

Case Report

# Isolated partial, transient hypoglossal nerve injury following acupuncture

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We report a case of isolated unilateral hypoglossal nerve injury following ipsilateral acupuncture for migraines in a 53-year-old lady. The palsy was partial, with no associated dysarthria, and transient. Further examination and imaging was negative. Cranial nerve injuries secondary to acupuncture are not reported in the literature, but are a theoretical risk given the location of the cranial nerves in the neck. Anatomical knowledge is essential in those administering the treatment, and those reviewing patients with possible complications.

## INTRODUCTION

Isolated hypoglossal nerve palsies are documented in the literature in relation to idiopathic palsies. Reports of transient and self-limiting isolated 12th nerve palsies are present in the literature but to our knowledge there are no other reported cases of injury following acupuncture. We present a case of partial, self-limiting hypoglossal nerve palsy after neck swelling following local acupuncture.

## CASE REPORT

A 53-year-old lady presented to the otolaryngology outpatient department with lateralizing neck pain and previous swelling at the site of preceding acupuncture. She had chronic migraines for which she had been attending a chiropractor. At a chiropractic consultation she underwent manipulation of her cervical spine, following which she had worsening cervical pain. On review by the chiropractor she was offered acupuncture to see if this would improve her symptoms. Immediately following the acupuncture she had acute onset right level 1/2 neck swelling, pain and bruising. She attended her general practitioner who arranged an ultrasound Doppler of the neck. This was normal with no evidence of vascular injury or pseudo aneurysm of the common, external or internal carotid artery. While the swelling subsided she had ongoing neck discomfort so a routine referral to ENT was made.

On review she complained of persistent right lateralizing neck pain, worse on movement but always present. She denied red flag symptoms such as dysphagia, odynophagia, dysarthria or weight loss.

Examination showed subtle isolated hypoglossal nerve palsy with deviation to the ipsilateral side. There was no visible tongue fasciculation or muscle wasting. The remaining cranial nerves were normal as was flexible nasendoscopic examination of the tongue base, pharynx and larynx. Palpation of the neck revealed no lymphadenopathy or other swellings but there was some residual localized tenderness over the previous acupuncture site. She had no symptoms of dysarthria and was unaware of the deviation herself.

Her past medical history included possible Sjogrens syndrome (not confirmed by rheumatology), varicose veins and chronic migraines. Her headaches had been extensively investigated by neurology and were intractable to most medication. She had been referred for greater occipital nerve block, but had self-attended a chiropractor while awaiting review.

An MRI scan was arranged to further investigate the apparent cranial nerve injury to ensure there was no cranial or oropharyngeal pathology. The MRI head and neck showed no mucosal lesions and no abnormality of note to explain her symptoms.

On review 4 months later her partial hypoglossal nerve palsy had completely resolved. She has a further review appointment to ensure no new signs or symptoms develop.

## DISCUSSION

Isolated hypoglossal nerve injuries are uncommon, but case reports are reported in the literature. Idiopathic isolated 12th nerve palsies have been reported secondary to vascular insults such as carotid artery dissection [1, 2], malignancy and systemic inflammatory conditions [3]. Cases are also reported after tracheal intubation [4]. A PubMed (The US National Library of Medicine) and Google scholar search using the terms hypoglossal nerve palsy, acupuncture, traumatic cranial nerve palsy, iatrogenic hypoglossal nerve injury, twelfth nerve palsy revealed no articles pertaining to acupuncture or indeed direct traumatic injury to the hypoglossal nerve.

MRI scanning has been suggested as the investigation of choice for isolated hypoglossal nerve palsy. A case from 2007 suggested that isolated hypoglossal nerve palsy is an 'ominous sign' and in their patient represented palsy secondary to a metastatic skull base deposit [5]. Therefore, imaging is necessary to ensure no underlying lesion is the cause.

Practising chiropractors in the UK are registered with an independent regulatory body, the general chiropractic council who ensure standards of practice are met. However, registration to practice acupuncture is voluntary. The standard size of an acupuncture needle varies from 0.12 to 0.5 mm in diameter. While risks are deemed to be low with acupuncture, as we demonstrate they are not negligible. Those seeking therapies should be fully counselled and aware of the procedure and its risks.

The hypoglossal nerve (12th cranial nerve) is a purely motor nerve supplying the musculature of the tongue. It originates in the medulla and exits the cranial fossa via the hypoglossal canal. It descends in the neck between the internal carotid artery and internal jugular vein, deep to the posterior belly of the digastric muscle. It then loops anteriorly and crosses vessels in the neck such as the internal carotid artery, external carotid artery and lingual artery. It lies on average 5 mm inferior to the digastric tendon [6]. Given the close proximity of the nerve to many vessels the likelihood of avoiding any vascular injury but causing an isolated nerve injury with a 0.5 mm needle seems unlikely. However, this possibility must be considered if history, examination and investigations rule out other causes.

A confounding factor in this case is the diagnosis of Sjogren's syndrome. Autoimmune conditions are in the differential diagnosis of causes of isolated hypoglossal nerve

palsies, although in this case clinical signs such as pain and swelling make this less likely. Her Sjogren's mainly manifests as ocular and oral dryness, and is under review by rheumatology, dental medicine and ophthalmology. Autoimmune conditions are a potential cause of isolated hypoglossal nerve palsy, but the relationship between Sjogren's specifically is not documented in the literature.

Transient isolated nerve palsy can be a sign of an underlying disease, so investigations are necessary but if no cause is found then observation and reassurance is an appropriate management strategy. There has been suggestion that if no definite cause is found, repeat imaging should be offered every few years to ensure no progression of an underlying demyelinating condition [7]. However, with resolution of the clinical sign, clinical follow up would seem appropriate. It has been proposed that cases of self-limiting palsy may be similar to Bell's palsy of the seventh nerve [8].

While we cannot determine that the acupuncture needle caused the palsy, the sequential events and laterality would support this theory. History and clinical correlation of events is important when unusual clinical signs are elicited. Knowledge of anatomy can help guide clinical examination, especially when cranial nerve injury is suspected. All practitioners performing a procedure must be fully aware of the potential risks.

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