

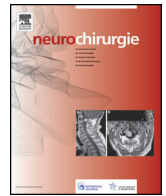


Disponible en ligne sur

ScienceDirect
www.sciencedirect.com

Elsevier Masson France

EM|consulte
www.em-consulte.com



Original article

The treatment of occipital neuralgia: Review of 111 cases

P.-J. Finiels^{a,*}, D. Batifol^b

^a Department of Orthopedics, Traumatology and Spine Neurosurgery, Ales General Hospital, 811, avenue du Dr-Jean-Goubert, BP 20139, 30103 Alès cedex, France

^b Department of Maxillofacial surgery, Montpellier University Hospital, 80, avenue Augustin-Fliche, 34295 Montpellier cedex 5, France

ARTICLE INFO

Article history:

Received 6 August 2015
Received in revised form 20 March 2016
Accepted 6 April 2016
Available online xxx

Keywords:

Occipital neuralgia
Radiofrequency denaturation
Botulinum toxin
Nerve stimulation

ABSTRACT

Objective. – To present the current treatment options for occipital neuralgia based on a retrospective series of 111 patients, who were offered one or more treatment methods, not mutually exclusive.

Methods. – All patients, who previously had their diagnosis confirmed by undergoing an anesthetic nerve block (0.25 mL bupivacaine/2 mL cortivazol), were treated by radiofrequency denaturation in 78 cases, injection of botulinum toxin in 37 cases and implantation of a nerve stimulation system in 5 cases.

Results. – Two serious complications (1 death, 1 permanent hemiplegia) were observed after radiofrequency denaturation, the other methods did not result in any significant complications. Radiofrequency denaturation resulted in 89.4% of good and very good results beyond 6 months, as compared to 80% for the botulinum toxin and 80% after nerve stimulation, no other significant difference occurred between the three techniques, with reservations about the reliability of interpretation for the small sample size in the case of nerve stimulation.

Conclusions. – If radiofrequency denaturation seems to remain the leading treatment for occipital neuralgia, in terms of innocuousness and production costs, botulinum toxin could, in principle, represent the preferred initial treatment for this type of pathology.

© 2016 Elsevier Masson SAS. All rights reserved.

Occipital neuralgia, or Arnold's neuralgia, is characterized by flash paroxysmal pain, originating from the cervico-occipital joint and radiating uni- or bilaterally upwards as far as the frontal region. First described by Beruto and Ramos in 1821 [1], occipital neuralgia is due to irritation of the dorsal primary ramus of the second cervical spinal nerve and is most often unilateral [2]. It can take the form of migrainous episodes with nausea, visual disorders, and hemi-cranial pulsatile cephalgia. Bilateral occurrences represent only one third of cases [3]. The pain may be of a neuralgic, paroxysmal or chronic nature, with continual background pain, interspersed with phases of intensification, either spontaneous or brought on in particular by movements of the cervical spine and by suboccipital pressure. It seems to occur more frequently in women, often associated with depression-anxiety syndrome, raising questions about its origin, or about its chronic nature, which is troublesome and sometimes incapacitating, refractory to medical treatment, as if it were the origin of a reactive depression syndrome.

The classical description of Arnold's neuralgia made by Hammond and Danta in 1978 [2], emphasized the variations in its clinical form, which could associate episodes of paroxysmal pain or

permanent background pain, with marked sensitivity of the cutaneous area level with the superior occipital line, at the point where the nerve becomes most superficial, a change in cutaneous sensitivity which manifests itself as hypoesthesia of the corresponding area of projection, or even dysesthesia, variable in its surface and intensity.

A certain number of diagnostic pitfalls should be underlined: any organic causes must first of all be eliminated using a precise etiological study, with an inflammatory checkup, and a scan of the posterior cranial fossa and the craniospinal junction, possibly an MRI scan. Arnold's neuralgia can, in fact, be an indicator of lesions affecting the craniospinal hinge (Arnold-Chiari malformation) or of tumorous lesions (neurinoma or meningioma of the foramen magnum or of the clivus) or even of a vascular malformation [4–7]. Only one exceptional case of neurinoma of the greater occipital nerve has even been reported [8]. Certain neuralgia may be secondary to craniospinal trauma, sometimes without visible unstable lesions, but with degenerative change (discarthrosis, uncartrosis) decompensated by the trauma suffered [9]. More rarely, fractures or luxations of the suboccipital spine, especially if they are unknown and develop towards formation of fibrocartilage calluses, can be the cause of this type of pain. Affections of the craniospinal junction and of the suboccipital spine must not be ignored either: i.e. rheumatoid arthritis and rheumatoid spondylitis [10]. Certain cases have even been reported after posterior surgery on the spinal cord

* Corresponding author.

E-mail addresses: dr.pjfiniels@club-internet.fr (P.-J. Finiels), dominique.batifol@dbmail.com (D. Batifol).

<http://dx.doi.org/10.1016/j.neuchi.2016.04.004>

0028-3770/© 2016 Elsevier Masson SAS. All rights reserved.

[3], C1–C2 arthrodesis [11] or surgery for acoustic schwannomas [12]. Nevertheless, in most cases, occipital neuralgia is primary. Muscular contractions can be an issue when determining this neuralgia, particularly in the muscles through which the greater occipital nerve passes (*trapezius* and *semispinalis capitis*); the irritating role of the *obliquus capitis superior* has been mentioned by certain authors, who have suggested sectioning this muscle [13]. This etiopathogenesis has also been mentioned by patients who were anxious, tense, depressed or even neurotic, in whom there is a certain muscular hypertonia, particularly in the nuchal area, which could trigger this kind of neuralgia. Finally, Maigne's theory should be mentioned here [14]. This theory concerns minor disturbances to the zygapophysial C2–C3 joint, which can also result in occipital neuralgia.

In order to confirm the diagnosis of occipital neuralgia, the reported pain must be situated in the cutaneous projection area of the greater occipital nerve and pressure at the point of emergence of this nerve, two finger-breadths outside the C2 spinal process, triggers painful sensitivity, or even upward occipital irradiation [9]. In some cases, the physical examination showed hyperesthesia of the scalp or, sometimes, but more rarely, hypoesthesia in the area of the nerve.

Many treatment options have been attempted in the past, some of them can impartially be said to be without any efficacy, (cervical collars, mesotherapy, etc.) and others, particularly medicinal or surgical options, with relative success.

The aim of this study was to evaluate the treatment of 111 patients, over a period of at least 6 months, all of whom had severe neuralgia which was resistant to the usual medicinal therapies (especially analgesics or anticonvulsants), using three treatment methods, not necessarily mutually exclusive, with a special emphasis on comparison of the efficacy of percutaneous radiofrequency denaturation vs. botulinum toxin injections.

1. Clinical material and methods

1.1. Patients

Approval for this study was obtained from the Institutional Review Board of both institutions. This retrospective study was based on clinical and radiological records of 111 patients, who had previously been given specific treatment for Arnold's neuralgia and followed-up for at least 6 months in either one of our units between May 1999 and September 2013. Summaries of all cases were extracted from the collected hospital databases. Certain patients had previously been treated successively with two or all three of the techniques available, depending on the results obtained. Patient records were collected in a purely retrospective manner, the only criteria used for inclusion were the presence of uni- or bilateral occipital neuralgia as well the use of treatment which was not exclusively medical, and matched one or several of the techniques being assessed in this study. Consequently, only 7 patient records were excluded from the study, these concerned patients who were treated solely by an infiltration test or simple medication (particularly antiepileptics). Four more patients, initially chosen for implantation of surgical leads were not selected, as they had not experienced failure of prior treatment. The diagnosis of Arnold's neuralgia was made based on the criteria used by the International Headache Society [15]. All patients received an image-guided (fluoroscopy or tomography) test injection according to the usual landmarks [16–19], using a mix of 1 mL of 0.25% bupivacaine and 2 mL of cortivazol, before being offered one or the other of the selected treatments, which was limited to percutaneous radiofrequency denaturation up until February 2011, and then beyond that date by the possibility of benefiting from one

or more injections of botulinum toxin (BTX) as an initial treatment should either of these two techniques fail, and the implantation of surgical electrodes linked to an automatic stimulator. Fig. 1 shows techniques used and progression of indications in the case of failure of one or another technique. Sixty-seven patients were female (F) and 44 male (M) across the whole series, their average age was 50.7 years (22–90 years). Two patients had developed their symptoms after cervical surgery (one of them a C1–C2 arthrodesis), 6 patients after indirect trauma to the cervical spine in a road accident, and 8 after a fall (2 C2 fractures, 1 C6 fracture). In 95 cases, the onset of symptoms seemed to be spontaneous, in one case with the possibility of a favorable progressive psychological terrain.

1.2. Methods

Each patient was evaluated prior to treatment based on a physical and neurological examination, radiographs, CT-scan and MR images of the cervical spine and posterior fossa, and evaluation of a visual analogue scale (VAS) score. After treatment, all patients were followed-up during clinic visits, neurological status and VAS score recorded each time. Each patient underwent surgical techniques of each type performed by one surgeon (P.J.F) and injections performed by the other physician (D.B). Patient satisfaction after treatment and a minimum follow-up of 6 months was documented with a new scale using the classical Macnab criteria [20], as recently reported by Sukkarieh et al. [21], as follows: a score of "excellent" indicated that all preoperative symptoms had been relieved and that the patient was able to carry out daily activities without any impairment; a score of "good" indicated minimum persistence of preoperative symptoms with an improvement of at least 5 points on the visual analogue scale (VAS) without the necessity for further medication and the ability to carry out daily activities without significant impairment; a score of "average" indicated only partial relief of preoperative symptoms with an improvement of between 3 and 4 points on the VAS, but requiring simultaneous medication (stage 1 or 2 analgesics and/or anticonvulsants), and limited physical activities; and a score of "poor" indicated unchanged or even worsened symptoms with a reduction on the VAS of between 1 and 2 points. These four categories were assigned numerical values, with 4 representing an excellent outcome, 3 a good outcome, 2 an average outcome, and 1 representing a poor outcome. Pearson's χ^2 test was chosen as the statistical method for assessing the results, with a threshold of 5% considered as being statistically significant. After discussion with statisticians from both establishments, this test seemed the most suitable to test the independence between variables which were judged as being random in their results (the method of treatment chosen) and which only had positive whole number values (from 1 to 4 in the present case). For further analysis, we checked that the two series, radiofrequency denaturation and botulinum toxin, matched (age and gender) using Pearson's χ^2 test.

1.3. Radiofrequency denaturation

Neuroleptanalgesia and cutaneous local anesthesia was used in all cases, the procedure itself was carried out to meet standards, which have previously been reported elsewhere [3,22,23]. Briefly, the procedure is carried out on a patient in the ventral prone position. Under fluoroscopic control, the needle is placed in contact with the posterior rim of C2, then, in a more oblique lateral direction, to the point of emergence of the greater occipital nerve at the level of the atlantoaxial membrane (Fig. 2). Electric stimulation allowed a far more precise location of the point than fluoroscopy alone. The lesion was thus carried out at 70 °C for 60 seconds, the procedure being routinely repeated at a point 2 cm outside the external occipital protuberance, adjusted in accordance with the results of the

Download English Version:

<https://daneshyari.com/en/article/5681806>

Download Persian Version:

<https://daneshyari.com/article/5681806>

[Daneshyari.com](https://daneshyari.com)