

Cervicogenic headache.

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The International Classification of Headache Disorders divides headaches into primary and secondary. A primary headache is a condition in its own right, a secondary headache is a symptom of another illness. Some headaches are familiar and common - migraine or tension-type headache. These are primary headaches. They can be severe and disabling. They occur in perfectly healthy people. They are often chronic but do not develop into a chronic, progressive illness. Sometimes they respond to medication but often they don't. Even when medication is effective, headaches typically do not stop altogether. We still don't know what causes primary headaches.

Cervicogenic headache is a secondary disorder, i.e. headache with a known underlying cause - degenerative arthritis of the cervical spine, from Latin cervix - 'neck'. In simple terms, cervicogenic headache is defined as pain referred to the head from a source in the cervical spine.

It has not been long since cervicogenic headache was discovered. In 1925 the renowned French neurologist Jean Alexandre Barré presented his observations 'On posterior cervical sympathetic syndrome and its frequent cause: cervical arthritis'. This was the first report on cervicogenic headache in modern scientific literature. Barré neatly summarised his findings: the syndrome consists of a headache, dizziness, tinnitus, transient visual disturbances with a normal eye test, and tiredness. Barré linked the new syndrome with degenerative arthritis of the spine and noted that the headache was by far the most prominent complaint. He suggested the use of local anaesthetic blocks as a therapeutic tool.

The actual term 'cervicogenic headache' was introduced in 1983 by the prominent Norwegian neurologist O. Sjaastad, the founder of Cephalalgia - the international scientific journal on headaches. In 1996 Australian researchers led by N. Bogduk published their extraordinary results of radiofrequency neurotomy, also known as ablation or rhizolysis, in the treatment of whiplash syndrome. This technique is now established as the main pillar of operative treatment of cervicogenic headache. In 2009 the Lancet published Bogduk's review of cervicogenic headache emphasising the critical importance of local anaesthetic blocks as the diagnostic gold standard. These blocks are complex operative procedures performed in sterile conditions under continuous x-ray or ultrasound imaging. The more familiar imaging techniques such as MRI or CT scans have little diagnostic value in cervicogenic headache, although they are used routinely as part of the diagnostic process to exclude other pathology.

Cervicogenic headache as a clinical diagnosis is by no means a straightforward subject. Most operative techniques used in the diagnosis and treatment of cervicogenic headache are practised by pain specialists with anaesthetic background, trained in epidural and spinal anaesthesia, but pain clinics traditionally do not receive headache referrals. In our own experience, cervicogenic headache is underdiagnosed and undertreated.

Patients with cervicogenic headaches should be referred to a pain clinic with a special interest in headaches, such as ours at the Spire Elland Hospital. In practice the cervicogenic nature of headache often becomes evident only after an examination and diagnostic blocks by the pain specialist. It may not be clear at the primary care level which headache is cervicogenic and which is not. Other types of headaches, such as migraine or cluster headache, sometimes have cervical cause, unknown to the patient. Therefore, all patients with complex headaches who have been investigated by a neurologist and not responded to medication should be referred to a pain specialist for further tests.

Over many years Spire Elland Hospital has developed a unique expertise in this area. We presented our results at international meetings, including a large case series of over 100 patients. Our reported success rate is consistently above 60% in hitherto intractable cases that failed to respond to treatment elsewhere.

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Bipolar Radiofrequency Denervation for Treatment of Cervicogenic Headache: a Case Report

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Introduction

Cervicogenic headache, defined as pain referred to the head from the cervical spine¹, has been treated successfully by radiofrequency (RF) denervation². We applied a modified technique, based on lesion geometry described by Cosman&Gonzalez³, whereby a bipolar lesion is made between two parallel cannulae instead of multiple, contiguous monopolar lesions.

Methods

Four patients underwent unilateral medial branch RF neurotomy at C2-4, under local anesthesia and conscious sedation. Procedure was performed using NT 2000 (Neurotherm) RF generator, bipolar ('dual') mode, 80°C, 60 sec, curved 18G, 10mm active tip cannulae (SMK-C1010-18), fluoroscopy-guided, patient in the lateral position. Informed consent was obtained.

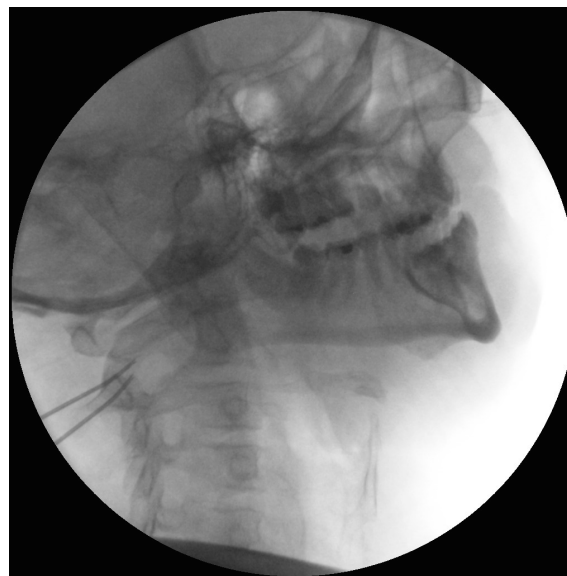


Figure 2 Patient in lateral position

Figure 1A



Figure 1B



Cannulae in position for lesioning: A lateral view; B foraminal view

Conclusion

Bipolar mode is effective and, compared with monopolar, likely to produce a uniform, rectangular-shaped lesion, with fewer cannula placements and shorter procedure times.

Results

All patients had severe unilateral headaches, with ipsilateral cervical paravertebral tenderness. The diagnosis of cervicogenic headache was based on positive medial branch block (bupivacaine 0.5%), with temporary complete disappearance of the symptoms in question.

Distribution of pain:

Patient 1: M, 35, right occipital/parietal/frontal/temporal.

Patient 2: M, 81, right occipital/mastoid/temporal and face (cheek, mandible).

Patient 3: F, 65, left face (from mandible towards the eye) with eyelid twitching.

Patient 4: F, 43, right face (infraorbital, zygoma, mandible, teeth) and occipital/mastoid/parietal.

RF denervation resulted in resolution of headaches and full functional recovery, remission lasting in all 4 patients, 3-9 months at the time of abstract submission.

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Cervicogenic headache outcomes: case series

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Objectives: Cervicogenic headache is defined as pain referred to the head from a source in the cervical spine (1). We report the outcomes of consecutive cervicogenic headache series. This is a 2-year update of an earlier report (2).

Methods: This audit began in 2010. We audit all cases of headache seen in our Pain Clinic from the point of referral. We selected cases where clinical presentation suggested a cervical source: ipsilateral neck involvement and/or occipital 'trajectory' of head pain (Fig. 1). In some patients cervical signs are found during examination in the absence of overt neck complaints. We included only the cases where headache was the dominant complaint. There was a sustained increase in referrals from a few random cases to around 30 per year (Fig. 2).

Patients were treated with a combination of cervical spinal exercises, repeat x-ray guided cervical medial branch blocks (Fig. 3), occipital nerve blocks and in 19 cases RF neurotomy of C2-4 medial branches (3).

Outcomes are presented categorically as either success or failure. Success is defined as sustained, complete/near-complete resolution of the headache with full functional recovery and remission uninterrupted or, in recurrence, reinstated (4). All other outcomes are counted as failure, including inconclusive and partially successful cases.

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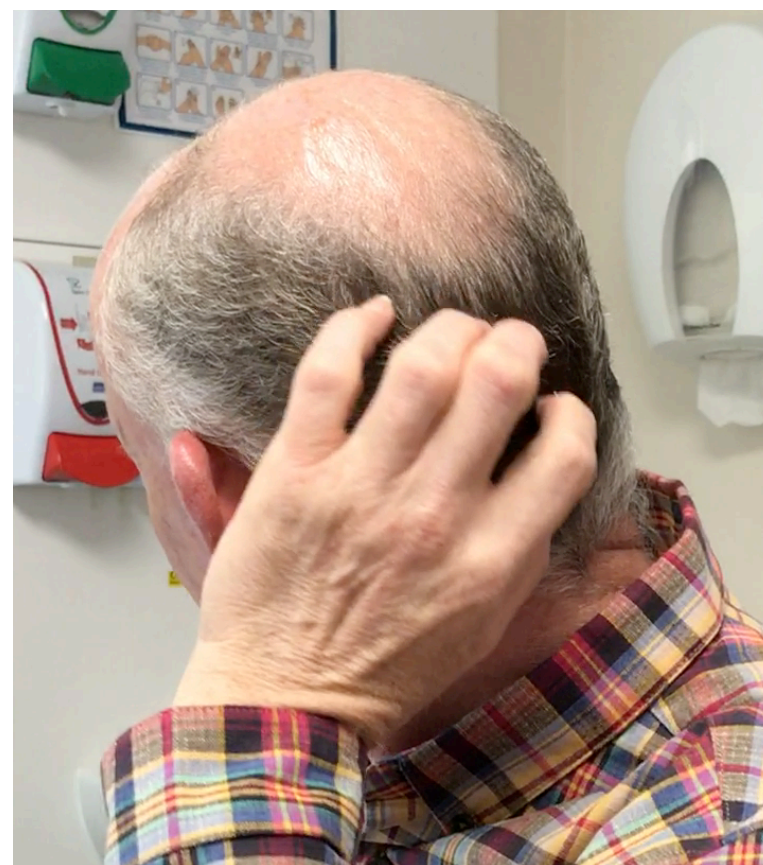


Fig. 1 Occipital trajectory of head pain

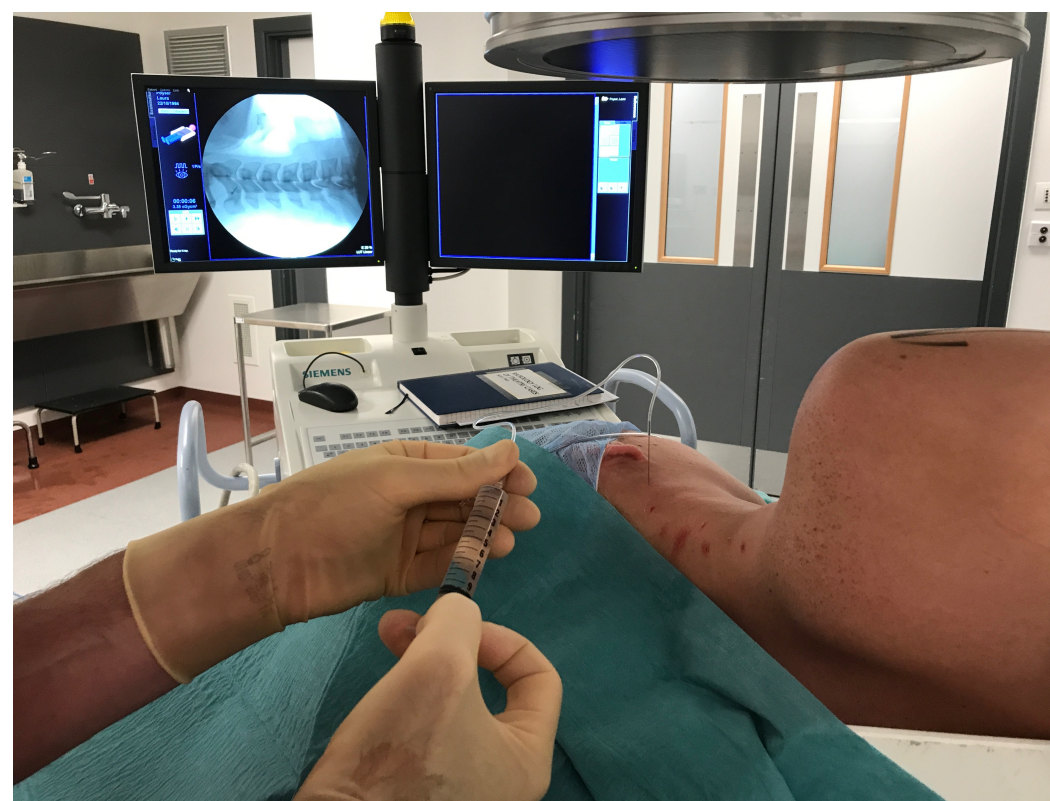


Fig. 3 Cervical medial branch block

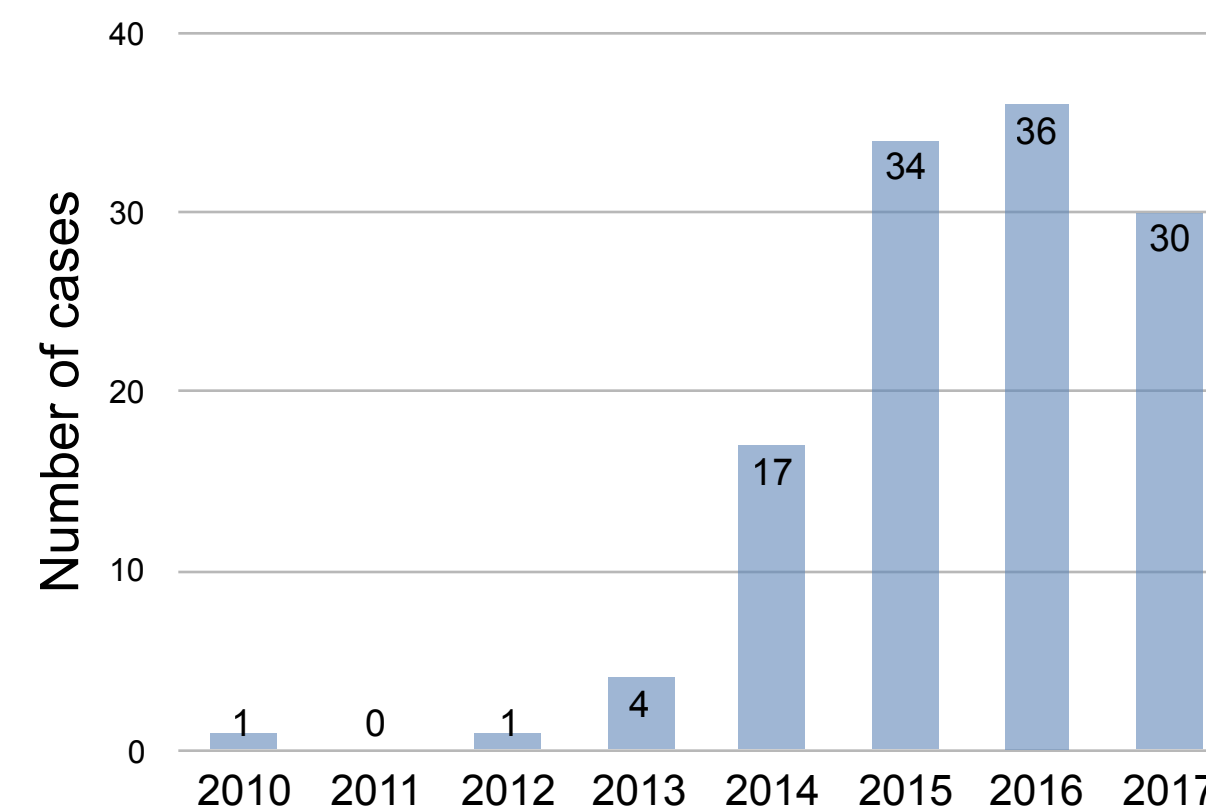


Fig. 2 Number of referrals per year

Results: There are 123 cases in the updated series. 19 cases are ongoing or did not need/declined treatment. 11 cases were lost to follow-up. Of 93 completed cases, 58 were successes (62%) and 35 - failures (38%), see definition of outcomes in Methods.

Conclusions: Our approach of minimally-invasive spinal interventions combined with a continuous exercise regime achieves a clinically meaningful outcome in 62% of cases. Note that the majority of these patients are referred with a history of intractable, disabling headaches, unresponsive to physiotherapy and medication.

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