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Greater occipital nerve (GON) blocks for treating of hypnic headache: A case report

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1. Introduction to the case

Hypnic headache (HH) is a rare benign disorder described initially by Raskin in 1988. It is a headache disorder characterized by recurrent nocturnal headaches that periodically awaken the sleeping patient and usually occurs in the elderly. A 65-year-old woman has been followed-up in the Sleep clinics for eight years because of her hypnic headaches, a diagnosis according to the criteria of the International Classification of Headache Disorders 3rd edition (ICHD-3). Related to treatment, headaches went away when the patient awakened after a few minutes. After referral to the Headache Unit, physicians performed an anaesthetic block of the greater occipital nerve (GON), the most painful point, with an important pain reduction (1–2 episodes per month), no worsening after more than 6 months of treatment.

2. Image analysis

The patient suffered from hypnic headache in the two first PSG studies, after 4–5 h from the sleep onset, while she was at the N2 stage of sleep, preceding REM sleep in both episodes and remitting headaches in 10–15 min after the beginning of the headache (Fig. 1). We highlight that the REM sleep latency has been the same in the two PSG, performed with a time difference of 2 years (Table 1). In those studies, the patient awakened in the N2 stage of sleep, preceding REM sleep by the headaches, and they went away spontaneously. In the last PSG, we did not record any headache, and we observed a better sleep architecture, a lesser percentage of wake time after sleep onset and an increase in the percentage of deep sleep and REM sleep.

3. Discussion

We describe a case of HH, a type of nocturnal headache appearing exclusively at night. The diagnosis is mainly based on the clinical history, excluding other causes of headaches [1,2]. The first polysomnography was diagnosed with moderate obstructive sleep apnoea syndrome (AHI: 15.1), proposing a therapeutic trial of CPAP, but its use did not improve the headaches. Other sleep disorders have been ruled out, except the moderate clinical insomnia secondary to the headache, which impacted her quality of life.

This type of headache appears exclusively during sleep and improves when the patient awakens [3–5]. However, the patient improved clinically after the block of the great occipital nerve, being the second case reported in the literature. The anaesthetics block is a simple technique without adverse effects; therefore, it is a suitable alternative treatment for older people who suffer from this disease. Recognizing this type of headache and proposing an efficient treatment improve the life quality of these patients.

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Abbreviations:

Greater occipital nerve GON
Hypnic headache HH
Rapid eye movement REM
Non-rapid eye movement NREM
International Classification of Sleep Disorders 3 ICSD-3
International Classification of Headache Disorders 3rd edition ICHD-3
Body mass index (BMI)
Insomnia Severity Index ISI
Epworth Sleep Scale EES
Polysomnography PSG
American Association of Sleep Medicine, AASM
Apnoea hypopnea index AHI
Continuous positive airway pressure CPAP
Stage 2 NREM sleep, N2

Table 1
Sleep architecture.

	1 PSG	2 PSG (CPAP 5 cm H2O)	3 PSG
Sleep efficiency (%)	68	83	86
Total sleep time (minutes)	322	409	362
Sleep latency	17	27	16
REM sleep latency (minutes)	64	64	113
Wake after sleep onset (minutes)	58	41	39
Stage N1 (%)	10.6	8.7	6.4
Stage N2 (%)	49.5	49	41.2
Stage N3 (%)	26.7	22	30.7
Stage REM (%)	13.2	20	21.7
AHI	15.1	1.2	13.3
ODI	8.3	1.1	8.6
TC 90%	11%	0.2	7%
PLMi	0	0	23
Arousals index (/h)	21	9	7

Polysomnography (PSG), AHI: apnea-hipopnea index, ODI: Oxygen Desaturation Index, PLMi: Periodic Leg Movement index.

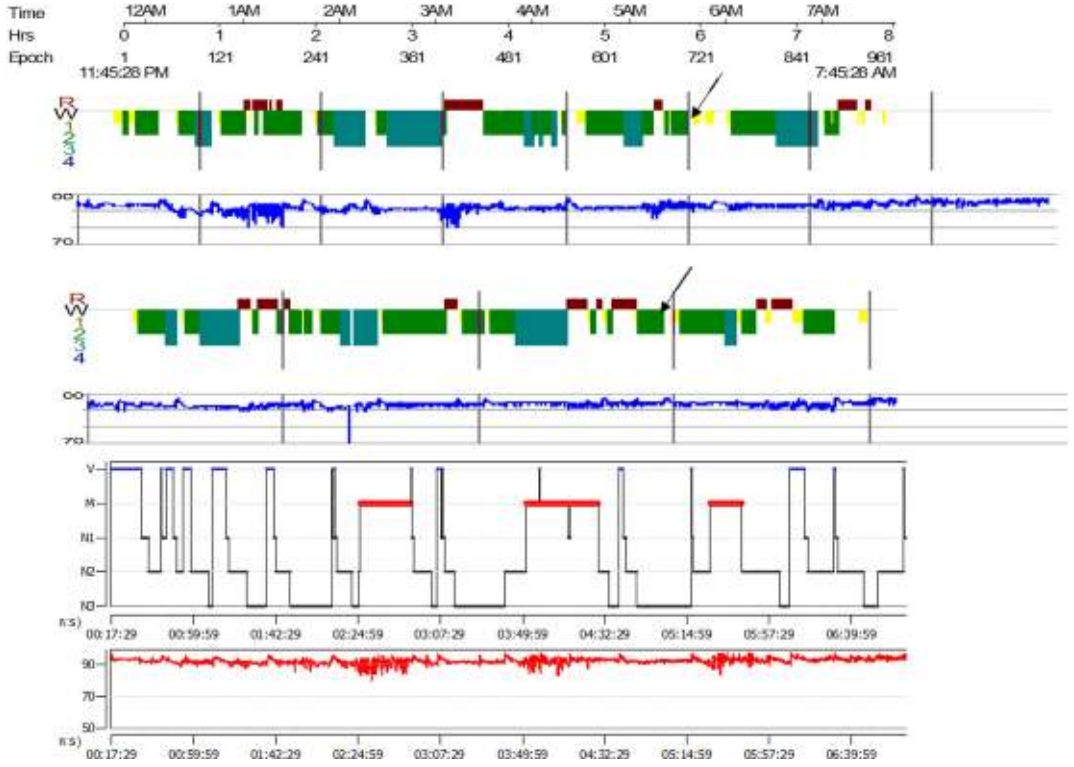

Fig. 1. Hypnogram. Arrow indicates hypnic headache. R: REM sleep, W: Wake, 1: Stage N1, 2: stage N2, 3: stage N3. In the bottom V: Wake, M: REM sleep.

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Ethical compliance statement

The authors confirm that ethical approval from an institutional review board was not required.

Informed consent

Written informed patient consent was obtained.

CRediT authorship contribution statement

Rybel Wix Ramos: was responsible for the study conception, design, interpretation, writing, editing and review. **Esmeralda Rocio Martín:** were responsible for data collecting, and. **Cecilia Luque Cárdenas:** were responsible for data collecting. **Laura López**

Viñas: was responsible for data collecting, writing, editing and manuscript reviewing. **Ana Gago Veiga:** contributed in writing, editing, and review. All authors contributed to the article and approved the submitted version.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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References

[1] Sateia MJ. International classification of sleep disorders-third edition: highlights and modifications. Nov Chest 2014;146(5):1387–94. https://doi.org/10.1378/chest.14-0970.

[2] Headache classification committee of the international headache society (IHS) the international classification of headache disorders. Jan Cephalalgia 2018;38(1). https://doi.org/10.1177/0333102417738202. 1-211, third ed..

[3] Rehmann R, Tegenthoff M, Zimmer C, Stude P. Case report of an alleviation of pain symptoms in hypnic headache via greater occipital nerve block. Cephalalgia 2017;37(10):998–1000. https://doi.org/10.1177/0333102416653387.

[4] Mulero P, Guerrero-Peral AL, Cortijo E, Jabary NS, Herrero- Velázquez S, Miranda S, et al. Cefalea hípnica: características de una serie de 13 nuevos casos y propuesta de modificación de los criterios diagnósticos. Rev Neurol 2012;54:129–36. https://doi.org/10.33588/rn.5403.2011170.

[5] Porta-Etessam J, García-Morales I, Di Capua D, García-Cobos R. A patient with primary sexual headache associated with hypnic headaches. J Headache Pain 2009;10(2):135. https://doi.org/10.1007/s10194-008-0093-z. Apr.