

Occipital Nerve Stimulation



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KEYWORDS

- Peripheral nerve stimulation • Occipital nerve stimulation • Classical occipital neuralgia
- Occipital neuroma • Headache • Migraine

KEY POINTS

- Although the first publications on clinical use of peripheral nerve stimulation for treatment of chronic pain came out in mid-1960s, it took another 10 years before this approach was used to stimulate the occipital nerves.
- Since then, occipital nerve stimulation has been successfully used in countless patients for a variety of indications, including classical occipital neuralgia, both idiopathic and posttraumatic, pain owing to occipital neuroma, so-called cervicogenic headaches, migraines, cluster headaches, and fibromyalgia.
- Based on results of a large multicenter randomized controlled study, occipital nerve stimulation was granted CE mark for the treatment of migraines, and a set of guidelines published by the Congress of Neurologic Surgeons came up with Level III recommendation supporting use of occipital nerve stimulation as a treatment option for patients with medically refractory occipital neuralgia.

Although the first publications on clinical use of peripheral nerve stimulation for treatment of chronic pain came out in mid-1960s,^{1–3} it took another 10 years before this approach was used to stimulate the occipital nerves.^{4–6} It seems that the main reason for clinicians' reluctance to stimulate the occipital nerve was a combination of the relatively small size of the targeted nerve and high mobility of the stimulated region. In those early days, the nerve had to be surgically dissected to place a stimulation electrode directly over (or under) it, and therefore the approach was reserved for larger nerves in the extremities with the occipital nerve stimulation (ONS) reported in only a handful of cases. Such surgery required surgical skills and certain commitment of the implanting team making it available in only few highly specialized

centers. The situation changed dramatically—both in terms of the number of specialists feeling comfortable with ONS procedure and in the number of patients willing to undergo ONS intervention—with introduction of percutaneous ONS technique by Weiner and Reed in 1999.⁷ Soon after that, multiple other publications described minor modifications in the Weiner technique with the use of cylindrical percutaneous electrode leads,^{8–11} and then the open surgical approach with flat paddle-type electrodes was reintroduced and popularized.^{12–14}

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