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US Guided Musculocutaneous Nerve Block using Ethanol for Dystonia of Elbow Flexor: A Case Report

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Background

Athetoid cerebral palsy is a type of cerebral palsy, characterized by both hypertonic and hypotonic muscle tone associated with damage to the basal ganglia. Uncontrolled dystonia of athetoid cerebral palsy can lead to severe deformities of muscles and dislocations of multiple joints, making it a great challenge for patients and caregivers to perform activities of daily living. Chemodenervation combined with ultrasound using ethanol can dramatically relieve dystonia by safe and accurate localization of the specific muscles and nerves for maximum efficacy, which can last up to 6 months. To the best of our knowledge, no case has been reported to treat dystonia of elbow flexor by nerve block. We present a case of ultrasound guided musculocutaneous nerve block using ethanol for dystonia of elbow flexor in a patient with athetoid cerebral palsy.

Clinical presentation

A 36-year-old man visited the department of rehabilitation, suffering from continuous right elbow flexion posture for a year, causing chocking of his own neck and breathing difficulty. The patient was diagnosed with athetoid cerebral palsy 20 years ago, took oral medications and received conservative treatments. He received a botolinum toxin injection in right biceps brachii 1 year ago for dystonia of elbow flexor, and had partial and temporary relief of the symptom. However, the symptom aggravated 8 months after the injection, severe enough to cause choking, and provoke sleep disturbance.

The patient underwent sedation by using midazolam (3mg) before injection to reduce dystonic movement. The skin was disinfected and right musculocutaneous nerve was identified using ultrasound. Ethanol (50%, 3cc) was injected under ultrasound guidance to block the musculocutaneous nerve. Ultrasound after the injection showed no evidence of active bleeding or other complication. After injection, physical examination revealed decreased dystonia of right elbow and no involuntary elbow flexion movement, and his choking posture was disappeared. At a day after the injection, the patient complained of mild hypoalgesia at the lateral aspect of right forearm that may be caused by injury of lateral antebrachial cutaneous nerve, a branch of musculocutaneous nerve. There was no other serious complication after procedure.

The patient was discharged at 2 days after injection. Follow-up of the patient was done by phone interview at 8 weeks after injection. He was able to flex his elbow involuntarily up to 60 degrees but had complete resolution of choking posture.

Conclusion

We report successful treatment of severe dystonia in elbow flexor after ultrasound guided musculocutaneous nerve alcohol block in the patient with athetoid cerebral palsy.

Figure 1. The patient's posture of pre-injection (A) and post-injection (B).

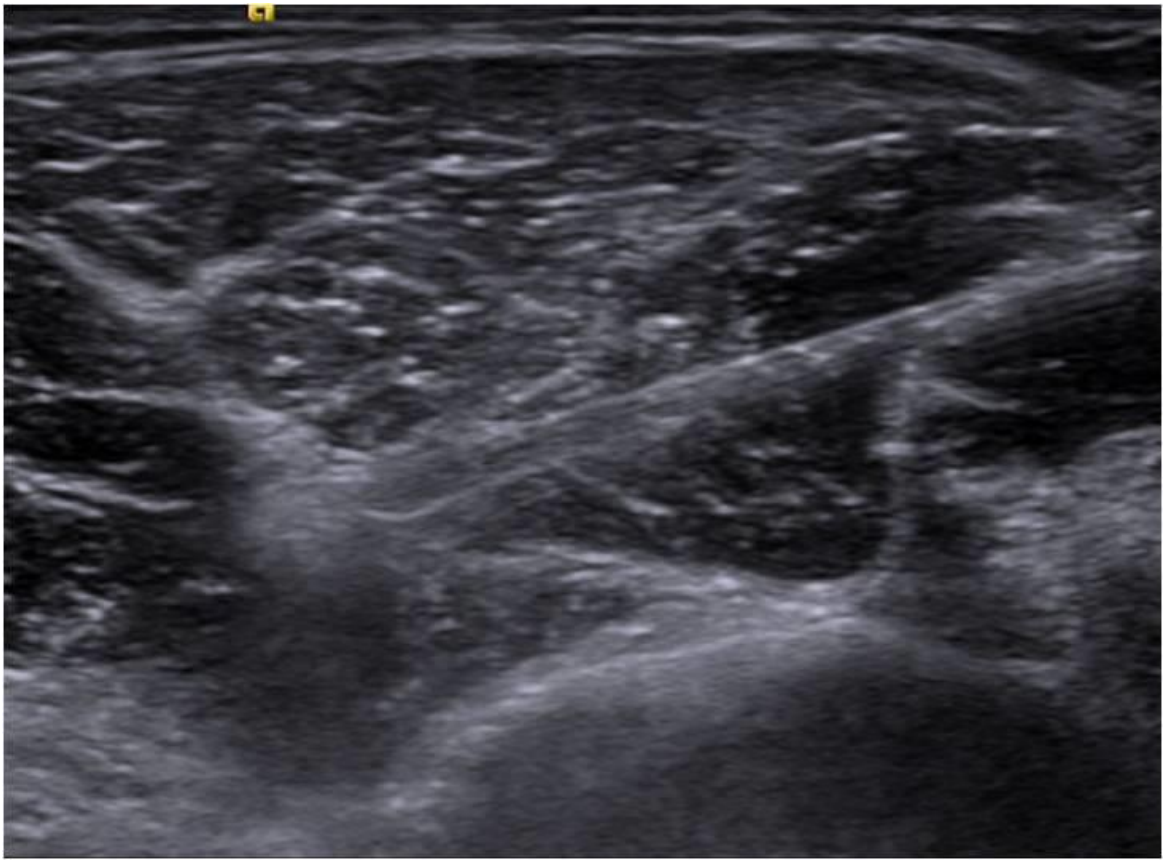

Figure 2. Ultrasound image demonstrates ethanol (50%, 3cc) being injected around the musculocutaneous nerve. The musculocutaneous nerve is found between the biceps brachii(BB) and coracobrachialis(CB).