

## ORTHOPÆDIC SURGERY.

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### I. The treatment of congenital dislocation of the hip.

Kirmisson (*Traité des Maladies Chirurgicales d'origine Congénitale*, Paris, 1898); Ghillini (*Revue d'Orthopédie*, March, 1898); Whitman (*Medical News*, April 30, 1898); Sayre (*ibid.*).

This subject has continued to receive the attention of surgeons during 1898, and although perhaps some slight progress has been made, a review of the articles that have been published shows that the treatment of the deformity is still far from satisfactory. The open operations of Hoffa and Lorenz have not fulfilled the promise that was held out for them, and the method of Paci, combined with fixation in the position of abduction, has, to say the least, been disappointing. Kirmisson in his recent work on congenital deformities fully discusses the pathology, symptomatology and therapeutics of the affection, and has been forced to the conclusion that at the present time we may consider ourselves fortunate if we can obtain a partial success without any risk. He dwells upon the dangers and risks of the open operation, and upon the poor results obtainable from orthopædic appliances. Ghillini reports operations on seventeen cases in children varying from five to twelve. In three he practised Paci's method with a negative result, and in fourteen he combined the manipulative method with fixation of the stump of the head of the bone in or near the rudimentary acetabulum, allowing the patient to get up at once after the limb had been mobilised in plaster-of-Paris. He points out that it is only in cases where the head of the bone assumes a dorsal position that the limb should be fixed in abduction. Where the head is displaced downwards the limb should be adducted; when forwards, rotated inwards. When there is much upward displacement before beginning treatment he advises extension by means of a weight for a month or so before operation, so as the more easily to bring down the head of the femur. The after-treatment lasts six months to a

year, according to the greater or less tendency of the head of the bone to become displaced on removing the apparatus. He only claims what he calls satisfactory results, but not a perfect cure. In one case he says he obtained ankylosis of the hip, and in some others rigidity. In some he admits there was shortening, and in all some lateral deviation of the trunk during walking. At the meeting of the New York Academy of Medicine, Whitman stated that he had employed forcible reduction with fixation in sixteen cases, and showed a patient aged two and a half after eight months' treatment, in which the result was very good indeed. There was practically no shortening, whereas before the operation there was three-quarters of an inch. This case appears, however, to have been one of those rare ones in which an actual dislocation occurred at birth, and one, therefore, in which the head of the bone had been replaced in a more or less normal acetabulum. In the majority of cases there is, unfortunately, only a rudimentary acetabulum, and the head of the bone is more or less deformed. Sayre in thirty-one cases of congenital dislocation which he has treated, has only met with one in which there was a normal acetabulum. He would employ the manipulative treatment first, especially if, by means of the X rays, a normal socket for the bone is discovered; otherwise he still advocates the open operation of chiselling out a new cavity. If any good is to be obtained there can be no doubt that the earlier the attempt to replace the bone is undertaken the better, since the longer the deformity remains the more will the rudimentary acetabulum become filled up, as in the case with the acetabulum after non-reduction of an ordinary acquired dislocation. The early recognition of the deformity is, therefore, important. The X rays should then be employed, and if the cavity for the acetabulum is discovered, reduction by manipulation should at once be attempted, and the limb immobilised for a sufficient time to prevent re-dislocation. A good result will then probably follow. If no acetabulum is seen, and in older children, it is still a question if much will be gained either by the open operation or by manipulation with fixation. The reporter is bound to say that hitherto he has seen no example of either in which the result has appeared to him worth the risk of the open operation on the one hand, or the tediousness of the treatment on the other. In one case in which manipulation with fixation in a position of forcible abduction was most carefully and conscientiously carried out for him at the Hip Hospital at Sevenoaks, practically no improvement was obtained.

## 2. Treatment of faulty ankylosis of the hip by osteotomy.

Berger (*Revue d'Orthopédie*, July, 1898); Phocas (*ibid.*, September, 1898); Willett (*Brit. Med. Journ.*, December 11, 1897).

Berger, for certain cases of faulty ankylosis of the hip, recommends oblique trochanteric osteotomy in place of osteotomy of the neck of the femur or transverse osteotomy below the trochanter. He makes his section from the top of the great trochanter obliquely downwards and inwards to just below the lesser trochanter. In this way the divided surface of bone is longer, and therefore permits of more extension being brought to bear on the lower fragment without complete separation of the fragments. As a consequence, there is gained nearly an inch of actual lengthening of the femur. He has not found any deficiency of callus and consequent weakness of the bone, nor has he experienced any bad result by the greater separation of the periosteum and soft parts than in transverse osteotomy. To avoid splintering of the bone he uses three chisels simultaneously.

Phocas, in a paper based on seventeen cases that have come under his own observation, concludes that sub-trochanteric linear osteotomy is the operation of choice for the correction of vicious attitudes of the hip. In certain circumstances mechanical rectification or arthrotomy may be advantageously employed. Other osteotomies should seldom be practised. Bilateral sub-trochanteric osteotomy is of advantage in certain cases of bilateral ankylosis of the hip, especially when the limbs are ankylosed in the form of X.

Willett has performed osteotomy for the correction of faulty ankylosis of the hip thirty-one times. He prefers Adams's operation of section of the neck of the femur for cases of rheumatic type, and Gant's sub-trochanteric method for the tuberculous where there is scarring and production of new bone with thickening and flattening of the trochanter. In both operations he aims at bony ankylosis. Where the ankylosis affects both hip-joints, he endeavours to procure a false joint on one side; something more than a simple osteotomy is necessary for this. He then performs a modification of Sayre's operation. He makes an incision over the front of the hip-joint, deepens it until the capsule is reached, frees the connections along the anterior border of the acetabulum, and endeavours to force the head of the bone out of the cavity. If this is impossible in consequence of complete synostosis having taken place, he proceeds, partly with Adams's saw and partly with chisel and mallet, to cut out the neck and some portion of the adjoining surface of the great trochanter, leaving a complete interval of about a quarter of an

inch between the pelvis and the femur. The reporter considers that for the majority of cases of faulty ankylosis of the hip sub-trochanteric osteotomy is the operation *par excellence*. It is easily performed, involves the minimum disturbance of the soft parts, and if the limb is then placed in a well-abducted position on a Thomas's splint, a good inch of lengthening, as pointed out by Willett, is gained, since, when the patient begins to walk, the pelvis is rotated downwards to about that amount in order to enable the limb to be brought parallel with its fellow.

## 3. Treatment of badly-united fractures by osteotomy.

Willett (*Brit. Med. Journ.*, December 11, 1897) has operated nine times for the cure of the deformities resulting from badly-united fractures. In performing this operation, he insists that it is very essential for its success to disengage the fragments very thoroughly and, after careful adjustment, to employ very much more weight extension than for ordinary simple fractures, to ensure full length being maintained. In one instance he used as much as 30 lbs. of shot in one canister. His success in badly-united Pott's fracture by chiselling obliquely through the tibia, dividing the fibula transversely, and then wrenching into position, has been very good. The reporter can speak well of osteotomy for badly-set Pott's fracture, and has had several successful cases in which the deformity has been completely overcome by the removal of a wedge of bone from the internal malleolus with subcutaneous division of the fibula at the seat of fracture. In less severe cases he has obtained equally satisfactory results by re-fracture with the osteoclast, or, indeed, in cases of not long standing, with the hands alone. In all moderately recent cases—say within two months—a readjustment of the fragments with the hands or osteoclast might, in his opinion, be tried before resorting to osteotomy.

## 4. The treatment of caries of the spine, resulting in angular deformity.

Horsley (*Brit. Med. Journ.*, October 15, 1878); Robert Jones (*ibid.*); Luckham (*ibid.*); Tubby (*ibid.*); Murray (*ibid.*); Kirmisson and Arduin (*Revue d'Orthopédie*, May, 1898); Ménard (*Gazette Médicale de Paris*, X.S., 1897); Lorenz (*Deutsche med. Wochenschrift*, 1897, p. 218); Malherbe (*Annales de Chirurgie et d'Orthopédie*, 1897, p. 656); Noble Smith (*Lancet*, February 19, 1898); Gibney (*New York Med. Journ.*, March 26, 1898); Phelps (*ibid.*); Sayre (*ibid.*); Judson (*ibid.*).

The treatment of caries of the spine formed a subject for discussion at the meeting of the British Medical Association at Edinburgh during the past year. Horsley advocates early operation

with temporary fixation in cases of marked caries of the spine. He advises that the vertebræ should be cut down upon and the carious material cut or scraped away. He holds that, if the operation is done in early cases, the risk is small, and that by removal of the tuberculous focus the danger of the further risk of latent tuberculous infection is averted and the chance of angular deformity to a great extent removed. He admits, however, that he has seen three fatal cases in which this operation has been performed, one from shock and two from dissemination of tubercle or the lighting up of latent general tuberculosis. As a precaution against the introduction of the bacillus into the circulation during the operation, he advises the irrigation of the wound with 1 in 500 perchloride of mercury solution. **Robert Jones** agreed that were it possible to remove every element of dead bone, the operation would be excellent treatment, but this was in the majority of cases, absolutely impossible. Such treatment involved either operating on early cases which might with advantage be left alone, or upon cases so advanced as to render complete operation impossible.

With regard to the treatment of spinal abscesses, **Horsley** advised that they should be opened early, scraped and closed, or drained antiseptically. For dorsal abscesses he has always employed simple laminectomy, and then, when by examination of the tissues in front or at the side of the spinal cord the abscess has been discovered, he removed the pedicles of the nearest intervertebral foramen to secure the thorough laying open of the cavity, providing for its continual drainage as well as disinfection. **Luckham** stated that he always aspirated and injected iodoform emulsion before opening a spinal abscess, and **Kirmisson** and **Ardouin** report a number of successful cases. At the Hip Hospital at Sevenoaks, where the reporter introduced the method of aspirating and then injecting iodoform emulsion, some few years ago, the success of the method has been most gratifying. The plan adopted there is to aspirate and inject immediately an abscess is discovered, whether it be connected with the hip or with caries of the spine. The aspiration and injection are then repeated four or five times if necessary, till the abscess finally ceases to refill. During the treatment absolute recumbency with fixation of the spine or hip, as the case may be, is rigorously carried out. In but few instances does it become necessary to open and scrape out the abscess cavity. For private practice, where there may be difficulties in ensuring an absolutely aseptic operation, aspiration and injection is by far the safest procedure, and should, in the reporter's opinion, always be tried before resorting to the open

method. To obtain success it is absolutely essential that the instruments and emulsion should be sterile, and the skin should be rendered properly aseptic in the region of the puncture.

Calot's method of correcting the angular deformity following spinal caries has now been somewhat extensively employed during 1898, but similarly favourable results have not been equalled by other surgeons. **Ménard** reports a death from rupture of an abscess; **Lorenz**, a death from paralysis; **Malherbe**, the fracture of a spine; and **Jonnesco**, three deaths in thirteen reductions. **Robert Jones** reports seven deaths in ninety-three cases, though he thinks only two could be attributed to the operation. **Murray** reports fourteen cases, in all of which the deformity had recurred, although the spines had been fixed in plaster-of-Paris after the straightening. His experience was decidedly unfavourable to the operation, for two of the fourteen cases had died, and three others were likely to die shortly, probably from indirect results of the straightening. In no case had the deformity remained unobliterated. He attributes the ill-success to the marked deficiency in the formation of new bone in the tuberculous disease, and the consequent want of material sufficiently strong to bear weight. **Tubby** has operated on twenty-nine cases; of these one had died of general tuberculosis and abscess in the posterior mediastinum, and two others had developed abscesses; the remainder were alive and well. He admitted that it was one thing to obtain reduction of the deformity, partial or complete, another to maintain it.

**Noble Smith** quotes two cases in which violent reduction led to death. In one suppuration set in, in spite of every precaution, and in the second case the patient died of generalised tuberculosis. In another case the patient lived some time after the gradual rectification, but eventually died of tuberculous meningitis. At the autopsy the affected part of the vertebral column was represented by a narrow bony column, which could be broken without any effort, leaving the medulla without support. On the other hand, **Gibney** showed two cases at the meeting of the Academy of Medicine, New York, in which, with very little force, he had corrected the deformity in two patients, a boy of twelve and another of six. There was no reaction after the operations, and the children had been allowed to get up and walk about in a plaster case a few days afterwards. These cases, however, had not been done a sufficient time to say whether there would be any return. **Gibney** considers angular deformity such a drawback in after-life that he thinks the operation should be attempted, even if attended with some risk. He suggests that the deformity should

not be corrected forcibly at one sitting, but gradually at several. Phelps also reported a successful case in a child of seven, in which the kyphosis, which was very pronounced, had been completely reduced. The cracking at the time of operation was so violent that it was thought the spinal column had been broken. There was no reaction and the patient was up in four days. He thinks, however, that when the hump is exceedingly large, when there is firm ankylosis, or an abscess is present, the operation must be regarded as very dangerous. Sayre was of opinion that if one could determine beforehand what cases could be rectified without danger the operation might well be adopted. Anyhow, patients for operation should be chosen with care. The general opinion at the meeting was that the operation could only at present be regarded as on its trial, and that it was not one to be generally recommended till further experience was gained on the subject.

##### 5. Treatment of lateral curvature by forcible reduction.

Gibney (*New York Med. Journ.*, March 26th, 1898) showed before the meeting of the New York Academy of Medicine a girl of fourteen in whom he had attempted forcible rectification. Under an anæsthetic, vigorous and forcible efforts at torsion were made for five or ten minutes, and the patient put in a plaster jacket. These manipulations were made use of three times, with the result that the curve was considerably ameliorated, and the patient gained two inches in height.

##### 6. The treatment of torticollis.

Bedard (*Le Torticollis et son Traitement*, 1898) has recently published a work of 200 pages on this affection, which is a *résumé* of all that has been written on the subject in France and elsewhere. He has come to the conclusion that on the whole the open division of the sterno-mastoid is the operation that should generally be employed. At the same time, however, he has not abandoned the subcutaneous method altogether. Partial or complete ablation of the sterno-mastoid, he correctly says, ought to be reserved for very rare cases, and such as have resisted the ordinary surgical treatment. He specially calls attention to the importance of orthopædic methods both before and more particularly after operation, a treatment which is perhaps too apt to be neglected both by the surgeon and the patient.

##### 7. The treatment of genu valgum.

Morton (*Brit. Med. Journ.*, April 16, 1898); Willett (*Bradshaw Lecture, Brit. Med. Journ.*, December 11, 1897).

In six cases in which the X rays were taken there was in none either a rickety curve of the lower end of the femur or

elongation of the internal condyle. On the contrary, there was an elongation upwards of the tibia just below the head, and a corresponding curve of the shaft of the tibia most marked about the middle part of that bone. In the face of these researches Morton asks if Macewen's osteotomy is the right operation. It has, says he, no doubt given good results, but he questions whether it would not be better surgery to divide the bones which are curved rather than to correct the deformity of the limbs by cutting through the non-deformed femur and causing a certain amount of deformity at the seat of division, together with some distortion in the position of the joints. He has treated one case by dividing the tibia transversely at the union of the head with the shaft by an incision made on the internal aspect of the limb. On one of the legs he was obliged to do a cuneiform osteotomy. The fibula was cut through at its middle part; the limb was rectified and immobilised as after a Macewen's operation. The result was very good, and the deformity just as well rectified as if osteotomy of the femur had been performed. Morton thinks if the tibia is fully exposed and the division is made with a small Adams's saw, there is no danger of injuring the tibial vessels. With this statement the reporter, however, is afraid he cannot agree, since wounds of these vessels in osteotomy of the tibia have occurred which have necessitated amputation of the limb.

Willett has performed 412 operations on 236 patients for knock-knee. Of these 232 were done after Macewen's method, 21 by the Reeves-Ogston method, and 159 by the osteoclast. He lays stress upon the importance of being able to note and record the actual degree of deformity in cases of knock-knee, because, he says, upon the two factors, the age of the patient and the degree of the deformity, he decides what operation to perform, assuming one to be necessary. He determines the amount by measuring an angle at the outer aspect of the knee by the meeting of two lines, the one drawn downwards from the great trochanter to the external tuberosity of the tibia passing over the outer surface of the external condyle, and the other upwards from the external malleolus to the outer surface of the external tuberosity of the tibia. For all patients under the age of thirteen in whom the recording angle is not less than 120 degrees, he performs osteoclasia. Above this age, being those presumably whose femora are too dense to be broken by the osteoclast, he prefers transverse supra-condyloid osteotomy on the lines laid down by Macewen, but he discards the Esmarch. Since 1885, from which date the technique of aseptic surgery has been more and more reduced to almost an infallible system, he has not met with any

mishap. In two instances, however, he had to give up the attempt to complete the operation on account of smart arterial hæmorrhage due to an abnormal position of the anastomotica magna artery, having to enlarge the wound to secure the bleeding vessel. The osteotomy was done a week or two later without further incident. Where the recording angle is less than 120 degrees, he employs the Reeves-Ogston method, since he has found it impossible by Macewen's operation in such cases to place the limb straight, because when the deformity is corrected the skin on the outer side of the limb is so tightly stretched over the projecting edge of the lower fragment that were it placed in the straight line it would inevitably ulcerate through. In one or two instances, when the deformity has been very severe, he has had to supplement the Reeves-Ogston method by a supra-condyloid division.

**8. Tarsectomy for congenital equino-varus.**

Murray (*Brit. Med. Journ.*, Oct. 15, 1898) reports fifty-two operations on forty-two patients, in which he has removed a wedge of the tarsus by Davies-Colley's method. He considers no operation could produce better results, both in respect to the duration of the treatment and the subsequent utility and appearance of the foot. He especially emphasises the importance of the wedge being sufficiently large to allow the foot being not only easily straightened, but of the varus deformity being slightly over-corrected.

Le Bec (*Revue d'Orthopédie*, Nov., 1898) contributes ten cases of tarsectomy for this affection. He, however, removed the astragalus and as much more of the tarsal bones as was found necessary to bring the foot into a good position. Passive movements in his cases were begun as soon as the wound was healed. He claims to have obtained a serviceable amount of flexion and extension at the ankle.

**9. The treatment of infantile paralysis by function-transference or tendon-grafting.**

Eve (*Brit. Med. Journ.*, Oct. 15, 1898) discusses the method for reinforcing paralysed or paretic muscles, by attaching or grafting on to them the tendon of a neighbouring healthy muscle (Nicoladoni's operation, as it is called, after its originator). He contributes five cases; in one, a case of paralysis of the muscle, supplied by the external popliteal nerve, the tibialis posticus was grafted to the extensor longus digitorum. The tendo Achillis having been exposed, a band taken from it was carried round the fibula and attached to the peroneus longus. Some dorsal flexion of the foot was regained. In a second case of equino-varus of paralytic origin, in which the peronei and

extensor longus digitorum were at fault, the tibialis anticus was divided and grafted on the peroneus brevis, and the tibialis posticus on to the extensor longus digitorum. Good power of dorsal flexion was obtained. There was no adduction. In the third case of paralysis of the extensor longus digitorum and tibialis anticus, the tibialis posticus was divided and attached to the tibialis anticus, and the peroneus brevis attached to the tendon of the extensor longus digitorum. In a fourth case of infantile paralysis with foot drop and eversion, the peroneus longus tendon was attached to the extensor digitorum, the peroneus brevis to the tibialis anticus. Distinct voluntary power of dorsal flexion was obtained. Goldthwait's plan of uniting the tendon was carried out in all cases—namely, the tendon of the paralysed muscle was split longitudinally, and the divided tendon of the functioning muscle passed through the split, and united by three or four sutures passed through both tendons. The reporter has employed Nicoladoni's method in several cases of paralytic calcaneus during the last few years, grafting the peronei on to the paralysed tendo Achillis, and in some instances the flexor longus pollicis also. The functioning muscle, when electrically stimulated, acted on the tendon of the paralysed muscle, but the power obtained was hardly sufficient to enable the patient to rise to tiptoe.

**10. The setting time of plaster-of-Paris.**

D'Arcy Power and Belcher (*Treatment*, March 24, 1898). Plaster-of-Paris is so much used in orthopædic surgery that the short note furnished by these authors is of value. Where it is of importance to make plaster-of-Paris set rapidly they found, after experimenting with many substances, that the best way to do so is to mix it with a 5 per cent. solution of common salt, and this may be made roughly by adding a tablespoonful of salt to a pint of water.