

TRANSACTIONS

OF THE

PHILADELPHIA ACADEMY OF SURGERY

STATED MEETING HELD OCTOBER 1, 1928.

The President, DR. ASTLEY P. C. ASHHURST, in the Chair
DR. CALVIN M. SMYTH, JR., Recorder

DR. GEORGE W. WAGONER remarked that the differential diagnosis of destructive processes of the vertebral column is frequently difficult. He desired to report a case in which destruction of the body of the first lumbar vertebra by an invading retro-peritoneal sarcoma was, for a time, mistaken for tuberculosis of that vertebra.

A girl nine years of age was admitted August 13, 1927, in the Carnett Surgical Service at the Graduate Hospital, suffering with acute pain in the lower right abdomen. The onset of pain had been sudden and not preceded by a period of disability. An X-ray study for possible renal calculus revealed a destructive process of the body of the first lumbar vertebra, and the patient was transferred to the Orthopædic Service of Dr. DeForest P. Willard with the diagnosis of tuberculosis of the lumbar spine.

Examination elicited limitation of and pain on motion of the lumbar spine, spasm of the erector spinæ muscles, and a small kyphos over the first lumbar vertebra. Parietal tenderness and pain was present in the skin areas supplied by the eleventh and twelfth right thoracic intercostal nerves.

Extension on a Bradford frame immediately relieved the abdominal pain. The patient was then encased in a plaster jacket and, at the request of her parents, discharged on August 24 to the care of her family physician. Six days later the patient was readmitted, complaining of severe pain in both hips. Extension applied to both lower extremities gave but partial relief from pain. Examination failed to demonstrate any abnormality in either hip-joint. Symptoms of cord compression developed evidenced by a diffuse sensory involvement and a progressive flaccid motor paralysis. On September 13 the plaster jacket was removed and a small protruding mass was found presenting between the eleventh and twelfth ribs on the right, two centimetres lateral to their vertebral articulations. An attempt was made to decompress the cord by aspiration of this mass. Despite the use of a large trocar and canula and an aspirating pump, no material was removed excepting several caseous plugs. The sensory and motor paralysis progressed until it became complete below the level of the twelfth thoracic cord segment. After neurological consultation it was decided to perform a laminectomy and decompress the cord; the diagnosis was Pott's paraplegia with extra-dural compression of the spinal cord.

On September 17 the spinous processes of the tenth, eleventh, and twelfth thoracic and the first lumbar vertebrae were removed. The dura mater was found to be overlain with dense masses of granulation tissue and the subarachnoid space obliterated. Removal of the granulation tissue released the dural constrictions and permitted the subarachnoid space to distend with cerebro-

RETRO-PERITONEAL SARCOMA

spinal fluid. A slight amount of caseous pus was present in the anterior portion of the wound. Subsequent culture of this material was sterile and guinea pig inoculation was negative for tuberculosis. It was noted as an usual feature at the time of operation that several of the vertebral laminæ were necrotic. No gross tumor tissue was seen. The patient recovered consciousness on the table and was able to move her toes voluntarily and perceive stimuli applied to her lower extremities.

Following decompression the sensory and motor paralysis rapidly vanished only to reappear three weeks later. A rapidly growing, semifluctuating mass appeared at the site of operation. As this mass increased in size the paralysis increased in degree, until four weeks after the initial operation the patient had a complete paraplegia. A biopsy of the tumor was performed on November 15. At this time the mass measured seven centimetres in diameter. Microscopic examination of the tissue removed showed a round-cell sarcoma of retro-peritoneal origin.

Marked improvement in the general condition of the patient, complete obliteration of the protruding mass and a slight lessening of the paralysis followed extensive X-ray and deep therapy treatment by Dr. G. E. Pfahler. The relief following radiation, however, was temporary; pulmonary metastasis occurred and was followed by massive pleural effusions with cardiac embarrassment, generalized œdema and extreme emaciation. On May 5, 1928, the patient died.

Doctor Wagoner commented on this history as follows:—Failure by röntgenologist, surgeon and orthopædist to interpret properly the original lateral röntgenograph of the lumbar spine led to an erroneous diagnosis which was not corrected until three months after the first admission. In this röntgenograph the body of the first lumbar vertebra was shown to be partially destroyed. The remaining fragment was wedge-shaped and strongly suggested the presence of a destructive tuberculous process. But the articular cartilages were not involved as would have been the case had tuberculosis been present. Destruction of the body of a vertebra without destruction of the articular cartilages is characteristic of a sarcomatous invasion.

In addition to the misinterpretation of the röntgenograph, several features in the course of the illness of this patient stand out in retrospect as being opposed to the original diagnosis of tuberculosis of the first lumbar vertebra. (1) Inability to aspirate the small mass protruding between the eleventh and twelfth ribs posteriorly. (2) The rapid and complete flaccid paralysis. (3) The absence of a large collection of pus upon removal of the spinous processes. (4) The necrosis of the vertebral laminæ noted at time of the laminectomy.

DOCTOR WAGONER reported also the summary of a history extending over some thirteen years.

A negro boy, born in Philadelphia in 1908. In 1915 developed a swelling on the dorsum of the left hand at the base of the fifth phalanx which opened and became a draining wound. Three years later (1918), a second swelling appeared on the dorsum of the left hand near the wrist and also opened spontaneously. These lesions were untreated until October 19, 1920, when the patient was admitted to the dermatological clinic of Doctor Schamberg at

the Graduate Hospital. A diagnosis of tuberculosis of the skin was made and X-ray therapy instituted. After November 16, 1920, the patient failed to report for further treatment. On October 9, 1923, the patient returned to the dermatological clinic with the lesions on the dorsum of the left hand much increased in extent. Further X-ray therapy was given at regular intervals until June 18, 1925, when all the lesions were healed and the skin presented a healthy appearance.

On July 2, 1926, after an absence of a year, the patient returned, complaining of pain in the left wrist which he had first noticed several days previously. A röntgenograph of the wrist on that date showed a marked loss of bone salts with some periosteal reaction in the distal end of the left ulna, together with some opacity in the left semilunar. Actual bone destruction, however, was not demonstrable. A röntgenograph of the chest was negative for tuberculosis. The diagnosis of early tuberculosis of the left ulna and semilunar was made and the former treatment by radiation was reinstated. Four weeks later a röntgenograph showed complete destruction of the distal diaphyseal end of the left ulna with invasion of the left trapezium. The patient was transferred to the surgical service of Dr. J. B. Carnett and on August 16, 1926, the bones of the left forearm were scraped.

The patient was transferred August 20 to the orthopædic service of Dr. DeForest P. Willard, with the diagnosis of tuberculous osteomyelitis of the left ulna. Treatment by Alpine lamp, X-ray, and immobilization was continued without arresting the rapid extension of the destructive process. A large, tense, fluctuating mass developed on the ulnar aspect of the left forearm adjacent to the wrist. This mass increased in size until on January 24, 1927, the forearm was incised and the contents of the mass evacuated and the fragments of the ulna curetted. At the time of operation the orthopædists present differed as to whether the material evacuated was tuberculous or sarcomatous. Culture of the material removed was sterile, guinea-pig inoculation was negative for tuberculosis, but a microscopic examination of the material was reported as tuberculous tissue by a pathologist not regularly on service at the hospital. The attending pathologist upon his return diagnosed the material as being typical of sarcoma.

Bone destruction continued and a new mass of necrotic tissue was formed which was evacuated on March 1, 1927. At this second operation the material was diagnosed clinically as sarcomatous. The pathologist's report of tissue removed at this operation was that of osteogenic sarcoma. On March 15, 1927, the left arm was amputated in the upper third of the humerus.

Further extension of the process with invasion of the stump of the left humerus necessitated amputation at the shoulder joint. Pulmonary metastasis, however, had occurred and these were followed by metastasis to the spine. The invasion of the spine in the lumbar and lower thoracic vertebræ resulted in complete paralysis of the lower extremities and trunk below the level of the twelfth thoracic cord segment. On February 2, 1928, the patient died.

DR. DEFOREST P. WILLARD said that in the first case of sarcoma of the retro-peritoneal glands, which was thought to be tuberculosis of the spine, no suspicion of the true condition was had until the boggy mass appeared over the spine several months after laminectomy. Doctor Pfahler showed that the orthopædic service had been wrong in the interpretation of the film, and pointed out that destruction of the vertebral body without destruction of

INTESTINAL OBSTRUCTION COMPLICATING FRACTURED PELVIS

the cartilaginous discs on either side of the body generally means sarcoma. If the process is tuberculous the destruction of the discs usually occurs before the bone is involved.

The second case of sarcoma of the ulna presented two very interesting problems, one, whether the boy had tuberculosis of the ulna; and second, whether the treatment for the tuberculous skin condition which he had several years before and the irritation from this treatment had anything to do with irritating the sarcomatous process. The clinical diagnosis of sarcoma was made before the laboratory reported it. The pathologist reported the mass in the arm as tuberculous, and it was not until the second operation, when it was reported as clinically sarcoma, that reëxamination of the first mass resulted in the diagnosis of sarcoma from the first and second sections. This proves that reliance on a cursory laboratory examination is unsafe. Frozen sections, in the speaker's judgment, are of no use and he believes only long serial sections have any value.

INTESTINAL OBSTRUCTION COMPLICATING FRACTURED PELVIS

DR. ELDRIDGE L. ELIASON presented a man aged forty-four, who was admitted to Service C of the University of Pennsylvania Hospital suffering from the effects of a collision between a locomotive and the car he was driving, as a result of which he was thrown thirty or forty feet. The patient was in state of shock. The right femur was in the position characteristic of posterior dislocation at the hip. The abdomen was flat and rigid. Peristalsis was diminished, otherwise normal in its characteristics. The blood pressure was 75/50; pulse 92.

Diagnosis.—(1) Posterior dislocation of right femur at the hip-joint. (2) Abdominal trauma, possibly ruptured liver. (3) Mild concussion. An X-ray revealed the dislocation as well as a fracture of rami of the ischium and pubes.

Four days later the patient complained of abdominal pain. Physical examination revealed a distended abdomen and a mass in the lower right quadrant which was taken to be a retro-peritoneal hematoma resulting from the fracture of the pelvis. Some elevation of temperature persisted with some abdominal distortion, associated with increased peristalsis and difficulty in moving the bowels for a period of two weeks. At the end of six weeks the patient was discharged. Three months later at a follow-up examination he was suspected of having an intestinal obstruction and, after an X-ray study confirmed this, he was re-admitted and operation undertaken. The abdomen was opened through a low right paramedian incision and a portion of greatly distended small gut presented itself into the wound. The bowel was markedly hypertrophied, and was traced to a mass of adhesions of the small bowel in the right lower quadrant, which apparently was adherent to the lateral wall. After great difficulty the mass was freed from the adhesions. There was a rent in the mesentery of the terminal ileum through which a more proximal loop of ileum had prolapsed and, after undergoing partial volvulation, had become adherent to the lateral wall of the pelvis at the site of former fracture of the pelvis. When the adhesions were freed and the gut was entirely exposed the viscus was in such condition that a resection was deemed the best procedure. The portion between the distended ileum and the cæcum was

resected, turning in the terminal ileum just before it entered the cæcum to form a blind stump. The ileum was then anastomosed to the cæcum by an end-to-side anastomosis.

The patient made a fairly smooth recovery and was discharged cured.

Doctor Eliason remarked that the interesting feature about this case was the error in diagnosis in the beginning. He knew the patient had a mass, he knew he had a peritoneal irritation and some distention, but he was never extremely ill. The mass subsided and so decreased in size that at the time of discharge it was practically negligible. When he reported for the follow-up examination, he complained simply of indigestion, had no pain, but was losing weight and had to be extremely careful of his diet. It was difficult to convince him at this time of the necessity for X-ray study.

PUNCTURED WOUND OF PLEURA AND PRECORDIUM

DOCTOR ELIASON presented a youth eighteen years of age who was admitted to Service C at the University of Pennsylvania Hospital, suffering from the results of an explosion of a glass jar. The physical examination revealed the following:

1. Severe laceration and contusion of right hand, thumb all but amputated, small finger torn through all except bone, most of structure of ring finger blown away, extensive burn of right forearm. 2. Puncture wounds by glass all over the front of the right arm, chest, abdomen, thighs, face and right ear. The most important of which were: (a) Penetrating wound of chest wall just lateral to the precordium (on the left). (b) Perforating wound of right external ear. (c) Perforating wound of the left orbit, without evident involvement of the eye ball. (No wounds perforated the peritoneal cavity.) (d) Deep wound in region of the right shoulder. 3. Burns of eyes, lids, scleral conjunctivæ.

The operative procedures included debridement of wounds, ligation of blood vessels, amputation of right thumb and right fourth finger, removal of foreign bodies from soft tissues and left pleural cavity.

The wound over the sternum was found to contain many particles of glass. These were removed with the infected tissue. There was exposed a probable fracture of the sternum. Closure with interrupted silk after insertion of one piece of rubber dam. Many other wounds of the chest were found, pieces of glass removed from them and the wounds thoroughly disinfected with mercurochrome. One wound in the chest wall, at about the fifth interspace, was found to penetrate below the muscles and opened into the left pleural cavity. Pulsation of the heart could be distinctly palpated and on insertion of the finger a piece of glass was found. It was removed after inserting the cholecystoscope. The lung was then distended by positive pressure and suction and the wound closed with three interrupted sutures of catgut. On attempting to remove the suction tip, resistance was encountered and in attempting to disengage its tip by traction, the apex of the heart was pulled up into the wound, due to the fact that the suction tip had entered a wound in the pericardium which had not been previously discovered. The apex was disengaged and the heart allowed to drop back into place. During these manipulations the pulse rate reached 120, but promptly dropped to 80 as soon as the sucking wound in the chest wall was closed.

FRACTURES AND DISLOCATIONS OF THE ELBOW

The patient made a very good recovery and convalesced smoothly. An X-ray examination of the chest four days later showed no evidence of a pneumothorax, but definite evidence of a pneumo-pericardium.

FRACTURES AND DISLOCATIONS OF THE ELBOW

DR. T. TURNER THOMAS read a paper entitled "A Contribution to the Mechanism of Fractures and Dislocations in the Elbow Region," for which see page 108.

DR. HENRY P. BROWN said that Doctor Thomas stated in order to produce the same degree of fracture as caused by the fall, he had to hammer the bone a great many times. It seemed to the speaker that any one of these hard blows with the hammer would have been as severe as the impact produced by a fall. If the impact of the one fall caused the fracture, it should have been possible to have produced the same thing with one blow of the hammer.

DR. T. TURNER THOMAS in replying to Doctor Brown's question said that he did not think the force of one blow from an ordinary wooden mallet would be as great as that from the impact of a body falling on the ground.

He had rather expected somebody to raise the question as to whether the impact of the palm on the ground would not produce hyperextension of the elbow joint in a child because the elbow of the child is so much more relaxed than that of the adult. The speaker did some experimental work recently on the cadaver of the child but could obtain only bodies of the new-born and the skeletons were so delicate that he could not apply force satisfactorily. Of course the results obtained from experimental work on the bodies of the new-born are not of much value, because the child does not fall until after he begins to walk and for a long time afterward not with enough force to produce typical results. But such results as were obtained in the cadaver arms of the new-born seemed to confirm those obtained in the adult cadavers in showing that the force of the fall on the hand would produce flexion and not extension of the elbow-joint in them.