I may, in this connection, be permitted to allude to a patient, Mr. A. B., who came to my Home some six months ago for treatment: The case has several interesting features. First, there was a close resemblance to some degenerative disease of the brain and spinal cord, as dementia with tabes dorsalis or chronic myelitis. Second, there was marked prominence of symptoms the result of ocular defects. The patient was a man twenty-eight years old, whose mother always suffered from severe headaches, and who died in her second confinement. Two maternal aunts were tuberculous. The father was neuropathic. A. B. was robust from boyhood, but cannot remember when he did not suffer from headache. He was fitted for college at the age of seventeen, but was unable to pursue his studies further. He was of good habits; married at twenty, and became a trader; was kept constantly within doors at his business; was successful and made money. A sedentary life and devotion to business broke him down. The headaches increased in frequency and were so severe as to require frequent injections of morphia for their relief. By the aid of powerful hypnotics he was able to get some sleep. He was unable to exercise his eyes on account of the aggravated cephalalgia; and on account of some degree of photophobia, he wore a silk protector, in spite of which strong light was painful to him. Mentally he was much depressed, and suffered from both delusions and hallucinations. His method of speech was slow and hesitating; he was unable to think of the right word to express his ideas (amnesic aphasia), and the ideas themselves were formed with great difficulty. He had but little control over his upper extremities; because of the twitching of the muscles he was unable to grasp or hold articles in his hands firmly. He was ataxic in his gait. There was pain and tenderness over the spine. Sensation was normal and so was control of the sphincters. There was complete loss of sexual tone, but no atrophy of the testicles.

During his three years of sickness he had been treated for rheumatism and various cerebral and spinal diseases. When he came to the Home I was led to give attention to the condition of the eyes, and found the ocular defects most marked. There was pronounced astigmatism and asthenopia. The disorder of refraction had probably existed from birth, and the long-continued muscular strain, for both recti interni were weak, allowing a marked divergence of the eyes, had so irritated the nervous system as to cause the hyperemia of the brain and spinal cord, which, in turn, had produced such woful results. To relieve this eye-strain, I employed prisms worn constantly with their bases inward. I then made use of large prisms held between my fingers before the eyes with their bases outward, for ten minutes at a time twice a day. This gave the eyes a gymnastic exercise. The morphia was at once dropped from twenty grains per day to one and a half grains at night; and after ten days it was wholly discontinued. He was taking thirty grains of sulfonal every night to procure sleep, and this was discontinued at once; and I gave instead bromo-soda, bromo-caffeine, elixir of the valerate of ammonia, etc. A hot tub-bath was given every third evening. I also ordered a hot sponge-bath to the whole spine every night, together with static insulation; and heavy sparks drawn from the back of the neck sufficed to relieve all pain and procure refreshing sleep every night. We gave the patient, the first thing in the morning a large cup of strong coffee without sugar or milk; then after one hour of massage and dry cupping along the whole length of the spine, he was allowed a breakfast of some light, farinaceous food with malt extract and five drops of Freleigh's tonic. Three times a day, about an hour after meals, he had a tumbler of warm milk with fifteen grains of potassium iodide. The dinner and supper were eaten with the family, beef and chicken being allowed *ad libitum*, and the malt and tonic medicine being given after meals. Improvement began at once. He could soon use his eyes without fatigue or pain. The headaches gradually went away, the mind became clear, and the aphasia disappeared as the improvement continued. He would now sleep seven or eight hours every night without hypnotics. Exercise

was regularly taken at the gymnasium, all excessive bodily movements being avoided on account of the spinal asthenia. He can now walk five or six miles a day, and has nearly regained his usual health. He has recovered the use of his arms and hands and plays the piano without difficulty. So complete is the restoration, that he will soon be able to return to his business.

SURGICAL TREATMENT OF PANCREATITIS, WITH A CASE.¹

BY J. W. ELLIOT, M.D.

MUCH attention has been given to the cysts of the pancreas, and many cases have been reported as cured by operation. The hope that surgery will be useful in cases of inflammation of the pancreas is based on the following considerations:

(1) The presence of scars in the pancreas found at autopsies shows that a limited pancreatitis may recover. The celebrated case of Trafoyer reported by Chiari,² where after an illness of three or four weeks a slough was discharged from the bowels, which Rokitsansky recognized as the sequestered pancreas, is evidence in the same direction.

(2) Experiments on dogs by Mehring and Minkowski, show that part of the pancreas may be removed without impairment of health, whereas if the whole gland is removed a permanent diabetes is produced and the animal dies.

In man the tail of the pancreas has been successfully removed in one or more cases. Seenn refers to a case reported by Kleberg,³ where the pancreas protruded from an abdominal stab-wound. The protruding organ was ligated at its base and cut off; the part removed was examined microscopically and found to be a pancreas. The patient recovered.

(3) Several autopsies have revealed an abscess which could have been operated on with relief, and finally Körte⁴ reports a recovery after operation in a case of suppurating pancreatitis.

Dr. Fitz,⁵ in his now classical monograph, divides pancreatitis into three varieties: hemorrhagic, suppurative and gangrenous. In the recorded cases of hemorrhagic pancreatitis (exclusive of traumatic cases), death has usually followed the first symptoms so quickly that surgical intervention would have been impossible. It is therefore the suppurative, and possibly the gangrenous, pancreatitis, which should properly claim the attention of surgeons at this time. I therefore propose to study the signs and locations of the inflammation with reference to the possibility of recognizing and draining abscesses and thereby limiting the extension of the process.

Dr. Fitz gives the following admirable account of the symptoms based on an analysis of 22 cases:

"The cases of acute, suppurative pancreatitis usually began suddenly, with severe, generally intense, gastric, epigastric or abdominal pain, vomiting, and sometimes great prostration. The vomiting might be incessant and distressing, or it might give temporary relief to the pain. The ejected fluid was sometimes stringy and brown. The bowels were usually constipated, although diarrhea might occur within the first twenty-four hours. This latter symptom was not fre-

¹ Read before the Boston Society for Medical Improvement, January 21, 1895.

² Wiener med. Woch., 1860, xxx, p. 139.

³ Langenbeck's Archiv. für Chir., ix, p. 525.

⁴ Archiv. klin. Chir., 1894.

⁵ The Middleton-Goldsmith Lecture, Boston, 1889.

quent at a later date of the disease. Fever, usually slight, was the next conspicuous symptom, being manifested about the third day. At the same time the upper abdomen, especially the epigastrium, was likely to become distended, tympanitic and sensitive. Hiccough, sometimes quite obstinate, was not infrequent in this stage, and occasional chills were met with. The abdomen in general then became moderately swollen, tense and tympanitic."

When death occurred in the course of a week or more, he sometimes found the pancreas studded with hundreds of small abscesses.

"An acute, suppurative pancreatitis, however, very rarely terminates at this early date. The symptoms already described may persist for three or four weeks, with progressive emaciation and debility, and death occur from exhaustion. Under such circumstances the single abscess has been found surrounded with adhesions."

The local condition, and especially the presence of a tumor, is, of course, a most important consideration for the surgeon. It is also of immense importance in the diagnosis. In the early cases the presence of a tumor was rarely noted.

In the table of cases collected by Dr. Fitz up to 1889, the presence of a tumor is recorded in only one case. According to Balt, as quoted by Körte, Lusana, up to 1882, was the only one who had succeeded in palpating the swollen gland. My small experience does not accord with these facts, as in two out of three cases which have come under my observation a well-defined tumor has been present, and in the case here reported, the tumor corresponded exactly to the position of the pancreas and led at once to a correct diagnosis. Körte,⁶ in a recent article, reports three cases where a tumor was present; and I am indebted to him for a part of what follows.

As the tumor in these cases usually represents a pus collection, we can profit here by a recapitulation of the results of autopsies bearing on this point: The pus is almost always retro-peritoneal in the early stages, and not infrequently remains so to the end. In the traumatic cases the peritoneum may be ruptured at the start, in which case the inflammation may begin in the omental bursa.

The inflammatory process may start at any point in the pancreas. If it is most intense at the tail, a pus-cavity may form in the left upper abdomen near the spleen or kidney. If the process attacks the head of the pancreas, the pus-cavity usually breaks into the omental bursa and becomes encapsuled there. At times the para-pancreatic tissue is involved and the whole gland is surrounded by a pus-cavity which extends from the duodenum to the spleen.

The pus may break into the general peritoneal cavity or into the duodenum, but it more commonly burrows down behind the peritoneum, and is often found in the mesocolon as low as the pelvis, on either the right or left side. It may also extend into the root of the mesentery.

In regard to the positions of the tumors actually observed, Musser⁷ noticed an ill-defined epigastric tumor, which was found at the autopsy to represent a pus-cavity bounded by the posterior wall of the stomach in front, by the pancreas, duodenum and transverse colon below, and by the peritoneum above and

behind. Körte cites four cases beside his own in which a tumor was observed. In two of these cases the tumor was behind the stomach, and in two it was in the left abdomen just below the ribs.

Körte found, in his first case, ten days after the disease began, "a resistance in the left epigastric region which extended to the left loin." He explored this tumor through a cut in the loin, and found it to be a large abscess surrounding a sloughing pancreas, which he removed. At the autopsy a large abscess was found between the stomach, spleen, diaphragm and kidney.

In his second case, a month after the first symptoms, which were characteristic, he found an evidently fluctuating resistance in the outer part of the left abdomen, dull on percussion. This was explored by an extra-peritoneal incision through the loin, and proved to be a large retro-peritoneal abscess which extended from the pelvis up to the kidney and inwards to the spine. A sound could be passed up behind the stomach. This patient recovered.

In his third case, on the seventh day of the disease, he felt a swelling on the left side, deep in towards the loin, and fifteen days later a tumor was felt just below the xiphoid cartilage behind the stomach. This was found by an operation to be an abscess between the stomach, colon and spine. The patient died.

My first case was seen on the fifth day of the attack. There was then present a prominence in the epigastrium which felt like a doughy tumor. This extended, with ill-defined borders, under the ribs on the left side, to the loin; it could be plainly felt in the left upper abdomen. The percussion note was resonant. This tumor was explored by laparotomy, and proved to be a necrotic pancreas with an para-pancreatic abscess running the whole length of the organ.

The second case which came under my observation was seen by the courtesy of Dr. J. C. Warren in his wards at the hospital three and one half days after the first symptoms. A hard tumor was easily felt on the right side, just below the liver. This was found at the autopsy to be the root of the mesentery filled with blood, pus and a hard inflammatory cake. The inflammatory process had also extended into the mesocolon and to the kidneys on both sides.

I saw a third case in consultation with Drs. Minot and Cutler: here the probable diagnosis was made on seeing the characteristic epigastric swelling although no tumor was found.

Here we have ten cases with accurate descriptions of tumors. In three the tumor was epigastric. In three it was epigastric, extending along the ribs toward the left side. In three it was in the left upper abdomen, below the ribs. In one case it was on the right side, below the liver. These tumors were observed from three and a half days to one month after the first symptoms.

From these few cases one can see at once that there are three, and perhaps four, typical forms of tumors which will often be found in these cases: (1) An epigastric tumor behind the stomach, due to pus in the omental bursa; (2) A tumor running from the epigastrium to the spleen, just below the ribs, due to an enlarged pancreas or a para-pancreatic abscess; (3) burrowing of a retro-peritoneal pancreatic abscess may give rise to a tumor in the left loin, or more rarely on the right side below the liver.

These tumors will sometimes be difficult or impos-

⁶ Archiv. für klin. Chir., 1894, Heft iv.

⁷ American Journal Medical Sciences, 1886, N. S., xci, p. 449.

sible to feel on account of a tympanitic and painful condition of the abdomen, also on account of a fat abdominal wall. As the inflammation which causes them is retro-peritoneal, they will usually be indistinct and vague to the touch, and they will also often be tympanitic on percussion, as the bowel may lie over them. Such tumors will best be found by careful and skilful palpation. Inflation of the stomach and transverse colon is useful in determining whether a tumor is in front or behind those organs. I venture to predict that the presence of a tumor will be noted much oftener in the future.

Senn, I believe, was the first to seriously suggest surgical treatment for pancreatitis, although he had done no operation. As the matter stands to-day, there seems to be good ground for surgical interference in proper cases; but only one successful case has been reported. This was done by Körte, and has already been referred to. A second case was reported by Pearce Gould⁸ as a cyst of the pancreas. This case is considered by Körte, on account of the acute symptoms and the character of the fluid found, to have been a case of suppurative, and not a cyst pancreatitis. Lloyd calls attention to the probability of the traumatic cases of so-called pancreatic cysts being effusions into the lesser omental cavity, and not cysts of the pancreas. Fitz⁹ says that "these effusions may represent the extension from the pancreas of an acute inflammatory process to the peritoneal covering, which is the posterior wall of the lesser omental cavity." This point of view would transfer some of the successful pancreatic cyst operations to pancreatitis operations, and thereby make a better showing for surgical interference in pancreatitis. My own opinion is that the traumatic cases should neither be classed as cysts nor as pancreatitis; but as injuries of the pancreas. They, therefore, do not belong to the subject of this paper. Cases of hemorrhage of the pancreas due to an injury have repeatedly been operated on with success.

The possibility of recovery, even when fat necrosis is present, is shown by a case of Osler's referred to by Fitz, where an exploratory operation was done for intestinal obstruction. No obstruction was found; but there was a dense, thick, indurated mass in the region of the pancreas and at the root of the mesentery, and foci of fat necrosis were found in the mesentery and omentum. The patient recovered.

All the authorities — Fitz, Senn and Körte — agree that the acute stage is not a favorable time to operate. This is certainly true when the patient is more or less in a state of collapse, as is often the case. It seems to me, however, not impossible that with an early exploratory incision the diseased part of the pancreas might be removed, or that the disease might be limited by gauze packing.

At present our attention is directed to opening pus-cavities and limiting their extension. If pus has collected in the omental bursa, the incision should be made in the middle line from the xiphoid cartilage down. The bursa should be opened by tearing through the omentum between the stomach and transverse colon. The omentum can be stitched to the abdominal wall before opening, and in this way the abscess-cavity is shut off from the peritoneal cavity. If the abscess-cavity extends along the pancreas, a counter-

opening should be made in the lumbar region just below the twelfth rib. When the pus is evidently retro-peritoneal and burrowing in the lumbar region or in the mesocolon, the opening should be made in the back, as for extirpation of the kidney, then with a blunt dissector the pus-cavity should be searched for without opening the peritoneum.

CASE I. Gangrene of the pancreas, with fat necrosis; operation; death.

The patient, a large and fat man, aged fifty-one, entered the Massachusetts General Hospital, August 1, 1894. He had been well and strong, but had suffered more or less from rheumatism. Five days before entrance he was suddenly taken with an attack of severe vomiting; a few minutes later he felt a hard pain in the left side, which pain had continued ever since. At first it was more general, but later it became localized near the spine of the ilium. He had taken a dozen or more quarter-grain morphia suppositories. He had vomited several times each day, and the bowels had been moved by enemata. There had been no chills nor sweating.

Examination of the abdomen showed a dome-shaped prominence in the epigastrium, which felt like a doughy tumor. This mass extended along the border of the ribs on the left side to a point just above the superior spine of the ilium. Its borders were not at all sharply defined, and it was resonant on percussion. The outer end was decidedly tender. The urine was normal, no albumin or sugar being present. The temperature was 100.5°, pulse 100; tongue coated and breath foul. The diagnosis of pancreatitis was made. He slept fairly well that night without morphia; taking milk and lime-water without nausea or vomiting, and good movements of the bowels followed an enema; but he had the expression of a very sick person.

On August 2d, Drs. Richardson and Mixter saw him in consultation, agreed to the diagnosis, and advised operation.

Operation.—A four-inch incision was made in the median line over the most prominent part of the tumor. The omentum was found much thickened and studded with white spots of fat necrosis. Two openings were made through the omentum — one straight down in the median line, which gave no result; and one down to the left into the doughy tumor to a point corresponding to about the middle of the pancreas. From this opening came a quantity of greasy, bloody fluid. Both openings bled freely, and were packed with gauze.

On the following day the gauze was removed, and six ounces of brown, muddy fluid of slightly foul odor, ran out. A drainage-tube was placed, and the fluid continued oozing out. On examination, Dr. Whitney found that it contained clumps of pus-cells, altered blood corpuscles, free fat, and bacteria in great abundance.

The patient died in three days.

At the autopsy Dr. Whitney found a disseminated fat necrosis, most marked in the region of the pancreas, and gangrene of the pancreas. The following is his description of that organ: "Lying at the posterior part of the mass removed was the pancreas imbedded in slaty, discolored necrotic fat tissue. On dissecting it out, it was necrotic for its greater part. Only a portion of the tail and of the head retained any semblance of normal structure, and these were

⁸ London Lancet, August 8, 1891.

⁹ Pepper's Theory and Practice of Medicine.

sharply separated from the dirty, slaty-colored structureless mass. There were two openings from the ducts, which were normal. The splenic artery was thickened and its coats slightly roughened. The splenic veins contained a recent thrombus continuous with thrombi in the pancreatic veins. There was no evidence of any recent hemorrhage. The spleen was increased one-half in size, firm and dark-red in color.

HEMORRHAGIC PANCREATITIS.¹

BY ELBRIDGE G. CUTLER, M.D.

CASE I. On February 1, 1893, I first saw Mrs. A. H. H., aged about fifty-eight, and obtained the following history: She has had severe attacks of indigestion in the past fifteen years several times, keeping her in bed a month or six weeks with each attack. The attacks have been preceded by constipation, anorexia and insomnia. Vomiting speedily follows and lasts two or three days, all food being ejected and almost all the liquid taken as well. It is impossible to trace the trouble to any one thing. When the stomach gives out it refuses everything. Never any chills, never any tenderness about the abdomen anywhere. Once she had an attack followed by jaundice, lasting two weeks. Has had no attack in the last two years. Says she has had no good movements of the bowels for a month, that is, no large, fully formed ones. "It seems as if at one place it passes through a very narrow passage," as the patient expressed it, pointing at the same time to the left side of the abdomen low down. She has frequently been called up to the water-closet in the morning by gas in the abdomen, but has never had to go several times before being relieved. There has never been slime or blood with the stools. She has lost ground in the last two weeks, and for six days has had more or less pain in the middle of the back.

The patient was short and rather stout, of dark complexion but of good fresh color. Physical examination of the heart and lungs was negative. The abdomen was full, moderately soft, no tenderness anywhere and normally tympanitic. The hepatic area of dullness was not increased. Spleen area normal. Urine healthy. Family history unimportant. With a laxative pill and regulated diet she did very well indeed till May 4th, when she caught a severe cold. She was kept in bed by it for four or five days, when she was able to be up and about.

On May 15th the cough recurred, and gave rise to abdominal pain on the right, just below the ribs, with vomiting two times. There was no tenderness or distention of the abdomen. All food distressed her. She was better the next day, and remained well till about the 6th of June, when I saw her again because food began to disagree, and she had constant pain in the right mammillary line just under the ribs. A single subcutaneous injection of morphia, followed by Carlsbad salts, kept her in comfort for four days. For some time the stools had been screened in vain, looking for gall-stones. On the 10th pain began again; on the 12th it was acute with occasional vomiting, and twice there were chills followed by cold sweats. As she did not improve and morphia was frequently necessary, I

asked for surgical assistance, which was deferred. The next day there was jaundice; the abdomen became distended, especially in the upper part; the patient looked badly, vomited several times, had fever of 102° F. and a weak pulse. There was a slight trace of albumin in the urine; no sugar; considerable bile pigment. That night the patient was a little delirious. There was profuse sweating after sleep. Pain in the epigastrium, with tenderness, became very marked; and Drs. F. Minot and J. W. Elliot saw her with me in consultation. At this time the abdomen had become very much distended, was tender and hard; the pulse was weak and thready; the appearance very bad; vomiting of a black liquid in no large quantity was of frequent occurrence. The diagnosis of gall-stones, with probable secondary disease of the pancreas and peritonitis, was concurred in, and non-interference advised. The patient continued to fail and died next day.

At autopsy there was found a bloody fluid in the abdominal cavity, with peritonitis; very numerous spots of fat necrosis, chiefly about the region of the pancreas (some of them were seen by Dr. Whitney); and an enlarged pancreas surrounded and infiltrated with blood in its middle portion. The liver showed indistinct acini. In the gall-bladder were a number of faceted small stones; one was found at the outlet of the common duct, and one nearly at the end of the cystic duct. Further examination was not made.

CASE II. J. H., fifty-two, married, born in Ireland and living in Boston, entered the Massachusetts General Hospital, September 26, 1894, with the following history: Father dead of gravel; mother and four sisters alive and well. Patient had scarlet fever at seven, and measles and small-pox at ten. Twenty years ago fell and hurt her back, and has had pain and lameness there occasionally since. Dyspnea also for ten years, worse of late. Dizziness, blurred vision, and occasional faintness after exertion. No swelling of feet or abdomen. Paroxysms of coughing when suffering from dyspnea, but no steady cough. More or less "stomach trouble" for five years, especially when overtired. An "all-gone" feeling after meals, relieved by vomiting. Less urine than formerly. Bowels regular.

Her present illness began with a headache on the morning of the 23d. On the 24th, after a breakfast of a pear and some bread, had severe cramp in the stomach, and vomited. Felt better some hours later, and went down town, where she vomited again twice. Later, abdominal cramps again, with continued vomiting and great weakness. Vomited on the night of the 24th and on the 25th. Had abdominal cramps on the 26th, and vomited twice. Pain worse over the epigastrium and both flanks. Tightness in the chest and dyspnea since the 24th.

The patient was very large and fat. Alcoholic look; dull, cyanotic countenance. Respirations rapid and labored. No cough. Heart slightly enlarged to left, slight systolic murmur. Harsh respiration throughout chest, moist râles at bases. Abdomen much distended, especially in upper part; very tense, particularly in epigastrium, about umbilicus and in the right iliac region. Marked tenderness over epigastric and umbilical regions; not extreme, however. Vaginal and rectal examinations negative. Edema of abdominal and thoracic walls, none of legs. Pulse 112, respiration 47, temperature 100.8°. Ordered liquids;

¹ Read before the Boston Society for Medical Improvement, January 21, 1895.