

A case of post-traumatic cervicogenic headache treated by cervical cord stimulation

A. Dario (✉) • C. Scamoni • S. Peron • G. Tomei

Neurosurgical Clinic,
University of Insubria,
Ospedale Regionale
Viale Borri, 57, I-21100 Varese, Italy
e-mail: dario.alessandro@virgilio.it
Tel.: +39-0332-278388
Fax: +39-0332-261045

Published online: 15 December 2005

Abstract The case of a 26-year-old woman suffering from cervical trauma with disc herniation presenting with arm and neck pain is presented. She underwent cervical discectomy with fusion because the pain did not improve with medical therapies; as the neck pain resumed after surgery, a cervical cord neurostimulator was implanted, with improvement for cervicogenic headache. This report underlines the presence of two pathologies and the relationship between C2 and trigeminal pathways.

Keywords Cervicogenic headache • Neurostimulation

This 26-year-old woman had a car accident (rear-end collision) in 1997 with cervical trauma. She experienced gradual pain in right C5 and C6 dermatome with hypoaesthesia as well as slight motor weakness of the forearm flexion; she also had right shoulder and neck pain with irradiation in the region of greater occipital nerve and in the supraorbital area. This clinical situation was grade 3 whiplash-associated disorder (WAD). A cervical magnetic resonance image (MRI) showed a central cervical disc herniation at C5–C6 level; as the medical and physical therapies did not improve the pain, in 1998 the patient underwent an anterior cervical discectomy with C5–C6 fusion in another hospital. A few weeks later the painful symptoms of the neck resumed and several courses of carbamazepine, baclofen, antidepressants and

NSAID administration were ineffective in controlling retroauricular and supraorbital pain. In contrast, the arm pain after surgery improved in 60% of the Visual Analogue Scale (VAS). The postoperative MRI did not show further pathological findings, with the fusion device correctly implanted. After temporary successful blocks of greater occipital nerve and C3 roots performed 3 times by local anaesthetic in 2000, a temporary spinal cord stimulation electrode was implanted on the right side with the cephalad end at C3–C4. The paraesthesias induced by the implantable pulse generator (IPG) covered the right shoulder, the arm and the more caudal area of the greater occipital nerve. The electrodes active were 0 and 3 in bipolar stimulation with amplitude of 1.2 V, pulse width 120 ms, rate 60 Hz. In the period test the arm pain disappeared almost completely whereas the neck pain improved by about 80%; the supraorbital pain was no longer reported. Pain control was maintained until the end of service of the IPG when it worsened, in 2004; the pain worsened mainly in the cervical area. After replacement of the IPG, pain control was recovered.

This case report is interesting for the presence of two pathologies: the cervical disc herniation and the cervicogenic headache. In our patient two different source of pain can be found: the C2–C3 and C5–C6 roots, so in whiplash injuries the possibility of involvement of two levels should be kept in mind. The importance of the nervous diagnostic anaesthetic blocks as a diagnostic tool [1] at different levels of pain source is underlined. Moreover, the relationship between C2 and trigeminal pathways are confirmed by the fact that neurostimulation in the trigemino-cervical territory via trigemino-cervical nucleus [2] has been effective in the treatment of frontal region pain. However, as a cervical spinal cord stimulator can cause headache [3], a careful follow-up should be performed.

References

1. Bovim G, Sand T (1992) Cervicogenic headache, migraine without aura and tension-type headache. Diagnostic blockade of greater occipital and supra-orbital nerve. *Pain* 51:43–48
2. Bogduk N (1984) Headaches and the cervical spine. *Cephalalgia* 4:7–8
3. Ward TN, Levin M (2000) Headache caused by a spinal cord stimulator in the upper cervical spine. *Headache* 40:689–691