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ART. I.—*The Knee-joint Anchylosed at a right angle—Restored nearly to a straight position after the excision of a wedge-shaped portion of bone, consisting of the patella, condyles and articular surface of the Tibia.* By GURDON BUCK, M. D., one of the Surgeons to the New York Hospital. [With three wood cuts.]

WILLIAM KEITH, a farmer, of healthy and robust constitution, aged 22 years, born in Canada, was admitted September 12th, 1844, into ward No. 7, north building, New York Hospital, with the right knee anchylosed at a right angle, in consequence of violent inflammation and suppuration of the joint, produced by a wound inflicted seven years previous with an axe, that had grazed the bone over the inner condyle, and was followed by a confinement of seven months to the house; the limb continuing in the deformed position already noticed.

The joint was immovable though the patient imagined he was able to produce a slight degree of motion. The condyles of the femur were prominent, and stood in advance of the tuberosity of the tibia with the patella deeply and immovably imbedded between them. An irregular bony projection was observed over the inner condyle where an extensive scar marked the situation of the original wound. Several other scars of openings were visible from which matter had been discharged in the progress of the inflammation consequent on the injury, for instance, one on either side in the ham and three on the anterior and lateral surfaces above the condyles. The tendons in the ham stood out in prominent relief from the limb. The skin and subjacent soft tissues enveloping the joint were supple and healthy. Since his recovery from the effects of the injury, the patient had enjoyed

uninterrupted good health, and had been free from pain or tenderness in the knee; he had been accustomed to walk with one crutch, though sometimes he dispensed with it and stooped to accommodate himself to the shortened condition of his limb. The deformed limb was shorter and in every respect less developed than its fellow.

It was explained to the patient that from the condition of the joint, the limb did not admit of being improved in its position, by any ordinary surgical operation, but that in a few similar cases, an extraordinary operation consisting in removing a wedge-shaped portion of bone from the femur above the condyles had been resorted to with favourable results.

There being some weighty objections to this operation, it was proposed to modify it in its application to his case, and as the joint itself no longer existed in its normal condition, with secreting articular surfaces, it was judged equally safe to perform a similar operation upon the parts pertaining to the joint which, to all appearance, were free from disease.

The advantages contemplated by this modification were that more extensive surfaces of contact for bony union would be obtained, and greater strength of limb secured with less remaining deformity than was practicable in the operation of Dr. J. Rhea Barton, of Philadelphia, already alluded to.

The patient was fully apprised of the serious nature of the proposed operation, and the dangers incident to it.

Being, however, exceedingly desirous of relief from his deformity, he decided after a few days' reflection, to submit to it. It was accordingly performed with the concurrence and aid of the other surgeons of the hospital, the 12th day of October, 1844, as follows:—

Operation.—Preparatory to the operation, the tendons of the biceps, semi-tendinosus, semi-membranosus and gracilis muscles had been divided five days before, in the usual manner, by two subcutaneous incisions, in doing which the peroneal nerve was unintentionally cut across and was followed by numbness and pain extending to the foot; the punctures, however, had healed and no inflammation remained in the ham.

The tourniquet having been applied to the upper part of the thigh, an incision was made from the outer to the inner condyle, across the middle of the patella, and a second incision from the middle of this, perpendicularly downwards to the tuberosity of the tibia. The included angles of integument were dissected down to a finger's breadth below and parallel with the margin of the articular surface of the tibia. The ligamentum patellæ and the fibro-ligamentous tissues on either side were cut through on the same level to the extent of nearly two-thirds of the circumference of the bone. With the amputating saw a section of the tibia was made at three-fourths of an inch below the joint anteriorly and directed with a slight obliquity upwards so as to terminate at the margin of the articular surface posteriorly. Two-thirds of this section was accomplished with the amputating saw. The

second section was then commenced through the upper part of the patella, parallel with the first, and on a plane forming an angle with it, less than a right angle, and continued to about the same extent as in the first section with the same saw. The remainder of the section through the tibia, as well as through the condyles, was completed with a metacarpal saw and chisels. The included wedge-shaped portion of bone being removed, it was found the section had not been carried far enough backwards, the posterior portion of the condyles still remaining consolidated with the tibia.

To include this a new section was undertaken, commencing upon the cut surface of the femur, three-fourths of an inch anterior to the angle at which the sections already made met, and directed backwards and upwards on a plane more oblique in reference to the axis of the femur. This new section being removed, the remaining points of connection were ruptured by cautiously flexing the leg on the thigh, after which the irregular prominences were pared away with the bone forceps. An attempt was now made to extend the leg upon the thigh, when it was found that the bony surfaces could only be brought to within a finger's breadth of each other anteriorly. The soft parts in the ham being rendered tense and opposing great resistance to the extension, the attachments of the ligaments were dissected up posteriorly from the tibia while the leg was held in a state of extreme flexion, and, in addition to this, a further section of five-eighths of an inch thick was removed from the anterior two-thirds of the femur.

The leg could now be extended to the required degree with the bony surfaces in contact at every point, and the soft parts posterior to the joint in such a state of tension as to give steadiness and solidity to the coaptation.

The section of the condyles exceeding that of the tibia in its antero-posterior diameter, caused an overlapping in front of about half an inch. The hemorrhage was very moderate and only two ligatures were required to small branches given off by the popliteal trunk. The soft parts posterior to the joint and separating it from the artery were very little disturbed. The angular flaps of integument being redundant in the new position of the limb, were pared away to the required extent and secured in contact by seven sutures. The limb was then placed on an inclined plane with a slight angle at the knee, and after the patient was removed to his ward, adhesive straps were applied between the sutures and a compress of dry lint laid loosely over the whole.

The operation exclusive of the dressings occupied 40 minutes, and though very painful, was borne with remarkable fortitude.

At evening patient had felt somewhat chilly, and on moving his arms experienced twitchings in his limbs; the knee was becoming painful; pulse scarcely accelerated; a pretty copious oozing of blood from the wound was taking place. Ordered flaxseed poultice and tinct. opii. gutt. xl, pro haustu.

October 13th.—Passed a very comfortable night and slept after midnight; chilliness continues; pulse 112; tongue but little changed; occasional twitchings continue and pain in the joint increases; oozing nearly ceased; scarcely any swelling has taken place; temperature moderately increased.

At 6 P. M.—Febrile reaction was fully established; pulse 120. Twenty-four leeches have been applied around the knee, and are bleeding freely. Ordered tinct. opii. gutt. xl, at bed time, and to be repeated at midnight if necessary.

14th.—Patient more comfortable; passed pretty good night after midnight; pain in the knee very much diminished; twitchings not increased; pulse 108; countenance good; has tenderness and swelling of the lymphatic glands in the groin; ordered cold water dressing.

At 6 P. M.—Pain in the knee had again increased; pulse 120, with pain in the head and back; bowels confined; ordered 6 leeches to the groin and 18 to the knee around the condyles. R.—Ant. tart. gr. j; infus. scennæ comp. ℥viij. Dose ℥j every two hours.

15th.—Disturbed night; pain in the bowels and back; knee much easier; twitchings abated; tenderness in the groin diminished; pulse 108; tongue coated with yellowish fur in middle; knee moderately swollen without redness; only one evacuation from bowels; ordered laxative enema.

At 6 P. M.—Complained of bowels and back; pulse 108. Ordered enema of starch with tinct. opii ℥j.

16th.—Passed a good night. Bowels easy; pulse 100; changed adhesive straps and found wound looking well without any appearance of erysipelas; suppuration commencing; at evening pain in abdomen increased. No pain in the knee; pulse 98. R.—Starch enema, with tinct. opii ℥i. Poultice to abdomen.

17th.—Quite free from pain; pulse 96; suppuration increasing; apply poultice to knee.

18th.—A disturbed night from griping pains in the bowels and twitchings of the limb; pain of limb referred to knee and instep; pulse 92; swelling and redness of knee moderate.

20th.—Progress favourable; pulse 92; allowed more nourishing diet; oysters, &c.; removed the last sutures.

23d.—General condition continues favourable; twitchings of the muscles are the greatest source of suffering; they are not confined to the limb, but extend to other parts of the body; two or three times they have attacked the bowels with great violence. Some displacement has been the consequence, so that the anterior edges of the condyles of the femur are about an inch in advance of the tibia; pulse 88; appetite good; tongue clean; bowels confined; suppuration moderate and healthy; edges of wound cicatrizing except at the angles of the wound over the condyles. Take sol. sulph. morph. gutt. xv; aquæ menth. pip. ℥ss at bed time, and repeat, if necessary, ol. ricini ℥i.

Nov. 1st.—Progress for the most part favourable; at times, pain in the knee is very severe; twitchings continue, but in a less degree; position of limb improved; less riding of the excised ends of the bones past each other; discharge from outer angle of wound copious.

Dec. 9th.—Wound has been healed for more than a week; pain and twitchings after diminishing gradually, have now entirely ceased. Union is taking place between the bones; a slight degree of motion only is perceptible; patient's general health, after suffering considerably from protracted pain, privation of rest, &c., has been steadily improving for some time past; pulse 90; tongue clean; appetite good; bowels regular; rests well at night with only an occasional anodyne. For the relief of the twitchings from which patient suffered so much, anodynes were the most effectual remedies. Solution of sulph. morphia was given in 15 drop doses, twice repeated at bed time, besides which he took a mixture containing $7\frac{1}{2}$ drops at a dose, at discretion, when his sufferings rendered it necessary. The limb throughout the treatment was supported on a double inclined plane, with lateral splints and pads above and below the knee.

Patient left his bed the first week in January, with the limb supported in the apparatus that is used for forcible extension of the knee joint. At this time a slight degree of motion in the direction of flexion and extension was still perceptible, but none in a lateral direction. He was soon able to support himself on crutches and placed his foot on the floor, and, after a while, left off the apparatus and only applied a bandage. As the patient's general health improved he acquired strength in his limb, so that for two or three weeks preceeding his discharge, he walked about the hospital grounds with the aid of a cane only. The difference in the length of the two limbs was compensated for by a stirrup-shaped frame secured to the sole of his boot by means of an iron plate. The bony union at the knee had become firm without any perceptible motion, and the cicatrix of the skin as well as the subjacent tissues was supple and movable. The only uneasiness felt from exercising was referred to the calf of the leg and iastep. The difference in the length of the limbs was about 5 inches, at the heel of which not more than one-half could be ascribed to the operation; the remainder depending on defective growth in the limb subsequent to the inflammation of the joint.

On the 22d of April last, patient took his discharge, to return home to Canada near Niagara Falls, well pleased with the improved condition of his limb.

Three days before leaving the hospital he walked a distance of two miles with the aid of a cane only, and without pain or unusual fatigue. The accompanying drawings taken from plaster models, show the condition of the limb before the operation, (*see fig. 1.*) and at the time the patient left hospital, (*see fig. 2.*) The full length view (*fig. 3.*), is from a Daguerreo-

Fig. 1.

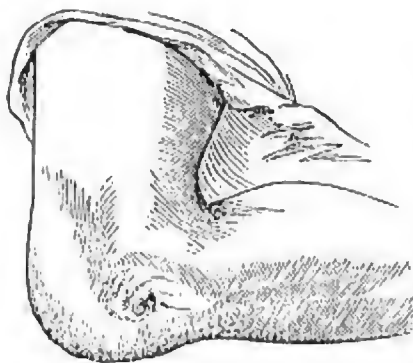


Fig. 2.



Fig. 3.*



type taken three days before his discharge. The models have been deposited in the Museum of the University of Pennsylvania, as well as the pathological museum of the New York Hospital.

Description of the excised bones.—The inferior two-thirds of the patella had been removed by an oblique cut from above downwards and from before backwards, and was found consolidated with the outer condyle by bony growth without any trace of the line of junction. It was adherent to the inner condyle by condensed cellular tissue. Both condyles were buried into and consolidated with the articular surface of the tibia.

The cut surface of the condyles, for the most part, presented a compact eburnated texture with only slight remains of cellular tissue interspersed. The space between the patella and tibia and behind the ligamentum patellæ was filled with condensed adipose and fibrous tissue.

* [In the Daguerreotype from which this wood-cut was engraved, the figure was reversed, which was not observed by the Editor until the engraving was finished.—*Ed.*]

No vestiges remained of cartilage or synovial membrane.

The cut surface of the tibia presented its normal cellular texture, except a single large cell capable of holding a filbert near the outer edge of the bone and having for its upper wall the thin compact shell of the articular surface. The section of the patella was also of normal cellular texture, with a similar large cell of three-eighths by three-fourths of an inch in extent. A third and much larger cell capable of containing a hickory nut, occupied the inner condyle near its articular surface. These cells were lined with a thin reddish membrane and contained an oily and fatty matter of reddish colour. Another incomplete cell was also found in the outer condyle, intersected with septa, subdividing it into smaller compartments lined and filled like the rest; none of these cells perforated the outer shell of bone, though at some points they approached very near it.

Subsequent, long-continued maceration separated the several parts from each other.

Remarks.—Though this operation was severe and protracted, the subsequent inflammation and suppuration were by no means excessive, and were confined to the parts immediately involved without spreading to a distance. Primary union of the edges of the wound took place to as great an extent as was desirable; openings remaining over the condyles at the extremities and in the middle of the transverse incision for the discharge of matter. At one time a small opening formed posteriorly in the ham, and after discharging a few days, closed spontaneously; with this exception, there was no burrowing of matter between the muscles, and at no time did the discharge exceed two ounces in 24 hours.

It had been my aim in the operation to disturb as little as possible the soft parts beyond the limits of the joint, especially those posterior to it, so as not to establish any direct communication between the wound and the loose intermuscular cellular tissue by which inflammation is so readily propagated. The long continuance of the pain in the knee and the twitchings, notwithstanding the generally favourable aspect of the parts themselves, were the principal cause of solicitude in this case.

Though the patient's condition at no time could be viewed as critical, yet his protracted sufferings, mitigated only without being controlled by anodynes, necessarily kept alive apprehensions as to the ultimate result. It may be reasonably questioned whether these painful symptoms were necessarily chargeable upon this operation or were not rather to be attributed to certain peculiarities in this case that might be avoided in another. For instance, the division of the peroneal nerve in the section of the tendons and the subsequent stretching of its recent cicatrix, together with the general state of tension of all the tissues in the ham produced by the altered position of the limb. This is more probable, from the fact that the patient complained of pain along the course of the peroneal nerve, and of twitchings of the posterior muscles of the limbs as more severe than elsewhere. In

concluding this report it is due to Drs. Cook and Jones, the resident surgeons who successively had charge of this patient, to express my indebtedness for their efficient co-operation in the treatment of his case, the favourable result of which, is in no small degree to be attributed to their untiring patience and devotedness.

NEW YORK, May 31st, 1845.

ART. II.—*Observations on Molluscum, with a case.* By J. H. WORTHINGTON, M. D., Resident Physician to Friends' Asylum.

AMONG the diseases which occur but rarely and offer few opportunities for observation, is one to which Bateman first drew attention in his work on diseases of the skin, under the name of molluscum. It is characterized, says he, by the appearance of numerous tubercles of slow growth and little sensibility, and of various sizes, from that of a vetch to that of a pigeon's egg. They contain an atheromatous matter and are of various forms, some being sessile, globular or flattish, and some attached by a neck, and pedunculous. The growth of these tumours is apparently unconnected with any constitutional disorder. They show no tendency to inflammation or ulceration, but continue through life having apparently no natural termination.

He speaks of the disease as occurring under two distinct forms, the principal distinguishing features of which are, that one is never contagious, while the other seems to possess the property of communicating itself in this way. In the first, the tumours do not discharge matter, in the second, a milky fluid may be pressed out which is considered to be the medium of contagion. As an instance of the contagious form, he reports the case of a young woman whose face and neck were thickly studded with round prominent tubercles of various sizes, from that of a large pin's head to that of a small bean, which were hard, smooth and shining on their surface, with a slight degree of transparency, and nearly of the colour of the skin. The tubercles were all sessile upon a contracted base without any peduncle. From the larger ones a small quantity of a milk-like fluid issued on pressure from a minute aperture, such as might be made with a needle's point, and which only became visible on the exit of the fluid. The progress of their growth was very slow, for the first tubercle had appeared on the chin a twelvemonth ago, and only a few of them had attained a large size. She ascribed the origin of the disease to contact with the face of a child whom she nursed, on which a large tubercle of the same sort existed, and on a subsequent visit she stated that two other children of the same family were disfigured by similar tubercles; and besides that, the parents