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RECURRENT ULNAR NERVE DISLOCATION AT THE ELBOW

Report of a Non-Traumatic Case with Ulnar Entrapment Neuropathy

SVEN GREVSTEN, ULF LINDSJÖ & SVEN OLERUD

Department of Orthopaedic Surgery, University Hospital, Uppsala, Sweden

An unusual case of habitual recurrent ulnar nerve dislocation at the elbow is described. The case was complicated by non-traumatic ulnar entrapment neuropathy interfering with the patient's profession as a musician (cello).

Key words: ulnar nerve; recurrent dislocation; non-traumatic entrapment neuropathy

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The reported incidence of habitual ulnar nerve dislocation varies between 2 and 19 per cent (Collinet 1896, Momberg 1903, Dubs 1918, Burman & Surtro 1939, Childress 1956). Dislocation to the extent of complete forward luxation at the internal condyle of the humerus may be present without causing any symptoms and without the knowledge of the individual. The lower incidences include only complete dislocations (Cobb 1903). The higher incidences include complete as well as incomplete dislocation.

It is suggested that recurrent dislocation of the ulnar nerve at the elbow arises as a result of trauma but can also occur nontraumatically (Cobb 1903). In the latter case it is called "habitual", "congenital" or "idiopathic" dislocation.

Cases of "habitual" dislocation are, however, much more common than the traumatic ones. Usually the affected person is only aware of the habitual dislocation when an ulnar entrapment neuropathy is present.

Ulnar nerve neuritis is thus a rare diagnosis in connection with habitual dislocation of the ulnar nerve unless it is combined with trauma. This paper reports, however, a case of non-traumatic ulnar nerve neuritis in a patient with habitual dislocation. The disability was so great that it was necessary to perform an ulnar nerve transposition. The diagnosis and the operative procedure is discussed.

CASE REPORT

The patient was a 21-year-old student of music and philosophy who had been previously healthy. He has been playing the cello since the age of fifteen. The patient complained of increasing disability when playing the cello. When his left arm was lifted into the horizontal plane with the elbow flexed over 90° holding the chords there was a slowly progressing sensation of numbness occurring in his ulnar fingers and pain at the elbow. The same sensations occurred in his right arm when using the bow (Figure 1). There was no history of trauma to the elbows.

Clinical examination revealed the ulnar nerve sliding in front of the ulnar epicondyle when the elbows were flexed. Registration of the conduction velocity in the ulnar nerve at the elbows (Table 1) comparing elbows flexed and elbows fully extended showed a decrease in the conduction velocity on both sides with the elbows in 90° flexion. With the elbows extended the patient did not feel any sensations in the arm or hand, nor could any

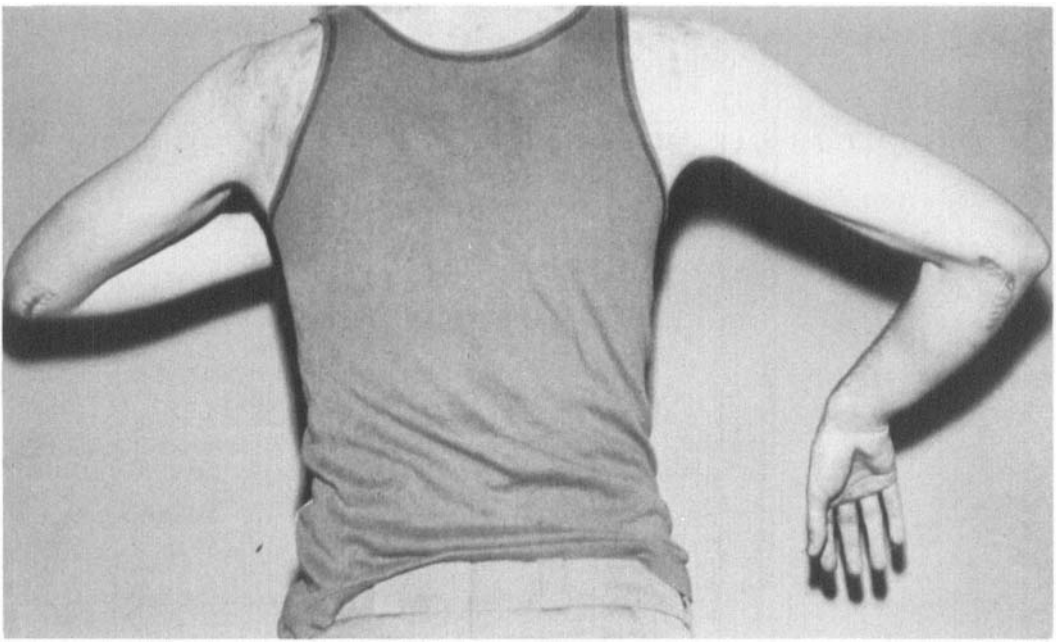

Figure 1. The position of the arms when playing the cello. Note the scars after the ulnar nerve transpositions.

decreased sensibility in the ulnar nerve area be found. X-ray examination of the elbows showed no abnormality. There were no symptoms or signs of other possible causes of the pain such as rheumatoid arthritis (Chang et al. 1972), post-traumatic arthritis, cervical syndrome, etc.

The patient was operated on with transposition of the ulnar nerve on both sides. The operation was performed in a bloodless field. The nerve was dissected free for about 5 cm proximal and distal to the ulnar epicondyle, mobilized and adapted in front of the epicondyle. The adaptation was made by a few sutures in the soft tissues around the nerve. Mobilization was started immediately after the operation.

Four weeks postoperatively the patient was able to take up his cello playing again, now without discomfort. A second nerve conduction test was made 6 weeks after the operation using the same procedure as before the operation. This test showed no significant difference in the conduction velocity of the ulnar nerves on either side with the elbows to flexed 90° and in full extension.

DISCUSSION

Complaints of numbness in the ulnar area in both hands are very common in orthopaedic

Table 1. Ulnar nerve conduction

		Full extension in the elbow	90° flexion in the elbow
Preop. test	Right	67 m/second	57 m/second
	Left	67 m/second	52 m/second
Postop. test	Right	•63 m/second	62 m/second
	Left	•74 m/second	79 m/second

• Nerve conduction values obtained on various occasions from the same nerve can differ depending on the position of the electrode.

practice. This particular person – being a musician – certainly found it disturbing to his playing of the cello. Having diagnosed an ulnar nerve neuritis on the basis of recurrent dislocations of the nerve it was necessary to perform an ulnar nerve transposition. Transposition of the ulnar nerve is a simple operative procedure. However, perhaps it would be of value to point out some details of the operative procedure and the postoperative care. The nerve should be dissected free a sufficient distance proximally and distally to the epicondyle so that it is possible to place the nerve in its new position without stretching it (Learmonth 1943, Childress 1956, Levy & Apfelberg 1972). Moreover, we do not advocate any form of firmer fixation of the nerve to keep it in the anterior position. Such procedures involve the risk of the development of strangulating fibrotic processes. We think it is very important also to start exercises immediately after the operation in order to prevent scar fixation around the nerve.

Childress (1956) classified ulnar nerve hypermobility into two groups: type A and type B. In type A the nerve moves out of its post-condylar groove on the tip of the humeral epicondyle when the elbow is maximally flexed, i.e., subluxation occurs in extreme flexion. Type B hypermobility means that the nerve passes completely across and anterior to the epicondyle when the elbow is flexed more than 90°.

Our case had a hypermobility of type B. Type B possesses greater mobility and is said to be more susceptible to friction neuritis (Cobb 1903, Dubs 1918, Learmonth 1943, Childress 1956). This theory is supported by our case.

Childress (1956) found ulnar nerve dislocations in 16.2 per cent of 1,000 selected individuals (2,000 ulnar nerves), none of whom knew that he had such an anomaly. Momberg (1903) discovered in the military hospital in Spandau an incidence of the anomaly of 19.8 per cent among 140 soldiers. In non-traumatic cases of habitual ulnar nerve dislocation it is known that severe symptoms rarely occur and there is seldom need for operative intervention. It is the traumatic cases which give rise to all the cases which have been operated on with a few exceptions such as in our case.

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Correspondence to: Sven Grevsten, Dept. of Orthopaedic Surgery, University Hospital, S-750 14 Uppsala, Sweden.