriage—being pregnant the last time five years ago.

Her present illness began two months ago. Pains in the back and both sides and one painful menstruation have been the only symptoms. No cough. Mild pyrexia.

Examination, May 15, 1891. Patient small of stature, fairly well nourished, lungs and heart normal. Abdomen not enlarged; no ascites. Uterus normal in size and position. Above, behind, and to the left of the uterus a small mass, 5 to 6 cm. in diameter, can be felt; one-third of it is very hard, the balance very soft. Exploratory puncture of the soft portion yielded pus. This pus was examined for gonococci and tubercle bacilli, but neither were found. Appendages on the right side feel normal No induration of any kind can be palpated in other parts of the abdomen.

Diagnosis. Left pyosalpinx with adhesions of intestine and omentum.

Laparotomy, May 19, 1891. Incision 10 cm. long. Tissues of abdominal wall are very vascular and bleed freely, especially the subperitoneal fat. From this fact the diagnosis of tuberculosis of the peritoneum was made at this stage before opening the cavity. Peritoneum found thickened to extent of 3 to 4 mm. Omentum greatly thickened, adherent to pelvic walls and viscera. Tied off below, cut across and reflected upward. A little yellowish serum escaped from abdominal cavity. The thickened peritoneum was studded here and there with fresh miliary tubercles. A considerable quantity of gelatinous material was found adherent to the peritoneal walls and also contained in small cavities formed by peritoneal adhesions. Uterus about the only organ with an approximately normal looking peritoneum.

Left tube thickened in its outer two-thirds to a diameter of 2 to 2½ cm., lengthened, tortuous, and containing about 30 grammes of pus. Left ovary normal. Left appendages removed without rupture of the pyosalpinx. The very free hemorrhage caused by separating adhesions stopped after ligature of the broad ligament.

Right tube and ovary appear normal except that they are studded with numerous miliary tubercles. Tied off and removed.

Peritoneal irrigation. Iodoform-gauze packing to control hemorrhage. Recovery without incident.

Patient began to gain flesh and strength immediately and left hospital, looking and feeling perfectly well, five weeks after operation.

Case VII. *Tuberculosis of tubes and peritoneum.*—The history of this case has been kindly placed at my disposal by my friend, Dr. Florian Krug.

M. S., aged twenty-three years, married, with a family history of tuberculosis, was taken ill in October, 1890, with pains in the lower part of the abdomen and on urination and defecation. Leucorrhœa for the past three weeks. Periods regular. Urine contains a little albumin and some blood corpuscles.

I saw the patient on the invitation of Dr. Krug on December

19, 1890. We found the uterus crowded to the left by a soft, semi-fluctuating mass situated to its right. Two or three small, flattened, plaque-like indurations, corresponding in depth to the internal aspect of the abdominal wall, could be felt at various parts of the abdomen. A diagnosis of peritoneal tuberculosis and probable tubal tuberculosis was made.

Dr. Krug performed laparotomy on the following day. He found a tubal tumor of the right side, which he removed, and incipient acute miliary tuberculosis of the peritoneum. Abdomen closed without drainage. Patient made a good recovery, and at last accounts remained well.

Examination of the removed tube demonstrated the presence of tuberculosis.

CASE VIII. *Tubercular pyosalpinx; tuberculosis of peritoneum; syphilitic stricture of rectum.*—N. W., aged twenty-four years, married, nullipara. Family history good as far as regards tuberculosis. Contracted syphilis from her husband soon after her marriage at eighteen. Has been very constipated ever since she can remember; for the past three years the formed motions have been ribbon-shaped and of small calibre.

Present illness dates back two months, at which time she noticed a sensitive lump in each inguinal region, that on the left side being especially tender. Constant pain and night-sweats soon reduced her to a condition of extreme cachexia and emaciation. No cough. No leucorrhœa. Mild pyrexia.

Examination, January 14, 1891. A tight syphilitic stricture of the rectum, barely admitting the tip of the index finger, is found at a distance of 4 cm. from the anus. Descending colon filled with fecal matter. Vagina and cervix normal. Uterus normal in size and direction but crowded against the pubis by an indurated mass behind and to its right and left. An enlarged tube on either side can be made out as the nucleus of the pathological mass which fills the pelvic inlet. Right tube larger and softer than the left. Exploratory puncture of the right tube yields pus. The presence of ascites is also demonstrated by the withdrawal of serous fluid from the abdominal cavity. Slight thickenings of the internal aspect of the abdominal walls can be felt at various parts. Spleen slightly enlarged. Lungs and heart normal.

The pus removed by exploratory puncture was kindly examined by Dr. Eugene Hodenpyl, who reported that he found two tubercle bacilli on a single slide.

On account of the almost moribund condition of the patient and the profound syphilitic cachexia, operation was not urged and the patient left the hospital.

SUMMARY.—There seems to be a difference in the clinical features of cases of peritoneal and tubal tuberculosis as they present themselves to the general practitioner and to the gynecologist. The latter is more likely to see cases in which the disease is limited to the abdominal and pelvic cavities.

For purposes of clinical study peritoneal tuberculosis may be classified as tuberculosis with, and tuberculosis without, ascites.

In both forms of the disease the family history, habitus, age, and expression of the patient, as well as the condition of the skin, lungs, pleura, and pericardium should be taken into consideration in attempting to reach a diagnosis. The symptoms, however, which have been more uniform in the writer's experience are pelvic pain and distress, mild and irregular pyrexia, and enlargement of the spleen.

There is nothing characteristic about tubal tuberculosis to distinguish it on bimanual palpation from other tumors of the tube. The diagnosis may, however, in a certain proportion of cases, be made by exploratory puncture of the tube and examination of any fluid obtained for tubercle bacilli. A diagnosis thus made is, of course, unquestionable.

In dry tubercular peritonitis the plaque-like thickening of the subperitoneal tissue above described constitutes a most characteristic, almost pathognomonic sign, obtainable very early in the disease.

The coexistence of tubal tumor or tumors with these plaque-like thickenings renders the diagnosis of tuberculosis still more positive.

In the more advanced stages of peritoneal tuberculosis the

detection of "tubercular tumors" among the viscera of the abdominal cavity, forms an important aid in diagnosis.

In peritoneal tuberculosis with ascites the diagnosis is more difficult, and is based principally upon the history of the case and the indistinct outlines of the fluid collection.

NOTE.—Since writing the above the author has performed laparotomy upon two further cases: one of tubercular pyosalpinx with secondary tuberculosis of the peritoneum, and one of miliary tuberculosis of the peritoneum without involvement of the tubes; making a total up to date (December, 1891), of ten laparotomies upon eight patients. Neither case presented developments rendering necessary a modification of any statement contained in the paper.