

Daith piercing in chronic migraine: a possible vagal modulation

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Introduction

Daith piercing is an ear piercing located at the crus of the helix, bilaterally. It is getting great consent on social media as alternative treatment in chronic migraine. No data about its efficacy and action are available in scientific literature so far.

Case presentation

We present the case of a 54 year-old male patient suffering from refractory chronic migraine¹ with medication-overuse, who substantially improved after bilateral ear daith piercing (Fig.1). His migraine was refractory to symptomatic as well as prophylactic therapies. He used to treat headaches with up to 5 symptomatic drugs per attack and had attempted several pharmacological preventive therapies, including Onabotulinumtoxin A. He also underwent several detoxification treatments with intravenous steroids and diazepam, without durable benefit. At the time of daith

piercing, the headache-related disability measures showed a HIT-6 score of 61, MIDAS score of 70 and a 11-point Box scale of 5, he suffered from headache more than 15 days for month and took up to 30 painkillers for month. On his own free will, he decided to get a “daith piercing” (Fig. 2A). On the following months he experienced a remission of migraine attacks, which became very rare, and an improvement of tension-type headache with infrequent, less disabling episodes (HIT-6 of 56; MIDAS of 27, 11-point Box scale of 3), with decreasing of painkillers assumption about 4 times per month. Currently, after one year and half, migraine is disappeared but tension-type attacks are becoming more and more frequent.

Discussion

Beyond a placebo effect, we can speculate a vagal modulation as the action mechanism of daith piercing (Fig.2B). It could act in a similar way to auricular acupuncture² or transcutaneous auricular vagal nerve stimulation (t-VNS)³ in the treatment of migraine. The anterior part of the helix is innervated by sensory trigeminal and vagal branches⁴. A nociceptive sensory stimulus applied to this auricular area can activate ear vagal afferents, which through the nucleus tractus solitarius (NTS) can exert an inhibitory action on neurons in the caudal trigeminal nucleus. Vagal activation can also modulate pain pathways by means of projections to the locus coeruleus and to the nucleus raphe magnus, as showed in several fMRI studies. We don't know how daith piercing, once it has healed, can provide a continuous stimulation of the vagal and trigeminal pathways, one explanation can be a change of functional connectivity in the pain matrix.

Conclusion

At the present daith piercing cannot be recommended as migraine treatment because of the lack of scientific evidence, the unquantified rate of failure and the associated risks with insertion. However, given the increasing but anecdotal evidence, we think that the mechanism needs to be tested by means of a controlled clinical trial in a population of chronic migraineurs.

Bibliography

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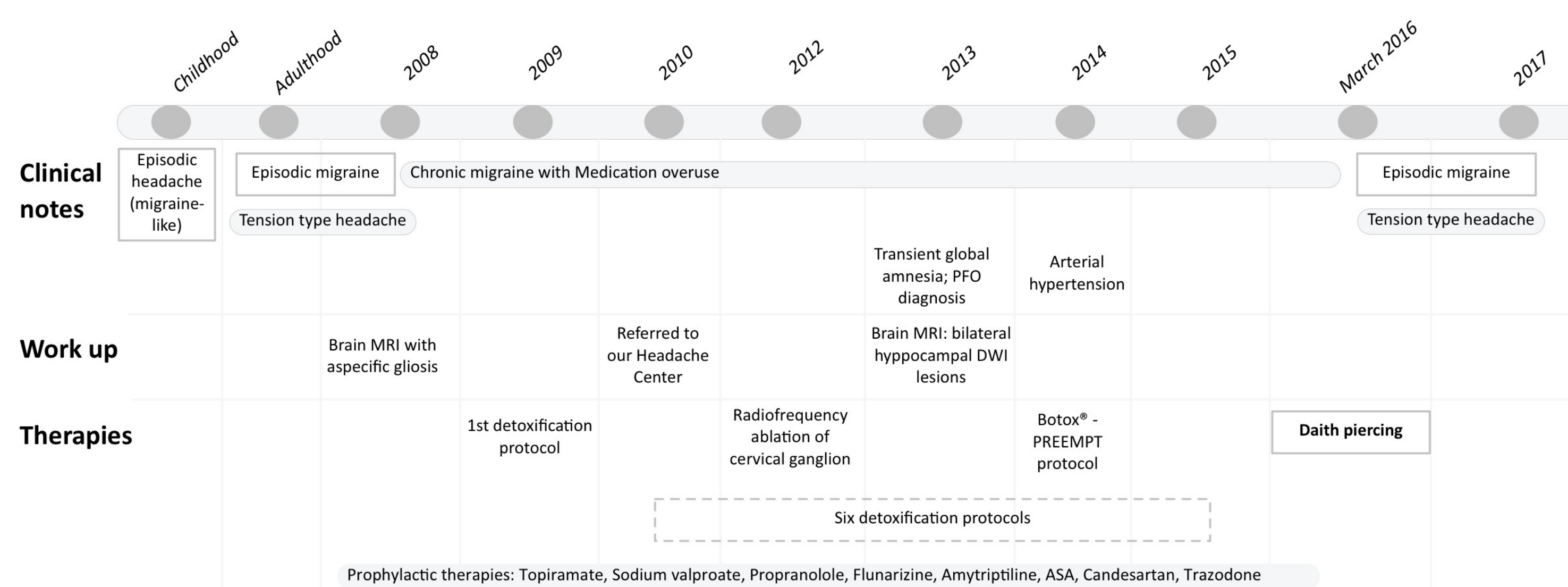


Fig.1 Timeline of patient's clinical history from childhood to daith piercing insertion.

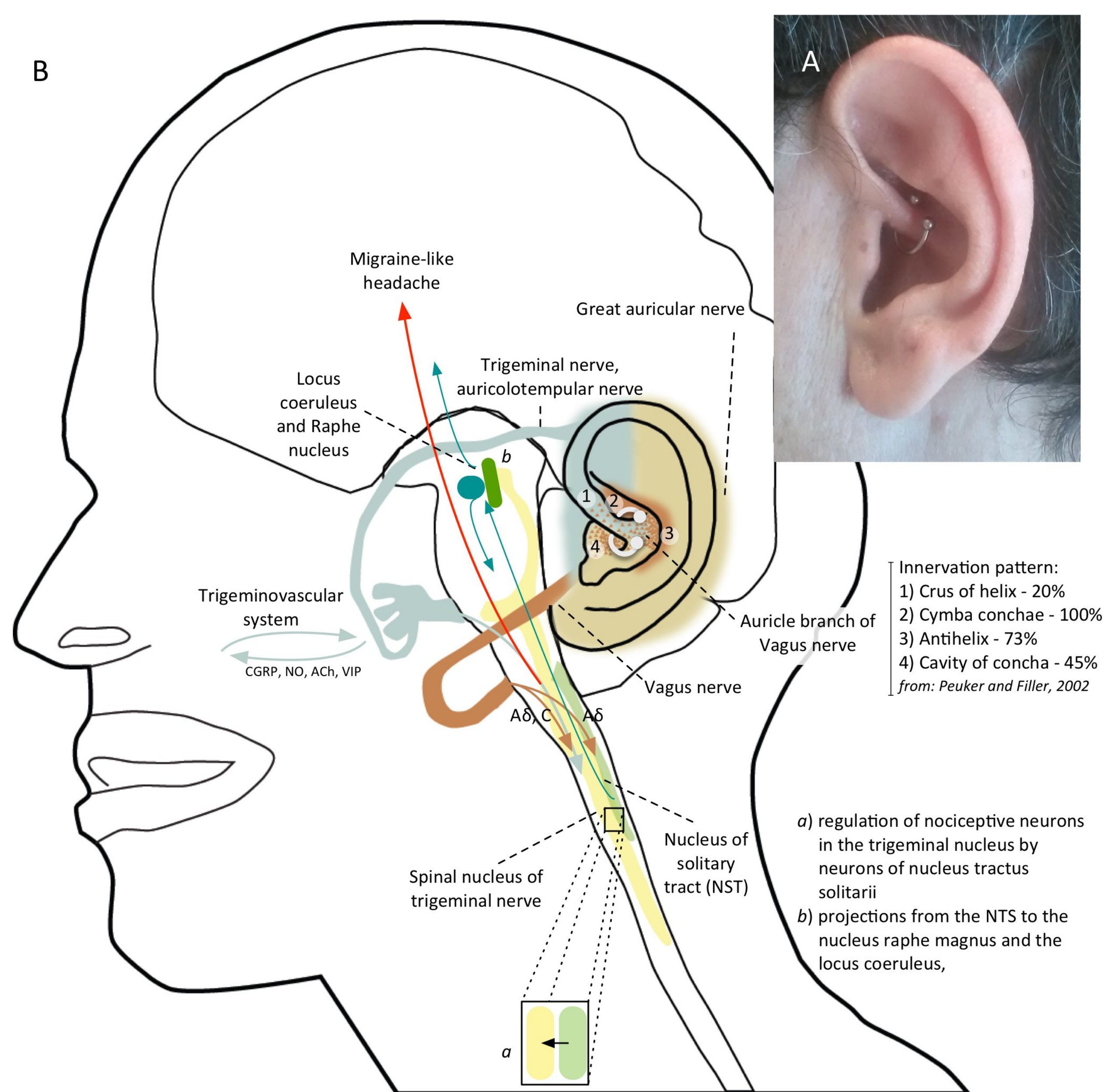


Fig.2 2A. patient's left ear with daith piercing located at the crus of the helix. 2B shows the possible mechanism of action of daith piercing.