TRANSACTIONS

OF THE

PHILADELPHIA ACADEMY OF SURGERY

Stated Meeting Held October 5, 1925

The President, Dr. Edward B. Hodge, in the Chair

DIVERGENT DISLOCATION OF THE METATARSUS

Dr. Astley P. C. Ashhurst presented a man, now thirty-five years of age, who was admitted on the night of August 9, 1921, to the Episcopal Hospital, with a recent injury of the left foot: while pushing an automobile the machine began to coast, and one wheel rolled against the upraised heel of the patient, the ball of whose foot rested firmly on the ground, thus crushing the posterior part of the foot against the anterior (Fig. 1). The man felt something give way in his foot, suffered extreme pain, and felt that his foot was more or less crushed. He was put to bed and the foot elevated. There was great swelling the next day, the plantar surface of the foot being convex. There was no tenderness over the malleoli or the leg bones. In the region of the base of the first metatarsal or internal cuneiform bone was a bony projection on the median and dorsal aspect of the foot from displacement of the first metatarsal; and on the dorsum of the foot was a bony projection corresponding to the bases of the third, fourth and fifth metatarsals. The swelling was too great to determine anything more accurate by palpation, but a recollection of the brilliant study in 1909 by Quénu and Küss of dislocations of the metatarsus, enabled Doctor Ashhurst to make a tentative diagnosis of a dislocation of *divergent type,* which was promptly confirmed by X-ray study (Figs. 2 and 3). Quénu and Küss (*Revue de Chir.,* 1909, vol. xxxix, p. 1, et passim) showed that the foot may be divided into two structural parts, of which the main weight-bearing part is composed of the tarsus with the first metatarsal and its phalanges, while the four lateral metatarsals with their phalanges serve merely as a balance. They collected thirty dislocations of the metatarsus, and found that there were two main types: (1) that in which the entire metatarsus is displaced laterally and toward the dorsum of the foot (*external dorso-lateral dislocation*), and (2) that in which there is a dislocation of the balancing portion laterally, and of the first metatarsal medially (*divergent dislocation*). Of this latter type, only five cases were

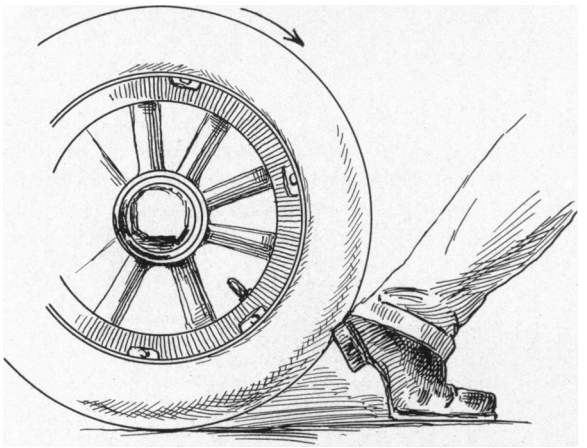

Fig. 1.—Mechanism by which a divergent dislocation of metatarsus was produced in a patient thirty-one years of age.

found in which an uncomplicated divergent dislocation of the metatarsus was present. Speed, in his Text Book, refers to four cases subsequently reported. The present case makes the tenth.

Owing to the condition of the soft parts no attempt at reduction was made for a week. Closed reduction under general anæsthesia being then

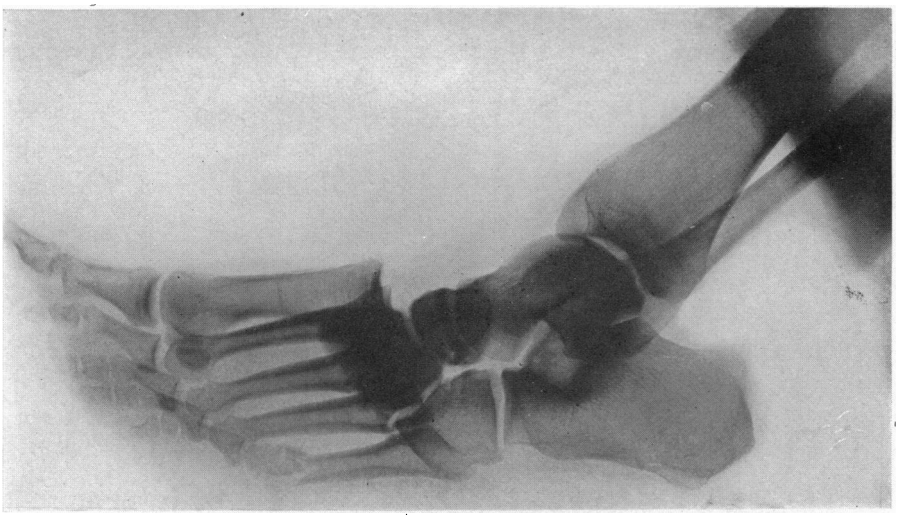

FIG. 2.—Divergent dislocation of metatarsus, lateral view.

impossible, open operation was done August 16, 1921, under Esmarch anæmia: a bayonet-shaped incision was made along the course of the peroneus brevis tendon on the lateral border of the foot, thence medially across the dorsum and thence downward along the interspace between the fourth and

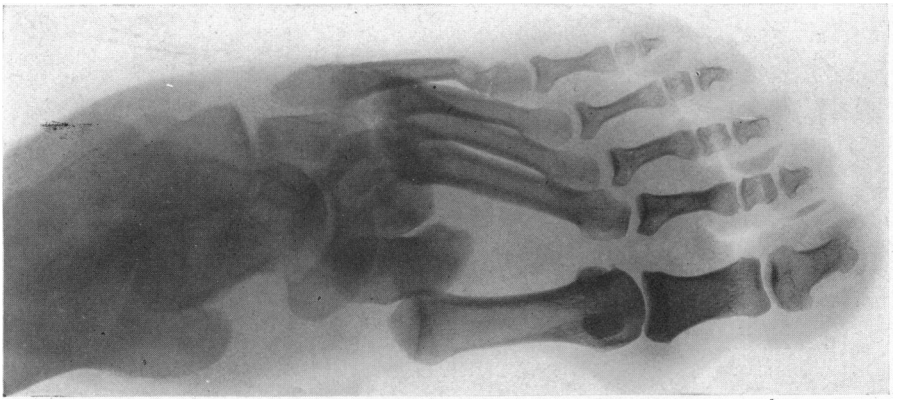

FIG. 3.—Divergent dislocation of metatarsus, frontal view.

fifth metatarsals. The bases of the outer four metatarsals were found luxated dorsally and laterally on the cuneiform bones. After elevating the soft parts from the dorsum of the foot, reduction was secured by leverage over a periosteal elevator. Reduction was not maintained, however, until after the peroneus brevis tendon (just above its insertion into the base of the fifth metatarsal) had been sutured into the external cuneiform bone. A

second (longitudinal) incision was then made along the median side of the tibialis anticus tendon and continued downward over the medial surface of the first metatarsal. The base of the first metatarsal was found riding on the dorsal and median surfaces of the internal cuneiform bone. Reduction was easily secured but persistently recurred until the base of the first metatarsal was sutured to the internal cuneiform, by a double strand of No. 2 chromic gut passed through tunnels bored in the bones. The foot was dressed in plaster-of-Paris in the equino-varus position, as this put least strain on the bone sutures. (Figs. 4 and 5.)

The first dressing was made four weeks after operation, when the plaster

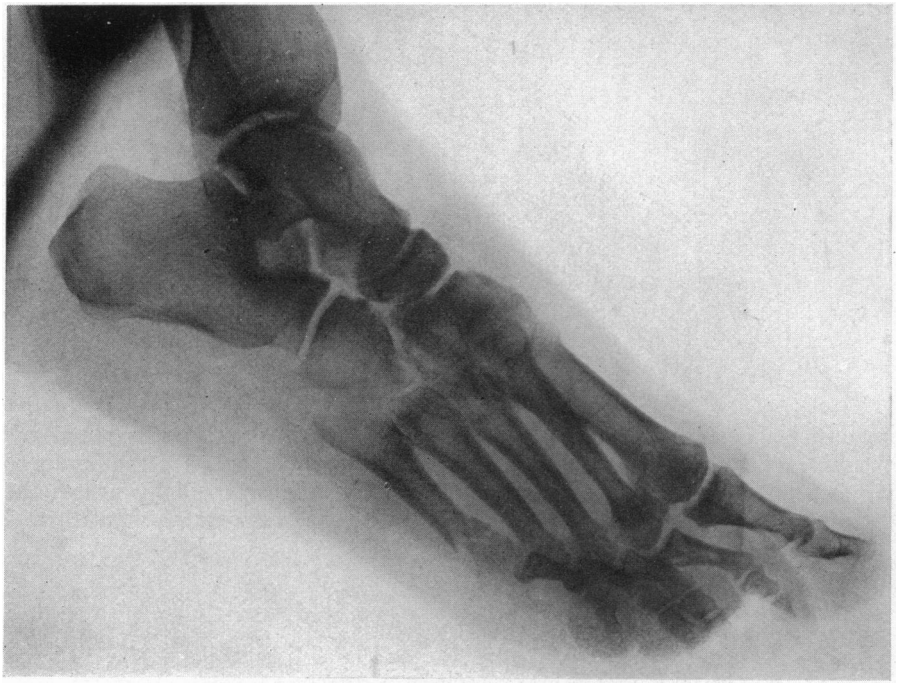

FIG. 4.—After open reduction of divergent dislocation of metatarsus.

case was removed, and a felt instep pad was worn in the shoe. Seven weeks after operation the patient walked without crutch or cane, and he resumed his work as bricklayer; his total period of disability from the injury was eight weeks. He has now been at work four years and his foot gives him no trouble.

LATE RESULT (FOURTEEN YEARS) OF ASTRAGALECTOMY FOR FRACTURE-DISLOCATION

DOCTOR ASHHURST said that at the meeting of the Academy, October 2, 1911, he had presented a man, then forty-five years of age, whose astragalus had been broken in two and the fragments displaced anteriorly and posteriorly. Owing to the impossibility of reducing the fragments even by open operation, the entire astragalus was removed. In June, 1925, this patient, now sixty years of age, was again admitted to the Episcopal Hospital with some medical condition. His foot had given him no disability since the accident except some pain in cold and wet weather. There was motion at the ankle-joint

from 80° to 110°; the foot was stable, in good position, and strong. Within a year of operation he had been able to walk eight miles at a stretch. A skiagraph made fourteen years after operation (Fig. 6) shows excessive

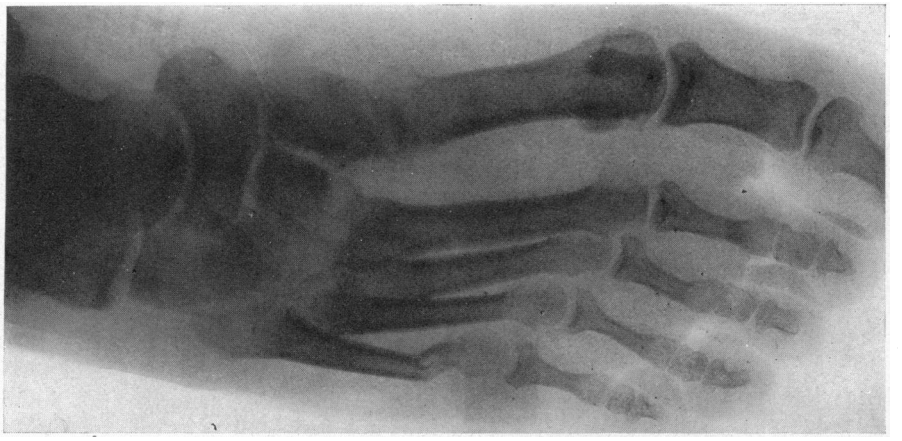

FIG. 5.—After open reduction of divergent dislocation of metatarsus.

bone production from the tibia and os calcis, as well, perhaps as from some minute portions of the astragalus not removed.

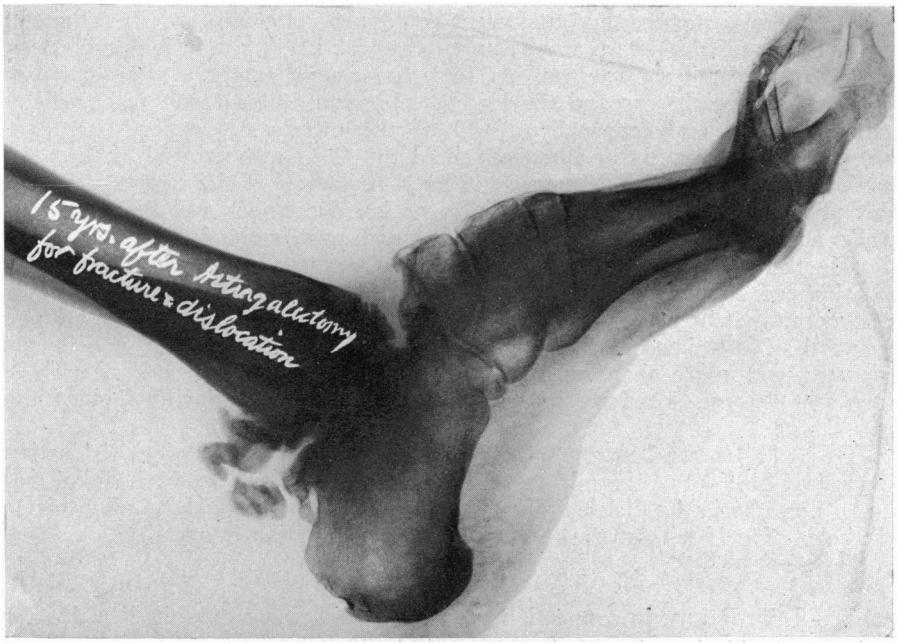

FIG. 6.—Fifteen years after astragalectomy for fracture-dislocation.

LATE RESULT (THIRTY-FIVE YEARS) OF EXCISION OF THE ANKLE-JOINT FOR INFECTED COMPOUND FRACTURE

DOCTOR ASHHURST also reported the case of a woman, forty-five years of age, who was seen at the Episcopal Hospital in the summer of 1922. In 1887, when ten years of age, she had been under the care of the speaker's

father, Dr. John Ashhurst, Jr., in the University Hospital, for a compound fracture involving the ankle-joint, with secondary infection. For this an excision of the ankle-joint had been done by the late Professor Ashhurst, and though the sinuses had been several months in closing, the patient had had no recurrence of trouble, and had been able to lead an active life for the past thirty-five years, and had no discomfort from her foot. There was shortening of the entire lower extremity, amounting to about 8 cm., requiring her to wear a raise on her sole about 5 cm. high, and the foot itself was about a third shorter than its fellow, and inclined a little to the valgus position. There was motion of about 20° in the ankle-joint, the foot being at right angles with the leg. A skiagraph showed absence of the astragalus, with the convex surface of the tibia fitting into a concavity in the calcaneum.

ARTHRODESIS OF THE ELBOW

DR. ASTLEY P. C. ASHHURST read a paper with the above title, for which see page 104.

FOOT DISLOCATIONS

DR. B. F. BUZBY reported the history of a longshoreman who fell down the hold of a vessel fourteen or fifteen feet and sustained a dorsal and lateral dislocation of the foot through the tarsometatarsal joint, all of the metatarsal bones being involved, except the fifth, which was in position. He was given an anæsthetic and the deformity reduced by the closed method and the foot gotten pretty well back into normal position. He stayed in the hospital for about ten days after that and then went home. His later history is not known.

The second case was that of a man who was loading a freight car, when the engine shifted the car and his foot was caught under a steel platform between the freight car and the loading platform. The result was a dislocation dorsally and externally of all of the metatarsals except the fifth, complicated by fracture of all except the fifth. This was reduced by the open method. Post-operative X-ray shows good reduction of the dislocations and fair alignment of the fracture. This was last December and the man now walks around without a cane and without much pain in the foot.

The third case was most unusual. A man was playing golf last November and jumped down from a place about six feet high and says on doing so he was aware that he was about to land in a ditch, and as he fell he gave a lunge forward so as to keep his body at least out of the ditch. When seen by the reporter, not more than an hour after the accident happened, his whole fore-foot was displaced mesially, looking like a congenital club-foot of the varus type.

He had a tremendous amount of swelling. He had a complete dislocation inward of his foot at the mid-tarsal joint. He was taken to the hospital and under anæsthesia the dislocation was reduced. He now is able to play thirty-six holes of golf without rest and says that his function is excellent.

TARSAL RESECTIONS

DR. J. T. RUGH, in connection with one of the cases exhibited by Doctor Ashhurst, said that the results are entirely in harmony with a number of cases of this kind he had seen recently. Morton advocated extensive resection of the tarsals for the correction of club feet from 1886 to 1894. The rule then was to take out as much of the tarsal and metatarsal as was necessary to overcome the deformity, no matter what the age, although more commonly in older patients. About 1894, Wilson reported a large series of these cases.

He had had the privilege of seeing some of the cases done at that time and this astragalectomy done by Dr. John Ashhurst reminded him of them and of the changes that are likely to take place. The immediate result of these mutilating operations for the correction of deformities was good; patients walked on them very satisfactorily just as after astragalectomy, but when the patients come to the age of forty and forty-five years, they are not what is to be desired at all. The secondary changes which take place in the bone after that period of time are at times extremely disabling. Very fortunately, however, the extensive resection operations were only done over a period of about ten years at the most; and the changes seen about the lower end of the tibia and in the tarsal areas recall the changes which are liable to take place in extensive resections.

ARTHRODESIS OF THE WRIST

DR. WALTER G. ELMER called attention to the arthrodesis of the wrist in one of the patients exhibited by Doctor Ashhurst. In children there is some likelihood of a return of motion after this operation has been done. In order to prevent this, he had used a bone-graft from the tibia in several of his cases. After the deformity has been corrected by stretching the contractures and daily manipulation and the hand held in hyperextension upon a splint, a bone-graft is imbedded in the lower end of the radius, the carpal bones and the second metacarpal—extending out to about the middle of the shaft. The hand is in this way firmly ankylosed on the forearm in about 35° of hyperextension. In cases of cerebro-spastic paralysis and of infantile paralysis, the hand is sometimes firmly flexed to a right angle on the forearm. In this position, it is of course entirely useless, as the child has no power to grasp objects. It is quite surprising to see the extent to which they learn to flex the thumb and fingers and to grasp objects after the hand has been fixed in hyperextension. Not only is there some chance of restoring some degree of function, but an unsightly deformity is corrected and the hand placed in a natural and graceful position.

DISLOCATION OF THE ASTRAGALUS

DR. EDW. T. CROSSAN presented a woman, thirty-eight years of age, who fell out of a second-story window, landing on both feet. This happened on the first of July. She was admitted to the surgical service at the Episcopal Hospital in Doctor Ashhurst's service. In one ankle there was present an antero-lateral dislocation of the astragalus, while in the other the dislocation was upward (Nelaton's dislocation). The reporter did an astragalectomy two days after her admission to the service. She also had a fracture of the fibula. On the left side she had a badly comminuted fracture of the tibia and fibula and just above the external malleolus the astragalus was dislocated upward. On the other side he used a Delbet splint. The woman states that she now has good motion in the left ankle and good motion in the right ankle, but not as good as on the left side. The astragalectomy was done on the right side; on the left the Delbet splint was used. The Delbet splint was removed to-day and she has begun to walk around the house a little. She is a heavy woman and it will therefore be a longer time till she recovers.

INFECTED HYDATID DISEASE OF THE LIVER ASSOCIATED WITH CHOLELITHIASIS

DR. E. L. ELIASON presented a man, twenty-six years old, who was admitted to the medical service of the University Hospital in December, 1924, and February of 1925, complaining of sudden acute pain in the epigastrium and back. Each time his pain was relieved within twenty-four hours and he was discharged. He was admitted again in April with another attack of the same symptoms.

For about three years the patient had noticed epigastric distention and belching after eating. He had several attacks of sharp epigastric pain which radiated to the back, and were so severe as to need morphine for their relief. These attacks were associated with nausea and vomiting and slight fever. The present attack, which began a few days before admission, was like the others, except that at this time he first noticed a yellowness, first of his sclera and later of his skin. His stools were light in color, and his urine dark. He had no itching. He felt hot, and weak.

The patient is a Greek by birth, and has lived in America for the past six years. He remembers, as a boy, passing worms by rectum.

When admitted, the patient was deeply jaundiced, and writhing with acute epigastric pain. His chest showed a few basal râles, especially on the right side, and there was diminished expansion at the right base. His abdomen was rigid and tender above the umbilicus, much more marked on the right side. A mass was indefinitely palpable in the upper right quadrant which was believed to be a distended gall-bladder.

Temperature, 98.3°–103°; white blood-cells, 8900. The Van den Bergh test indicated obstructive jaundice. An attempt to drain his gall-bladder by duodenal tube was unsuccessful. No "B" bile was obtained. Pus cells were found in the aspirated duodenal contents.

His abdomen was opened through a right paramedian incision. A markedly distended, thick-walled gall-bladder was disclosed. The gall-bladder was opened and one marble-sized stone was dislodged from the beginning of the cystic duct. The common duct was small, and no bile could be aspirated from it. The duct was opened between catgut tension sutures. Thick, granular bile-colored material was evacuated from it, streaked with pus and fluid resembling an egg with the yolk and white broken up together. A T-tube was inserted in the common duct and a tube was placed in the gall-bladder.

Two days after his operation he developed a broncho-pneumonia or root pneumonia, more marked on the right side—white blood-cells, 18,000.

On the ninth day after operation his chest signs began to grow less marked. His bile drainage which had been free from both tubes grew less from the gall-bladder tubes. Both tubes were removed by his eighteenth day post-operative and his general condition seemed good. He was free from fever for five days.

Three days later he had a return of fever, with some cough, and pain in the lower right chest. White blood-cells, 15,000. The pain continued and a point of tenderness developed over the right ninth rib in the post-axillary line. There was some œdema of the subcutaneous tissues in the same area. The right diaphragm was shown to be high by X-ray. Beneath this an air contained cavity with a fluid level was seen in the liver on the right side from an inch to an inch and a half beneath the diaphragm.

Four weeks after his first operation, the ninth rib was resected in the right post-axillary line. An aspirating needle inserted through the diaphragm into the liver located pus. The wound was packed with gauze. Three

days later, the liver abscess was opened with a cautery, allowing about 8 to 10 fluid ounces of pus to escape. It was noted that several thin-walled cysts escaped, which on examination showed the scolices of the hydatid form of tænia echinococcus. Drains were inserted. The drainage was free from his abscess cavity, at first purulent material, later becoming almost pure yellow bile. A very little bile-stained fluid escaped at the abdominal incision. His stools were clay colored.

About two weeks later, the tube was removed from the abscess drainage tract and his stools began to show bile pigment. The draining wounds rapidly healed. His stools gradually showed more and more bile pigments.

He was discharged from the hospital twenty-four days after his abscess drainage, with both wounds healed and complete relief of jaundice. He has gained 23 pounds.

DOCTOR ELIASON remarked that it had been stated by others that it is extremely hard to keep these cases permanently closed; they will break down from time to time. Many articles speak of the wounds as being infected by the echinococcus.

As soon as he took out the tube in this case, the bile ceased coming out through the fistula and went the normal way. When he first examined this man he could find nothing wrong with the common duct and on putting a needle in it found no bile. He was ready to close him up, but decided to open up the common duct because of the jaundice, and found it filled with material, the like of which he had never seen before. He realized afterward that it was the same as the fluid found in the liver abscess. It looked greatly like a bad egg.

SARCOMA OF THE STOMACH—GASTRIC RESECTION UNDER LOCAL ANÆSTHESIA

DR. E. L. ELIASON presented a man, aged fifty-eight years, who was admitted to the Service "C" of the University Hospital complaining of post-prandial pains, distention, pyrosis, and occasional vomiting; a movable abdominal mass; and loss of weight and strength.

His symptoms dated from January, 1925, when he first began to notice pain following meals, occasional vomiting and marked abdominal distention. Three months later he began to notice a mass above his umbilicus which has gradually grown larger. He has become somewhat costive. At times he noticed that stools were black and tarry, especially during past three months.

Since January (in eight months) he has lost 35 pounds in weight, and he noticed that he was losing his usual strength and vigor. When admitted the man showed marked emaciation. His lungs were clear, and his heart was regular with fairly forceful sounds. The abdomen was scaphoid and thin-walled. Just above the umbilicus was a firm, nodular mass. It was freely movable over the entire upper abdomen, and could be lifted up in the fingers. The mass was not tender. The liver was palpable about three fingers' breadth below the umbilicus on deep inspiration. Its edge was firm, and no nodules were distinguished.

He was operated on September 2, 1925, under local anæsthesia. The upper abdominal wall was infiltrated with ½ per cent. novocaine solution and a right rectus incision was made, disclosing a firm nodular mass about the size of a grapefruit, which involved the pyloric end of the stomach and extended to the duodenum just distal to the pylorus. His liver was free from any

visible or palpable metastatic involvement, and there were no nodules palpable along the lesser curvature of the stomach. A resection of the mass was done after ligating the mesentery in sections. No discomfort was experienced during the resection except when traction was made on the gastro-hepatic omentum, and this was immediately relieved by infiltration with ½ per cent. novocain solution. The duodenal stump was inverted, and a gastro-enterostomy was performed by the Polya method. The loop was brought anterior to the colon because of a short transverse mesocolon. His wound was closed in layers without drainage.

The convalescence was marred only by a slight infection at the site of one hypodermoclysis needle. He had no vomiting or nausea. Water was given by mouth, 36 hours after his operation. He was allowed out of bed on the sixteenth day of his operation, and was discharged on the eighteenth with a well-healed wound and no symptoms. He has since gained ten pounds.

The specimen removed at operation showed very little ulceration of the mucosa, but surrounded the pylorus and the adjacent stomach wall in a hard mass, forming a firm funnel.

On microscopic examination, the tissue was markedly cellular, divided into irregular nests by fibrous bands. It is impossible to recognize any of the stomach layers. At the periphery of the section, there are large deposits of mucoid material, with a few partially degenerated cells. The cells which make up the greater part of the section are round, stain well, and in many instances show vacuoles. The general arrangement, the cell structure and shapes are all indicative of sarcoma. Diagnosis—round-cell sarcoma with mucoid degeneration.

FECAL FISTULA OCCURRING IN A LARGE INCISIONAL HERNIA

DR. JOHN SPEESE reported the history of a man fifty-two years of age, two hundred and sixty pounds in weight, who was admitted to the Presbyterian Hospital, July 29, 1925, for closure of a fecal fistula occurring in a hernia of the abdominal wall. The patient states that he had a tuberculous abscess in the left groin, which was opened twenty-two years ago. There was profuse drainage for eight months when the sinus closed and a year later a hernia developed in the scar. The hernia progressively increased in size, was irreducible, but at no time caused any discomfort. He has worn a combination truss and belt over the hernia which measures approximately 20 x 15 cm. Several days before his admission to the hospital, evidently due to some irritation of the belt, the skin first became inflamed and then ulcerated. This was followed by a discharge of gas and fecal matter in the centre of the ulcerated area. Active peristalsis was seen and felt in the hernia and the skin surrounding the fistulous opening was dirty and ulcerated in appearance. Local antiseptic measures were used in order to overcome the skin infection before operating on the fistula, but owing to the constant escape of fæces such measures were of no avail. Two weeks after his admission to the hospital the fistulous tract in the skin was excised and a minute opening in the small intestine was located. After mobilizing the bowel the fistula was closed by a double row of No. 1 chromicized catgut sutures and the reflected skin sutured over the bowel. Following this operation there was no leakage of intestinal contents and the infection of the skin subsided sufficiently to justify an operation for closure of the hernia. After excising the previously infected skin, the sac was opened by dividing the fascia which covered the hernia for the most part. The protrusion did not involve the inguinal canal and the abdominal muscles were so atrophied and so retracted that they could not be utilized in the closure. The coils of small intestines contained in the sac

were densely adherent to one another and to the peritoneum, from which they were detached with difficulty. After reduction was accomplished, it was found that a firm closure of the opening could be secured by overlapping the fascia. The latter, although strong in the central part, was weak and attenuated at both extremities, and here was reinforced by sutures removed from the fascia lata.

The patient made a satisfactory convalescence, although healing was retarded by a superficial infection which did not interfere with healing of the fascia or prevent a cure of the hernia.

RUPTURE OF AORTA WITH HEMOPERICARDIUM

DR. JOHN SPEESE reported the following case history and exhibited the specimens removed at autopsy: The patient, fifty-eight years of age, was admitted to the Presbyterian Hospital, September 27, 1925, complaining of severe upper abdominal pain. This began twenty-four hours previously and was sudden in onset. The pain began about the level of the costal margin, passed up the sides of the chest to the back of the neck, and was followed by symptoms of shock. His physician gave him three hypodermics of morphine before relief was secured. The following morning he vomited after eating. The pain then recurred, remained localized to the upper abdominal region, was very severe, constant in character, and was followed by persistent nausea and vomiting. He was sent to the hospital with a diagnosis of intestinal obstruction.

On admission the upper abdomen was slightly tender and rigid. Temperature and pulse were both normal. The leucocytic count 15,000. Urine contained many casts and albumen. The patient was admitted late in the evening, passed a fairly comfortable night, and the following morning when examined had little or no pain or tenderness and did not seem acutely ill. Shortly after the examination the severe pain returned and the patient, while reaching for a glass of water, fell back in bed and died.

The autopsy revealed a pericardium markedly distended with soft dark blood clots. The heart was greatly enlarged due to the left ventricular hypertrophy. The arch of the aorta was dilated by an early saccular aneurism. At a point 2.5 cm. above the aortic cusps, there was an irregular jagged tear 4.5 cm. in length involving the wall of the aorta and opening into the pericardium.

The pyloric end of the stomach was remarkably thickened, due to a tremendous hypertrophy of the muscular coats which resulted in marked narrowing of the lumen. There was no evidence of duodenal or pyloric ulcer or other pathologic process which could account for the hypertrophy, which resembles greatly the congenital hypertrophic form encountered in children. The patient had not complained of any gastric trouble or pain prior to the onset of the present attack.

The specimens were shown and the history reported because of the severe nature of the symptoms suggesting upper abdominal disease and because of the presence of such an unusual form of benign pyloric stenosis in an adult. The cause of the latter was not determined, whereas a previous syphilitic history accounted for the disease of the aorta.