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Neuritis Complicating Dislocation of the Shoulder and Elbow.

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NEURITIS COMPLICATING DISLOCATIONS OF THE SHOULDER AND ELBOW.

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A KNOWLEDGE of the precise nature of the injury to surrounding softer tissues that may attend dislocations is especially important in the case of the shoulder- and elbow-joints. For example, in dislocation of the humerus the head of the bone is very liable to be crowded forcibly against the nerves of the brachial plexus, and of the posterior cord of the plexus especially, originating symptoms that may appear widely in the parts supplied by the musculo-spiral, circumflex, and subscapsular nerves which arise from this cord. In like manner the ulnar and median nerves may become involved in dislocations at the elbow. The symptoms attending this accident may be slight or severe, according to the extent of the lesion, and may present varying characteristics according as the trophic, motor, or sensory filaments of the nerve are involved. There may be transient or complete paralysis of one or more muscles, as shown by the inability to execute certain movements. At the shoulder this impairment of the muscles may have the very important consequence of permitting recurrence of the dislocation almost spontaneously when the arm is placed in certain positions. The writer has seen a case in which there had been such recurrences nine times, and in which the deltoid and teres muscles were plainly atrophied and partly paralyzed. Such patients are very apt to imagine that the dislocation has not been completely or properly reduced, but it will be found that there is no impediment to motion in or about the joint, but, on the contrary, perhaps there may be too free motion because of muscular relaxation and loss of control. Putting the arm in particular positions will show which muscles fail to act, and they also may be found flabby and atrophied. In the case of injury of this sort to the ulnar and



median nerves at the elbow, muscular contractures may appear in the hand and arm. The symptoms thus far enumerated are the final outcome of the inflammatory condition. In the more acute stages, in addition to muscular spasm or loss of power, the tissues throughout the region supplied by the nerves affected may become œdematous, the skin reddened and glossy, and there may be loss of sensation on the one hand, or burning pains such as characterize gunshot-wounds of nerve-trunks, on the other. Recently the writer has seen two cases in which the symptoms mentioned were of the most decided character throughout the entire area supplied by the musculo-spiral nerve. In one case the hand became so painful immediately on receipt of the injury that the patient did not notice at first that the shoulder had been dislocated. The subsequent history showed that these pains were due to a very serious lesion of the musculo-spiral nerve, and not to any direct injury of the hand, all the characteristic symptoms of neuritis appearing throughout the track of the nerve. Slight and transient symptoms betokening injuries of this character are present in many cases of dislocation. It is only occasionally that they become so serious as to attract attention, and even then they may be overlooked at the outset, and being first noticed at a later stage may be supposed to be of rheumatic origin, or to have arisen from the pressure of bandages, disuse of the arm, or even failure to reduce the dislocation ; whereas they are involved in the very nature of the injury.

If complications due to nerve injury are at all severe, recovery is so tedious compared with ordinary dislocations that it is not strange that patients, not understanding the source of the difficulty, become impatient and inclined to find fault. Hence it is specially desirable that the physician should be able to give a clear account of the injury and its prognosis. Sometimes the full effect of the damage done to the nerve may not appear until after several months, or until the arm is used in some employment that is too laborious and exacting. A very instructive case of this sort came under the observation of the writer in which the elbow was much bruised in the process of dislocation, but in which it did not become apparent how serious the injury to the ulnar nerve had been until the patient resumed his occupation, which involved more or less use of the shovel. The result was that œdema reappeared in the track of the nerve, followed by very rapid atrophy and con-

tractures, the ring and little fingers shrivelling up and becoming claw-shaped. This condition disappeared in great measure, however, on avoidance of the particular kind of labor that had brought it on. At the end of three or four years the atrophy and contractures were scarcely noticeable, although the arm remained weak, being in all probability permanently slightly paralyzed.

In dealing with such cases the first question that arises is as to the precautions to be taken at the time of the reduction of the dislocation. It is essential that the anatomical relations of the parts should be understood and kept in mind so as to avoid every manipulation that would tend to increase the injury to nerve-trunks that may have been caught and pressed upon by the dislocated bone. There is no case in which this is more likely to be necessary than that of dislocations of the humerus. Here the upper margin of the dislocated head of the bone rests against the neck of the scapula, or against the clavicle with the axillary structures put upon the stretch beneath it. If in this condition the elbow be pulled directly outward from the side of the body the entire bone will act as a powerful lever, the fulcrum being at the point of contact with the scapula or clavicle, as the case may be, and increased tension being exerted in the very direction in which the axillary nerves are already stretched. The hand making traction at the elbow has the advantage of the long arm of the lever, so that but little resistance will be felt even when the axillary structures are being subjected to very great pressure and stretching. Moreover, it is in the very cases in which the nerves are most injured that the muscles also offer the least resistance to such manipulations, on account of their becoming paralyzed, increasing the possibility of doing harm unconsciously.

In reducing the form of dislocation of the humerus to which reference has just been made, it is wise to keep one hand in the axilla so that the amount of pressure brought to bear in that location may be estimated by the tension felt in the tissues, and for the purpose also of pulling the head of the bone outward in the direction of its socket, so as to relieve the pressure on the underlying parts. If it is proposed to carry the arm directly upward so that traction may be made in that direction, which is a very effectual way of reducing the dislocation, the elbow should be swept forward and inward rather than outward, so as to relax the tension upon the parts in the axilla rather than increase it. In

reducing dislocations other than those at the shoulder the question of injury to nerves during the requisite manipulations does not become so prominent. In cases of dislocation complicated by fracture with large displacement and much distortion of the parts, however, it is a point that it is well to keep in mind. Otherwise than in the cases just described, but little can be done for the prevention of injuries of this class.

Subsequent to reduction, however, there are questions in regard to treatment that demand consideration. Fortunately, in the great majority of cases the injuries to nerves attendant upon dislocations are not serious, resulting in nothing more than transient soreness, stiffness, or muscular relaxation, as the case may be, and requiring little or no treatment. On the other hand, cases may be met with at any time that will tax the resources even of the most skillful. Such cases may promise equally well with those of ordinary character at the outset. The dislocation is very easily reduced, it may be, and yet strength does not return to the arm, and pain and swelling do not cease. The patient becomes discouraged, and goes from surgeon to surgeon, receiving all sorts of suggestions in regard to the nature of the injury and its treatment, but no immediate relief. The symptoms being such as have been indicated throughout the course of the discussion, the question is as to what is best to be done to prevent inflammation, and to promote repair in the nerve-trunks that have been damaged. Practically this resolves itself, for the most part, into a question as to the effect of use or disuse of the arm at different stages in the process of healing. As in the case of the patient using the shovel, already mentioned, too severe usage even at a late stage, after all active symptoms had apparently subsided, may be attended by the appearance of consequences as untoward as contracture and atrophy. At an earlier period, during more active inflammation, even moderate use of the arm may produce such pain, swelling, muscular spasm, and loss of control that it may be difficult to induce the patient to submit even to passive motion, if this be thought desirable or necessary at this stage. A section of nerve and the tissues surrounding it being bruised and perhaps reduced to pulp, and it being impossible to adjust and retain the parts in apposition directly by the aid of sutures, it is evident that repair must be difficult and liable to interruption. There must be a filling in of tissue and more or less cicatricial formation. If during this process the nerve be pulled about by active or passive

movements of the limb, and acute inflammatory symptoms at once appear, the danger of permanent impairment of function would seem to be increased. If, on the other hand, the bruised tissues be allowed to heal with as little disturbance as possible, the restoration of the integrity of the nerve being the main point kept in view in the treatment, there may ensue considerable stiffening of the arm due to its disuse and to trophic changes causing adhesions among the muscles and their aponeuroses. As a rule, stiffening of this sort, unlike deprivation of nerve-supply, does not result in permanent impairment. It is the lesser of two evils, and will disappear gradually as the arm comes to be used, or an anæsthetic may be given and the adhesions broken up whenever the process of repair has reached a point that it is thought will justify such interference. In case the adhesions are forcibly broken up at an early stage, it may be found that they will recur because of the inability of the patient to endure even passive motion because of pain and spasm. Such recurrence indicates the existence of a troublesome pathological condition, essentially of an irritative nature, at the seat of the primary lesion in the case. Nevertheless, the tendency is toward recovery even in cases as bad as this, although it may be slow. At the end of a year or two the motion of the arm will be found, as a rule, to have become perfectly free, atrophic and paralytic symptoms due to deprivation of the nerve-supply alone remaining. In all cases of this kind massage and electrical stimulation are of service, improving the nutrition, preventing adhesions, and tending to restore the nerve-supply in so far as it has not been absolutely destroyed. Still there are cases in which every resource that can be imagined will require to be supplemented by patience.

Most of the points that have been mentioned are based upon observations made by the writer in the course of ordinary general practice, and verified by references to the somewhat scanty literature of the subject. It would seem that neuritis complicating dislocations, particularly at the shoulder and elbow, is much more frequent than is generally supposed, it usually occurring in such a mild form as not to attract attention even when the characteristic symptoms are quite well defined. The purpose of the present paper will have been served if renewed attention shall have been drawn to a subject that should interest the general practitioner especially, who is liable to meet with these cases at any

moment, and who must deal with them on the spot no matter what their character or degree of severity.

DISCUSSION.

DR. H. S. DRAYTON, of New York: I would add simply a word commendatory of the suggestions made by the author with reference to treatment. A few cases have come under my observation showing sequelæ of injury, chiefly of the shoulder, and, like the author, I have noticed that frequently the patients are unable to give a very good history of the trouble. There seemed to be a chronic rheumatoid condition, and where there was also wasting and irritation I found massage one of the best remedies, associated with mild galvanism. In one case in particular, affecting the left shoulder, with uselessness of the hand, after three or four months' treatment with massage and galvanism there was considerable redevelopment of the deltoid, disappearance of contractures in the hand, and power to use this member.

