STATED MEETING, HELD FEBRUARY 1, 1909.

The President, Dr. William J. Taylor, in the Chair.

OBSTRUCTION OF BOWEL AFTER REDUCTION OF A STRANGULATED FEMORAL HERNIA.

Dr. Edward B. Hodge reported the history of a woman, aged 59 years, who was admitted Nov. 4, 1908, to the Presbyterian Hospital, in the service of Dr. W. L. Rodman, complaining of abdominal pain and vomiting. For four years she had had a painless lump in the left groin, the size of a walnut. This never disappeared or changed in size. Three days before admission, the lump became painful and a little larger. She began to have abdominal pain, diffuse at first, localized to the epigastrium in the last twenty-four hours. Vomiting appeared early, and lately has occurred every 15 to 20 minutes. It was not fecal. There has been no bowel movement since the attack began. A small mass was felt in the region of the left femoral ring; it was not tender.

A diagnosis of strangulated femoral hernia was made and immediate operation performed.

A two-inch vertical incision exposed the sac of a femoral hernia, containing a loop of dark purple small intestine. The constriction was relieved by several nicks about the circumference of the ring, a few recent adhesions were loosened, and more bowel pulled down. One limb showed a band darker than the rest, ¼ in. wide and two-thirds around the bowel. Under hot moist sponges the circulation returned except in this band and a small spot, ⅛ in. in diameter, an inch or two from it. Acting on a suggestion of Summer's, this suspicious band of gut was invaginated into the healthy intestine by silk Lembert sutures, reinforced by a continuous silk suture. The small area was turned in by a silk purse-string suture reinforced by one or two interrupted sutures. The intestine was replaced in the abdomen, and the wound sutured with interrupted silkworm gut around a cigarette drain. The patient left the table in good condition, with a pulse of 110.

She did well for two days, when vomiting began. This steadily increased, as did distention. No flatus was passed, and on the fourth day distended intestinal coils, with visible peristalsis, could be made out. The pulse began to rise, with normal temperature. Mechanical obstruction was evident. Ninety-six hours after the first operation, the abdomen was opened in the median line above the pubis. There was considerable clear, bloody fluid in the pelvis. Coils of collapsed and of moderately distended small intestine presented. A finger passed to the region of the femoral ring showed no great swelling, but the bowel was adherent to the paries, and there seemed to be a sharp angulation. Acting on Dr. Rodman's suggestion, no attempt at resection was made, but, without disturbing the adhesions, lateral anastomosis was done with clamps between the afferent and efferent loops, as close to the site of the obstruction as allowed easy delivery in the wound; No. 1 chromic gut was used for the inner row of sutures and No. 2 Pagenstecher for the outer. The latter was reinforced at one or two points with interrupted sutures. On removal of the clamps gas passed freely from the afferent to the efferent loop. Gauze in a split rubber tube was used for a drain. The abdomen was closed with through-and-through silkworm gut, and continuous No. 2 chromic catgut in the fascia.

The patient left the table in fair condition and did well thereafter. Flatus was passed in a few hours. The distention steadily lessened and vomiting did not occur. No attempt to move the bowels was made. At the end of a week they moved naturally. Her further convalescence was uneventful.

PERFORATING PYLORIC ULCER.

Dr. John H. Jopson related the history of the following two cases:

Case I, male, aged 43 years, was admitted to the Bryn Mawr Hospital April 13, 1906. He was by occupation a gardener; used tobacco and malt liquors freely. He had suffered for ten or fifteen years from indigestion. Pain and discomfort were present in the epigastric region, most marked about two hours after a meal. He never vomited, and there was no history of bleeding. He attributed his present attack to the recent ingestion of considerable quantities of porter. On the evening before admis-

sion, after eating his supper, and while lying down smoking, he was seized with sudden, severe abdominal pain, which persisted, in spite of treatment during the night; and he was admitted to the hospital at 9 A.M. of the following day.

His temperature on admission was 101²/₅°, pulse 60, respirations 20. He was seen by Dr. Jopson in the evening of the same day in consultation with Drs. Christie and Laird. His general condition was excellent, temperature 99³/₅°, pulse 72, respirations 18. At this time his symptoms were those of acute appendicitis. The pain, tenderness, and rigidity which were present were most marked in the right iliac region. There was moderate tenderness and rigidity in the right hypochondrium, and the possibility of a gastric perforation was considered and discussed; it was considered unlikely, however.

He was operated upon at 8.30 P.M., twenty-four hours after the onset of his acute illness. Right iliac incision. A small quantity of gas escaped on opening the peritoneal cavity, and there was considerable free turbid fluid in the abdomen. The appendix was picked up and found normal. The incision was at once extended upward and the pyloric region explored. Patches of lymph on the intestine were noted in this direction. A small perforation at the pylorus was detected. It was apparently on the stomach side of the pylorus. It was small, not much over pinhead size, circular, and was easily closed by a purse-string suture of silk, reinforced by Lembert sutures. The pelvis was drained by cigarette and glass tube, and the pyloric region by iodoform gauze. The wound was drawn together by several through-and-through silkworm-gut sutures. The patient stood the operation exceedingly well and without shock. His pulse soon fell to below 100, and the temperature remained around 99° and 100° for a couple of days, and was thereafter normal. He was treated in the sitting posture with continuous enteroclysis, and nourished by rectal enemata for several days before mouth-feeding was begun, malted milk, a favorite rectal nutrient at the Bryn Mawr Hospital, being used. He was in the hospital six weeks.

It is now nearly three years since the operation. The man did not resume his usual work for nearly a year, but he has since that time been at active work as a gardener in his old place. He says he is quite well, except for some tendency to fermentation and gas; eats heartily; smokes heavily; has no pain referred to his stomach. His health is very much better than before his illness, but he has some pain in the right side after stooping or heavy lifting, probably from adhesions.

CASE II.—Male, white, aged 52, was admitted to the Presbyterian Hospital Nov. 21, 1908, with a diagnosis of perforated duodenal ulcer. His previous history showed him to be an active man, of somewhat irregular habits, periodically indulging in alcohol to excess, but not a steady drinker. Uses tobacco to excess. He gives a history of gastric trouble dating back for about twelve years. His symptoms consisted of eructations, gastric pain, and distress before meals and at bedtime, and gastric pain and nausea coming on several hours after a meal, which would be relieved by the taking of food, only to return after three or four hours. Vomiting was often self-induced to relieve gastric distress and hyperacidity. These symptoms have been growing worse for two or three months. There has been no marked loss of weight, and he has been able to attend steadily to his work, which involves considerable walking.

On the day of admission he had submitted to a stomach examination for diagnosis, a stomach-tube being passed by his physician after usual test breakfast, and the following data obtained: Free HCl, 0.26; total acidity, 0.39. Lactic, butyric, and acetic acids absent. Bile absent, and pepsin in normal amount. Microscopic examination showed many starch granules, broken and unbroken, and occasional epithelial cells. A blood examination at this time showed 90 per cent. hæmoglobin, and 4,500,000 red cells, with 8,400 whites. Four hours after the test breakfast he took a lunch of eggs, toast, and tea; and while walking home an hour thereafter was taken with sudden, agonizing abdominal pain and retching. He was unable to proceed, and was taken home in a patrol wagon. He was seen by Drs. Bryan and Turnbull, and later by Dr. W. E. Hughes, who made a diagnosis of duodenal ulcer with perforation. Pain was with difficulty controlled by large doses of morphine. He was admitted to the Presbyterian Hospital at 11.30 P.M. At this time, nine hours after onset of pain, he was in good condition; temperature 98³/₅°, pulse 124. The pain had been partly controlled by morphine. The abdomen was of board-like rigidity, and the upper half very tender, the tenderness most pronounced on the right

side. There was no distention. No vomiting, but some retching.

Operation, eleven hours after onset. Right rectus incision. There was immediate escape of gas on opening the peritoneum, followed by free and persistent expulsion of great quantities of turbid fluid which had been confined under pressure in the rigid abdomen. The entire abdominal and pelvic cavities were filled with this exudate. A large ragged opening in the anterior wall of a much infiltrated pylorus was easily found. It admitted the gloved index finger, which easily passed into the duodenum. It could not be stated definitely that the perforation was to the duodenal side of the pylorus, which was deeply fixed in the abdomen. There was much lymph over the pyloric end of the stomach and the duodenum. Owing to the fact that the pylorus was practically torn in half by the ulceration, some uneasiness was experienced as to the possibility of closure by sutures. With care, however, it was successfully and apparently tightly closed by a double layer of Pagenstecher sutures applied in interrupted fashion—the first layer, through-and-through stitches of the edges; and the second, covering in this with Lembert's. The lesser omentum was pulled down over the wound at its upper angle. A suprapubic opening was then made and a glass tube inserted into the pelvis. The peritoneum was thoroughly flushed until clear fluid returned from both wounds. A cigarette drain and two strips of gauze drained the pyloric region, and the upper and lower parts of the wound were sutured. A glass and rubber tube were left in the pelvis.

The patient was not in the least shocked by the operation, his pulse being only 104 when removed from the table. He was placed on the Fowler-Murphy treatment, and nothing given by mouth for 40 hours. He was fed for several days by nutritive enemata, and mouth-feeding started after three days. He was in bed three weeks, and left the hospital at the end of four weeks. He has continued to gain in weight and strength. His diet is now a fairly generous one. He has a little fermentation at times, but has no pain to speak of. He still, at the end of two months, has a narrow sinus in the upper wound.

Dr. Jopson remarked, further, that he had sutured three gastric ulcers which had perforated, all in middle-aged men, and located in or near the pylorus, and all had recovered. As to the exact location of the perforation, and whether it is on the stomach or

duodenal side of the pylorus, it is difficult in these perforated cases to state, as Eliot has recently emphasized. The pylorus is often the site of so much œdema, and is so deeply fixed in the abdomen, that it is frequently impossible to say that an ulcer is on this or that side of the dividing line. The symptoms of the perforation in any event are the same. For the first few hours the localized tenderness and muscle spasm are especially pronounced in the abdominal wall over the site of perforation; but after this, as the infectious material gravitates down along the right side of the abdomen and as the peritoneal inflammation accompanies it, the symptoms in pyloric and duodenal perforation later become those of the usual right iliac inflammation, appendicitis; and hence we find a larger number of cases seen late diagnosed as appendicitis. In his first two cases, seen twenty-four hours or more after perforation, this diagnosis was made. An appendix incision, extended upward sufficiently far, gives good exposure and good drainage of the infected right abdomen. When the perforation is in other portions of the stomach, late cases show, perhaps, only general peritonitis. Some years ago he operated on a case of this type, with advanced general peritonitis, in which the lesion was found only at autopsy.

Of the methods of closure of the perforation little need be said except, as in the last case, in connection with the suture of large perforations, where tamponing, omental flaps and plugs, overlapping by neighboring organs, and even gastrostomy have been suggested, although the last-mentioned has given very poor results. Jejunostomy has been recommended for perforation by Von Eiselsberg, to relieve tension and put the stomach at rest; and he and his associates have so treated 12 cases with 5 recoveries. Excision, pylorectomy, or pyloroplasty have also been recommended and practised. The most vital question is, of course, as to the performance or non-performance of gastro-enterostomy after closure of the ulcer. Moynihan advises it in cases seen early and in good condition; while Eliot, as a result of careful, recent study, advises against it as a primary measure, on account of the slightly greater mortality, and the fact that the after history of these cases shows practically as little danger of recurrence as do cases subjected to primary gastrojejunostomy without perforation. He advises waiting until subsequent (and unusual) symptoms may demand it.

Hemorrhage from, and perforation of other ulcers has occurred both early and late after suture of perforated ulcers, and persistent gastric symptoms have called for secondary and usually successful operation; but it is true that the majority of cases that recover from the acute attack of perforation remain well without gastro-enterostomy being required. In perforated cases operated upon after twelve hours, few would advise it. Eliot analyzed 51 cases treated by gastro-enterostomy with 33 recoveries and 18 deaths, a mortality of 35.5 per cent., and not a bad showing. Eighty-two cases sutured, without gastro-enterostomy, gave a mortality of 34.1 per cent. Whether gastro-enterostomy is indicated except when suture of the ulcer causes excessive narrowing of the pylorus, is still somewhat of a question. It would seem to be justifiable to surgeons of special experience in cases seen early after perforation and in good condition. He had been much impressed with the absence of shock in his cases. Indeed the operation could have been reasonably prolonged in all three without serious detriment to the patient.

PERFORATED GASTRIC ULCER.

Dr. Morris Booth Miller related the history of a man, aged 32, who was admitted to the Polyclinic Hospital on October 2, 1908, about seven o'clock in the morning. All the history obtainable at that time was to the effect that at about eleven o'clock the previous night he had been suddenly taken ill with severe pain in the right side of the abdomen followed by moderate vomiting. He was promptly seen by Dr. Henry Tucker and later by Dr. David Riesman, both of whom advised that he be sent to the hospital without delay. This advice was not accepted; but as his condition grew worse during the night he was finally removed to the Polyclinic early in the morning. Prior to operation he was unable to give any account of previous ill health; but during his convalescence he gave them the interesting data that for over a year he had suffered at frequent intervals from epigastric pain, distention, gaseous eructations, and constipation, and that, further, he had been seen during this time by Dr. William E. Hughes, who had diagnosed gastric ulcer and had spoken of operation.

When admitted to the hospital he presented to a striking degree the clinical picture of abdominal disaster. He was pinched, anxious-looking, and blanched, sweating slightly, and evidently in great pain. The temperature was $96^{4}/_{5}°$, pulse 92, respiration 32, The belly walls were sunken, board-like in texture, and the rigidity seemed equal on both sides. He located the maximum of pain on the right side and about the umbilicus. Immediate operation was undertaken and inasmuch as a provisional diagnosis of acute perforating appendicitis had been made one incision was made in that area. There escaped at once a considerable quantity of turbid fluid containing flocculent particles, but aside from the pervading congestion the appendix was normal. An incision was then made through the upper right rectus, and at once the characteristic sound of air sucking in and out was apparent. With no difficulty the perforation was located on the anterior and under surface of the stomach about one inch from the pylorus. The opening was punched-out, irregular in outline, hardly large enough to admit a pencil and it apparently had occurred not at the centre of but near the pyloric edge of an indurated area about an inch in diameter. One through-and-through suture closed the perforation, and the whole ulcer was turned in with a continuous Lembert suture in the general axis of the stomach. Gastrojejunostomy was considered, but not done, as his condition would hardly warrant it. A rapid search revealed no evidence of other ulcers. An additional opening was made above the pubis for pelvic drainage; and after a quick toilet by mopping, thorough drainage by wicks and split rubber tubes was established at all three incisions.

When sent back to the ward he was placed in a semi-recumbent posture and enteroclysis with normal salt solution was continuously used for nearly a week, with its usual admirable results. Aside from a bronchopneumonia which appeared the next day and which lasted four or five days, his convalescence was uneventful and he was discharged on the twenty-ninth day. He has since been under observation and there has been no recurrence of his former gastric symptoms. This case may be placed on record as having been operated on nine hours after perforation.

Dr. John B. Deaver said that in cases of perforating gastric ulcer the question of diagnosis in many instances is an uncertain one. Many cases of perforation had been diagnosed as appendicitis, but as experience grows richer such errors are less liable to occur. Personally he did a posterior gastrojejunostomy in the majority of instances. He never hesitated on account of the patient's condition, because the operation adds practically nothing

to the risk. In these cases of excessive indurations, as in Dr. Jopson's case, it is a safer procedure. The cases that he had been able to follow had been entirely relieved of digestive disturbances, eructation of gas, hyperchlorhydria, etc. He always drained suprapubically, but rarely at the point of attack. He never flushed the abdomen. Most of his cases had been duodenal, and all had recovered. It is a safe operation certainly within 36 to 48 hours. The percentage of mortality is not large. Posterior gastrojejunostomy was especially indicated in cases where there is much induration and where one cannot be sure about the lumen of the duodenum or of the pylorus, as the case may be.

Dr. John H. Gibbon said that he had had eight cases of perforating duodenal and gastric ulcer with three recoveries, which, according to statistics, is about the average. The mortality rate will depend largely upon the time at which the operation is done after the perforation has occurred. In one of his cases he was fortunate enough to operate within a few hours, and in another within nine hours after perforation, and each of these recovered. In one case, done thirty hours after perforation, the patient died on the twenty-fourth day from a pelvic abscess due to faulty drainage, and in spite of the subsequent drainage of this abscess. All of the cases which had gone over thirty hours before operation died, most of them being very ill from an extensive general peritonitis.

The general practitioner needs to be impressed with the importance of prompt operation in all cases of acute abdominal crises. In his last case, operated upon a few weeks ago, thirty hours had elapsed since perforation and the patient had received a grain of morphine during the previous night for his severe abdominal pain. This greatly masked the symptoms and in this way influenced the fatal result. In the early cases of perforation, where there is little extravasation, or where there is a small opening and none of the contents have escaped, a gastrojejunostomy is contraindicated unless the pylorus is obstructed by the ulcer. Drainage, where extravasation of the gastric and intestinal contents has taken place, and where more than a few hours have elapsed, should be employed, both at the site of perforation and perhaps also suprapubically. He thought that none of the cases which he had lost could have been saved by the additional operation of gastrojejunostomy. This operation in the presence of an extensive peritonitis opens up the lesser peritoneal cavity to infection, and where the patient is in bad condition greatly jeopardizes his chances of recovery. In one case which recovered from an acute perforation, he had to do a gastro-enterostomy eighteen months later for a return of symptoms; but this is not the rule unless the ulcer is situated at the pylorus and produces obstruction.

The secret of success in these cases is the same as in acute appendicitis, namely, early operation. It is not so much a question of technic as it is of getting at the case early. Where a gastro-enterostomy is not done the important point in the postoperative treatment is the keeping of food out of the stomach and feeding the patient by the rectum.

Dr. Robert G. Le Conte did not believe there were many cases of gastric and duodenal perforation which require an immediate gastro-enterostomy. The object of an immediate gastro-enterostomy is to drain the stomach during the period of healing of the ulcer and to afford a new outlet for food, when closing of the perforation has produced a stenosis of the pylorus. The same results, however, may be accomplished for two or three weeks without gastro-enterostomy, by withholding all food from the mouth and feeding the patient by the rectum. Where the ulcer has a large indurated base, and is situated near the pylorus, its closure contracts the pyloric opening; but this contraction is frequently a temporary one, which is relieved as the indurated area is absorbed. In such a condition, then, if gastro-enterostomy is done at the time of closure of the ulcer, the patient is subjected to the immediate risk of an operation prolonged for, perhaps, twenty minutes, and the ultimate probability of a useless opening in the dependent portion of the stomach when the pylorus has returned to its original calibre. He recalled a case of Dr. Gibbon's, where a firm closure of the ulcer could not be secured by direct suture, and an omental patch was used to re-enforce the closure. This case made a perfect recovery without gastro-enterostomy, by withholding all food from the mouth for a period of three weeks. Mayo has twice lately in chronic gastric ulcer deliberately cut out the base of the ulcer with a sharp knife, and then closed the defect, producing the picture of an acute perforation. The immediate results have been most favorable, without a gastro-enterostomy.

As to lavage of the peritoneal cavity in these cases, in perito-

nitis following appendiceal perforation he did not usually wash the peritoneum; but in a gastric perforation, with the possibility of particles of undigested food having entered the peritoneum, he believed that lavage often does good, for he had in such cases washed out bits of meat and tomato skins which he felt confident would have been a source of trouble had they been allowed to remain within the peritoneal cavity.

Dr. Astley P. C. Ashhurst said that two points which had arisen in this discussion were illustrated in an unusual manner in the case of a patient with duodenal perforation on whom he had recently operated at the Episcopal Hospital in the service of Dr. Frazier: first, the differential diagnosis from appendicitis; and second, the question of irrigation and drainage. In the patient under Dr. Ashhurst's care Dr. Frazier had removed the appendix during an acute attack just one year previously; and in the present illness this fact tended to confuse the diagnosis, for the patient was thought to be suffering from intestinal obstruction resulting from his previous operation. On opening the abdomen in the suprapubic region, however, the true condition was manifested by finding fecal matter free in the peritoneal cavity. An incision was then made in the epigastric region, and the perforation (of the duodenum) sutured, about seven hours after perforation occurred. A culture from the fecal matter in the lower abdomen remained sterile. This seemed an important point in relation to the question of irrigation and drainage; but as it was not known at operation that this matter was sterile, the entire abdominal cavity was thoroughly irrigated, removing pieces of potato and other material, as well as quantities of flocculent lymph; and the abdomen was drained from both wounds. (A culture made a week later from the depths of the upper wound showed the presence of the colon bacillus.) Gastro-enterostomy was not done, as the peritonitis appeared too widespread to make prolongation of the operative justifiable. The patient made an uninterrupted recovery.

Dr. Jopson said, as to mortality, that the percentage of deaths in large series of cases of gastric and duodenal ulcers is not far from 50 per cent., although Moynihan reports twenty-four cases of gastric and duodenal ulcers with nine deaths, a mortality rate of 37.5 per cent. Eliot gives two series, one with gastro-enterostomy, and the other without, with a mortality of 34 per

cent. or 35 per cent., being a little less in those cases in which the operation of gastro-enterostomy was not added to that of repair.

While he seldom used lavage in abdominal infections it seemed to him that in cases in which the abdominal cavity is filled with fluid which may be sterile, but is suspicious, it does no harm to replace it with a fluid which is known to be sterile. The procedure cannot spread infection, as the whole abdominal cavity is already involved. When abdominal infection is localized few irrigate. In perforated gastric ulcers, however, the conditions are different.

Regarding the performance of gastro-enterostomy he recalled the case of a patient under the care of one of the Fellows of this Academy in which perforation occurred and was repaired and the patient died a few days after of perforation of other ulcers. Unfortunately the surgeon seldom sees these cases within the first few hours, when gastro-enterostomy would seem safe and easy; and after ten or twelve hours, when there is diffuse infection, one runs greater risks by an extensive and prolonged operation.

CONGENITAL MESENTERIC CYSTS.

BY HARRY C. DEAVER, M.D.,

OF PHILADELPHIA,

Professor of Surgery, Woman's Medical College; Surgeon to the Episcopal and Stetson's Hospitals, and to the Children's Hospital of the Mary J. Drexel Home.

THE rarity of mesenteric cysts, coupled with their interesting and by no means established *status* in pathological anatomy, entitles hitherto unreported cases to a place in the literary annals of the day.

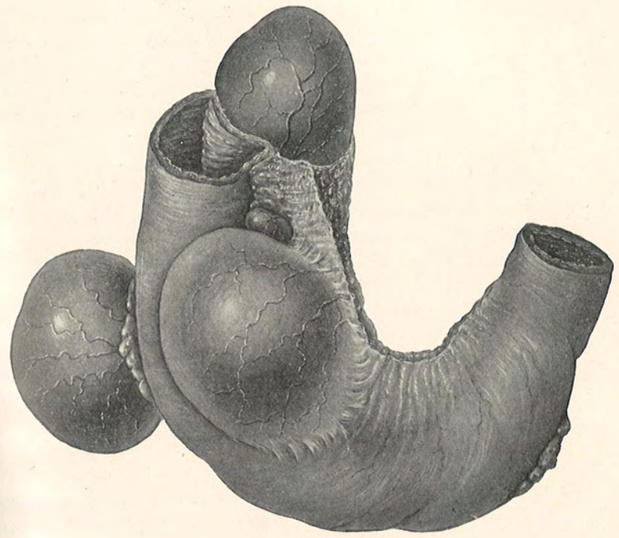
On May 20, 1908, I operated upon the following little patient in the Children's Hospital of the Mary J. Drexel Home:

E. B., aged 7 years, school-girl, was admitted May 19, 1908, complaining of abdominal pain and vomiting. Two years previously she had suffered from a malady then diagnosed as gastritis. Two weeks before admission she suffered with abdominal pain and vomiting. Nine days later, her mother noticed a yellowish vaginal discharge. The pain and discharge subsided, and the patient arose from her bed eight days after onset, but even then complained of soreness in the right lower abdomen, and walked bent forwards. Patient was about for four days, during which time she suffered an attack of pain and vomiting. The night before admission she complained of increased abdominal pain and frequent emesis. The next day brought ease and much comfort, when the bowels moved at 3 o'clock in the afternoon. On admission at 8 P.M. the temperature was 103° F., and the pulse 126 per minute.

Examination revealed slight abdominal distention with bilateral mural rigidity and marked tenderness below the umbilicus. There were points of greater tenderness in both iliac fossæ, these points spanning an area in which two tumors were distinctly felt.

After cœliotomy the tumor was so juxtaposed that at first sight it resembled a distended cæcum over an abscess or a cyst of ovary. Further manipulation however revealed the condition reproduced in Fig. 1. The first cyst seen encroached upon the

FIG. 1.



Cysts of the mesentery.

ileum, and increased the non-peritoneal area of the latter by pushing apart the lamellæ of the mesentery at its intestinal border. This cyst had a diameter of 5 cm. and was situated about 15 cm. proximal to the ileocæcal valve. Close by it, resting on the right aspect of the gut and partly on the anterior lamella of the mesentery, was a second cyst of the same dimension; and adjoining this latter cyst on the right, between it and the first, was a smaller cyst, the size of a bean. A loop of ileum was so related to these two cysts that it was distal to the first and dorsal to the second. A third large cyst was found on the left lateral aspect of the coil of ileum, nearly opposite to the second, but lying more deeply in the right iliac fossa. As the sketch shows, the loop of the ileum was partly throttled by the grasp of the three cysts, and was free only opposite its mesenteric attachment.

As seen by the figure, the cysts and involved loop (25 cm.) of ileum were removed *in toto*, and lateral anastomosis performed. A glass tube in the pelvis sufficed for drainage. The patient was soon on the highroad to recovery and left the hospital June 13, 1908.

Here then was a patient suffering from incomplete intestinal obstruction the cause of which is plainly evident. The abdominal pain was doubtless due to the spasmodic contractions of the laboring intestine. Posture seemingly determined the obstruction, for when the patient was up and about, the latter appeared, but was relieved by recumbency. The mechanical action at play here may be worked out by reference to the sketch.

A case that nearly parallels the above was in the Leeds Infirmary, under Mr. Jessop (cited by Moynihan: *The Medical Chronicle,* September, 1902):

> M. J., aged 6 years, female; admitted June 9, 1892. For three months the child had complained of occasional attacks of sickness and vomiting, with pain across the front of the abdomen; there were two such attacks; and altogether there have been about one dozen. Their frequency has latterly been increasing. . . . A single attack may last a few hours or a few days.
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> On examining the abdomen there is a trilobed tumor situated almost in the midline. The swelling is dull, but on two occasions a resonant band has been distinguished running across the middle. The area sur-

rounding the tumor is everywhere resonant. The tumor is usually movable in all directions, and can be rotated freely round its central point.

Under ether the tumor was removed. It was found to be a mesenteric cyst and multilobular, each loculus containing clear fluid. The mesentery and intestine were removed and the cut ends of the bowel united by Paul's tubes. The patient made a good recovery.

The cysts above described are the multilocular types of serous cysts, the other type being the simple. But what strange factor determines the presence of such cysts in such an unusual locality? Braquehays (*Archiv gén. de. Méd.,* Paris, September and November, 1892; also *Revue de Chir.,* 1892) classified mesenteric cysts under five headings, and Moynihan (*loc. cit.*) under eight; but Dowd (ANNALS OF SURGERY, 1900, vol. xxxii, p. 515) furnishes the following simple, but scientific, classification: (1) Embryonic cysts, (2) hydatid cysts, (3) cystic malignant disease.

My case fits in the first category, namely, that of embryonic cysts. Moynihan (*loc. cit.*) says: "One may remark with some assurance on the great probability of embryonic origin of most of the cysts found in the mesentery being established. The more closely cysts of the mesentery are studied the more likely does it become that, with the exception of parasitic and malignant cysts, all the forms are embryonic in origin, and are due to "rests" derived from the Müllerian or Wolffian organs or ducts, or from the ovary." Dowd (*loc. cit.*), by reviewing the anatomy of the primitive genito-urinary organs and alimentary canal, shows how easily a sequestration from the Wolffian body, or the embryonic genital gland, could be included between the folds of the mesentery, and proceeds with the statement: "It is altogether within the bonds of probability that such a separation should from time to time take place from the Wolffian body or the germinal epithelium at an early time in embryonic life; and, if such portions are separated, it is not strange that they should be carried into the mesentery, mesocolon, or mesorectum in the course of their development, and there form cysts such as this one or like many of the others which have been described."

The first mesenteric cyst was reported as an anatomical curiosity by Benivieni, a Florentine anatomist of the sixteenth century. No more significance was attributed to these cysts from that time until the middle of the past century. From 1850 to 1880, mesenteric cysts were occasionally found at operation when the expected lesion was ovarian cyst. It is only within the past thirty years that systematic clinical studies of these cysts have been made. One of the most meritorious and widely quoted of these studies was that contributed by Dowd (*loc. cit.*) in 1900. The author reported a case of dermoid cyst between the layers of the transverse mesocolon, emphasized the morphological significance of these tumors, offered a new classification, and showed the importance of histological examination of the cyst wall and analysis of its contents. Unfortunately this last could not be done in my case, because the specimen was lost after it was sketched.

The next important contribution was made in 1902 by Moynihan in a paper entitled "Tumors of the Mesentery" (*Mesenteric Chronicle,* Sept., 1902). Moynihan classifies cystic disease of the mesentery under eight headings, and describes examples of each. After a brief *résumé* of the subject from the clinical standpoint, he concludes with a short account of solid tumors of the mesentery. Speaking of chylous cysts, Moynihan says: "These are the most common form of mesenteric cysts, and may arise in two ways: either they are primarily dilated and varicose lymphatic vessels, which, gradually enlarging, form cysts; or they are *primarily serous cysts,* the lacteals bursting into the cyst on account of stretching and thinning of their coats. *The latter mode of origin is, in all probability, the more common.*"

In 1906 appeared a paper by Ayer entitled, "Enteric and Mesenteric Cysts with Report of an Unusual Case (*Am. Jour. Sc.,* Jan., 1906). The cyst in question was situated at the angle formed by the mesentery of the ileum and the reflection of the peritoneum at the descending colon. It was the size and shape of a duck's egg, and occupied the lumen of the cæcum. The cyst contained about four ounces of clear, viscid

fluid. Ayer's cyst was apparently similar in structure and origin to mine, falling, therefore under the heading of serous cysts. Speaking of the origin of the cyst, Ayer says: "Let us suppose that the cyst in question has its origin in the Wolffian body, the Wolffian duct, or Müller's duct. Recognizing the tendency of these 'rests' to undergo cystic degeneration and postulating the existence of such a process in the present instance, it is not difficult to conceive the chain of events, beginning with a tiny retroperitoneal 'rest' *in fœtu* and ending with the same structure which has undergone cystic degeneration, has become many times enlarged, and has migrated between the layers of the mesentery during the development of that structure as far as its attachment to the gut, there pushing before it the structure forming the wall of the intestine, and eventually lying, to all intents and purposes, within its lumen, though, anatomically speaking, outside it." Ayer represents schematically, by five figures, the probable course and final resting place of the cyst. Ayer's patient, like mine, suffered from chronic intestinal obstruction; his cyst, however, encroached more directly upon the lumen of the bowel than mine, since, situated at the cæcum, it had not the same breadth of mesentery in which to develop as had mine, located farther up on the ileum. To Dowd's aforementioned classification into (1) embryonic cysts, (2) hydatid cysts, (3) cystic malignant disease, Ayer adds (4) cysts arising from the glandular structures of the intestinal wall, and (5) cysts of the normally placed retroperitoneal organs. These two minor amplifications were suggested by reports of recent cases.

In 1907 F. Niosi, assistant in Professor Ceci's Clinic at Pisa, wrote an exhaustive monograph entitled: "Mesenteric Cysts of Embryonal Origin, etc.", which was translated and published in *Virchow's Archives* (cxc, No. 2, pp. 217–338). Niosi's cyst lay in the mesocolon, between the anterior leaf of the transverse mesocolon and that of the descending colon. After a most thorough and exhaustive histological examination of the cyst wall and chemical examination of its contents, Niosi attributed its genesis to the Wolffian body upon two grounds: (1) From the structure of the wall, which was

lined by cylindrical epithelium, and contained tubules formed of cylindrocubical cells; (2) from the presence of nodules of suprarenal tissue. Niosi believes there is a similarity between the structure of his cyst and the mesonephron cysts of the broad ligament, and that from this similarity further convincing arguments arise for the origin of the latter cyst from the Wolffian body.

Niosi's classification is: (1) Cysts of intestinal origin proceeding from the concave side of Meckel's diverticulum, which insinuate themselves between the two layers of the mesentery; or cysts from rests which spring from the intestinal wall, and during development have been enclosed in the mesentery. (2) Dermoid cysts. (3) Cysts which spring from retroperitoneal organs, as from the urogenital organs (germinal epithelium, ovary, Wolffian body, Müllerian duct). He collected 44 cases of embryonal mesenteric cysts, which fell into his classification as follows:

1. Cysts of intestinal origin	16
Doubtful cases of cysts of intestinal origin	7
2. Mesenteric dermoid cysts	14
3. Cysts derived from sequestrated anlage of the urogenital tract	5
4. Cases which do not belong in any of the three categories mentioned	2
Total	44

By taking the total number of mesenteric cysts other than embryonal (184, of which Braquehays in 1892 collected 104; Becker from 1892 to 1900 collected 40; and from 1900 to 1907 there were 40 more) and dividing all mesenteric cysts into five varieties (chylous, lymphatic, bloody, hydatid, and embryonal), with the 42 cases of embryonal cysts collected by Niosi, it follows that this last variety is not, as formerly thought, so exceptional, but rather occurs almost as often as the other varieties.

Etiology.—As to the causation of embryonal mesenteric cysts, Niosi states that heredity plays no part in their development.

Sex.—Given in 39 of the 44 cases: 24 females and 15 males.

Age.—Given in 43, as follows: fœtus, 1; new-born, 1; under one year, 3; from one to ten years, 5; ten to twenty, 14; twenty to forty, 11; forty to fifty, 5; over fifty, 3. Moynihan cites three cases in which the ages were 73, 77, and 80 years.

Pathological Anatomy.—The cysts are usually round or spherical, but may be oval, pyriform, or club-shaped. In those that were pyriform or club-shaped there was a pedicle, which in the first case sprang from the vertebral column, and in the other inserted into the wall of the intestine. The size varies greatly, as from the wholly insignificant enterocystoma of Hueter, which was scarcely the size of a split pea, up to mine, which was as large as a man's head, or even the colossal cyst of Fehleisen, which contained 8.2 litres of fluid, and the cystoma of Nager, which was adherent to all the abdominal viscera. Moynihan cites Portal's case, which ended fatally by mere physical bulk of the cyst. The cyst wall varies in thickness from an almost transparent membrane to 1 cm., as in Niosi's case. Upon the surface at times run large vessels. In Dowd's case, a vessel the size of the femoral vein was present. Adhesions, particularly in large cysts, not infrequently involve the abdominal viscera (intestine, liver, spleen, pancreas, and bladder).

Intestinal disturbances caused by the cysts are often of more moment than adhesions. Sprengel notices invagination of the cæcum into the colon from a cyst scarcely 3 cm. in size. Eppinger observed volvulus; Bogers, volvulus with subsequent peritonitis; Fawcett, kinking; and Buchwald and Hediger, intestinal obstruction. Intestinal disturbances are severer the more intimately adherent cysts are to the intestines.

The position of a cyst in the mesentery is usually in relation with the terminal part of the ileum, at a varying distance from the ileocæcal valve. Less frequently, cysts are found in relation with the mesentery of the jejunum, cæcum, and mesocolon.

The contents of the cysts vary in color, consistency, specific gravity, and chemical constitution.

Symptomatology.—There are no definite symptoms peculiar to mesenteric cysts, as they do not cause pain nor any other subjective troubles; and they do not even engage the attention of their bearer until they have attained a certain size, or have caused acute intestinal obstruction. Moynihan emphasizes one symptom, namely, that of extremely rapid and serious wasting, probably due to interference with the lacteals.

Other symptoms described are a sensation of weight, nausea and vomiting, and constipation from pressure of the cyst upon the gut. So, too, colicky pains frequently arise from pressure upon the nerves, or from hindrance to the escape of fæces or of gas, or from adhesions. Such symptoms characteristic of no abdominal lesion, and common to many, are frequently attributed to "dyspepsia" or "indigestion," both by physician and by patient. This is but one of many maladies in which careful examination of the abdomen would, in all probability, clinch the diagnosis. On the other hand the omission of such a precaution may expose the patient to intestinal obstruction, which would lead to a sure, but by no means desirable, method of diagnosis.

Physical Signs.—Inspection is of value only for large cysts, in which case the tumor is usually most prominent near the navel.

Moynihan states that the most obvious and the most characteristic sign of the tumor is the mobility, transverse excursion being greater than vertical. This mobility is limited, if not entirely prevented, by adhesions. According to Niosi, the consistency is very elastic and fluctuation indistinct when the cyst wall is very thick, consists of several compartments (multilocular), or if the contents are inspissated, as in dermoid cysts. Confusion might arise between such fluctuation and the elasticity of a lipoma in the omentum or mesentery.

Percussion reveals an area of tympany around the tumor, and thus its independence of regional organs. If dulness should extend to the os pubis, by placing the patient in the Trendelenburg position, the tumor, if a non-adherent mesenteric cyst, would gravitate towards the diaphragm, thus completing the ring of resonance. It is stated that, when the gut is empty, light percussion determines a band of tympany across

the tumor, since the gut is interposed between the abdominal paries and the tumor.

Moynihan summarizes the most characteristic signs of a cyst thus:

1. Prominence of the fluctuating tumor towards the umbilicus.

2. Great mobility, especially in the transverse direction, and the possibility of rotation round a central axis.

3. The presence of a zone of resonance around and a belt of resonance across the cyst.

I believe that exploratory puncture is wholly unjustifiable here.

Differential Diagnosis.—Mesenteric are not commonly mistaken for ovarian cysts. In avoiding this error, it is helpful to ascertain if the tumor has grown from the abdomen towards the pelvis or *vice versa;* if an inferior zone of resonance can be obtained by the Trendelenburg position; and if both ovaries are independent of the tumor. Furthermore, there must be excluded hydronephrosis, omental, pancreatic, and renal cysts, cysts of the urachus, and lipoma of the mesentery. It is probable that, as in the past, most of these cysts will be diagnosed first on the operating table. Gas cysts of the intestine, of which Finney recently (*Jour. Am. Med. Assoc.,* Oct. 17, 1908, vol. li, pp. 1291–1297) collected 19 cases, might at first sight cause confusion at operation; but these, it seems, occur in clusters of very small cysts, which explode on pressure.

Prognosis.—The prognosis of mesenteric cysts conforms with that of abdominal lesions of similar magnitude. Uncomplicated cases, operated upon with good judgment, should recover, especially since infection is not concerned in the etiology of such tumors. In adhesions and intestinal obstruction, however, lurk dangers commensurate with the extent of the one and the duration of the other.

Treatment.—As soon as discovered, an intramesenteric cyst should be removed even in the absence of symptoms, and this, if for no other reason, as prophylactic against intestinal obstruction. It is known that chyle cysts frequently cause emaciation, and it is conceivable that operative delay here

might dangerously impair the operative stamina of the patient. It is not absurd to refer to malignant degeneration in these cysts. Now and then a branchial cyst becomes malignant, so why not an intramesenteric? One well-known theory concerning the origin of malignant tumors puts the onus on misplaced embryonal tissue, and surely the tissue of some of these cysts is misplaced embryonal tissue. We shall watch further case reports for such a mishap.

There are four ways of dealing with intramesenteric cysts: (1) By aspiration; (2) by cystostomy and drainage, with or without the use of caustics; (3) by enucleation; (4) by resection of the involved intestinal segment. The first method (aspiration) was followed by recurrence in over fifty per cent. of cases, and is now obsolete. The second method (cystostomy and drainage), first employed by Sir Spencer Wells, is useful in the presence of numerous adhesions, to dissever which might impair the nutrition of the intestinal wall, or in an emergency. The third method (enucleation) is considered by many ideal, and is ideal when practicable. The fourth method (resection) I recommend in multiple, juxtaposed cysts, when it is deemed that too much surgical interference, as from dealing with the cysts one by one, carries more risk than simple resection.

Dr. William M. L. Coplin said that he had not had opportunity to examine many of these cases at autopsy. He had seen Dr. Kalteyer at autopsy at the Philadelphia Hospital remove a chyle cyst; it was an accidental finding at autopsy without clinical data. He had also seen two other chyle cysts which were also accidental findings at autopsy; also serous cysts, one a true mesenteric cyst, the other they were not so certain about. There were peritoneal adhesions and he thought it had resulted from the closure of the serous membrane by adhesions that formed a sac. An epithelial lining would probably interfere with operative recovery. He had seen one of these cysts containing a stone. There was the suspicion that it might have been a tuberculous mesenteric lymph-node which had been surrounded by lacteal fluid.

OSTEOSARCOMA OF THE MANDIBLE.

BY ADDINELL HEWSON, M.D.,

OF PHILADELPHIA.

Professor of Anatomy in Philadelphia Polyclinic Hospital; Surgeon to St. Timothy's and American Oncologic Hospitals.

In reporting a case of osteosarcoma of the mandible, my object is to point out how it may be possible to remove half of the mandible with the least possible deformity resulting.

As pointed out in many of the text-books, the performance of this operation without ligation of the external carotid is still in practice; but as the patients are usually aged, and since loss of blood without ligation cannot be avoided, it seems best to me to discard the old operation and insist upon the necessity of primary ligation of the external carotid artery.

In doing the operation without ligation, the surgeon must count upon the rapidity of his work and the dexterity of his action and that of his assistants to control the loss of blood. This very often miscarries, and the patient loses a terrific amount of blood. The operation by ligation of the external carotid as a primary procedure and the closure of this wound may be performed without entering into the field of removal of the mandible, even though the bifurcation of the carotid may be as high as the greater cornua of the hyoid bone, provided there is no glandular involvement, as is possible and probable in carcinoma.

This primary ligation, while it prolongs the operation slightly, renders the removal of the mandible much more efficient; and the operator is not impeded by the loss of blood or the possibility of septic pneumonia dependent thereon.

It is argued by some that the artery forceps will control the hemorrhage and save the time of the operator and necessarily the length of the anæsthesia; this some are willing to assign as the cause of the pneumonia rather than the septic material, plus the loss of blood, injury to the part in manipulation, and

the non-warming of the inspired air before it enters the lungs. It is known that in the removal of so vital a part as half of the mandible, as in all major operations, the minimum loss of blood, the minimum interference with the temperature of the inspired air, the minimum incision in the removal of any part, and the minimum of time in its performance are all factors tending toward favorable termination.

Having followed the usual course as given in the text-books in former procedures and in the bloody clinical services in which I have been a participant, it seemed possible that the desired end could be reached in carrying out the principles above stated. A suitable case presenting itself at the American Oncologic Hospital, I applied the principles as above outlined.

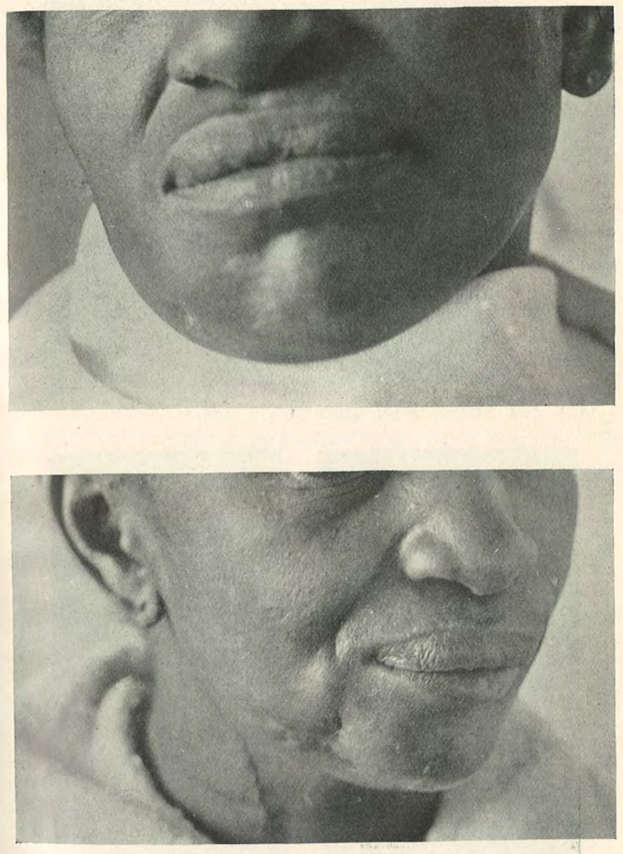
The patient, C. S., colored, aged 36, married, a domestic, was admitted on February 10, 1908.

About ten years ago noticed vague pains in the right side of the mandible. There was no history of any injury from outside sources. The first thing she noticed was a small hard lump in the navel of the sixth-year molar, ten years ago. Eleven months ago, following a bad toothache, she had the lower second bicuspid and sixth-year molar extracted on account of pain. Since the extraction of the teeth the tumor has grown rapidly and was at the time of her admission about the size of an English walnut. In Sept. 1907, ulceration took place on the face; she has had the projection into her mouth removed two or three times since teeth were extracted. The growth on the right side of the body of the mandible occupied the site of the second bicuspid and of the sixth- and twelfth-year molar teeth. This was very dense and occupied the alveolar process and extended caudad into the body of the mandible, and was connected with the outside of the face by a sinus which discharged blood and pus. The growth was seen to occupy the vestibular and buccal surfaces of the alveolar process, and surrouded the first bicuspid and extended to the middle and partly surrounded the twelfth-year molar. Apparently the wisdom tooth had not been erupted. There were no glands anywhere in the submandibular triangle. The thoracic and abdominal organs were all normal. Blood and urinary examinations were made.

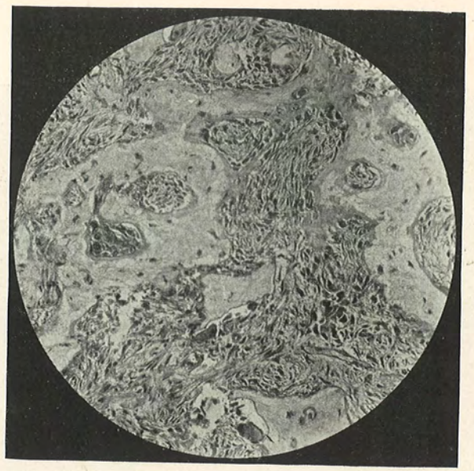
Patient was in the house sixteen days under observation before operative interference was considered, and during this time all preparations and examinations possible were made.

On March 19, 1908, the patient was placed under chloroform anæsthesia and the external carotid artery of the right side ligated. The performance of this operation was rather difficult because of the unusual position of the artery. Bifurcation did not take place until the great cornu of the hyoid bone was reached. This of course increased the length of time of the performance of this operation, first because of its unusual position, and second because it was necessary to avoid entering the buccal cavity. The vertical incision was made in the middle line through the lip to the caudal margin of the mandible, dividing all the muscles to the bone. The left inferior coronary artery was ligated; the skin incision followed the caudal margin of the mandible as far dorsal as the position of the facial artery. The levator menti, depressor labii inferioris, depressor anguli oris, platysma myoides, and buccinator muscles were divided by the scalpel, care being taken to leave muscular attachments and not tear away the periosteum. These manipulations extended up to but not through the vestibular fornix of the mucous membrane. The scissors were now substituted for the scalpel and divided the masseter muscle, the stylomandibular ligament, and part of the capsular ligament on the ventral and lateral parts of the condyle. The mandible was divided by a chain-saw, after pulling the right central incisor. The bone was violently depressed and the temporal muscle, severed from the mesial surface and apex of the coronoid process and caudal fornix of the mucous membrane, was now divided, taking pains to adhere as closely as possible to the ventral margin of the ramus and to pass as far cephalad on this margin, thus avoiding all interference with Stenson's duct. The buccal mucous membrane, together with one geniohyoid muscle and the mylohyoid, the internal and external pterygoid muscles, and the sphenomandibular, internal lateral, and the remaining part of the capsular ligaments were divided, severing also in this procedure the inferior dental artery and nerve, the myoid artery and nerve, and their accompanying veins. The half of the mandible was now easily removed by a twisting movement and the free use of scissors close to the bone, the condyle being practically twisted out of its capsule and the socket in the temporal bone. There was decided venous ooze from the pterygoid region, but this was easily controlled by

FIG. 1.



Osteosarcoma of mandible. Appearance of patient before and after removal of the affected half of the mandible.



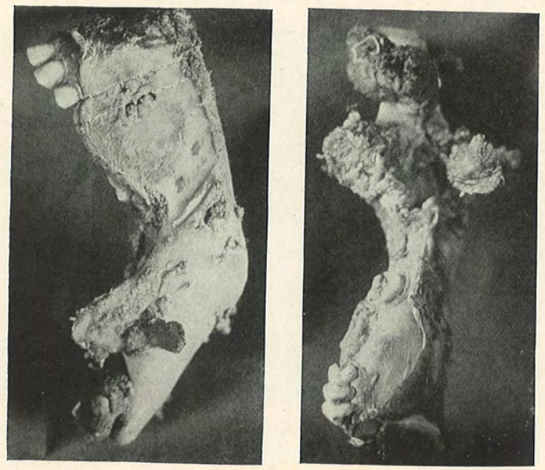


FIG. 2.

Osteosarcoma of mandible. Portion of mandible removed, and microscopic section from growth.

iodoform gauze packing; all apparent glands were removed. Buccal and vestibular fornices of mucous membrane were united by interupted silkworm-gut sutures. The drainage for forty-eight hours was through the most dependent portion of the facial wound. One and a half metres of iodoform gauze were packed into the interval between the masseter and pterygoid. The sinus in the skin of the face, of course, was cut out and independently sutured. There was slight oozing for forty-eight hours after the operation, but after the removal of the packing and irrigation of the cavity there was no further trouble.

Present Condition.—The patient is not able to adjust the mandibular with the maxillary incisors owing to the contraction of a fibrous band in the position formerly occupied by the removed portion of the mandible.

The patient has no difficulty in masticating soft food; and I have to report at this time that she is in perfect health without any recurrence anywhere, and is under weekly observation, as she is employed about the institution.

I have to submit photographs taken before and after the operation; one of the part removed, an autochrom, microscopic slides of the growth, together with microphotographs (Figs. 1 and 2).

The patient at no time during her entire stay in the institution, before, during or after the operation, except as the reaction after her operation, had a temperature above 99 $^{2}/_{5}$°.

The pathological investigation was made by Dr. John M. Swan, who pronounced the growth a round- and spindle-celled sarcoma of the body of the mandible. The section is composed of irregular trabeculæ tissues which correspond to the trabeculæ of the bone, between which are spaces occupied by altered marrow tissues. In the tissues corresponding to bone trabeculæ there is no evidence of normal bone tissue except out in the periphery of the section. The tissue is composed of numerous large round cells with occasional spindle cells separated by a distinctly fibrillar connection of tissue. The marrow tissue occupying the space is poor in cells and has undergone myxomatous degeneration. There are giant cells in places in the altered marrow tissues. The bone trabeculæ which have not been invaded by the new growth is poor in cells. No canaliculæ are visible, and the matrix looks as though it had undergone myxomatous change.

REPORT OF SATURDAY SURGICAL CLINICS FOR STUDENTS.

HELD AT THE GERMAN HOSPITAL OF PHILADELPHIA, 1907 AND 1908.

BY JOHN B. DEAVER, M.D.,
OF PHILADELPHIA,
Surgeon-in-chief.

DURING the 26 clinics 271 operations were performed on 215 patients, there being 94 operations upon 38 patients.

Appendicitis.—Of the 104 cases of appendicitis, 42 were acute. Of these, 23 were males and 19 females. The appendix, acutely diseased, was removed in 6 patients operated for other conditions: one male with cholelithiasis, another male with fecal fistula, and four females with various pelvic maladies.

Of these 42 acute cases 10 had abscesses and 8 had fluid in the pelvis, whilst from another patient 500 c.c. of liquid fæces escaped upon opening the abdominal cavity. Thirteen of the 23 non-abscess cases were operated upon in their first attack, and 11 of the 19 abscess cases in their first attack.

In 4 cases the appendix was not searched for, incision into the abscess cavity completing the operation. In one case a friable appendix was removed piecemeal.

Drainage was introduced in 24 of the 42 acute cases. The character of the drainage varied with the character and amount of the exudate: in one patient a cigarette drain was required on account of oozing; while in another as much as three pieces of gauze and one glass tube, the whole surrounded by rubber dam, was required because of associated tubo-ovarian disease. A glass tube in the pelvis was inserted in 11, or about one-quarter of the cases, while a rubber tube was used only twice. Most of the 24 drained cases were satisfactorily treated by gauze, variously disposed about the infected area. In the re-

maining 18 undrained cases the wound was closed with tier suture of iodized catgut, reinforced now and then by through-and-through sutures of silkworm gut.

The 18 leucocyte counts made in the 23 non-abscess cases, that is, those in which the disease was strictly intra-appendiceal, showed 5 in which the figures ranged from 5,000 to 10,000; 9 from 10,000 to 15,000; 3 from 15,000 to 20,000; and one of 21,700. Of the 19 cases with exudate, those in which the disease was extra- as well as intraperitoneal, counts made in 17 showed 8 in which the figures ranged from 10,000 to 15,000; 7 from 15,000 to 20,000; one of 24,500; and one of 32,800. To put these figures another way, of the 18 non-abscess cases in which counts were made, 14 were below 15,000, and 4 were 15,000 or more; and of the 17 cases with exudate in which counts were made, 8 were below 15,000, and 9 were 15,000 or more. These figures are strikingly similar to those I presented last year.

As regards the presence or absence of extra-appendiceal abscess, both extremes of the count alone are of value, there being a large middle class in which the figures range from 10,000 to 20,000 as often in the non-abscess cases as in the cases with exudate. Taking the extremes, we observe that below 10,000 there are more cases of *minus*-pus and *plus*-resistance than of *plus*-pus and *minus*-resistance. What few counts there are very much above 20,000 almost certainly indicate *plus*-pus and *plus*-resistance. With regard to resistance, however, more is learned from the differential leucocyte count.

Microscopic examination in 38 of the 39 cases in which the appendix was removed showed acute interstitial in 6, in 4 of which it was suppurative; acute ulcerative in 7; obliterative in 1; chronic with acute exacerbation in 14; chronic interstitial in 6; and inconspicuous lesions in 4. With regard to the case of obliterative appendicitis, it must be remembered that in some people the lumen of the appendix is naturally obliterated; and it is significant that this patient gave no history of any attack preceding the one which brought him

to the hospital. The histological diagnosis of " inconspicuous lesions " expresses doubt in the mind of the pathologist whether the disease was present in the organ examined, or, if not that, at any rate is mentioned out of courtesy to the operator. There were 14 cases diagnosed histologically " chronic appendicitis with acute exacerbation "; and of these, 10 were in accord with the clinical history, while not one of the remaining 4 gave any history of previous attacks. On the other hand, the 6 appendices diagnosed histologically " chronic appendicitis " were all removed from patients either in the throes of, or just recovering from, an acute attack, and yet no mention of such an attack was made in the laboratory report. The former group of cases, namely, those four in which the microscopical findings of chronic appendicitis with acute exacerbation were not supported by the clinical history of previous attacks, may, as I observed last year, be accounted for by latent or masked infections of a very mild type.

Bacteriologically, *B. coli communis* predominated, but *S. pyogenes* and *B. pyocyaneus* were also found.

Careful consideration of these and of the histories of the chronic cases to follow shows that many patients who complain of dyspepsia or indigestion, constipation, or dysmenorrhœa are, in reality, subjects of the appendiceal syndrome.

The appendiceal history of one patient began two years previously, after an attack of enteric fever. The last acute attack was apparently the sequel of a mild throat infection. Four days previous to admission the patient took to bed with chills, sore throat, and aching in legs and arms. Two days later pain was felt in the lower abdomen, and was followed by nausea. At operation the appendix was acutely diseased at its tip. Last year I reported a case of tonsillitis and purulent parotitis which developed after the evacuation of an appendiceal abscess. This year a patient developed acute tonsillitis four days after operation for appendicitis with localized fibrinoplastic peritonitis, and serofibrinous exudate in the pelvis. In the first case, the infection *via* the throat was probably instrumental in developing the attack of

appendicitis. The second and third cases, as well as others I have described in the past year, show that the effects of appendiceal pus may be manifested remote from the right iliac fossa.

In two patients the acutely inflamed appendix was found to be associated with bilateral salpingitis. Another patient, operated upon for acute appendicitis, was found to have, in addition, hydrops of the gall-bladder caused by blocking of the cystic duct by a large stone. Another patient exhibited, in addition to acute appendicitis, a dermoid cyst of the right ovary.

One patient, whose acute attack developed two days before the operation, showed, after abdominal section, an acutely inflamed appendix which extended low down into the pelvic cavity, where it was surrounded by much cloudy fluid. Five days after the operation signs of intestinal obstruction developed; the second operation showed angulation of the ileum in the right side of the pelvis, caused by a recent, moderately soft adhesion. A hasty convalescence ensued. This is the occurrence of one case of acute intestinal obstruction in 42 cases of acute appendicitis, which is practically in keeping with our past experience in acute intestinal obstruction taking place under these circumstances.

In this series of 42 cases of acute appendicitis, there were 3 deaths, all from diffuse peritonitis, associated in two cases with perforation of the bowel. Two of these patients had had their acute attack a week before they were brought to the hospital, the third was admitted to the hospital with a fecal fistula of three months' duration, he having been operated elsewhere.

Of the 62 cases of chronic appendicitis, 21 were in males and 41 in females. Of the 62 cases 37 were operated upon for chronic appendicitis alone, while 25 were operated upon additionally for other conditions, such as, in 21, associated pelvic disease (which accounts for the predominating number of females); and in the remaining 4, cholecystitis, cholelithiasis, cancer of the liver, and movable kidney, respectively.

The number of attacks in the 37 pure, uncomplicated cases of chronic appendicitis was: 1 in 7; 2 in 6; 3 in 3; 4 in 4; 5 in 1; 9 in 1; 16 in 1; 32 in 1; and in 13 there were numerous attacks over an extended period of time, a definite number, however, not having been stated.

The patient who had the greatest number of attacks furnished a history typical of chronic appendicitis.

For nine years he had had recurring attacks of abdominal pain, about three to four per year. During the six months previous to operation, he had six attacks, the last three weeks before. The attacks usually began suddenly at night, and the pain was at first general abdominal, later localizing in the right iliac fossa. He was usually nauseated, but seldom vomited. He was badly constipated, his bowels never moving without a laxative. Examination showed slight tenderness on deep palpation at McBurney's point. A much thickened and firm appendix was removed from behind the cæcum, to which it was closely adherent by a short, thickened meso-appendix.

In the complicated cases, it was impossible to differentiate the attack of appendicitis from those of the complicating condition, so the number of attacks cannot be stated.

The symptoms complained of in these 37 cases were, in 12, sudden, diffuse abdominal cramp, followed by nausea and vomiting and localizing shortly to the right iliac fossa. In 15 patients the attack began as sudden, severe cramps, or else as soreness in the right iliac fossa, with or without chill, nausea, or vomiting. Five patients complained most of pain or soreness in the epigastrium. In 4 cases the complaint was most definitely localized, and the remaining case suffered most from dyspepsia. Other prominent symptoms were, in 6 cases, indigestion; in 5, constipation; and in 4, dysmenorrhœa.

One patient gave himself appendicitis by dieting on hard-shell crabs, ham and cabbage, and ice cream, belly-ache appearing half an hour later, and then syncope. Another patient was operated upon in the second month of pregnancy.

In two patients there was a history of traumatism. One patient was struck on the abdomen in a railroad accident, while the other strained himself, both exhibiting, later, symptoms of appendicitis.

Tenderness at McBurney's point was almost constant, being present in 30 of the 37 uncomplicated cases. Rigidity

was not so frequent, being present in only 7. The McBurney incision was used in 25 cases, and the short rectus incision in 12.

The lesson learned from dealing with appendiceal abscesses is that nearly every subject of the same is also the subject of indigestion, in fact, all cases of appendicitis commence in acute indigestion. Therefore, if a patient consults a doctor for supposed indigestion, he should never be dismissed from the office without a thorough abdominal examination having been made; otherwise, should a subsequent attack occur which would cost the patient his life, the doctor has placed himself in a position in which he is morally responsible.

In the 25 complicated cases of chronic appendicitis, which complications, be it remembered, were pelvic in 21, microscopic examination revealed the appendix chronically inflamed in 11; the seat of obliterative appendicitis in 7; and of minor lesions in 7. These figures show that the appendix shares so often in disease of the uterine adnexa that I believe it should be removed in practically every case of this nature, the risk to the patient being practically *nil*.

There was only one death in this series, that of a patient who, at operation, was found to have carcinoma of the liver in addition.

NOTE.—In chronic appendicitis there occurs in a percentage of cases pylorospasm, which condition cannot be said to be due to the appendix until the upper abdomen has been opened and the findings prove negative. I have now had a number of these cases in which relief of the pain and discomfort in the epigastrium was permanent after removal of the diseased appendix.

Carcinoma of Appendix.—To several other cases I have met with in the past decade, I may add this example of appendiceal carcinoma.

The patient, a German girl aged 27, suffered for two years from symptoms referable to the gall-bladder, such as pain in the right upper abdominal quadrant which radiated to the right shoulder, one-time jaundice, considerable tenderness and some rigidity about the right costal margin. Examination of fæces

showed a faint trace of occult blood. The hæmoglobin was 78 per cent.; leucocytes 6,500. Through a McBurney incision the appendix was removed. Microscopic examination showed carcinoma.

Cholelithiasis.—There were 16 cases of cholelithiasis, 2 in males and 14 in females. The youngest patient was 23, and the oldest 59 years of age.

A history of definite infection preceding the onset of gall-bladder disease was obtained in 2 cases, in both of whom the infection was enteric fever. This disease preceded manifestations of gall-bladder symptoms by six and ten years respectively. In both cases, however, cultures from the gall-bladder proved sterile.

The least number of attacks was two in 2 cases; next lowest four in 2 cases; then six in 2 cases; those in the remaining ten cases being designated as numerous. All of the cases had pain, and this symptom was described in 15 of the cases as colic or cramp in the epigastrium, and in the remaining cases the pain simulated that of renal colic. The pain was referred in 9 cases to the right scapula, and in 4 around the right costal margin to the back, while in the case that simulated renal colic it traveled towards the iliac crest. Vomiting followed the pain in 13 of the cases, while 9 suffered from chills.

Digestive derangements were frequent, there being gaseous eructations in 6, indigestion in 4, and loss of appetite, diarrhœa, and constipation in one each. Four patients had to be very careful of their diet, lest an indiscretion precipitate an attack, and one patient even lived on milk and custards for three months before operation. Four patients were subject to nocturnal attacks of gall-stone colic. Too much stress cannot be placed upon the significance of seemingly insignificant symptoms referred to the stomach, for such is frequently the plaintive cry of calculi for liberty. Sometime jaundice was present in 11 of the 16 cases.

It is important to bear in mind that nearly all gall-stone possessors have stomach trouble, that is, that the early, the prodromal, the initial symptoms of gall-stone disease are referred

to the stomach, the epigastrium. The failure to recognize this has been at the cost of many a valuable life, due to late operation. In practically every article I have written on gall-stone disease I have seized the opportunity to refute the false and not-to-be-proven statement that gall-stones can exist without causing symptoms. Until this false assertion is erased from text-books and no longer appears the authors of them will still have to share a responsibility. The early symptoms of gall-stone disease are referred to the stomach; upon these symptoms a diagnosis should be made and operation done, at which time there will be practically no mortality. Fulness, weight, distention or oppression in the epigastrium, coming shortly after eating, within an half, three-quarters, or an hour, relieved by belching and disappearing entirely immediately upon vomiting, are, I might say, pathognomonic.

Note.—The patient frequently complains of a sensation of tightness which, if unrelieved by loosening of the clothing, may become a pain. Relief is sometimes obtained by bending the body forward, or, as we used to do as youngsters with ordinary belly-ache, getting down on the stomach over a chair. Frequently at the end of a deep breath there is pain at the right costal margin. Sensations of chilliness after eating, particularly in the latter part of the day, are observed in a certain percentage of these cases.

Physical examination revealed tenderness at or near the gall-bladder in 14 of the 15 cases; rigidity of the supra-umbilical portion of the right rectus muscle in 3; and involuntary spasm of the same on palpation in 2.

There were stones in the gall-bladder alone in 7 patients, in the cystic duct alone in 1, in the gall-bladder and cystic duct in 4, in the gall-bladder, hepatic, and common duct in 2, in the gall-bladder and common duct in 1, and in the common duct alone in 1. In 2 patients the cystic duct was blocked sufficiently to produce hydrops. The ampulla of Vater was blocked twice. The largest single stone was in the gall-bladder, and measured 2.5 x 3.5 cm.; the next largest were two stones in the common duct, each 2 cm. in diameter. The largest number of stones in the gall-bladder was 33, and in the

common duct, 32. One patient had passed numerous calculi in the course of her gall-bladder disease, and this is the patient from whose gall-bladder 33 stones were removed. This case shows that while the passage of gall-stones at stool is of diagnostic value, yet it is of no aid in prognosis. Perhaps the patient from whose common duct 32 stones were removed can serve to emphasize this point. One of the 32 stones was the size of a hickory nut, and had any hopes of cures been based upon the hypothetic passage of this large stone, there would still remain, as shown by operation, 31 stones to be reckoned with.

The walls of the gall-bladder were thickened in 5 cases, the gall-bladder enlarged in 4, contracted in 3, and impacted with calculi in 4. Three cases illustrated variations in the gall-bladder contents, one case revealing thick and black bile, another the clear mucoid of hydrops, and another, whitish-yellow mucopus. Adhesions, present in 12 cases, were described as pericystic in 1, pericholedochal in 1, between the gall-bladder and liver in 1, gall-bladder and stomach in 5, gall-bladder, liver, and stomach in 2, gall-bladder and omentum in 1, and gall-bladder, omentum, and colon in the remaining case. In one case the gall-bladder was completely hidden by adhesions below the liver margin, the severance of which revealed a spontaneous fistula, the diameter of a goose-quill, between the gall-bladder and the stomach. I sever adhesions only when their separation is indicated.

Bacteriological reports returned in 14 of the 16 cases showed the gall-bladder sterile in 7, *B. coli* from the gall-bladder in 3, *B. coli* from the common duct in 1, unidentified bacillus from the common duct in 1, *B. typhosus* from the gall-bladder in 1, and *B. typhosus* from the common duct in the remaining case. The patient from whose common duct the typhoid bacillus was obtained gave no clear history of enteric fever, unless being in bed 17 days with "gastric fever" be considered such. Neither did the patient from whose gall-bladder the typhoid bacillus was obtained give any history of the disease; but in this case the identity of the culture was

proven because it was positive to agglutination tests by the Widal method, the organism being agglutinated not only by the patient's own serum, but also by serum from a positive typhoid patient.

The following operations were done: Cholecystostomy in 7 patients, choledochostomy in 2, cholecystostomy and choledochostomy in 1, cholecystectomy in 4, and cholecystectomy and choledochostomy in the remaining 2. Further operations required were, for conditions due to the gall-stone disease itself, lumbar incision and drainage of a pancreatic abscess in 1 case, gastrorrhaphy for the case in which a spontaneous cholecystogastrostomy had occurred and posterior gastro-jejunostomy for postoperative obstruction; and for conditions due to other causes, appendectomy in one patient for acute appendicitis, in another for chronic appendicitis, and curettage of the endometrium in one for granular endometritis.

As for drainage, it is unnecessary to report in detail for each case. Whatever part of the biliary tract I invaded, I drained with a rubber tube, this applying to cholecystostomy and choledochostomy. After cholecystectomy the cystic duct is injected by a rubber tube and held there by a stitch, and if this is not feasible, the tube is placed in the common duct, in order amply to drain any infection, when present. Tubal drainage is usually supplemented by a Mikulicz drain to absorb leakage should it occur, and sometimes additional gauze drainage is required either in the subhepatic region or in the foramen of Winslow. Latterly in place of carrying gauze down to the subhepatic space I place a glass tube in this space, the tube being removed in 24 hours.

Although numerical and coagulative estimations of the blood were made in all cases, yet they proved after all of very little value to me.

The only death occurred in a woman aged 50 with myocardial disease, whose entire extrahepatic choledochal apparatus was badly infected, and who died the day of operation from acute dilatation of the heart. The myocarditis was to

my mind the result of the toxæmia consequent upon the infected bile passages.

Cholecystitis.—In addition to the cases of chronic cholecystitis and pericholecystitis associated with the 16 cases of cholethiasis, there were 4 instances of non-calculous cholecystitis, one of which was acute, in a female, and the others chronic, in males. Two of the latter were associated with chronic interstitial pancreatitis, a diagnosis established only by the questionable method of palpation. Indigestion was a salient symptom in all these cases, and included epigastric heaviness and distress, gastric tympany with belching, meteorism, and constipation. In fact, one patient maintained a restricted diet for fear of precipitating an attack by gormandizing; and a dyspepsia of seven years' standing was relieved when adhesions between the gall-bladder and stomach were broken up, and the small, thickened gall-bladder drained. The gall-bladder was distended with bile in one case in which adhesions were present between it and the transverse colon, and in another was the seat of hydrops. Operation comprised cholecystostomy in 3 cases, which included the two of chronic pancreatitis, and in one of the latter choledochostomy was also performed. The remaining case required cholecystectomy, since hydrops was present in a chronically inflamed organ. Furthermore, a chronically inflamed appendix was removed from one of the patients.

Carcinoma of the Liver.—Carcinoma of the liver was seen twice, in the patient from whom a chronically inflamed appendix was removed, which has been already referred to, and in another patient in whom it was secondary to carcinoma of the stomach and duodenum.

Pancreatitis.—In addition to two cases of chronic inflammation of the pancreas, I have this year to report a case of acute pancreatitis, in which operation was followed by uneventful recovery. This patient has already been referred to among the cases of cholelithiasis.

A machinist, aged 27 years, suffered a year before operation from four to five attacks, at short intervals, of abdominal cramps,

which were largely confined to the upper abdomen. These attacks were moderately severe, the pain lasting from two to six hours, and were accompanied by slight jaundice. He was free from attacks until two and a half weeks before operation, when there took place a very severe attack of epigastric pain with nausea and vomiting. This pain started in the epigastrium, radiated throughout the abdomen, and extended to the back and to both shoulders. With frequent exacerbations, the pain and jaundice continued up to the time of operation.

Examination showed slight epigastric fulness, spasticity of both recti, enlarged liver, and marked tenderness at Robson's point, and, to less degree, over the entire right hypochondrium and the epigastrium.

Intra-abdominal examination revealed adhesions between the gall-bladder, colon, and omentum; a thickened gall-bladder containing calculi; fat-necrosis in the preperitoneal fat; and, in the lesser peritoneal cavity, a soft, fluctuating mass about the size of two fists, which shoved the stomach forwards.

From the gall-bladder were removed about 40 c.c. of whitish-yellow mucopus and four large, irregular, grayish, facetted stones, and 24 smaller ones from the gall-bladder and cystic duct. Drainage consisted of a rubber tube in the gall-bladder and a cigarette drain in the subhepatic space. The bursal abscess was evacuated posteriorly and to the left, carrying the direction in front of kidney and behind the peritoneum, and consisted of 500 c.c. of bloody, purulent fluid, from which the colon bacillus was obtained. The culture from the gall-bladder was sterile. It might be added that occult blood was found in the fæces, and that the hæmoglobin was 72 per cent. the whites 11,500, and the coagulation time 10 minutes, three days previous to operation.

The two instances of chronic pancreatitis were features in two of the cases of cholecystitis already referred to. In one case the gall-bladder disease was of seven years' standing and the head of the pancreas was nodular. In the other case the cholecystitis had existed two years, and the pancreas was markedly thickened and the whole organ much firmer than normal, with small localized areas of great density. That pancreatitis existed in these two cases was only presumed by

the feel of the organ. The removal of a piece of the pancreas for histological examination I did not consider justifiable.

Carcinoma of the Stomach.—There were 5 cases of gastric cancer, of which 2 proved inoperable. Four were males aged 39, 53, 54, and 64 respectively; and the remaining patient was a female aged 54. Family history of the malignancy was present in one case only, namely, that of a male whose sister died of carcinoma of the breast. The ages of the carcinomata were, of course, beyond calculation, but symptoms referable to the disease had existed for 2, 7, 11, 24, and 24 months respectively.

Dyspeptic symptoms were common and included gastric distress and abdominal distention with belching and borborygmi after eating, epigastric pain, acid eructations, and constipation. Vomiting, present in three cases, resembled coffee-grounds in two, and was obstructive in one of the latter. One patient lost 20 pounds in 6 months, and another 30 pounds in three months.

A distinct tumor could be palpated clinically in 2 cases. Anæmia, present in 3 cases, was the equivalent of 44 per cent., 51 per cent., and 53 per cent. of hæmoglobin respectively. Free hydrochloric acid was present in 4 cases, in 3 of which lactic acid was found; and occult blood was present in 3 cases, in one of which it was found in the stool.

Since the site of the cancer determined the operative procedure in each case, I shall consider these captions together, and abstract each case *seriatim*.

Case I showed a band of adhesions between the gall-bladder and the lower surface of the pylorus, many adhesions about the pylorus and first part of the duodenum, and a small, hard tumor on the lower surface of the pylorus. This case indicated gastrectomy, so a segment which included the pyloric two and a half inches of the stomach, and the proximal two inches of the duodenum, was removed. The operation was completed by gastrorrhaphy and posterior no-loop gastrojejunostomy. Recovery was uneventful. Histological examination of the tumor revealed adenocarcinoma.

Case II revealed inoperable carcinoma of the lesser curvature of the pylorus, for which posterior no-loop gastrojejunostomy was performed in palliation. A week later sudden cardiac failure occurred.

Case III showed carcinoma involving the pylorus, the first part of the duodenum, the lumen of which was nearly completely occluded, and the liver. Posterior no-loop gastrojejunostomy. Patient lived but a few days.

Case IV exposed an extensive carcinoma which infiltrated the greater curvature and posterior wall of the stomach. The pylorus was patulous. Nothing was done.

Case V exhibited a large, firm, nodular neoplasm of the stomach extending into the pylorus for about two inches. The regional mesenteric lymph-nodes were enlarged. The transverse colon was thickened and infiltrated for a width of four inches. Since this was manifestly inoperable, the patient was discharged unimproved.

Ulcer of the Duodenum.—There was one case of chronic duodenal ulcer.

A Russian tailor, aged 33, six months before operation suffered from sudden, sharp, cutting pain, which started in the epigastrium and radiated around the right costal margin to the spine of the right scapula. This pain lasted two hours, and was attended with nausea and vomiting. These attacks occurred at intervals of from two to three weeks until two weeks before operation, since which time they have appeared almost daily, but varied in severity. Between attacks there was pain in the right hypochondrium upon exertion.

Clinical examination revealed tenderness in the epigastrium and right hypochondrium, but most acute at Robson's point. Free hydrochloric acid 22, total 41; occult blood negative. Intra-abdominal examination revealed a dense mass of adhesions, the size of a lemon, intimately connecting the pylorus, omentum, bile-duct, arch of the duodenum, and head of the pancreas. The lumen of the duodenum was encroached upon just beyond the pylorus. The stomach was slightly enlarged, and the gall-bladder distended with bile.

The usual operation of posterior no-loop gastrojejunostomy

resulted in cure. In such cases it is often difficult to determine whether the tumor mass is malignant or benign.

Fecal Fistula.—There were two cases of fecal fistula after operation for appendiceal abscess, occurring three and ten months. One rent was in the ileum, one inch proximal to the ileocæcal valve; and the other was in the cæcum. Operations of closure of the openings and lateral ileocolostomy were done in both, and appendicectomy in one, under which heading this case was referred to above. Both patients died.

Intestinal Obstruction.—Acute intestinal obstruction occurred in a patient who had been operated upon five days previously for acute appendicitis, under which the case has been referred to.

At 11.30 A.M. on fifth day after operation patient vomited a small amount of greenish material, and complained of slight abdominal pain. At 2.30 P.M. he vomited greenish fluid and had marked abdominal cramps. He was very restless. At 6 P.M. he vomited considerable amount of dark brown fluid. Although the bowels moved slightly and considerable flatus was passed through a rectal tube, he remained much distended and complained of much abdominal pain. A high enema did not move the bowels.

Operation relieved an angulation of a coil of ileum in the pelvis by a recent soft adhesion.

In cases of intestinal obstruction following appendicitis, where loops of bowel are glued together by fibrinoplastic exudate, I have obtained excellent results by uniting adjacent coils by entero-enterostomy. The following case will illustrate the advantage of this procedure.

Boy. Acute Perforative Pelvic Appendicitis. Operation showed in addition to the perforated appendix a pelvic peritonitis with pus. Gauze and glass tube drainage. For ten days everything went along normally. On the forenoon of the tenth day patient was attacked by abdominal cramp and nausea, with inability to pass flatus. I saw him in the early afternoon and

opened the abdomen, when practically all of the coils of small bowel occupying the pelvis were very adherent, causing obstruction. Adherent coils of bowel released, when the collapsed portion immediately distended. Abdomen closed, patient immediately relieved, passed gas, etc. The following afternoon a return of the obstruction symptoms; immediately I opened the abdomen and made an entero-enterostomy between the loop of small bowel to the proximal and the loop to the distal side of the obstructed coils, which corresponded to those found adherent and obstructed the day previous. Recovery. I have done this a number of times when nothing else in my judgment would have resulted in the recovery of the patient.

Intestinal Neurosis.—One case presented, as follows:

A girl, aged 16, whose appendix had been removed five months previously, complained of pain about the incision and, at times, in the lower left abdomen, severe enough to cause vomiting. Furthermore there were attacks of cardiac palpitation with shortness of breath.

Examination revealed marked tenderness and rigidity in the right iliac fossa just external to the old scar, and moderate tenderness on the opposite side.

Abdominal section did not show adhesions nor any other abnormality. The old scar was excised, and the patient made a good recovery. This method of dealing with such cases seems necessary at times.

Hernia.—Of the 10 operations for inguinal hernia, 9 were in males, 1 in a female. Six were on the right, 2 on the left side, and 2 bilateral. A history of traumatism in 2 cases. The duration varied from 4 weeks to 6 years; two of the hernias were recurrent. .

There were 2 cases of femoral hernia, both in females, and both left-sided. One patient was operated upon at the same time for chronic appendicitis and bilateral pyosalpingitis.

There were 3 cases of incisional hernia, 1 in a male and 2 in females. All had been operated for appendiceal abscess, drainage having been used. From one patient both tubes and

ovaries were removed on account of bilateral suppurative salpingitis and acute öophoritis with cystic degeneration.

Wandering Kidney.—There were 2 cases of wandering kidney, one in a male, on the left side, and the other in a female on the right side.

A Russian weaver, aged 23, began to have pain seven months previous to operation, in left lumbar region; pain was constant and dull, and referred anteriorly to the left inguinal region, at times sharp and sticking. Also suffered from loss of appetite and constipation. Examination revealed the left kidney distinctly movable and palpable. The kidney was hammocked by a gauze sling beneath its lower pole, and three additional pieces of gauze were placed about it.

The history of the other patient, a female aged 32, refers only to symptoms produced by the chronic appendicitis, for which she was also operated upon. The right kidney was freely movable, but if it was giving rise to any symptoms they were overshadowed by those of the chronic appendicitis. It seemed rational, since the appendix was to be removed, to anchor the kidney also, in prophylaxis against the psychasthenic state that too often follows the self-discovery of such a misplaced organ. The triangular flap of the true fibrous capsule was separated, twisted, and sutured into the anterior layer of the lumbodorsal fascia and quadratus lumborum muscle.

Pyonephrosis (Renal Calculus).—On *a priori* grounds, this case should be classified under nephrolithiasis, since the latter was the forerunner of the pyonephrosis.

The patient, a male aged 44, passed 87 biliary calculi eight years previous to operation. Seven months before, a stricture of the urethra, which resulted from an attack of specific urethritis, was cut.

Four years before the kidney operation the patient had an attack of chills and fever, and such an attack was repeated at irregular intervals, four or five times a day for two weeks. There was a feeling of uneasiness in the left groin, which was suddenly relieved by the passage of half a pint of greenish-yellow

pus. Since then he has always passed small amounts of pus and mucus *per urethram.* After exposure to cold there was discomfort about the left kidney region. He never had hæmaturia, although the Röntgen rays showed five calculi.

At operation an enlarged kidney was found and calculi palpated. The kidney was removed and gauze drainage placed. The laboratory examination reported chronic pyonephrosis.

Ureteral Calculus.—One case was operated on.

A male, age not given, had a sudden attack of severe pain in the right side of back, just below twelfth rib, one year before admission. Pain traveled diagonally downwards, and became generalized over the abdomen. Altogether there were six such attacks, of which four were very severe; each attack, except the first, was accompanied by vomiting. Last attack occurred the night before admission.

Rectal examination revealed a hard, slightly tender nodule, high up on the right side of base of bladder, probably a stone in the lower portion of the right ureter.

At operation, the right ureter was found dilated to site of obstruction. A small stone was found in the vesical end of the ureter, 4 cm. from its termination; it was pushed upwards and removed.

Hypertrophy of the Prostate Gland.—One case was operated on.

The patient, age 71, led a catheter life for 20 years. Throughout the latter half of this stage he urinated at two or three o'clock mornings. Up until five years before operation he occasionally urinated in dribbles, since then he has been compelled to use the catheter five times daily. A month before admission noticed a dark red, bloody appearance of the urine; this cleared in three days. Four days thereafter, there was an ammoniacal odor to the urine. Four days before admission again noticed blood in urine and since has had much hæmaturia.

Operation, perineal prostatectomy, the small size of the prostate endorsing this route. Histological examination revealed parenchymatous prostatitis. Hæmoglobin estimation was 68 per cent., being lowered by hæmaturia.

Goitre.—Two cases of simple goitre, both in females. The mother and two sisters of one of the patients had small goitres.

About thirteen years before admission the patient noticed a swelling upon the left side of the anterior surface of the neck, which gradually increased in size. Five years later swelling appeared on the right side; this is now the larger. Patient complains of throbbing pain on exertion and, after any excitement, tumors interfered somewhat with breathing.

Examination showed, in the midline, a freely movable goitre, about three inches in width. On the left side of the neck, but higher, was a smaller tumor; both followed the movements of the larynx in deglutition. On auscultation, a rough sound was heard all over the chest, from encroachment of the goitre upon the trachea. The goitre was extirpated through a horseshoe incision, and the field of operation upon the gland painted with carbolic acid, and this followed by alcohol. Histologic examination showed the goitre to be cystic.

The other patient noticed, five years previously, that the circumference of her neck was increasing, there was no localized swelling. Gradually the tumor developed in the thyroid region and in the midline.

Examination revealed a central, symmetrical, painless, smooth tumor occupying the midline of the neck, extending from side to side the width of the neck, and almost filling up the anterior cervical triangles. Just to the left of this is a smaller, almost unrecognizable prominence, which was probably the left lobe of the thyroid. The tumor had the consistence of a tense cyst. The heart sounds were transmitted to the tumor. The voice was high pitched and husky.

After removal of the goitre the field of operation on gland was painted with carbolic acid, followed by alcohol.

Histological examination showed that the walls consisted of degenerated fibroconnective tissue, necrotic towards the centre, better preserved and more vascular towards the periphery; and here too, were a few atrophic acini with colloid contents.

Carcinoma of the Breast.—But one case of carcinoma of the breast happened to fall into the clinics this year, but the remaining cases I shall report with a large series later on.

A woman, aged 40, was accidentally struck on the left breast about four weeks previous to admission, since then there has been a painful, hard tumor in the breast. Examination showed in the left upper quadrant of the left breast a hard, palpable tumor the size of a walnut. No enlarged axillary lymph-nodes were palpable. Radical operation was performed and a rubber tube used for drainage. Histological examination showed carcinoma, but there were no metastases in the lymph-nodes examined.

Fibroid of the Uterus.—Three cases of fibroid tumor of the uterus in women aged 36, 47, and 49 respectively. Duration of disease 8, 12, and 24 months. Dysmenorrhœa was present in all cases, leucorrhœa in two, menorrhagia in one, and metorrhagia in one, while one patient suffered from frequency of micturition. The operations were complete abdominal hysterectomy in two cases, and supravaginal amputation without the adnexa in the remaining case. All the patients had more or less anæmia, the hæmoglobin estimation amounting to 42, 70, and 78 per cent. respectively.

Histological examination revealed in one case fibroleimyoma and endometritis; in another, fibroleimyoma, hyperplastic endometritis, metritis, chronic salpingitis, and chronic cystic öophoritis; and in the third, hyperplastic glandular endometritis, fibroid metritis with considerable hyaline degeneration of connective tissue and atrophy of the muscular layer, marked arteriosclerosis, and chronic öophoritis and cyst formation.

In fibroid uterus on account of risk of carcinomatous change it is always a question whether to do a complete or partial removal of the uterus. Personally I am of the opinion that the greatest good will be accomplished by complete removal in all cases. The sense of touch and the naked-eye appearance of the cervix is not sufficiently reliable to decide the question. In a few cases in which I have operated lately, doing a supravaginal amputation, the pathological report has come back, "Commencing carcinomatous degeneration."

Displacements of the Uterus.—There were 5 cases of retroversion, and one of anteflexion of the uterus. Appendicectomy for chronic appendicitis was performed incidentally upon all of these patients except one with anteflexion. The operations were intra-abdominal shortening of the round ligaments in 3 cases, ventrosuspension in one, and ventrofixation in one. Two of the cases of retroversion had associated

tubo-ovarian disease. The case of anteflexion was treated by dilatation of the cervix. There were 4 cases of uterine prolapse, and the operations performed were vaginal hysterectomy with apposition of the stumps of the broad ligaments in 2, and ventrofixation in the other two. One of the latter group required trachelorrhaphy, and one of the former group perinorrhaphy, appendicectomy for chronic appendicitis, and resection of a right cystic ovary at the same time.

The two uteri that were removed were examined histologically and one showed chronic fibrous metritis and endometritis, while the other showed metritis, endometritis, arteriosclerosis, hyaline degeneration, atrophy of muscles, and thickening of the squamous epithelium of the cervix. From the pelvis of one of the hysterectomy patients there was evacuated, a week after the operation, a considerable amount of old clotted blood and some pus.

Prolapse of the Vagina.—Vaginal prolapse occurred in a patient who had undergone vaginal hysterectomy nine months previously.

The patient complained of lack of pelvic support. Operation consisted in transfixing the round ligaments in two places, bringing them towards the midline, and suturing them to the vaginal wall. On account of bilateral cystic disease of the ovaries, bilateral salpino-öophrectomy was also done.

NOTE.—In all cases of hysterectomy, complete or incomplete, abdominal or vaginal, the stumps of the broad and round ligaments should be carefully attached, and sewn into the cervix when supravaginal amputation has been made; to the walls of the vagina, when complete abdominal hysterectomy is done; and apposed to each other in vaginal hysterectomy, otherwise vaginal prolapse will occur.

Chronic Metritis and Endometritis.—There were 8 cases of chronic metritis and endometritis, of which four have already been referred to, two under fibroids and two under prolapse of the uterus. Of the remaining 4 cases, two were associated with chronic salpingitis and chronic appendicitis, and one with pyosalpingitis.

This last patient, a young woman aged 20, showed clearly the ravages of gonorrhœal infection. Four years previous to admission she had an abortion, and two and a half years later, profuse yellowish vaginal discharge. A year before admission she had had her appendix and left tube and ovary removed in San Francisco. Examination of the vaginal discharge revealed Neiser's organism. Hæmoglobin, 52 per cent.; white blood cells, 19,600 per cm. Abdominal section showed an enlarged, boggy uterus surrounded by chronically thickened tissues and dense adhesions. The uterus with the right tube and ovary removed.

The remaining patient, a Russian, aged 32, had had six children, of whom four were premature. She complained of dysmenorrhœa with excessive flow. She had been curetted four times, and trachelorrhaphy had been performed, all without relief from symptoms. The uterus was removed by the vaginal route, and when examined showed, in addition to chronic hyperplastic glandular endometritis, some irregular glandular proliferation, and beginning infiltration of the myometrium. This would have been a fertile field for the development of cancer.[1]

In addition to the above case, chronic metritis alone was found in a patient with bilateral chronic salpingitis.

In this series of 9 cases, hysterectomy was performed by the supravaginal route in six, and by the vaginal in the other three.

Curettage for endometritis was done three times in the course of operations for other lesions. Of three uterine polyps excised from three other patients, one was myomatous, another submucous fibroid, and the third was organized blood-clot. Dilatation for cervical stenosis was necessary twice, trachelorrhaphy four times, and perineorrhaphy twice.

Disease of the Tubes and Ovaries.—There were 11 cases of chronic salpingo-öophoritis, in 10 of which there was associated appendicitis; in 3 of the cases there was chronic metritis and endometritis with fibroids in 2 and a dermoid cyst of the

[1] This case illustrates well the remarks I made in the clinical report for the previous year: "This may be thought to be too radical treatment, but it is the best possible safeguard against the development of carcinoma, which develops in some of these cases if left alone and, more likely, if subjected to traumatism by the ill-advised use of the curette."

right ovary in one. Excepting this last case the disease was bilateral in all, and double salpingo-öophorectomy was performed, with supravaginal hysterectomy in the 3 cases of associated uterine disease.

There were 3 cases of chronic salpingitis, and one case of pyosalpingitis. Two cases were associated with appendicitis. 2 with chronic metritis and endometritis, one with chronic metritis, and one with retroversion of the uterus. Both tubes and ovaries were removed, except in one instance in which a portion of the left ovary was left. Supravaginal hysterectomy was done in 3 of these cases, and ventrosuspension in the fourth.

There were 3 examples of chronic cystic öophoritis, one bilateral, one right-, and one left-sided. Associated conditions were chronic appendicitis, retroversion of the uterus, and endometritis in one; chronic appendicitis, prolapse of the uterus, and lacerated perineum in another; and prolapse of the vagina in the third.

There were 5 cases of ovarian cysts, 4 on the right and one on the left side. Appendicitis was present in all cases. The cysts were simple in 2 cases; dermoid with chronic salpingo-öophoritis, in one; papillomatous (adenocarcinoma), in one; and tuberculous in one case. In 3 cases of unilateral and 2 cases of bilateral salpingo-öophoritis, salpingo-öophrectomy was done. Pelvic abscess was evacuated by vaginal incision in 2 patients.

There was one case which resembled closely ectopic gestation for which complete supravaginal hysterectomy was performed, and also appendicectomy. Histological examination revealed hemorrhage and necrosis, no evidence of decidual tissue.

In addition to the operations described above, 49 others of less interest were also performed in the clinics.

STATED MEETING, HELD MARCH 1, 1909.

THE President, DR. WILLIAM J. TAYLOR, in the Chair.

OSTEOTOMY OF FEMUR FOR HIP ANKYLOSIS.

DR. RICHARD H. HARTE presented two patients upon whom osteotomy had been done for relief of ankylosis of hip in bad position.

CASE I.—Female, now twenty-five years of age, had tuberculous disease of the right hip when five years old. She first came under Dr. Harte's care at the Orthopædic Hospital, in November, 1904, at the age of 20 years. Her right hip was then ankylosed in slight adduction and marked flexion. There were scars of four old sinuses on the outer side of the thigh and in the inguinal region. She wore a shoe with a heel six inches high, walking with the foot in a position of extreme equinus, and having a marked limp. She came to the Orthopædic Hospital not for the deformity, but on account of pain in the hip. After being in bed at the hospital for one month with extension, she was discharged wearing a high shoe (six inches) which held her foot in normal position. In July, 1905, a sinus behind the great trochanter opened, and for this she was again put to bed in September, 1905.

On November 23, 1905, Dr. Harte did an osteotomy below the lesser trochanter, with osteotomes. The thigh was brought down into a position of almost complete extension and slight adduction, to overcome the previous shortening. She remained in bed with extension and sand bags for nine or ten weeks, and then gradually resumed walking. Measurements made in March, 1906, four months after the operation, are recorded as follows:

Right side, from anterior superior spine of ilium to internal malleolus, 28.5 inches.

Left side, from anterior superior spine of ilium to internal malleolus, 30.5 inches.

From umbilicus to internal malleolus, right, 32.5 inches.

From umbilicus to internal malleolus, left, 33.5 inches.