Original Articles.

TUBERCULOSIS OF THE PERITONEUM.*

BY F. H. LUND, M.D., BOSTON.

THE insidious nature of tuberculous peritonitis, the manifold forms in which it may appear and the many conditions, both acute and chronic, which it may simulate, combine to make it a condition of the greatest interest both to the abdominal surgeon and the internist. Often acute in its early manifestations, it may be and is mistaken for acute appendicitis, and the operation alone reveals the nature of the diagnosis. Again, in its chronic form it may run a latent course until perforation of a tuberculous ulcer precipitates the picture of an acute fulminating peritonitis. The contraction of the scar of a healed ulcer or the bands and kinks resulting from adhesions may cause acute intestinal obstruction with all its terrors in a case where the real but unsuspected cause is tuberculous peritonitis. However, the enumeration of the many manifestations of intraperitoneal tuberculosis might take all the time required for this paper, so we will pause at the brink and take up what we can of the various forms later.

Statistical studies of tuberculous disease have been many. Grawitz and Brunn in particular have published statistics of 13,422 autopsies in Germany; Cummins, of 3,405 in Philadelphia, etc. The consensus of opinion is that tuberculous peritonitis is found in 3% of all autopsies and that males are affected in comparison with females in proportion of two to one. Here autopsy statistics show a wide variance from surgical statistics. Surgeons find the proportion of females to males is about two to one. More males are autopsied than females; more females are laparotomized than males; autopsies show terminal conditions; laparotomies, fortunately, earlier stages. Both laparotomies and autopsies reveal unsuspected peritoneal tuberculosis, in the latter case usually accompanied by tuberculosis elsewhere. Neither laparotomies nor autopsies give any idea of the large number of cases which run a latent course and are never discovered.

In three cases of operation for radical cure of hernia in children, and in one case of perforating gangrenous appendicitis (*streptococcus*) in an adult, I have found tuberculous peritonitis present at the operation. All the patients had been well previous to the operation or attack and remained well afterward. In these particular cases I should think it hardly fair to attribute cure to laparotomy, and feel that without laparotomy they might have run their course unsuspected.

Another case of interest in this connection was operated upon by another surgeon for acute appendicitis with gangrene. The records stated that the appendix had been removed. A sinus which refused to heal followed the operation, and some months afterwards I removed about three inches of appendix, which, on examination by the

pathologist, proved to be tuberculous. At this second operation, owing to the number of adhesions and a tuberculosis not being suspected at the time, no investigation was made of the condition of the general cavity. The patient succumbed about a year afterwards to a tuberculous peritonitis.

Statistics as to the source of the peritoneal infection are equally unsatisfactory. Primary peritoneal tuberculosis, however, rarely occurs. Although we may conceive the entrance of bacilli through the genital passages into the peritoneum direct, without the presence of a lesion in the genital tract, and although it has been experimentally found that bacilli may pass through the intestinal mucous membrane and reach the peritoneum without causing a local lesion of the former, such an entrance is the exception rather than the rule. In the majority of cases of peritoneal tuberculosis in the female, the peritonitis begins around the end of a tuberculous Fallopian tube, and in the male about a tuberculous ulcer of the appendix, cecum or small intestine. The genital route of entrance accounts for the larger proportion of surgical cases in females than in males. Swallowed bacilli from pulmonary tuberculosis and infected milk and food account for the various forms of intestinal tuberculosis. A consideration of tuberculous peritonitis entirely apart from tuberculosis of the female genitals and the intestinal tract cannot be made, so close are the etiological and pathological associations. The genito-urinary tract is an occasional source of infection, and more rarely the lymphatic current from the pleura or mesenteric or mediastinal glands; still more rarely, the blood current.

The disease is frequent during childhood, but most frequent between the ages of twenty and thirty years.

VARIETIES.

Aside from the mixed infections which are sometimes given as a fourth or suppurative form, we find that the various types of tuberculous peritonitis are best classified under Osler's three forms:

1. Serous, exudative or miliary form.
2. Nodular or ulcerative form.
3. Adhesive, fibroplastic or cystic form.

These three forms, however, grade into one another gradually and imperceptibly, and between them there is no definite line.

All three have as a usual origin a local peritonitis of the miliary variety with exudation. This miliary tuberculosis most commonly spreads over the greater portion of the peritoneal cavity and is accompanied with ascites; the omentum and small intestines are pushed by the exudate into the upper part of the cavity; the omentum becomes curiously rolled up and thickened, and may be felt as a transverse cord extending across the upper portion of the cavity along the border of the transverse colon. The coils of small intestine may and do become adherent to each other, thickened and fused into a mass, which may also be felt as a tumor in the upper part of the abdo-

* Read at the International Congress on Tuberculosis, Washington, D. C., Oct. 1, 1908.

men where it is pushed up by the fluid exudate, the fibroplastic process being a terminal form of the miliary tuberculosis which causes the exudate. The endothelial layer of the peritoneum is destroyed and the adjacent coils of intestine become adherent by connective tissue of varying forms, from the "soft spider-web or fuzzlike agglutinations" described by Murphy to more glistening, edematous, inflamed peritoneum, or even highly organized connective tissue.

Nodular form.—The nodular or ulcerative variety is described by Murphy as a localization of the tuberculous process to numerous small areas, these areas including not only the peritoneal coat, but the deeper structures, such as the intestinal wall, mesentery, uterus and ovaries, destroying the latter perhaps and changing them into caseous masses, causing ulceration or perforation of the intestine, with either a localized or general peritonitis, according to the condition present. In this form it will be readily seen that mixed infection may complicate the picture.

Fibroplastic form.—When the fibroplastic process becomes general, we have the adhesions of the intestines to the abdominal wall as well as to each other, the obliterations of the abdominal cavity and the development of the full-fledged fibroplastic variety of the disease. Circumscribed areas of the peritoneum not becoming involved in the fibroplastic adhesions react to produce fluid, and become surrounded by the adherent coils, producing localized cysts. These cysts may become subject to mixed infections or suppuration.

SYMPTOMS AND PHYSICAL SIGNS.

These will vary with the point of origin, type, acuteness or chronicity, and complications of the disease. In the commonest form, arising from tuberculous salpingitis, we have recurrent attacks of pelvic pain, with more or less fever, not so acute, however, as in the gonorrheal or septic salpingitis. Menstrual irregularity is not marked. The tumor is, of course, felt behind the uterus, diagnosticated as a tube, and operated upon. The tuberculous process may be entirely confined to the tube, and although we find it reddened and adherent, with cheesy masses in its interior, there may be no peritoneal tuberculosis about. On the other hand, the miliary tubercles and ascites may involve the lower portion or even the whole of the peritoneum; or, the fibroplastic form prevailing, there may be the greatest difficulty in digging out the adherent tubes from the masses of adherent intestine which surround and cover them.

Where there is no pelvic pain or tubal tumor, we are left in doubt before operation as to the origin of the disease, and the general symptoms are more prominent than the local. The same is true in regard to the cases of intestinal or appendicular origin. We have here sometimes a large tumor due to the swollen, edematous cecum and its accompanying mesenteric glands, with fever and bloody diarrhea, the tuberculous enteritis which may or may not be accompanied by the miliary tuberculosis with ascites; sometimes as is more common the insidious onset of the miliary tuber-

culosis with no definite localizable focus of infection, in which the general symptoms predominate over the local, often to the exclusion of the latter. Of these general cases the miliary ascitic variety, the chronic form, is commonest. Here belong the larger number of cases which are admitted to the medical wards for ascites, and upon which the surgeon is sometimes asked to exercise his skill. In these cases there is usually abdominal pain, mild fever and gradual enlargement of the abdomen from fluid. Emaciation and anemia may or may not be present. The diagnosis is frequently made by the presence of a gradually increasing ascites in a young or middle-aged patient, without heart disease or any other cause for the abdominal fluid. A cancerous peritonitis is naturally sometimes impossible to distinguish from the tuberculous variety, but the age of the patient and less marked cachexia, or the presence of a known primary intra-abdominal focus, will usually suffice.

Young patients with gradually increasing ascites and vague abdominal pains usually have tuberculous peritonitis. The surgeon who does not always think of tuberculous peritonitis in all doubtful abdominal cases with general enlargement will frequently be disappointed in diagnosis.

In sharp contradistinction to this variety is the acute form of tuberculous peritonitis. This is fortunately rare, but in its acute origin and sudden onset may and does simulate acute appendicitis and leads to immediate operation. These acute peritoneal symptoms have in one case of my own led to early laparotomy and the revealing of the condition of a tuberculous peritonitis at an early stage before tubercles had appeared. This prevented my making the diagnosis at the time, and when, unaffected by the laparotomy, the disease went on from the acute to the chronic nodular, ulcerative form, with long-continued fever mistaken at first for typhoid, great perplexity ensued and the diagnosis was not suspected till shortly before death, nor made until the autopsy. The case presents so many points of interest that it seems worth abstracting here.

A girl of thirteen years had been ill for two days with abdominal pain and vomiting. She had previously been a delicate child, but was attending school regularly until one week before I saw her, when she had had an attack of abdominal pain which kept her home from school for one day. I found a thin, delicate-looking girl, with a temperature of 104°, pulse 120 and of good quality, tongue moist, color and general appearance good, abdomen everywhere tender, but no muscular spasm. On account of the absence of spasm, high temperature and general good appearance, the case was thought not to be acute appendicitis until two days later, when general abdominal spasm as well as tenderness were present; the temperature was 103° and the child looked worse. Tubal infection was thought of and the vulva and urethra carefully examined for redness and discharge, not the slightest evidence of either being found. Median laparotomy below the umbilicus showed a greatly injected, thickened, purplish

peritoneum. The cavity contained considerable dark, thick, greenish serum. The injection was greatest about the Fallopian tubes in the pelvis, and the lower portion of the omentum, which lay in the bottom of the pelvis in contact with the tubes, had on it when drawn up a few flakes of fresh fibrin. The tubes, while purplish and injected, were not distended and contained no pus. The appendix was greatly injected and contained a large concretion in the tip. It was removed and the mucous membrane throughout was found to be pale and normal, the inflammation being confined to the peritoneal covering. No sign of a tubercle could be found anywhere on the peritoneal surface. After evacuation of the fluid, the abdomen was sutured without drainage. The girl's symptoms improved at first, but the temperature ran for six weeks from 101° or 102° at night to normal or subnormal in the forenoon. There was slight diarrhea. Negative Widal's excluded typhoid. The abdomen gradually distended, and individual, thickened, distended coils could be felt in various parts of it. The girl went home and was up and about for several weeks. Then great induration of the abdominal wound developed, followed by abscess, opening, foul discharge, fecal fistula and death six months after the operation.

Autopsy: Miliary tuberculosis of the mucous membrane of the uterus. Marked general miliary tuberculosis of the peritoneum, with adherent intestines surrounding caseous masses, and general enlargement and caseation of the mesenteric glands. Fecal fistula in lower portion of ileum.

We had here a case of acute tuberculosis of the peritoneum in a young girl, secondary to tuberculosis of the uterus, ending in the chronic nodular form, mixed infection and death. Murphy has called attention to the fact that tuberculosis of the uterus is usually found in childhood and old age, before and after the menopause. During the menstrual life, when the uterine mucous membrane is shed every month, it is almost unknown, while tubal tuberculosis is common. How the bacilli reached this girl's uterus is a puzzle. It seems as if they must have been introduced through the vagina. The lungs and other portions of the body at the autopsy were normal. The case was of great interest to me, first, from the simulation of acute appendicitis, and second, from the opportunity to examine and note the appearance of an acute tuberculosis of the peritoneum before the tubercles appeared. A thickening edema and dull purplish congestion with dark greenish fluid were the conditions, only a very little fibrin in small, dark yellow, soft, translucent flakes being present, and that in the bottom of the pelvis where, about the openings of the Fallopian tubes, was the starting point of the disease. The difference between this and the bright red congestion, seropurulent fluid and often abundant opaque fibrin of an acute septic appendicitis was notable.

In the fibroplastic and nodular form of peritonitis the exudative variety has usually preceded, and after its subsidence we are confronted with

the symptoms not of the peritonitis itself, but of colicky pains due to obstruction of the bowels from kinks and bands; indurated, painful tumors due to walling off of serous or seropurulent exudate; distention of thickened coils of intestine which can be felt through the abdominal wall, with, of course, fever, emaciation, malaise, loss of appetite and other corresponding general symptoms. The frequency of the development of tumors due to the presence of swollen and caseated mesenteric and retroperitoneal glands should here be noted, and the seriousness of the exhaustion and emaciation which follow this complication may readily be appreciated.

In the cases secondary to tuberculosis of the intestine, ulcers and strictures due to internal ulceration may be complicated by ascites and adhesions from the peritoneal process, and by edema and thickening of the mesenteric glands, etc., making a most difficult and complicated clinical picture and one never twice alike. The symptoms of intestinal obstruction in the fibroplastic form are due to adhesions, bands and kinks, and may be the first to attract attention to a peritoneal condition, as in the case of Mrs. L., a woman of about thirty-five years of age, of fair, bright complexion, good color and fair flesh — in other words, a healthy-looking woman. She had suffered for about two years with mental depression, constipation, epigastric pain, backache, nausea and weakness, beginning with what was called stoppage and followed three months later by a second attack. It was said that she had vomited blood and that she had had a bunch in the right hypochondrium. Careful abdominal examination negative. No evidence of fluid. No distention. Slight epigastric tenderness. Symptoms of neurasthenia were so marked in this case that the patient had been treated for some time at a sanitarium. After talking with her two or three times, I concluded she was too sensible to be a neurasthenic and that there must be some serious trouble in the abdomen, although an exact diagnosis could not be made. An incision through the upper part of the right rectus exposed the pylorus, gall bladder and liver. Numerous tubercles were felt on the liver and abdominal wall. Reaching down through the incision, a mass behind the uterus was felt in the pelvis, and tubercles of various sizes, many of them very large, were felt and seen all over the peritoneum. A median incision below the umbilicus was made and a hernia of several loops of intestine was found through an opening in the mesentery of the ileum. The hernia was reduced and the opening sutured. A cicatricial stricture of the ileum was found about eight inches above the ileocecal valve. Opposite the stricture, and for a considerable space above and below, the mesentery was very much thickened and edematous, so it was thought that resection would be impossible, and, therefore, a lateral anastomosis was performed around the stricture. The abdominal wall was sutured without drainage. Recovery from the operation was uneventful. The abdominal symptoms were considerably but not

completely relieved. Constipation, as might be expected from the amount of adhesions, required constant treatment. The patient six months after the operation had, however, gained about ten pounds in weight and looked perfectly well. This case illustrates the fact that surgery of the fibroplastic form of peritonitis is practically limited to surgery of the complications, adhesions, strictures, etc., as well as the difficulty of diagnosis.

TREATMENT.

However complicated are the etiological and pathological problems presented by this multifold disease, the chief interest to us as surgeons lies, after all, in the treatment. The progress of the surgical treatment of tuberculous peritonitis from its accidental discovery, through its empirical stages to its present scientific position, is one of the most interesting bits of present-day surgical history. In following the story we shall note the contributions of surgery not only to the treatment, but to the pathology, of the disease, and mark the results which have followed the extension of the empirical incision and suture of the peritoneal cavity to the rational and far more effective procedure of the search for and, where possible, removal of, the primary focus.

The surgical treatment of tuberculous peritonitis dates from 1862, when that pioneer of abdominal surgery, Sir Spencer Wells, opened a case of tuberculous peritonitis by mistake for an ovarian cyst, sewed it up again, and saw his patient recover and remain well. Since then the operation of opening the abdomen for tuberculous peritonitis has been practiced. (It may be noted in passing that this was one of the encysted cases in which the collection of fluid in the median portion of the abdomen so closely resembles an ovarian tumor.) König, however, in the year 1884, was the first to formally advise the operation, and in 1889 published 131 cases with (he claimed) about 70% of cures. Numerous statistics of the results of surgical treatment have since been published, with from 60 to 80% recoveries. Among the authors may be mentioned König, 1890; Roessle, 1893; Margaruzzi, 1896; Ebstein, Krencki, Thönes, Mikulicz, Körte and others. There have been many good surgeons and careful students of the disease, such as Schede, Czerny, Pribram, Kussmaul, Shattuck, Borchgrevink and Fenger, who have laboriously proved, as they thought, that the results of operative treatment were no better or slightly worse than in cases treated medically, by tapping, tonics, etc. Through all these controversies stood out the fact that only in the operated cases which recovered could the diagnosis be absolutely made, involving unreliability in the medical statistics of recovery, and also the fact that, since the operative period, the prognosis of tuberculous peritonitis had improved from the almost absolutely bad prognosis of the seventies to the 60 to 85% "cures" of the nineties. This was partly due to the fact that in the pre-operative period the diagnosis was not made before the disease was well advanced, and the light cases

which recovered gave no sign, and partly to several other reasons connected with the operation. This skepticism as to the results of operative treatment resulted badly in many ways. Cases were kept under medical treatment till everything had been tried in vain, before, "weary and worn and sad," they were turned over to the surgeon for a happy dispatch. The method tried after everything else has failed has a bad chance, and forlorn hopes will probably always continue to be forlorn. The surgeons, however, sometimes prevailed, by the argument, if this is a good thing, let us try it in time to do some good with it. The fact that many diagnoses were cleared up was not the least of the benefits conferred by surgery in these doubtful conditions. One result of many years of practice in opening abdomens was the establishment of the fact that the ascitic cases were favorable to laparotomy, while the fibroplastic were not. This result does not seem strange when we consider that we were trying the treatment of opening the abdominal cavity in cases in which there was no abdominal cavity to open, as it had been obliterated by adhesions, and that in our attempt to find a cavity somewhere, the danger of opening the intestines and causing a fecal fistula which could in no wise be induced to heal was by no means small. The reason why in the ascitic form laparotomies did good nobody knew. The admission of air, sunlight, even hostile bacteria, at the operation, was given the credit. Abdomens used to be held open for some time while given an interior sun bath. Irrigation was recommended, sponging, not sponging, manipulation, avoidance of manipulation. Drainage and non-drainage had their advocates, but it soon became the general consensus that drainage was to be avoided as carrying with it two dangers, namely, those of secondary infection and fecal fistula.

A theory which seemed plausible was that the irritation produced by the laparotomy, together with the loss of tension due to the evacuation of the fluid, determined a flow of fresh, antitoxin-bearing blood to the peritoneum, which enabled it to successfully overcome the process. In a condition so chronic in character, however, this seemed hardly satisfactory, even in certain cases in which repeated laparotomy was followed by recovery. Bier's congestion theory was in harmony with this view, however, and it had many adherents. The theory at this time which came nearest to the truth, however, was that the adhesions and scar tissue produced by the operation tended to a localization, and consequent at least partial walling off and strangulation of the process. It was J. B. Murphy, about 1904, who observed, and was one of the first to appreciate the importance of the fact, that in many cases of tuberculous peritonitis in women the Fallopian tube was thickened and presented ulcerations in the mucous membrane, and what was more, that the end of the tube was open, floating free in the serous exudate and discharging its contents into the abdominal cavity. He

calls attention in these cases to the futility of opening the cavity and evacuating the fluid unless at the same time the diseased tube, which is the source of infection, be removed. He called attention to the fact that in cases laparotomized before this principle was recognized, the evacuation of the fluid might bring the *ostium tubæ* in contact with surrounding parts and so close it by adhesions as to wall off the process, when it might either subside or, if it continued, remain confined to the interior of the tubes and be cured by a subsequent operation for their removal. Murphy also called attention to the fact that if the focus of supply to the peritoneum is a mesenteric gland or an appendiceal tuberculosis, its removal is indicated, as is the removal, under similar conditions, of a tube. It is this last step in advance, the recognition of the importance of the removal at operation of the cause, if possible, of the infective process, which has given us a rational basis for our treatment by laparotomy, the removal of the infective process. We may not unfairly assume that the cases which were laparotomized previous to our knowledge of this principle got well, some of them because they would have recovered without operation and some because the closure of the tube or the encapsulation of some other focus by the resultant inflammation shut off the source of supply. In Murphy's words, "Should the communication between the peritoneum and the focus be destroyed, then the laparotomy will produce a cure of the peritoneal conditions the same as if the focus is removed. With the source of supply cut off, the tendency to repair of the peritoneum is great, even without laparotomy, and in this class of cases internal medication or expectant treatment avails."

If only in the lung, as in the peritoneum, the removal of the primary process were sometimes possible, how different might have been the results of the surgery of that organ!

When the tuberculous intestine is the primary focus, if the adhesions be not too extensive or the area too great, the indication is to resect. A tuberculous cecum should be removed when possible, and if not possible on account of too extensive involvement of the ascending colon, mesenteric glands, etc., or weakness of the patient, an anastomosis around it may be made between the ileum and the transverse colon. I have resected the cecum successfully in these cases, and also, I regret to say, unsuccessfully.

One of the most extensive cases which I ever met, in a thin, feeble, young woman, was obviously so unfavorable to resection that I did the ileocolic anastomosis. She did beautifully, grew fat, married and had a baby. On the basis of this case, I am not advocating marriage and pregnancy as a cure for cecal tuberculosis, but only stating the fact.

In a case of tuberculosis of the ileum with stricture, where resection was prevented by thickening, edema of the mesentery and mesenteric noditis, I have successfully done lateral anastomosis around the stricture. (See case of

Mrs. L.) Operations for the removal of tuberculous retrocecal glands, in some cases with caseation and abscess formation, have in my hands been successful and curative.

W. J. Mayo, in 1905, published a report in 144 cases and called attention to his improved results in tuberculous peritonitis, ascitic form, since removal of the infective focus was practiced. Cases were cured in which several relapses and re-operations had been previously done.

In the nodular or ulcerative form, the surgical problem becomes entirely different and much more difficult of solution. This, more often than the previous variety, is due to enteric and glandular infection. Here, as in the adhesive variety, the greatest care must be taken in separating adhesions lest the intestine be opened and the lamentable complication of an intractable fecal fistula result. Cysts and caseous masses, if opened, should not be drained but disinfected and closed. In these two classes of cases it may be doubtful whether surgical treatment directed at the disease *per se* is often of benefit. Surgery may, with more wisdom, be directed at the complications, such as intestinal obstruction, perforation, etc., than at the disease itself. The dangers are great, judgment often difficult and all operative procedures apt to be unsatisfactory.

The same general statements apply to mixed infections either with one large or multiple small abscesses. They should rarely be drained. Mixed infections of tubal or appendiceal origin are, of course, treated by removal of the tube or appendix, the utmost care being taken to avoid injury to the intestine. If injury either to the rectum or other intestine should occur it must be closed by several rows of sutures and wide apposition. Murphy has successfully sewn the uterus against an opening in the rectum so as to close it.

In operating for the exudative form of tuberculous peritonitis where the cause is not known, it is well to do as Mayo advises and make the incision in the median line in women, and in men over the appendix, so as to be ready in either case for attack upon the most probable primary focus. It has been my fortune in men and boys to meet with many cases in which the primary focus could not be found. In these cases the appendix has been removed, but has been found to show no more involvement than the remainder of the peritoneal cavity. Here we have been accustomed to evacuate the fluid, wash out with salt solution, suture without drainage, and as soon as possible get the patient up and into the country under the best possible hygienic conditions.

BIBLIOGRAPHY.

- Murphy, John B.: Tuberculosis of the Female Genitalia and Peritoneum. *Am. Jour. of Obstet.*, vol. xlix, 1904.
 Mayo, W. J.: Surgical Tuberculosis in the Abdominal Cavity with Special Reference to Tuberculous Peritonitis. *Jour. Am. Med. Assn.*, vol. xlv, 1905.
 Bottomley, John T.: A Consideration of Twenty-eight Cases of Tuberculous Peritonitis at the Boston City Hospital, with Particular Reference to the Results of Operative Treatment. *Medical and*

Surgical Reports of the Boston City Hospital. Eleventh series. 1900.

Hertzler, A. E.: Hyperemia in the Treatment of Tuberculosis of the Peritoneum. Surg., Gynec. and Obstet., Chicago, 1907, v, 652. Syms, F.: Peritoneal Tuberculosis. Ann. Surg., Philadelphia, 1907, xvi, 95-310.

Guthrie, T.: The Treatment of Tuberculous Peritonitis. Practitioner, London, 1906, lxxvi, 642-653.

Broca: Ueber die Therapie der Bauchtuberkulose im Kindesalter. Wien. med. Presse, 1906, clvii, 1905.

Neurath, R.: Die Behandlung der Bauchfelltuberkulose im Kindesalter. Wien. med. Presse, 1906, xlvii, 565.

Büdliger, K.: Ueber die Chirurgische Behandlung der Bauchfelltuberkulose. *Ibid.*, 1907, 464.

Johnson, R.: Unsuspected Tuberculous Peritonitis. Practitioner, London, 1906, lxxvi, 332.

Gelpke: Beobachtungen über tuberkulose Peritonitis an Hand von 64 operatili, teils intern behandelten Fällen. Deut. Zeitschr. für Chir., Leipzig, 1906, xxxiv, 512.

Schmid, H.: Dauerresultate bei operativer und konservativer Behandlung der Peritonitis tuberculosa im Kindesalter. Jahrb. für Kinderh., Berl., 1907, lxxvi, 399.

Dévé, F.: La pseudotuberculose hydatique du péritoine. Arch. de méd. exp., Paris, 1907, xix, 347.

Berard, L., and M. Patel: De la péritonite généralisée par perforation au cours de l'enterite tuberculeuse. Rev. de chir., Paris, 1906, xxxiii, 899.

DEMENTIA PRECOX, PARANOID, ASSOCIATED WITH BRONCHIECTATIC LUNG DISEASE AND TERMINATED BY BRAIN ABSCESES (MICROCOCCUS CATARRHALIS).*

BY E. E. SOUTHARD, M.D.,

Assistant Professor of Neuropathology, Harvard Medical School, and Pathologist, Danvers Insane Hospital,

AND

J. B. AYER, JR., M.D.,

Formerly Assistant Pathologist, Danvers Insane Hospital; House Officer, Boston City Hospital.

(From the Laboratory of the Danvers Insane Hospital.)

WE present here the analysis of a case of delusional insanity. During life the case was thought to belong possibly in Kræpelin's group of dementia precox. One main interest of the case lay in the fact that, by a little emphasis of certain features, the delusions could be regarded as of psychogenic origin, as a malignant elaboration of ideas following a personal disfigurement. There were, however, certain other features rendering a purely psychic origin doubtful for these delusions. Notable among these other features are the autopsy findings, which point to a somatic disease coincident in time with the mental disease, an obstinate lung disease with frequent periods of toxemia. Whatever conclusions are warranted from these features, the case is in itself interesting and, particularly in respect to the chronic meningitis and brain abscesses found at autopsy, presents some data requiring special consideration.

I.

The subject of this history showed few peculiar or striking traits until the age of twenty-five, when, upon the Fourth of July, 1902, his face was disfigured by powder from a small cannon. Thereafter his mental attitude was altered and eventually developed into a picture characteristic of dementia precox, but with delusions of negation. Meantime a chronic pulmonary disease, with multiple abscesses, was developing and giving rise to the suspicion of phthisis. In 1907 the patient died, was autopsied at the Danvers Insane Hospital, and showed chronic abscesses in many organs.

Of special interest was the discovery of multiple abscesses in the brain. The cell-contents of the menin-

*Read at a meeting of the Boston Society of Psychiatry and Neurology, February, 1908.

ges were such that a chronic meningitis, possibly dementia paralytica, might have been suspected.

A brother, two years older than patient, is living, in good health, without peculiarities. Patient's father, a nurse, still living, has no peculiarities. Patient's mother died in patient's early life in childbirth, having had poor health, fainting spells and dropsy during pregnancy. A maternal uncle died of tuberculosis. Both grandmothers are said to have died of paralytic shock, both grandfathers of gangrene of the foot. There is no suspicion of mental disease in the family. The family seems to have been American throughout.

The patient made good recoveries from ordinary children's diseases. Occasional headaches, for which no cause is known, affected the patient from eight to fourteen years of age. The patient attended public schools in New York until sixteen years of age, worked as errand boy and in other capacities until nineteen, and followed chair making (ten to thirteen dollars a week) until about the time of his accident. Pneumonia and pleurisy in early life, according to patient. Gonorrhea at twenty-three. No history of syphilis. The patient averred that he had drunk excessively (three to ten glasses of whiskey almost daily) for a number of years; no delirium tremens, no arrests. He is described as reticent, but usually cheerful. Unmarried.

July 4, 1902, patient was injured by the premature explosion of a cannon, and his face was blown full of powder. He was carried to the Cambridge Hospital (for access to whose records we are obliged to Dr. L. S. Hapgood), where he was operated on for traumatic cataract of the left eye. There is no record of mental change during his three weeks' stay at the Cambridge Hospital.

After leaving the hospital patient became rather depressed and worried over his disfigurement. The depression deepened. Patient became inactive and late in December, 1902, grew much worse, talked little, but said he was losing his reason and would never get well.

Jan. 5, 1903, patient was admitted to the McLean Hospital for the Insane. We are indebted to Dr. G. T. Tuttle for the following abstract of events till his discharge Feb. 20, 1903.

During his stay in the hospital he was at first much depressed, but gradually improved. At first he said he could not go out and meet people "as they all know" of his case, that he was "forsaken by everybody," that he was too weak to dress, that there was no case in the hospital like his. He was mentally quite clear, was perfectly well oriented, but seemed a little worried. He gave in detail the story of his illness, adding to the above that about two weeks before entrance he experienced a peculiar "lifting" sensation, and since then his feelings are different, his senses are gone, he has no affection for anybody. He thought that his masturbation was the cause of it all, and this was his principal worry.

During the first of his stay he was quite moody and depressed, but after the first of February he began to feel better in spirits, could think more clearly and began to take more interest in things about him. He improved from that time and for the last ten days of his stay he acted perfectly naturally, said that he wished to go home and that he felt able to go to work. At the solicitation of his brother he was allowed to go on a visit on Feb. 20.

Five days after discharge from McLean, patient tried to commit suicide by shooting in the head. He was committed to the Danvers Insane Hospital, March 17, 1903, where he stayed the remaining four years of his life.