

**Notes on a case of dislocation of shoulder without rupture of capsule ;
Cases of talipes ; A complete case of ossifying sarcoma / by D'Arcy Power.**

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*Notes on a case of dislocation of shoulder without rupture
of capsule.*

By D'ARCY POWER, M.B.

J. B—, aged 69, salesman at Smithfield Meat Market, admitted into St. Bartholomew's Hospital on December 21st, 1887, under Mr. T. Smith, having fallen a distance of eighteen feet on to the pavement, pitching on his right elbow and side. On examination he was found to have a compound T-shaped fracture of the lower end of the right humerus, with dislocation of the right shoulder. The dislocation did not answer exactly to the description of either the subcoracoid or subclavicular varieties, the head of the bone being more prominent than is usually the case with the one and less so than is usually the case with the other. The coracoid process could not be felt and no crepitus was noticed.

The reduction of the dislocation was easily effected under an anæsthetic. The patient, a stout, plethoric man, and unaccustomed to confinement to bed, died twelve days after his admission of acute broncho-pneumonia.

At the autopsy the head of the humerus was in its proper position and the capsule of the joint was quite intact. It was rather lax, and its attachment to the anterior border of the glenoid cavity was slightly raised, but still quite continuous with the periosteum. The coracoid process was torn off the scapula, but still remained attached to the short tendon of the biceps; and the muscles surrounding the joint were intact, with the exception of the subscapularis, which was lacerated, and into which there had been some extravasation of blood. On opening the capsule the joint was seen to be blood-stained, and on protruding the head of the bone there was visible on the posterior part of the articular surface a groove, which on redislocation fitted the lower part of the anterior margin of the glenoid cavity. The groove was about three quarters of an inch long, and implicated the cartilage on the margin of the anatomical neck. The capsular ligament showed signs of injury where the head of the bone had impinged against it at the moment of dislocation, and there was a small piece of the articular cartilage lying loose in the joint. The lower end of the humerus showed a

good specimen of a T-shaped fracture, the olecranon being wedged between the separated condyles.

Remarks by Mr. D'Arcy Power.—In the unavoidable absence of Mr. Claude Evill, who has gone to Calcutta, I have undertaken to show this specimen. It is, I think, an extremely interesting one, but it is not quite unique, for Brigade Surgeon Lloyd tells me that there is a similar preparation¹ in the museum of Guy's Hospital; and Mr. Eve showed an almost identical case at the meeting of the Royal Medical and Chirurgical Society, held on May 4th, 1880. That specimen has been preserved in the museum of St. Bartholomew's Hospital, and I produce it for your inspection to-night. In each instance the chief interest of the case lies in the fact that the head of the humerus was so far separated from the glenoid surface of the capsule as to be completely dislocated, and this too without rupture of the capsule. In the two cases which I exhibit to-night the capsule of the joint has been partially separated, and in both, on exposing the joint, there is seen to be a well-marked indentation or groove on the posterior part of the articular surface of the head of the humerus. The presence of this groove is very remarkable, and I cannot but agree with Mr. Eve, who thinks that it was produced by the forcible impact of the humerus against the anterior margin of the glenoid cavity. From the position of the groove too it is clear that the head must have been completely separated from the glenoid cavity, so that neither of these cases can be considered as merely a subluxation. The main shock of the injury, as I read the pathological appearances, fell upon the coracoid process, which was therefore fractured. If it had been applied to the head of the humerus there would either have been an ordinary dislocation of the shoulder, or the groove might have been so far deepened that the head would have been separated, and thus the case would have been transformed into a fracture of the anatomical neck, the head at the same time slipping inwards on to the anterior surface of the scapula, with its articular surface directed forwards. As an instance of such a fracture through the anatomical neck of the humerus with dislocation of the head of the bone into this position I show a good specimen. It is interesting to note that in each of the four cases of this variety of dislocation of the shoulder the head of the humerus has always been found to lie beneath the coracoid or

¹ No. 1019.

clavicle. This coincidence is, I think, more than accidental, and is to be explained by the fact that in subcoracoid or subclavicular dislocation the excursion of the head of the bone is necessarily less than in the subglenoid or subspinous varieties, in which the capsule must be ruptured before the head of the bone is brought to a standstill.

The specimen described in this paper is preserved in the museum of St. Bartholomew's Hospital, No. 1019 *a*.

December 18th, 1888.

Cases of talipes.

By D'ARCY POWER, M.B.

I FIND on looking through the text-books on orthopædic surgery that comparatively few observers have had opportunities of dissecting feet which during life have been affected with the various forms of talipes. Every observation therefore which can be made in this manner is worth placing on record, so I have taken the opportunity of bringing before you to-night several dissections which I have recently added to the museum of St. Bartholomew's Hospital, and which illustrate various deformities.

For each and all of these specimens I am indebted to the kindness and unwearying energy of my friend, Mr. Bowlby, with whose permission I bring them forward.

It is of interest to observe how completely these preparations bear out the observations made by Messrs. Parker and Shattock in that most valuable, I might even say with our Teutonic neighbours, that epoch-making paper on the pathology and ætiology of club-foot, which appears in the 35th volume of our 'Transactions,' and by Mr. William Adams in vol. iii.

The following specimens exemplify the changes which take place in the bones in cases of talipes varus and equino-varus. The first two preparations are the feet of a newly-born infant at full term which had well-marked talipes varus. The bones of the right foot have been disarticulated to show the modifications which they have undergone as the result of the congenital deformity. The trochlear surface of the astragalus is extended backwards nearly as far as the posterior edge of the lower articular surface, whilst the neck is very greatly lengthened and is directed inwards with an unnatural obliquity. The articular surface of the head is prolonged on its inner side, and instead of being uniformly convex, it is divided into two parts, the planes of which meet at an obtuse angle. The inner and larger corresponds with the scaphoid, whilst the outer portion, which looks forwards, is unopposed owing to the displacement which the bone has undergone. The internal malleolar facet is much smaller than usual. In the calcaneum a considerable portion of the upper posterior facet was uncovered and was marked

off from the rest by a low ridge. It articulated with the posterior border of the external malleolus. The inner portion of the posterior facet is continuous with that of the sustentaculum tali. The plane of the cuboidal facet is directed unnaturally inwards and its outer border is less prominent than usual. The posterior articular surface of the scaphoid is very considerably distorted in order to allow it to articulate with the modified articular facet in the astragalus. The remaining bones of the tarsus, and the metatarsal bones are normal.

The second preparation is the left foot from the same foetus as the preceding. It has not been disarticulated, but, so far as can be seen, the tarsal bones show the same modifications as in the last specimen. The foot is in a condition of extreme talipes varus.

The third and fourth specimens are taken from a somewhat older child than the first two, but from one who was also affected with severe equinus. As in the preceding case, the right foot having been stripped of its muscles and ligaments, has been disarticulated to show that the astragalus, scaphoid, and os calcis have undergone almost the same modifications as have already been described, whilst the rest of the bones are normal. The neck of the astragalus in this case is not so elongated as in the previous example, but it has the same inward direction.

From the left foot of the same child I have stripped off the skin and muscles, whilst I have subsequently divided the internal lateral ligament in its whole extent. The foot, however, still retains its distorted shape, and it cannot be brought back into position without using so much force as to open up the mid-tarsal joint. I am therefore led to suppose with Dr. Bissell (an abstract of whose paper on the anatomy of talipes equino-varus appears in the 'Lancet,' vol. i, 1889, p. 545), that the deformity is due entirely to bone changes, and not, as Messrs. Shattock and Parker believe, to the ligamentous structures which immediately surround the joint. The articular surfaces of the scaphoid and astragalus are united by delicate fibrous bands although the cartilages appear to be perfectly healthy. This fact is of interest, for it seems to show that such adhesions may be formed even in perfectly healthy joints which have been kept at rest, and it may serve to illustrate one of the causes of stiff joint in persons who have been long confined to bed, whilst it emphasises the treatment of such cases.

The next specimens were obtained from the body of a child aged 4 weeks who had congenital deformity of both feet associated with a spina bifida. The left foot is affected with talipes varus. When the body was placed in the erect position the inner side of the foot was drawn up so that the whole extent of the border of the fifth metatarsal bone was in contact with the ground. The muscles of the leg appear to be well developed and of a normal size. The tendon of the tibialis anticus is unduly prominent, and is shorter than natural; it raises the anterior annular ligament into a ridge at the point where it passes beneath it. The tendons of the peronei muscles are slightly displaced from their natural groove on the outer surface of the os calcis. The tendon of the extensor proprius pollicis is somewhat more prominent than usual as it passes over the dorsum of the foot, but the extensor communis is natural. I have not dissected out the ligaments of the foot, as I was unable to do so without spoiling the specimen for a museum preparation, but so far as I have been able to do so they agree with the description given by Messrs. Shattock and Parker in the paper to which allusion has already been made. The right foot of the same child is in a condition of slight talipes calcaneus. The foot forms an acute angle with the leg and in the fullest extension cannot be carried beyond a right angle. When the body was placed in a standing position the heel alone came into contact with the ground, the toes being raised and the sole pointing somewhat forwards. There is, however, no flattening of the back of the os calcis, owing no doubt to the fact that the child had never learnt to walk. All the toes are flexed upon themselves at their metatarso-phalangeal joints. On extending the foot the tendons of the tibialis anticus and flexor proprius pollicis became more tense than the tendon of the extensor communis digitorum. The tendo Achillis is well developed, but the gastrocnemius and soleus muscles are so small that the back of the leg has a flattened or almost concave appearance. The peronei muscles and tendons are large. In this, as in the previous case, I did not consider it advisable to dissect out the ligaments.

The last specimen which I shall trouble you with this evening is the right foot and leg from a boy aged 14 years, who had long-standing disease of his right knee with double talipes equino-varus, cavus, and clawed toes. The trouble with his feet was said to have begun when he was six years old. He then went to Charing Cross Hospital, where the plantar fasciæ were divided, the feet being

afterwards put up in splints. On admission to St. Bartholomew's Hospital eight years subsequently, both feet were found to be in a condition of talipes cavus, flexed slightly inwards with some equinus. The flexion of both feet inwards at the mid-tarsal joint was accompanied by partial dislocation backwards of all the toes at the metatarso-phalangeal joints. This dislocation is especially marked in the great toes. There was much wasting of the right leg. The right foot and leg affected with talipes equinovarus, cavus, and hammer-toes. The foot is drawn upwards, and is turned somewhat inwards, whilst the toes are bent in a characteristic manner. The extensor muscles appear to be well developed, and have not undergone any degenerative changes. The tendons of the extensor longus digitorum, of the extensor proprius hallucis, and of the tibialis anticus are, however, somewhat tightly stretched, as if these muscles had been shortened. The first phalanx of each toe is drawn towards the dorsum of the foot, whilst the distal phalanges are strongly flexed. In the hallux, as is usual in these cases, the ungual phalanx is alone bent. The tendo Achillis is much shortened, and stands out sharply defined at a considerable distance from the back of the tibia. The heel is dragged upwards by the shortening of the tendo Achillis, so as to draw the foot into a condition of talipes equinus. The plantar fascia was so thin as to be practically absent, but all the muscles, including the interossei, are well developed. The twist of the foot inwards has caused the abductor hallucis to assume a more lateral attachment, so that its main origin is from the ~~of~~ external annular ligament, a slip of muscle only passing backwards to the inner tuberosity of the os calcis. This alteration in the axis of the foot leaves a gap between the contiguous sides of the abductor pollicis and the flexor brevis digitorum, in which can be seen the flexor longus digitorum. Microscopical examination of the anterior and posterior tibial nerves failed to show that they had undergone any degenerative changes.

The specimens are preserved in the museum of St. Bartholomew's Hospital, Nos. 3509, *a, b, c, d, e, f*, and 3514 (*a*).

March 19th, 1889.

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A complete case of ossifying sarcoma.

By D'ARCY POWER, M.B.

[With Plate II, fig. 1.]

MANY specimens of ossifying sarcoma, or "osteosarcoma" as they were formerly called, have been shown before this Society, and are recorded in the various volumes of its 'Transactions.' None, however, are so complete as the present one, and I therefore need not apologise to the members present to-night for occupying their time whilst I give a short account of the preparations.

The patient, a girl aged 13, was at the Blue Coat School at Hertford. Eleven months before her death she first noticed a slight pain and stiffness in the left knee, which came on after a long country walk. The stiffness continued, in spite of treatment, for three months, but it was not severe, and the patient was able to do her ordinary school work. Three months after the first appearance of the stiffness the knee was observed to be swollen, and the girl was sent home as an invalid; she then came under my care at the Metropolitan Dispensary, where I treated the case as one of tubercular synovitis. As the swelling rapidly increased, and an enlarged and densely hard gland appeared in the groin, the patient was admitted into St. Bartholomew's Hospital under the care of Mr. Savory. The thigh was amputated in its middle third, and a month later the enlarged gland in the groin was removed. A mass of new growth was, however, shortly afterwards detected in the pelvis, and a month before death there were symptoms of a secondary deposit in the lungs.

The first specimen consists of a vertical section through the lower third of the femur, showing a large ossifying sarcoma surrounding the condyles, and extending along the shaft of the bone for a distance of six inches, reaching higher on the posterior than on the anterior surface. The tumour consists of a very dense osseous substance, and it appears to have commenced at the junction of the diaphysis with the lower epiphysis on its posterior surface and beneath the periosteum. It has invaded and obliterated the medullary canal for some distance above the point where it

terminates externally. Microscopically, the growth consists of large round sarcoma cells embedded in a matrix, which is comparatively loose, and apparently consists of cancellous bone. The new growth has invaded and is destroying the original bone.

One month after the thigh had been amputated it was deemed expedient to remove from the groin the gland, of which this specimen formed one half. The gland was circular in outline, and measured two inches in diameter. It is infiltrated with ossifying sarcoma to such an extent that it appears to be a mass of bone. It was so firmly attached posteriorly to the sheath of the femoral vessels that an inch of the femoral vein had to be removed with it, and the remains of the vein is still seen lying in a groove at the back of the specimen. Three and a half months after the amputation through the thigh the patient died, and at the *post-mortem* examination the left os innominatum was removed with the stump. The shaft of the femur is flexed and strongly rotated inwards, and in consequence of this alteration in the axis of the limb the vertical section has passed through the great trochanter, leaving the head of the femur untouched. The rami of the pelvis and ischium are very greatly thinned, and are almost completely decalcified. A large mass of new growth projects from the iliac fossa and extends downwards along the inner side of the thigh almost to the point where amputation had previously been performed. The shaft of the femur is undergoing rarefying osteitis, whilst the medulla is infiltrated with a caseous material. The rib shows an infiltration of ossifying sarcoma at the junction of its shaft with the costal cartilage. The clavicle in section shows that its sternal end is infiltrated with the same kind of growth as in the preceding specimens. The new growth has invaded the whole substance of the bone for a distance of half an inch from the cartilaginous extremity. Like all the new growth the infiltration is densely hard.

The lungs were so adherent to the thoracic wall that they could only be removed by lacerating their structure. Both organs presented on their surfaces numerous circular patches of ossifying sarcoma.

In the left lung the largest of these new growths on the convex surface measures half an inch across, whilst the smallest is no more than one sixteenth of an inch in diameter. The patches are lightish brown in colour, and appear to originate from the under surface of the pulmonary pleura; they do not extend for any

distance into the substance of the lung. On the concave surface the patches are much more extensive, and a portion of the pericardium has become firmly adherent to the lung immediately below its root. In the right lung the patches show a greater tendency to coalesce into large plates; indeed, along the posterior border a mass of solid bone-like substance extends for a distance of three inches. Microscopically, the growth in the lungs consists essentially of a sarcomatous tumour, the cell-elements of which are for the most part round. The cells are enclosed in well-defined trabeculæ, which have the appearance of cancellous bone. No true bone-corpuscles are developed, nor is there any cartilage.

The growth is permeated by large blood-vessels, and there is no lung substance visible. Mr. Marks's drawing well exhibits the characteristics of the growth as they appear under a high power of the microscope (Pl. II, fig. 1).

The specimens, with the drawings, are preserved in the museum of St. Bartholomew's Hospital.

February 19th, 1889.

DESCRIPTION OF PLATE II.

FIG. 1 illustrates Mr. D'Arcy Power's case of Ossifying Sarcoma.

The microscopical appearances presented by a nodule of ossifying sarcoma, which was secondary to sarcomatous disease of the knee-joint.

- (a) Round sarcoma cells.
- (b) Ossified trabeculæ.
- (c) A capillary blood-vessel.



