

termed forward dislocations. For these reasons it is not very plain to me that we ought to consider this as a distinct form of primary dislocation; but it would seem that we ought rather to regard it as a consecutive dislocation, or at least as only a modification of the forward or backward dislocation. Indeed, I think the radius never will be found thrown directly outwards, but always in a direction inclining forwards or backwards.

Parker, of this city, mentions a case which came under his notice, in a child four years old, who, six weeks before, had fallen down stairs "backwardly, with the right arm twisted behind the back, in such a position that the whole weight of her body came upon her arm." No attempt was ever made to reduce the bone, and the head of the radius continued to project externally. By pressure it was easily reduced, but became immediately displaced when the forearm was either flexed or extended. The motions of the joint were completely restored. Dr. Parker recommended no treatment.¹

CHAPTER IX.

DISLOCATIONS OF THE UPPER END OF THE ULNA (HUMERO-ULNAR).

§ 1. Dislocations Backwards.

THIS accident, the existence of which, as a simple dislocation, is placed beyond doubt, has nevertheless been described so variously, and often indefinitely, that it is impossible to declare its history, except in a few points, with any degree of accuracy. No doubt many of the cases which have been reported were examples only of a subluxation of both radius and ulna backwards. In other cases, the radius or the external condyle of the humerus being broken, the ulna has been actually displaced, not only backwards, but upwards; indeed, it is very certain that without either dislocation of the radius, or a fracture with displacement of the external condyle of the humerus, or a fracture or bending of the radius, an upward displacement of the ulna, to the degree represented by the reporters of these cases, could never have occurred. The example mentioned by Sir Astley Cooper, and of which a dissection was made, is plainly a case of subluxation of both bones; or if the dislocation of the ulna may be regarded as having been complete, the head of the radius was also displaced more or less upwards from its original socket; a new socket, Sir Astley himself informs us, having been formed for its reception, upon the external condyle. But this is the only example, the actual condition of which has been proven by an autopsy.

Nevertheless, it seems certain that a simple dislocation or subluxation of the ulna backwards may occur without either of the above-mentioned complications, and that, to the extent of a few lines, it may be

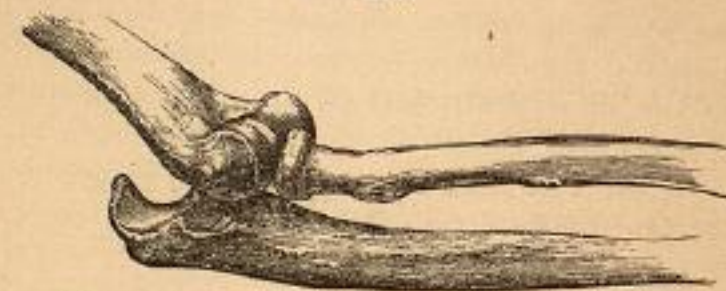
¹ Parker, New York Journ. Med., March, 1852, p. 189.

made to pass upwards upon the back of the humerus, by the falling of the forearm to the ulnar side; in which case the character of the accident would probably be recognized by the projection of the olecranon process, while the head of the radius might be felt moving in its socket; by the partial flexion and complete pronation of the forearm, and by the general immobility of the joint. In a case reported by Dr. Waterman, caused by a fall on the hand, the arm was at a right angle, and pronated.¹

Its reduction ought to be accomplished easily, one would think, by the same measures which have been found successful in reducing a dislocation of both bones backwards; but in Waterman's case this method failed, and the reduction was promptly effected by bending the forearm forcibly back.

Pirrie says that in a case occurring in the practice of Mr. Gosset, in which the coronoid process rested on the internal condyle, and the pain

FIG. 296.



Dislocation of the upper end of the ulna backwards.

on bending the arm was insupportable, owing, it was supposed, to the pressure of the coronoid process against the ulnar nerve, "reduction was accomplished by extension and counter-extension applied by two persons pulling in opposite directions, and by the pressure of the olecranon process downwards and outwards, while the forearm was suddenly flexed."²

Rosner³ employed with success the same procedure in a case of incomplete dislocation, which had existed eight months in a boy, set. 18.

§ 2. Dislocations Inwards.

In 1882, Dr. George Wright, of Toronto,⁴ reported an example in a girl nine years old, of dislocation inwards of the upper extremity of the ulna, the head of the radius remaining in place, caused, as was supposed, by a fall upon the elbow. Dr. Wright saw the patient the same day and recognized the dislocation, but as some of the surgeons who saw the case expressed a doubt as to the character of the accident, no attempt at reduction was made. Twenty-eight days after the accident, "A careful examination was made by almost all the members of the staff, and

¹ Waterman, Boston Med. and Surg. Journ., vol. iv., new series.

² Gosset, Pirrie's Surg., Amer. ed., p. 259.

³ Rosner, Wiener Allgem. Med. Zeitung, 1875, No. 32.

⁴ Wright, Canadian Journ. Med. Sci., Feb. 1882.

accurate measurements between the bony prominences were taken, and all agreed that there was dislocation inwards of the olecranon process upon the inner condyle of the humerus, the head of the radius remaining in its normal position. There was no pain or swelling; all the motions of the arm were perfect; but the patient was unable to sustain any weight upon the arm in extension by reason of the tendency to rotate inwards, and the "carrying power" was lost. I attempted reduction under anaesthetics, but after an hour and a half's effort by myself and all the gentlemen present, and by every means suggested by the best authorities, we failed to reduce the dislocation. The arm was put in an elevated easy position, with patient in bed, cold water applied, and not a single bad symptom followed this somewhat violent manipulation. The friends refused to allow any further attempts at reduction.

In explanation of the peculiarity of the displacement, Dr. Wright states that there existed a congenital laxity of the ligaments of all the joints, and that "when the child was two years of age she received an injury to this same elbow which caused the separation of this epiphysis, the external condyle being broken off, and it may be that this accident left a condition in the joint which favored the possibility of the inward displacement of the upper extremity of the ulna without carrying the radius with it."

CHAPTER X.

DISLOCATIONS OF THE RADIUS AND ULNA (FOREARM) AT THE ELBOW-JOINT.

THE radius and ulna may be dislocated at the elbow-joint backwards; laterally, that is, either inwards or outwards; and forwards. They may also be dislocated in opposite directions.

§ 1. Dislocations of the Radius and Ulna Backwards.

Causes.—My records of private and hospital practice supply seventy-two cases; the youngest being four years old, and the oldest sixty-one. Twenty-nine of this number occurred in children under fourteen years of age.

Generally the dislocation has been produced by a fall upon the palm of the hand, as when in running a person has fallen forwards with the forearm extended in front of the body, or he may have fallen from a height; once I have known it produced by a blow received upon the back and lower part of the humerus; and in several instances the patients have declared that they had fallen upon the elbow; it is produced, occasionally, by twisting the forearm violently, as when the limb has been caught and wrenched about by machinery, by a blow upon the front and upper part of the forearm, and by forced flexion.

Pathological Anatomy.—The radius and ulna are not only carried backwards behind the articulating surface of the humerus, but they are also, through the action of the triceps, almost always drawn more or less upwards, so that often the coronoid process of the ulna rests in the olecranon fossa. In some cases it has been known to mount even higher, while in others it is arrested short of this point. The radius still retaining its relative position to the ulna, lies upon the back of the humerus, or rather upon the posterior margin of its articulating surface.

The anterior and two lateral ligaments are generally more or less completely torn asunder; but the posterior ligament and the annular do not usually suffer disruption.

The biceps muscle is drawn over the lower articulating surface of the humerus, but is in a condition of only moderate tension, while the brachialis anticus is forcibly stretched, or even torn. Malgaigne says the tendon of the biceps has once been found behind the humerus.

The median nerve is also pressed upon in front by the humerus, and the ulnar is occasionally painfully stretched over the projecting extremity of the ulna from behind.

Symptoms.—Sir Astley Cooper does not mention particularly the position of the arm as to flexion or extension, except to say that "the flexion of the joint is in a great degree lost;" nor, in his original work, published in London in 1823, is there any illustration accompanying the text to indicate in what position he had usually seen the limb; but in the later editions, edited by Mr. Bransby Cooper, is found a drawing which represents the forearm at a right angle with the arm. It is very certain that Sir Astley never sanctioned this error by anything which he had written or communicated to others. It is very certain, I say, because the fact that it seldom, if ever, occupies, this position, could not have escaped the notice of one whose experience was so large, and whose habits of observation were generally so accurate. The truth is that it is almost constantly found only slightly flexed, or forming an angle in front of about 120° .

This fact is especially noticed in my records twenty-six times, and, if it had ever been found in any other position, it would certainly have been stated. Once, where the dislocation was accompanied with a fracture of the outer condyle of the humerus, the arm was at first straight, a position in which it is said to be found occasionally with children; and in the case of a patient admitted to Bellevue Hospital, on the 14th of December, 1864, the dislocation having existed thirty-one days, but unaccompanied with a fracture, I found the arm straight, and there existed also a preternatural lateral mobility of the elbow-joint; but never, in any case of a recent dislocation, and but once in an old dislocation, have I found it flexed to a right angle; yet I will

FIG. 297.



Dislocation of the radius and ulna backwards.