ATROPHY OF THE DELTOID.

SIX CASES SUCCESSFULLY TREATED BY PASSIVE CIRCUMDUCTION OF THE LIMB.

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SEVERAL years ago I met with a case of atrophy of the deltoid which presented the unusual feature of intense pain being caused by slight pressure over any portion of that particular muscle, whilst immediately beyond its margin nothing unusual was felt by the patient. I looked up the literature of the affection, which appears to be extremely meagre, amounting to little more than a suggestion that it may be a form of rheumatism, which it certainly is not, for it refuses to yield to any of the remedies which cure rheumatism. Finding no help here, I thought over the case carefully, and it occurred to me that a clue might be obtained to the origin of the mischief, and also to its cure, in the fact that the course of the nerve supplying the muscle is peculiar, and totally unlike that of any other muscular nerve in the whole body. My theory is that the circumflex nerve, in passing through the quadrilateral space, is by that circumstance rendered liable to injury, and even to strangulation, such as could not occur to any other nerve. Falls upon the shoulder, stretching the arm beyond its due limit, or long-continued pressure in certain positions appear to cause atrophy of the muscle; and I suggest that the atrophy is due to strangulation of the nerve in the quadrilateral space, varying in degree according to the mode of injury, sometimes causing irritation and consequent hyperæsthesia, and sometimes complete interruption of the nerve current and paralysis. An illustration occurs to me at the moment of writing, so apt that I cannot forbear its use. It is that of a child pinching his tiny finger in one of the spaces of the movable frame for his toy soldiers, where the rhomboidal spaces change their angles at the will of the child-general, while the soldiers advance or retire. At the moment of greatest elongation, when the child's finger is caught in the narrow angle, there is an exact representation of the circumflex nerve trapped between the two teres muscles, the triceps and the humerus, when the arm is extended to its utmost above the head. In every case that has come under my notice—and I have treated more than twenty with entire success—there has been a clear history of injury. To return to my case, which is as follows:—

CASE 1.—The patient, J. K—, a shoemaker, over sixty years of age, had fallen heavily on his right shoulder five weeks previously. There was total loss of power in the arm, forearm, and hand, with intense pain in the shoulder. Slight pressure over any part of the deltoid caused such severe pain that the man shrieked at a touch. The natural contour of the shoulder was lost, the joint and the acromion appearing to be covered only with skin. With a view to restoring the normal position of the teres muscles and the long head of the triceps, and freeing the circumflex nerve from any possible constriction caused by the matting together of various structures by inflammatory products, I tried passive circumduction of the limb, and in a few minutes the patient felt some relief from pain and was able to partially flex the forearm and hand. At the end of twenty minutes he could flex the forearm to a right angle. I visited him nine times, making passive circumduction on each occasion, and with each visit he gained more freedom of movement and increased power. On my last visit I found him seated at his bench drawing the waxed threads through the sole of a boot he was making as nimbly as ever he had done before his accident.

CASE 2.—My next case was a widow lady, who six months previously had been attempting to reach something from a high shelf, when her left arm fell powerless to her side. She suffered much pain, and had been treated medically for six months without benefit before I saw her. The deltoid was quite atrophied; all the other muscles of the arm compared favourably with those of the opposite limb. Circumduction caused considerable pain, and the movements of the humerus were very restricted, owing probably to the locking of the head in the joint by adhesions or want of elasticity in the teres major and minor; but I persevered with the treatment, and had the satisfaction of completely restoring the limb, the atrophied muscle gradually resuming its former size and vigour.

CASE 3.—The next case was Mr. G—, the head of a great engineering firm, who had been thrown from his horse, alighting on his right shoulder. He first came to me six months after the accident, and could then flex the forearm to a right angle only, could write with difficulty, and could not put his hand behind him at all. The deltoid was atrophied; there was no pain. This case was cured in a week by circumduction, all movements of the limb being restored perfectly.

CASE 4.—This case was a most unpromising one. Miss W—, aged sixteen, was at boarding-school, and her right arm had for ten years hung useless at her side. In length it was equal to the other, but all the muscles were wasted and flaccid. Circumduction was tried, with massage of all the muscles, the result being a gradual restoration of power in the course of four months.

CASE 5.—This case shows the result of continued pressure on the nerve, and is that of a nurse who for many years had been accustomed to carry a child on the left arm. The deltoid was wasted, she was rapidly losing power in the arm, and feared losing her occupation. Passive circumduction soon restored the power, and at the same time the natural contour of the shoulder returned.

CASE 6.—The most recent case of atrophy I have had was dismissed early in October, cured. J. W—, from Staffordshire, was loading hay in July last, and was on the top of the load, when the horse suddenly moved forward and the man fell heavily to the ground, breaking his left leg and dislocating his left shoulder. He was taken to a cottage hospital, the leg was set, and dislocation reduced. He remained in hospital over two months, and then came to Southport. Finding his left arm almost useless, and that he could not lift it from his side, he came to me. I saw that the deltoid was greatly wasted, and on inquiry found that whilst in hospital he lay almost constantly on his left side, resting many hours in the day on the elbow with the forearm in extreme flexion. The injury which caused the atrophy of the deltoid may have occurred simultaneously with the dislocation, or it may have been due to strangulation of the circumflex whilst lying in the position described. On making circumduction, I found great "locking" of the joint, but it was gradually overcome, requiring about a fortnight, during which time the deltoid, by means of massage, was greatly strengthened, and he was able to raise the limb to a right angle with the trunk. All movements are now fairly well performed, and exercise is all that is required for perfect restoration.

Though in some of my cases there was atrophy of other muscles, as well as of the deltoid, the wasting in such structures was of a later date than that of the deltoid, and evidently due to their enforced rest.

I will conclude with two cases, not of atrophy, but of injury likely to lead to that result.

In February, 1888, Mr. W. R— called on me in great agony. He had just fallen downstairs, the blow being received by the left shoulder. I assisted him in taking off his coat &c., and soon found that there was no dislocation, though probably there was considerable injury to the circumflex nerve. After twenty minutes' circumduction—a most laborious procedure, for he weighed about 17st.—he was able to dress himself without assistance, though with some difficulty. A repetition of the treatment next day completed the cure. Had this case not been speedily relieved, atrophy of the deltoid would doubtless have supervened.

The following incident shows the value of prompt attention guided by a knowledge of the real injury that has taken place. Some years ago a niece of Archbishop T—, who was staying at my house, came down to breakfast one morning with her left arm absolutely useless. I was venturesome enough to promise that it should be restored in ten minutes, and at once put into use the experience gained from previous cases, with the result that the arm regained its full power within the time I had named. Left to itself, this case would probably have gone on to atrophy.

On several occasions I have been able in a few minutes to restore power to the arms of cricketers who have suddenly lost power in violently throwing up the ball, an incident common enough in the cricket field. It might be objected that in these cases the injury was to be attributed to partial dislocation of the head of the humerus on to the edge of the glenoid cavity, but if this were so should we not have had rigidity of the joint? There was none in my cases.

Southport.