A CASE
OF
NEGLECTED DISLOCATION OF THE
HUMERUS
FOLLOWED BY
PARALYSIS OF THE NERVES OF THE
HAND AND FOREARM,
TREATED BY EXCISION OF THE HEAD OF THE HUMERUS.

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A HEALTHY man, æt. 48, a waiter by occupation, was admitted into Charing Cross Hospital on September 3rd, 1887. Eleven weeks previously he had sustained an injury to the left shoulder, the true nature of which seems not to have been suspected. Severe pain and œdema of the limb followed the accident, and on the subsidence of this swelling the hand was noticed to be getting numb and useless, and these latter symptoms have steadily increased. The previous history of the patient was in all respects satisfactory. On examination of the affected limb the ordinary evidences of "subcoracoid" dislocation were present. There was slight wasting of

the deltoid muscle and also of the flexor muscles along the ulnar side of the forearm. All the signs of ulnar nerve paralysis were marked. The interosseous muscles had greatly wasted, so that the shafts of the metacarpal bones were unduly prominent. Sensation had totally disappeared in the skin supplied by this nerve. The median nerve was also implicated, but not to so marked a degree. Sensation was greatly impaired over the skin of the front of the index and middle fingers, and the short muscles had wasted somewhat. The skin of the hand and fingers was congested, of a glossy appearance, smooth and cold to the touch. The nails were curved over the ends of the semi-flexed fingers. The radial pulse was much diminished in force on the affected side.

The patient expressed himself to the effect that the hand was quite useless to him, and he was ready to undergo any treatment that promised relief. About twelve weeks after the accident he was placed under an anæsthetic, and I attempted to reduce the dislocation by the ordinary methods of manipulation, with extension and counter-extension. The pulleys were not employed. It was quite obvious that unless a great deal of force were employed the head of the bone would not move from its fixed position, and that even if forcible and prolonged attempts at reduction were resorted to the success attending them would be dubious. I therefore proceeded to excise the head of the humerus. This was accomplished by means of the anterior longitudinal incision usually adopted. The head of the bone lay at a great depth. Owing to this circumstance, as well as the presence of numerous fibrous adhesions, the operation was attended with some difficulty. Bearing in mind the probable close relation of some of the more important axillary structures to the displaced bone, I peeled the parts from the latter with a raspatory, only using the knife to divide structures of a more resistant nature *e.g.* the muscles attached to the tuberosities. In this way the head of the bone was finally cleaned, protruded from

the wound, and sawn off through the anatomical neck. The medullary canal was not opened, and the broad surface left was levelled at its margins with cutting forceps so as to leave a rounded end to the bone. The circumflex vessel bled very freely, and needed ligature. A large drainage-tube was introduced, a pad fixed in the axilla, and carbolised gauze dressings employed. The case progressed uninterruptedly towards recovery, and I need not occupy the time of the Society with details of dressings or symptoms. The radial pulse was restored to its ordinary strength immediately after the operation. The third day after the operation the condition of the hand was carefully tested, and it was noted that sensation had returned in all the parts supplied by the median and ulnar nerves, except the dorsal aspect of the little finger, which was quite numb and remained so for several weeks. The patient left the hospital with the wound soundly healed twenty-three days after the performance of the operation. Already improvement was manifest. He could pick up and hold light objects. Sensation had returned to all parts except the back of the little finger; here it was imperfect. He was ordered to still wear the axillary pad, and to have the affected parts galvanised thrice weekly.

On the 1st of November massage was commenced to the affected limb, and carried out about three times a week.

Twelve weeks after the operation, being the same time that had elapsed between the accident and the operation, I examined this patient, and this is a summary of his condition. The interosseous muscles have partly regained their form and plumpness. The movements of the thumb are strong and good. The muscles of the little finger are still weak and flabby. The man, however, declares that the strength of this digit is improving. The movements at the shoulder are, on the whole, satisfactory. He can use his hand and arm freely in the exercise of his vocation, being able to hold plates, and perform the duties of a waiter at a large London hotel. Further im-

provement of the condition of the muscles of the little finger may fairly be looked for.

I have ventured to bring a brief account of this case before the Society, because I think it suggests a useful mode of treatment for those dislocations of the shoulder which are associated with symptoms of pressure on the large nerve-trunks, for although it is true that in some of these cases restoration of function of the nerves ensues, yet this result is altogether uncertain, and in a considerable proportion the wasting of the muscles and inutility of the limb remain permanent. It is generally allowed that the process of reduction of old dislocations of the shoulder is attended with considerable risk. It is difficult, if not impossible, to estimate what degree of force is to be employed which will suffice to overcome the resistance offered by adhesions and structurally shortened muscles, and yet leave uninjured vessels and nerves which may be incorporated with them by the process of inflammation. Often also after a degree of force has been employed which only the necessity of the case could demand, the displacement remains, and risks have been encountered for no very useful result. In a comparatively short surgical experience I could relate several disasters following attempts at the reduction of old dislocations of the humerus, under the hands of surgeons whose names are sufficient guarantee that no needless force was employed. It is questionable whether in old dislocations as useful an arm cannot be obtained at a minimum of risk, by passive motion sedulously applied, and massage of the affected muscles. Should excision be deemed needful it is fair to state that though dangers may attend the actual performance of the operation, its after-risks are not more considerable than when the operation is performed for compound injuries or disease, and if due caution be exercised in the performance of the operation it seems in my judgment a less risky and more advisable expedient to adopt than the traction of pulleys, or the efforts of relays of assistants. In the present instance, though

perfect success has not been obtained, such marked improvement resulted from the operation that the performance of it may with justice be taken into consideration in a similar case. When nerve-trunks have been contused or stretched a considerable time must elapse before their functions are fully restored. Hence we may fairly hope for still further improvement in the muscular power of the hand and forearm in this case.

The literature of what may be termed the operative treatment of ancient dislocations of the shoulder is, so far as I have been able to ascertain, not very extensive. Subcutaneous division of the capsule of the joint, and of resisting bands of adhesions, is highly spoken of by Andrews.¹ Mr. Adams published a letter in the 'British Medical Journal,' January 20th, 1877, from Mears, of Philadelphia, relating the application of Adams' operation of subcutaneous osteotomy to the surgical neck of the humerus in a case of unreduced subcoracoid dislocation of over two years' standing. The pain was relieved, and according to the testimony of Pancoast a surprising degree of motion was restored, but no mention is made of the presence of nerve-lesions in this case. Division of the muscles and tendons has also been adopted.

Warren² excised the head of the humerus in 1860, on account of an old dislocation. A V-shaped incision was made through the soft parts, and the bone divided below the tuberosities, the head being afterwards dissected out. Great and permanent relief followed from the symptoms of nerve-pressure before present.

Hamilton³ states that Desprès designedly fractured the neck of the humerus upon two occasions, but the cases are not commented upon favorably; and he refers to operations of this nature by Volkmann, Cramer and Kuster.

Volkmann seems to have practised the operation in two

¹ Ashhurst, 'Encyclopædia of Surgery,' 1882, vol. iii, pp. 671, 672.

² 'American Journal of Medical Science,' April, 1876, p. 452.

³ Hamilton, 'Fractures and Dislocations,' 7th Amer. ed., Philad., 1884, p. 711.

instances. His first case was that of a man, aged fifty-three. The dislocation was of the "subcoracoid" variety and had existed for five weeks. Ordinary means of reduction had failed. The incision was made through the axillary space. Free bleeding occurred from the axillary vein, which was found perforated by a spicule of bone. The vein was tied, but there seems to have been great difficulty in getting the bone into good position. Some improvement, however, resulted.

The second case of excision was performed for repeated spontaneous dislocation. The incision was anterior, and great improvement resulted from the operation.

Professor Annandale¹ performed an operation of this kind, and it is the only one I have been able to find recorded in the surgical literature of this country. A woman aged sixty-two had suffered from an unreduced dislocation of the humerus under the clavicle for six weeks. There was severe pain from pressure on the nerves. The incision, which exposed the head of the bone, divided the circumflex artery so close to the main trunk that the operator was obliged to ligate the latter above and below the aperture. Gangrene of the arm ensued, amputation was necessitated and death resulted.

Excision of the head of the humerus for old dislocation is alluded to in the last edition of 'Erichsen's Surgery' edited by Beck.² Holmes also alludes to the possibility of its performance in the second edition of his work.³ Billroth⁴ recommends excision of the head of the bone when pressure on the large nerves is marked, and reduction has been found impossible. He states that he has seen a case of the kind, and considerable improvement followed the operation, though paralysis was not completely removed. Gross⁵ also alludes to Warren's case, and views the operation with approbation.

¹ 'Medical Times and Gazette,' May 29th, 1875.

² Erichsen's 'Surgery,' 8th ed., edited by Beck, 1884, vol. i, p. 658.

³ Holmes's 'Handbook of Surgery,' 2nd edit., 1878, p. 259.

⁴ Billroth, 'Surgical Pathology' (New Syd. Soc.), 1877, vol. i, p. 324.

⁵ Gross's 'System of Surgery,' 6th ed., 1881, vol. i, p. 1160.

Dr. Edmund Andrews,¹ in the article already quoted, thus expresses himself: "Resection of the head of the humerus is," he says, "a dangerous operation, but one which may be imperatively called for in cases where the axillary plexus is so compressed as to cause paralysis and every other resource has been invoked."

As regards the dangers of this operation I would with deference submit that they are not serious. The head of the bone may be deeply situated, and is doubtless surrounded closely by the vessels and nerves. The knife should therefore be kept in close contact with the bone, and should be laid aside in favour of a blunt raspatory whenever the structures seem to yield satisfactorily to the action of that instrument. It would probably also be unwise to have recourse to the operation, when much disintegration and hæmorrhage into the tissues, the result of recent attempts at reduction, are present.

But when all inflammatory processes have subsided, the operation may be undertaken with fair hope of sound and speedy union.

The operations designed and performed for the relief of old dislocations would therefore seem to fall under the following headings.

Firstly, cutting down upon the bone, and dividing those structures, muscular or ligamentous, which prevent the return of the head of the bone to its normal position.

Secondly, subcutaneous division of resistant structures.

Thirdly, subcutaneous division of the bone through the surgical neck.

Lastly, excision of the head of the bone.

Fracture may almost be placed out of consideration as a deliberate method to be advised and practised.

As regards the first of these methods, though doubtless it would be possible to restore the head of the bone to position by a sufficiently free use of the knife, the operation would be an extensive one, not devoid of risk, and should it succeed in design it is questionable whether the

¹ Ashhurst, 'Encyclopædia of Surgery,' vol. iii, pp. 671, 672.

displacement would not return, or a useful limb result. So far as subcutaneous division of resistant structures is concerned many of the same objections apply. In these cases, from various causes, the anatomical structures in the axilla may be altered in position, and indeed may be incorporated by inflammation with the very structures that need division.

Should firm bony ankylosis have ensued, the operation of subcutaneous section of the bone devised by Adams may prove advantageous.

The operation of excision of the head of the bone would thus be reserved for those cases of old dislocation where moderate efforts at reduction failed in accomplishing their object, and symptoms of pressure on the nerve-trunks and main vessels was present, or where great fixity and loss of movement existed, from neglect of passive motion by the patient and his attendants.

(For report of the discussion on this paper, see 'Proceedings of the Royal Medical and Chirurgical Society,' New Series, vol. ii, p. 354.)