

August 3, 1890. He had just fallen from a freight car, striking the ground upon his knees, and had sustained a compound comminuted fracture of the left patella.

He was at once etherized. The opening over the patella was enlarged by a long incision transverse to the joint. The blood and loose fragments were removed from the joint, and there then remained one large fragment attached to the quadriceps above, and two small fragments attached to the ligamentum patellæ below. Two wires were introduced, each of them attached one of the lower fragments to the large upper fragment. Drainage-tubes were introduced low down on the sides of the joint, and the wound was stitched together. Recovery was uninterrupted. The stitches were all taken out on the eighth day, and the wound was perfectly healed by first intention.

At the end of three weeks the patient left the hospital on crutches, with the left leg encased in plaster. This plaster bandage was removed about two months later, at which time the bone was found to be firmly united, and the patient was allowed to begin passive motions for the restoration of the functions of the joint.

May 6, 1891, the following condition existed. The wired patella seemed to be firmly united by bony union, and equalled the patella on the well knee in size. It was freely movable. The leg was strong, and the knee would bend almost to a right angle. Steady improvement was still going on in the usefulness of the joint.

In all of these cases the result as far as apposition of the fragments and restoration of the bone was concerned, was better than can ordinarily be obtained in simple fractures of the patella which are treated without operation. As far as can be judged at this time the fragments have united in all three of these cases by bony union, and what is more, the patella which has resulted in each case is three or four times as large as the fragments of which it was composed. In each instance the middle part of the patella was broken into a number of loose fragments that had to be removed from the joint cavity, leaving comparatively small fragments to be attached together, yet the patella in each case has been restored to its full size.

In the first and third cases the fragments of bone were sufficiently large to allow of putting the wire through from the anterior surface of the upper fragment to the surface of the fracture, then entering by the fractured surface of the lower fragment to bring it out on the anterior surface of that. Thus the wire did not enter or encroach on the joint cavity. The important point being to have the wire come out on corresponding points on the broken surfaces; it is well to drill the holes from these surfaces to the anterior surface of the bone, and in this way a very exact adjustment can be made.

In Case II, the small size of the pieces of bone made some other method of wiring necessary, and the circular wire running through the different fragments and gathering them together as by a purse-string, answered admirably. By this method, too, the wire can be carried, as was done in this case, through the ligament below a fragment that is too small to hold it.

This method of wiring by carrying a circular wire around the fragments was first practised in 1865 by Dr. Samuel Cabot in one of the earliest cases on record in which a wire was used for uniting the frag-

ments of a patella. There was much suppuration in this case, done before the days of aseptic surgery, and the patient died five months after the operation. No autopsy could be obtained, but there was every evidence of a bony union between the fragments.

The second accident that happened to Case I shows that care in the avoidance of unusual strain is important even for some time after the joint appears to have recovered full strength and usefulness.

Passive motion may be begun much earlier with a wired patella than with one that is treated as a simple fracture. In the latter case the ligamentous union must have time to become firm or it will be stretched when a strain is brought upon it; when the patella is wired, however, we may expect bony union at the end of seven or eight weeks, and after this passive motion may be begun. It will be safer for some time, even after this, to wear a splint or stiff bandage when going about in order to avoid the chance of a sudden strain.

TWO CASES OF AMPUTATION AT THE HIP-JOINT.¹

BY J. COLLINS WARREN, M.D.

THESE cases are reported for the purpose of illustrating the success which may attend an operation of this severity in advanced tubercular disease of the bone with many of the complications which attend it. In one case primary, in the other secondary amputation was performed.

CASE I. D. L., eighteen years old, had had disease of the right hip for ten years. He had been able to get about on crutches until two months before entrance into hospital, when the knee-joint, which had troubled him for some time, suppurated, and he had since been confined to his bed. The abscess discharged through a sinus in the popliteal space; and at the time of entrance to the hospital (November 4, 1890), the joint was completely disorganized, and moved freely in all directions, causing great pain on the slightest motion. The inner condyle was protruding through the popliteal space.

When I first saw the patient he was on a stretcher in the accident-room, having just arrived and appeared to be suffering greatly and in a state of great debility. Emaciation was extreme. I found no difficulty in making the forefinger and thumb of my hand meet around the thigh of the healthy limb. A more careful examination later disclosed numerous sinuses discharging from the neighborhood of the hip-joint. The lungs were in a healthy condition. There was increased dulness in the regions of the liver and the spleen. An examination of the urine showed the presence of one-quarter per cent. of albumen and hyaline and fatty casts. The pulse was fairly strong, and the patient showed great pluck and determination to go through any operation that would relieve him of his sufferings. On consultation it was decided that amputation should be performed below the trochanters, and, if the shock was not too great, that the head of the bone should be removed also.

The operation was performed November 8th. A strong rubber tubing was passed around the thigh at the groin and held above the trochanter by means of a retractor. Amputation was done by the circular

¹ Reported at the Meeting of the Surgical Section of the Suffolk District Medical Society, May 6, 1891.

method as high up as possible, and the vessels having been secured, a vertical incision was made over the trochanter, and the head of the bone with a portion of the shaft was dissected from its socket. A small portion of the periosteum of the shaft was saved. The joint proved to be healthy, but a sequestrum occupied the region of the trochanters. The shock from the operation was comparatively slight; and before the patient left the amphitheatre he exclaimed, in answer to a question, that he felt "good." The wound healed partly by first intention and partly by granulation.

On December 10th the record states that the patient was about on crutches, and that the urine had cleared up and the liver dulness had greatly decreased.

On December 31st the patient was discharged with a small sinus about one-inch deep on the outer surface of the stump. He had gained greatly in weight and was in excellent condition.

CASE II. E. T. F., a tall and emaciated young man about nineteen years old, entered the hospital October 23, 1890, with hip-disease of the right limb, of fourteen years' duration. The femur was dislocated backwards and strongly adducted. The right leg was very much shorter, greatly atrophied and nearly useless, although formerly he had been able to touch the tips of the toes to the ground. There was an abundant discharge of pus from several sinuses on the thigh and hip, and a marked evening rise of temperature. His general condition was otherwise good, and the urine was normal. On November 15th an examination under ether showed that the head and greater portion of the trochanter had disappeared. The end of the bone was exposed and about three inches of the shaft was excised. A temporary improvement followed the operation, but the discharge of pus soon became as abundant as ever, and the "pus temperature" re-established itself. The limb was accordingly removed on December 20th, and an attempt made to lay open the sinuses about the acetabulum; but the shock of the operation rendered any prolonged dissection inadvisable. The patient rallied well from the operation, but the flow of pus continued.

On February 5th an examination was made under ether, and a large pus cavity in the buttock was laid open, and an attempt was made to drain the acetabulum.

Shortly after this I was able to pass a probe through the acetabulum into the pelvis, and it was then found that pressure on the right iliac fossa was followed by an abundant discharge of pus. By straining, the patient could force a jet of pus through this sinus.

On February 23d the whole stump was laid open by a long incision; and the acetabulum being freely exposed, a sinus was seen communicating with the interior of the pelvis. This was enlarged with the chisel so that two fingers would be passed easily through the opening, and the probe was felt presenting in the right iliac fossa. The cavity was thoroughly washed out with a weak solution of corrosive sublimate, and two large-sized drainage-tubes were inserted, a third being placed beside them to drain the external wound. From this time on the patient gained strength rapidly, and the discharge of pus diminished.

On March 19th he used crutches for the first time, and left the hospital March 25th.

May 6th. At an interview with the boy's father to-day, I learn that after leaving the hospital there

was a rise of temperature with increased discharge from the wound, but that the temperature is now nearly normal, and only about a tablespoonful of pus comes from the four tubes that are at present in the wound. He is able to walk on crutches and to make his way about the house. He has gained greatly in strength and flesh, and the prospects of complete recovery are now good.

Case I, I am able to show you this evening. You observe that the patient is in perfect health, and no sinus of any kind is to be found in the stump. My thumb and fore-finger extend only half way around his thigh. The disappearance of all symptoms of amyloid degeneration of the liver, kidneys and spleen, which seemed to be well marked before the operation, is, perhaps, the most interesting feature of this case.

PROGNOSIS IN POTT'S DISEASE OF THE SPINE.¹

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IN making a prognosis regarding the result in a case of Pott's disease, the surgeon has many different factors to take into consideration. We will succinctly treat of these from the following standpoints: (1) location, (2) age of the patient, (3) etiology, (4) complications, (5) thoroughness of treatment.

Clinically the vertebra, the seat of an osteitis, regarded from the standpoint of prognosis, may be considered as follows: the superior region, from the first cervical to the third dorsal vertebra, inclusive; the middle, from the fourth dorsal to the tenth; and the inferior region, from the eleventh dorsal to the fifth lumbar vertebra, inclusive.

As a matter of clinical experience it is commonly asserted that of these regions, more cures are effected in the superior and inferior regions and in a shorter space of time, than in the middle portion of the spine.

In order to have some definite statistics concerning regional prognosis, I have taken 75 cured cases, through the kindness of Dr. Newton M. Shaffer, from the case-books of the New York Orthopedic Dispensary and Hospital, and divided them equally amongst the different regions. These cases, I would state, were not selected ones, but taken as they presented in the regular order of admission. I have analyzed them from the following standpoints: (1) sex; (2) age at which they presented for treatment; (3) etiology; (4) duration from time of beginning of treatment, until the patient was discharged cured; (5) complications arising in the different regions during treatment.

We shall first consider the superior region.

Of the 25 cases, 10 occurred in males, 15 in females; a proportion on which no argument can be based to show that either sex is peculiarly liable to disease in this region.

As to the age at which the patients presented with disease in this area, I found that the youngest was one and a half years, the oldest seventeen years of age; five were from one to five years of age; thirteen were from five to ten years, and seven over ten years old.

Regarding as we do that spondylitis is essentially a

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