THE Jacksonian Prize Essay

FOR 1865.

ON DISEASED CONDITIONS OF THE KNEE-JOINT.

BY

WILLIAM PAUL SWAIN, M.R.C.S.,

SURGEON TO THE ROYAL ALBERT HOSPITAL, DEVONPORT, ETC.

APPENDIX OF CASES.

CASE I. November 11th, 1857. William Ellis, aged 9, of Tiverton. Under the care of Mr. Kempe, of Exeter. Scrofulous disease of the knee-joint, arising from a blow some years since. His health was very much impaired, rendering some operation imperative. Although the case was not the most suitable one for resection, the friends preferred its trial to amputation.

The joint was resected under chloroform. The articular surfaces of the femur and tibia, with the whole of the patella, were removed, although the latter bone was not implicated in the disease. No vessels required ligaturing. The boy was much exhausted by the operation and the effects of the chloroform. The H-incision was made.

No untoward symptoms followed; the healing process, however, was very slow; several sinuses formed, which had to be freely opened. At the end of six weeks there was a tolerably firm union of the bone. The sinuses showing no disposition to heal, and his general health remaining bad, it was thought best to send him home on December 19th.

I hear that ultimately the wounds healed, and his health was restored; but his knee became much contracted.

Ellis is now in good health and strong; the leg

Fig. 21.

operated upon is eight inches shorter than the other. He is learning a trade (shoemaker); he walks well, and at the rate of four miles an hour; he can walk fifteen miles in a day without any inconvenience or

pain; he generally uses an ordinary walking-stick, but more to steady himself than from any use he makes of it to assist him; he wears a high-heeled boot; the heel is nine inches from the ground when standing, the toes four inches and a half; the foot is smaller than the other by an inch in each direction. He had used crutches for seven years altogether. The limb measured eleven inches when excision took place; the calf of the leg also measured eleven inches. (Fig. 21.)

CASE II. November 17th, 1860. Ellen Bartlett, aged 11, of Tiverton. Under the care of Mr. Kempe. Scrofulous disease of the knee-joint, of one year's duration, with the knee bent and fixed at a right angle; her general health was not much impaired. Resection of the joint by one semilunar incision was performed; the articular surfaces, with the patella, were removed; the limb was placed in a Salter's swing with Price's splint.

This was a tedious case; several sinuses formed, and remained open. The general health having been very much improved, she was made an out-patient in May 1861.

The last time I saw this little patient she was in perfect health; the sinuses were all healed; the limb was quite straight, and union very firm, with very little shortening; and she could walk with very little lameness.

Mr. Bedell, of Tiverton, writes, December 1865:—"Ellen Bartlett, aged 17, general health good; the heel is five inches from the ground; the toe rests on the ground, she walks without a high-heeled boot, is strong, and can do three miles without in-

Fig. 22.

convenience; works at a lace-factory, and is standing all the day long. The limb measures eleven inches and a half at the knee, and eleven inches at the calf; the foot is of the same size as the other."

CASE III. April 15th, 1851. Sarah Russell, aged 8, of Whitstone. Under the care of Mr. Kempe. Scrofulous disease of the right knee-joint, of three months' duration; she was a very puny and delicate child.

By a semilunar incision the joint was exposed; the articular surfaces of the femur and tibia (much diseased) were, with the patella, removed. The after treatment was conducted on general principles; and she was made an out-patient in July with several small sinuses not healed.

This case has been seen by me several times since, and is in all respects as favourable as No. 2.

CASE IV. August 21st, 1861. George Curtis, aged 18, servant, of Newton Bushel. Under the care of Mr. Kempe. Scrofulous disease of the right knee-joint of two years' standing. The same case was trephined December 16th, 1859, and August 8th, 1860.

The joint was exposed by a semilunar incision, and the articular surfaces of the tibia and condyles were removed; both were much diseased, especially the inner condyle and corresponding surface of the tibia. There was very free bleeding from the bone after the operation, which it was somewhat difficult to restrain. The limb was put on a straight splint and treated in the usual way.

This case progressed most favourably without any drawback, and at the termination of the seventh week the wound was entirely healed, and the union was complete. He was discharged cured November 5th.

There was, however, considerable shortening of the limb, nearly three inches and a half; but with a high-heeled shoe he walked about the ward quite well, and with very little lameness.

CASE V. December 16th, 1861. W. Wellington, aged 6, of Exeter. Under the care of Mr. Kempe. Scrofulous disease of the knee-joint, of many years' standing.

The limb was exposed by a semilunar incision, and the patella and articular ends of the bones were removed in the usual way.

For a few days after the operation he suffered much from vomiting and restlessness, which, however, gradually subsided; he made a slow recovery; but after three or four months left the hospital quite well, but with incomplete union of the bones. About twelve months after this he was again taken in for a contraction of the same knee, which under chloroform was straightened and put on a long splint, and eventually did well.

CASE VI. Of primary excision, by Mr. Kempe, appeared in the body of the essay. (See p. 542.)

CASE VII. June 21st, William Holder, aged 7, of Exeter. Under the care of Mr. Kempe. Scrofulous disease of the left knee of six months' duration, producing great pain and emaciation.

A nearly straight incision across the joint was made, and the articular ends of the bones with the patella were removed; there was very little, if any, ulceration of the cartilage.

During the after treatment he was attacked with synovitis of the other knee, which pulled him down considerably; he was made an out-patient in September, much reduced in health and strength, but with the leg in good position and with fair union. The other knee was better.

This poor little boy never recovered his health. About ten months after leaving the hospital he suddenly became blind, and, at the early part of 1864, died of tubercular meningitis.

CASE VIII. November 10th, 1862. W. Holmes, of Ipplepen, farm labourer, aged 16. Under the care of Mr. Kempe. Acute synovitis of right knee-joint with abscess in the popliteal region; his health was much reduced.

After an anxious consultation, amputation above the knee was advised, as a less shock to the constitution, which was much depressed. On placing the matter before him, he preferred resection of the joint. Excision of the knee-joint was performed.

This case went on most favourably from the first, although it was complicated with bed-sores, and a large abscess of the opposite thigh.

The resected knee was quite healed in five weeks, with firm union between the bones; he had, how-

ever, a tedious recovery from the bed-sores, etc. He left the hospital quite well, and has not since been heard of.

CASE IX. September 18th, 1863. William Ash, aged 22, of Torquay, servant. Under the care of Mr. Kempe. Scrofulous disease of the knee-joint, of three years' duration. He had been in one or two of the London hospitals, and many months in the Devon and Exeter Hospital, and, finding that he still became worse, was anxious to have the knee excised. The joint was exposed by an almost straight incision across it, and the articular surfaces, which were much diseased, with the patella, were removed.

The after treatment was conducted in the usual way, and he made a very good recovery. He left the Hospital in January following, with a well-moulded leather splint.

He visited Exeter about two months since, when I found that he could walk at the rate of three miles and a half an hour.

A photograph of this case by Angel accompanies it; his general health, which had been much impaired, was perfect, and he expressed himself in very grateful terms for his recovery.

The lady who gave him his recommendation was so pleased, that she most liberally presented a donation of £25 to the hospital on the occasion.

CASE X. February 2nd, 1864. Joseph Hammett, aged 18, errand boy, Exeter. Under the care of Mr. Kempe. Scrofulous disease of the left knee-joint, of eight months' duration.

He had been subject to the usual treatment; but, the pain increasing, and his health becoming much worse, he was anxious to have excision performed. The joint was exposed by a semilunar incision from one condyle to the other, and the articular surfaces of the femur and tibia, with the patella, were removed. The case went on favourably. At the end of two months the bones were firmly united, but the wound was not healed.

He was made an out-patient in May, and is still in attendance with a very small ulcer open, but with a very straight limb, and firm union.

There was considerable secondary bleeding after this operation, and it was found necessary to apply the actual cautery to arrest it.

It should have been stated that the end of the femur was found denuded of its investing membrane to some considerable extent, and there was some doubt whether, in consequence, this case would do well. A second slice of bone was removed, which of course further tended to shorten the limb, and which, from the termination of the case, I do not now believe to have been necessary.

CASE XI. May 25th, 1864. Elizabeth Jolly, aged 33, Morchard Bishop. Under the care of Mr. Kempe. Disease of the knee-joint, of four years' duration. The joint was exposed by a semilunar incision, and the articular surfaces, with the patella, all much diseased, were removed. This case progressed favourably, and a most useful limb was procured.

CASE XII. June 1st, 1864. William Squires, aged 9, Tiverton. Under the care of Mr. Kempe. Scrofulous disease of the left knee-joint, of some years' duration.

He was much emaciated, and suffered intensely from pain in the joint, and was most anxious to have some operation performed; this was against the wish of his mother at first.

The joint was exposed by an almost straight incision, and the articular surfaces, with the patella, were removed. The after treatment was conducted in the usual way, and the case was progressing most favourably till the beginning of July, when he was

attacked with tubercular meningitis, and died on the 17th.

The union of the knee was very firm; the soft parts were much ulcerated.

CASES XIII and XIV. Mr. Swain's excisions, have appeared in the body of the essay. (See pp. 490 and 543.)

CASE XV. Mr. H. Smith's case. M. B., aged 30, female, admitted September 6th, 1865. Strumous disease of knee-joint commencing in the synovial membrane; joint greatly disorganised; pain and swelling in the joint commenced November 6th before, and this increased rapidly, the joint becoming gradually flexed. She went to St. Bartholomew's Hospital, when amputation of the limb was proposed; she would not submit to this, and came under Mr. Henry Smith's care into King's College Hospital. On admission, the joint was swollen, red, fluctuating in parts, causing her great pain on pressure, and flexed.

October 21st. Excision was performed; the joint was completely disorganised, and full of gelatinous matter; the lower end of the femur and the articular extremities of the tibia were removed. (Preparation 9.)

The patient went on very well until six days after the operation, when Mr. Smith, finding the femur somewhat overriding the tibia, placed her under chloroform and changed the splint. Two days after this, she got a rigor, symptoms of pyæmia were gradually developed, and she died on the 18th day after the operation. Mr. Smith fears he may possibly have carried infection to this patient from a patient with abscesses, the result of puerperal fever.

On *post mortem* examination, the limb was found in excellent position, but the ends of the tibia and femur, or rather their substance for the extent of an inch or more, were here and there infiltrated with pus. There were small circumscribed purulent deposits in one lung, and a collection of matter in the front of the pons Varolii, cerebellum, and fourth ventricle. Latterly, she had complained terribly of pain in the head.

CASE XVI. A boy, aged 8, admitted into King's College Hospital, under Mr. H. Smith, with old disease of the knee, which resulted in permanent deformity, the leg being flexed upon the thigh, and the ankylosis being very firm.

Mr. H. Smith removed a wedge of bone (preparation 8) on October 7th, 1865. The boy has made a good recovery with a straight though somewhat shortened limb.

CASE XVII. Mr. Wood's case. H. D., male, aged 4. Strumous disease of knee-joint, commencing in the bones; cartilage becoming involved. The patient was pale, flabby-looking; the right knee was swollen, and uniformly soft; the skin covering it was pale; the joint was semiflexed, immovable, and very sensitive. Four sinuses opened on the surface at the front part of the knee. No exposed bone could be detected on probing the sinuses, which were discharging puriform matter.

October 21st, 1865. Excision was performed by a semilunar incision; the lower end of the femur and the whole of the epiphysis of the tibia were removed. A small abscess was found in the head of the tibia; the cartilage and synovial membrane were as yet healthy; the patella was healthy. (Preparation 7.)

The child has made a good recovery, and there is now firm union between the bones.

CASES XVIII, XIX, XX, of amputation of the thigh, for disease of the knee, have appeared in the body of the essay. (Pp. 374 and 652.)

CASE XXI. E. B., aged 50, labourer, admitted into

the Taunton and Somerset Hospital, June 11th, 1864, under Mr. Liddon, with disease of the left knee-joint, of six years' duration, and a discharging sinus over the centre of the sternum connected with disease of that bone. There was no history of syphilis. The knee was slightly flexed, swollen, with an evident thickening of the synovial structures, very tender to the touch, and excessively painful at night. His general health was bad; tongue furred; occasional diarrhoea, and loss of appetite, but no cough.

The treatment consisted in keeping the joint at rest by a splint, etc., and supporting the strength by tonics and liberal diet. Instead of improving, the patient lost flesh gradually; suppuration took place in the joint, and sinuses formed.

On October 8th, 1865, the patient having somewhat rallied, amputation was performed about the middle of the thigh, as the bone was thickened in the lower third. He survived the operation for a few days, and then died with congestion of the lungs.

On his admission, Mr. Liddon thought that, if his general health could be improved, it would be a fit case for excision. Amputation was, however, resorted to, as affording the best chance, in not calling so much upon the restorative powers at his age, and in his weakened condition from the extent of disease in the femur.

CASE XXII. Valentine Harris, cheesemonger, aged 49, was admitted into the Westminster Hospital, September 29th, 1864, under the care of Mr. Holt, with strumous disease of the left knee-joint. Amputation of the thigh was performed; sloughing of the anterior flap followed the operation; and he died on October 30th.

There was strumous disease of the knee-joint, of two years' duration; there was also a collection of matter below the head of the tibia communicating with the joint. This was opened fourteen days after admission, with temporary relief, and the limb was amputated on October 17th, 1865. A long anterior flap was left, and no posterior flap. On the day after the operation, three inches of the anterior flap had turned black, and appeared likely to slough. Sloughing commenced on the third day in the part first indicated; the patient became gradually weaker, and died on the fourteenth day after the operation. All the ligatures had come away except that on the femoral artery. The slough had not thoroughly separated when death took place.

[To be continued.]

DEATH OF THE TYCOON. The *Japan Herald* of September 29th gives an account of the death of the Tycoon of a disease peculiar to Japan, but resembling dropsy.

SERPENTS AT MEALS. Some rabbits, so young as to be almost helpless, were dropped into the cases of the rattle-snakes and puff-adder. They were soon struck, but the venom was much slower in its action than I should have expected. The bite of both these species is said to be fatal to man, yet these small animals survived about twenty minutes. The bites were effectually given, as in one instance blood oozed from the punctures, and in another it flowed from the nose and mouth. I paid particular attention to the act of striking, having understood that our English viper does not, strictly speaking, bite, that is, does not close the jaws, but with the mouth wide open drives in the fangs by a downward stroke of the upper jaw, like the blow of a hammer. The puff-adder, however, appeared to seize its prey with a momentary grip, leaving go immediately. (*Hardwicke's Science Gossip*.)