

important one, and it was recommended that an opening should be made in the skull of sufficient extent to thoroughly uncover the seat of the hæmorrhage, reference being made to a case in which a trephining operation had been done, the clot syringed out, but the true source of the hæmorrhage never uncovered or controlled, and death resulted from further compression of the brain.

STATED MEETING, DECEMBER 1, 1902.

The President, RICHARD H. HARTE, M.D., in the Chair.

HIP-JOINT AMPUTATION FOR TUBERCULAR DISEASE OF THE FEMUR.

DR. DE FOREST WILLARD presented a woman, fifty years of age, who was admitted to the Presbyterian Hospital, October 21, 1902, with the history that for forty-two years she had had tubercular ostitis of the left femur,—first at knee, then thigh, then hip. Numerous sinuses had formed from time to time at various points in the thigh, sometimes healing, then reappearing. One year ago she fell, and either broke the femur at lower end or tore the ligaments at the knee, so that the leg now bends outwardly at an angle of forty-five degrees to the femur; limb perfectly useless. Pus discharging sinuses at various points between knee and hip-joint. Increased pain and discomfort both at lower and upper ends of femur. The tissues throughout the entire thigh dense and indurated from tubercular deposit. Knee-joint rigidly fixed. As the limb had been useless for years, and as there was no possibility of her ever employing it for locomotion except with crutches, the patient readily consented to a hip-joint amputation.

Operation.—Three Wyeth's pins used, anterior one entered below anterior superior spinous process, and emerged near the vulva, passing close to pubic ramus and beneath femoral vessels. Around the head and point of this pin was carried ovally an elastic tubing, thus compressing the femoral vessels independently of the encircling tubing, which was afterwards applied. The anterior flap was made irregular in shape to avoid the pus sinuses; the femoral vessels were tied with catgut before disarticulation of the joint; posterior flap also cut and vessels tied, as the tissues were densely infiltrated. Upon removal of the tourniquet, less than one drachm of arterial blood was lost, the only hæmorrhage being the venous blood in the leg itself, which, on account of the pathologic conditions, had not been pressed out by elastic bandage. Wound closed with silkworm gut, posterior drainage being provided for by an independent opening through the buttock.

Animal heat had been economized during the operation by placing the patient upon an electrically heated mattress, and by her body having been wrapped from neck to feet in cotton wadding. She left the table with a temperature of 99° F. Whiskey and water enemas had been given just previous to the operation; also, hypodermics of strychnine and morphia.

Her operative recovery was retarded, as the wound became infected from the old pus sinuses, which delayed the healing. The blood supply for the body was abundant, as the circulatory system was relieved of one-sixth of its requirements.

SPINA BIFIDA.

DR. WILLARD presented a girl, aged seventeen years, height four feet eight inches, fairly well developed, who was admitted to the Presbyterian Hospital, October 9, 1902, with a history that since infancy she had been unable to walk without apparatus or crutches. History vague, but, as far as she could remember, she had been operated on six times for correction of feet and leg deformities.

At time of admission she had trophic ulcers on the soles of the feet, and bore the scars of several tenotomies; also on the right foot the scar of a probable wedge-shaped excision of the outer side of the tarsus. The right foot, however, still presented a bad talipes varus. Foot very short and stumpy and incapable of bearing weight. Left foot markedly valgic, so that the inner malleolus came close to the floor. The great toe had been removed for trophic changes or necrosis. Legs and thighs feebly and illy developed. Sensation markedly absent, so that operations on the foot have been done without ether, yet without the patient complaining of any pain. Legs incapable of bearing weight of body without support of hands or of crutches. Muscular contractility very feeble in left leg, moderate in right; had control of bladder and rectum.

The appearances were indicative of a lack of nerve supply from a spina bifida, and upon examining her back a large, soft swelling, resembling a fatty tumor, was found over the sacrum; in its centre was a marked dimple, but the tumor did not project like an ordinary spina bifida, but was flattened out like a saucer, and while four or five inches in diameter was not elevated more than an inch, being spread out over the sacrum. A very slight

depression could be felt over the spinal canal, but no large opening could be discovered, and pressure upon the tumor gave no pain, headache, or discomfort to the patient. There was no abnormal growth of hair over the region.

As there had been a previous unsuccessful wedge-shaped tarsotomy, the astragalus of the right foot was removed in order to allow the member to be brought into a straight position, with the sole well down upon the ground. No anæsthetic was required, and the patient complained of no pain. Catgut drainage and catgut sutures were employed, and foot dressed with plaster of Paris. In the left valgic foot the tendon of the peroneus longus was divided, and an osteotomy of the fibula performed one inch above the malleolus. The foot was then forcibly inverted and confined in this position by a gypsum dressing. The bandages were not removed until the end of the fifth week, when the wounds were found perfectly healed. The right foot was in such good position that it will probably not require apparatus, but the left will need a valgic support at the inner ankle. The limbs are so feeble from their lack of nerve supply (a portion of the cord having probably been lost in the tumor) that she will require the assistance of crutches, at least for a time.

As the opening in the spinal canal had apparently closed, there seemed to be no benefit to be secured by operative treatment upon the spina bifida occulta.

GUNSHOT WOUND OF FOREARM.

DR. WILLARD presented a boy of fourteen, who had been injured by discharge of a shotgun at close range. The entire upper middle region of the right forearm was torn away, leaving only the ulna. About four inches of the radius were destroyed, together with the radial and interosseous arteries, the radial and median nerves, and the entire muscular and tendinous structures. The ulnar vein was also wounded and a large branch of the ulnar artery also injured.

At first sight it seemed that an immediate amputation was necessary, but from past experience, knowing the recuperative power of the adolescent, and with the fact that a hand and forearm even though rigid and distorted are more serviceable for work than an artificial member, it was decided to attempt to save the arm. Many shot were removed; the area sterilized; torn ten-

dons and nerves were united as far as possible. The question of immediate excision of the ulna to accommodate its length to that of the destroyed radius was considered but abandoned, since the excision of four inches would have so folded what was left of the ulnar circulation, that it would certainly have impeded the slight remaining current. The arm was put upon a splint with thorough antisepsis. Patient was critically watched for the next week. The hand became very black, but no blebs appearing, amputation was deferred from day to day. The result at time of report, four weeks after the injury, is that no area has become acutely gangrenous, but there has been a dry, hardening gangrene which is now limited to the tip of the pulp of his little and third fingers and the last phalanx of the thumb. An amputation of the latter member will give him one phalanx of the thumb, which with even stiff fingers will prove very helpful, even if but slight motion is secured, and though the hand and arm will necessarily be very useless, yet will answer for many kinds of work. As the boy still has several years of growth before him, it is probable that the elongation of the ulna will distort the arm, but a future resection of the bone can readily be done when needed, and if trophic changes occur from destruction of nerves, an amputation in the future will leave him no worse than would have been the case had an operation been done at once.

SIMULTANEOUS RUPTURE OF BOTH QUADRICEPS EXTENSOR FEMORIS TENDONS.

DR. HENRY R. WHARTON presented a man, aged sixty years, who, in stepping from a trolley-car on the evening of June 12, 1902, alighted upon a pile of sand and experienced a sense of something giving away in the knees. He did not fall at the time, but when he attempted to walk, fell, as the limbs seemed powerless. He was removed to his home and was examined by his family physician, who found the knees greatly swollen, with marked disability as regards extension of the knee-joints. He was treated by fixation of the knee-joints and the use of evaporating lotions; but when the swelling had subsided it was found that there was no improvement in the power of extension of the knees. Dr. Wharton saw the patient in consultation with his family physician on July 12. Upon examination, a marked depression over both quadriceps extensor tendons, about one and a half inches above

the patella, was evident in each limb. There was at this time complete loss of the power of extension of the knees. A rupture of both quadriceps extensor tendons had occurred, and there had been no attempt at repair under fixation of the joints.

The patient was removed to the Presbyterian Hospital, and on July 21, after careful preparation of the limbs, a longitudinal incision, four inches in length, was made over the position of the rupture in each tendon, and the ruptured ends of the tendons were exposed about one and a half inches above their insertions into the patella. The gap between the ruptured ends of the tendons in each case was filled with a blood-clot and synovial fluid. The bursæ above the patella were ruptured, and a portion of the blood-clot extended under the patella and into the knee-joints. The ends of the tendons were freshened, and in accomplishing this it was observed that there were bony deposits in the tendons, which was probably a predisposing cause to their rupture. The blood-clots were carefully removed, and after freshening the ends of the tendons the surfaces were brought into contact by the introduction of four heavy chromicized catgut sutures. Some force was required to bring the edges in contact, on account of the gap which existed. The most scrupulous care was exercised as regards asepsis during the operation. The fibrous tissues over the tendons were brought together with buried sutures of fine catgut, and the external wounds were closed with silkworm-gut sutures without drainage; a sterilized dressing was applied, and the limbs were enclosed in plaster-of-Paris dressings extending from the toes to the groin.

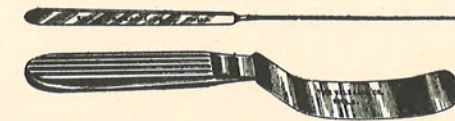
The patient ran a perfectly satisfactory course after the operation, with scarcely a rise of temperature above the normal. The bandages were trapped on July 31, ten days after the operation, and, as the wounds were healed, the sutures in the external wound were removed. The plaster bandages were removed on August 9, and the union in the tendons at the seat of operation was found to be firm. Plaster bandages were reapplied and remained for two weeks, and were then removed, and a pair of laced knee-caps applied. The patient was then gotten out of bed and allowed to walk with crutches. He was soon able to walk with the use of a cane only, and rapidly regained the use of the limbs. By October 15 he could walk without any artificial support, and the restoration of function was complete.

DR. W. BARTON HOPKINS recalled a rupture of the ligament of the patella that he met with some years ago. The injury was the result of muscular violence, and the patella was found to be drawn up the thigh at least five inches above its normal position. The patient was admitted to the Episcopal Hospital a few hours after being injured, and was immediately operated upon. The patellar ligament was found to be ruptured and the patella entirely denuded of its periosteum and dragged up the thigh. The tendinous covering of the bone was left attached to the tendon above. The wound healed perfectly and functional restoration was complete. Dr. Hopkins said that rupture of either the ligament of the patella or the tendon of the quadriceps is interesting because of the greater frequency of fracture of the patella when the structures in question are subjected to a breaking strain. During his experiments to determine the tensile, transverse, and crushing strength of bones, he found that the patella resisted a tensile strain of 1845 pounds, when the ligament parted. The pull was a steady, straight one, however, with no tendency to flexure of the joint or to impact upon the bone which is often present in cases of fracture. The tendon and ligament during the experiment were attached by straight iron clamps so arranged that crushing was avoided. The ligament parted at a point some distance from the clamp, showing that the instrument had no part in producing the rupture. In all cases of ruptured tendons or ligaments, operation, in his opinion, is the only method of cure, and should be performed as soon as practicable.

RETRACTOR OR ELEVATOR FOR OPERATIONS UPON THE
BASE OF THE BRAIN.

DR. CHARLES H. FRAZIER presented an elevator for use in operations at the base of the brain. He said that only those who have had occasion to approach structures at the base of the brain realize how necessary it is that the operator, at least, should be afforded an unobstructed view of the structures, and how difficult it is in many cases to secure proper exposure. Two factors interfere with the surgeon's view of his field of operation,—hæmorrhage and the brain itself. Hæmorrhage can be controlled by pressure applied through strips of iodoform gauze. The brain must be elevated or retracted, and in such a way as to cause the least degree of compression and contusion to the cerebral tissue,

and avoid laceration to the dura should that structure be still intact. In his operations upon the sensory root of the Gasserian ganglion he had been hampered by having his view wholly or partially cut off and his manipulations interfered with by the hand grasping the retractor, whether it be the hand of the operator or the hand of an assistant. With a view towards removing this obstacle or annoyance, he had had constructed by the Valzahn Company of Philadelphia a special retractor (see figure). Its important features were the shape and the thickness of the blade. For a distance of three centimetres from the handle the axis of the blade forms with the axis of the handle an angle of 145 degrees, so that when the instrument is in use the hand grasping the retractor is so situated as not to interfere between the surgeon's eye and the field of operation. The remainder of the blade is eight centimetres long, follows a curve very slightly concave



Brain elevator.

except at the tip, where the curve is a little more exaggerated. The blade is thin enough to yield somewhat under the pressure that would be exerted upon the dura and brain, and thus adapts itself more or less evenly to the surface to which it is applied, and thereby subjects the brain to a uniform degree of pressure. This retractor or elevator may be used in any operation which requires an exposure of the base of the brain, whether it be one for removal of tumors or for the extraction of the ganglion or division of its sensory root. It is more particularly with the latter class of cases that he had employed the instrument and found it so useful.

The other instrument shown in the illustration above the retractor is a hook which he had had constructed for his operations upon the sensory root of the Gasserian ganglion. After the root is exposed, it is picked up with the hook, grasped with hæmostatic forceps, and divided.

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