

Head and Neck Trauma as a Precursor for Occipital Neuralgia: Understanding the Temporal Relationship

Makayla Kochheiser, BA¹, Merel H.J. Hazewinkel, MD¹, Katy Remy, MD², Matthew Depamphilis, BS², Alison Kearns, MD¹, Kristyn Vicente, BS¹, William G. Austen Jr., MD², Lisa Gfrerer, MD PhD¹

¹Division of Plastic and Reconstructive Surgery, Weill Cornell Medicine, New York, NY

²Division of Plastic and Reconstructive Surgery, Massachusetts General Hospital, Harvard Medical School, Boston, MA

INTRODUCTION

- Occipital neuralgia (ON) is a paroxysmal headache disorder
- Sharp, stabbing pain in the distributions of the greater, lesser, and/or 3rd occipital nerves
- ON is often underdiagnosed, leading to delay in treatment
- The timing of symptom onset following trauma and the specific mechanisms of injuries resulting in ON remain unknown

Study Aims:

- Assess timing of ON following trauma
- Identify injury mechanisms that predispose to ON
- Evaluate outcomes following surgical decompression

METHODS

- 441 patients were screened for nerve decompression surgery → 212 (48.1%) met criteria for a diagnosis of ON
- Surveys were administered at screening:
 - Age of ON onset & baseline pain characteristics
 - History of head/neck trauma
- 25 patients (38.5%) underwent surgical decompression
 - Assessed for postoperative pain characteristics
- Statistical analysis: univariable logistic regressions

RESULTS

- 65 patients (30.6%) reported pain following trauma to the head/neck
- Most patients reported that their pain started on the same day or within 1 week of injury
- Whiplash was the most common mechanism, followed by direct strike to the head

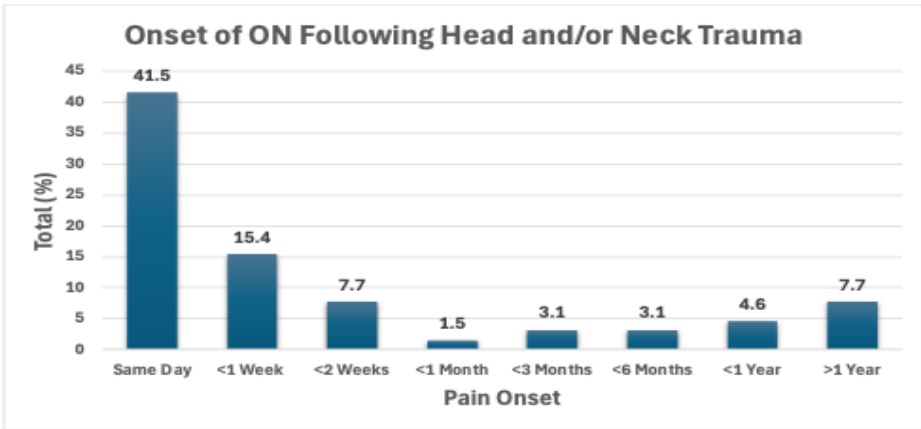


Figure 1. Onset of ON symptoms following head and/or neck trauma

Variable	All Patients (n = 65)
Whiplash, n (%)	42 (64.6%)
Direct strike to head, n (%)	30 (46.2%)
Direct strike to neck, n (%)	3 (4.6%)
Direct strike to head & neck, n (%)	19 (29.2%)
Other, n (%)	4 (6.2%)

Table 1.
Mechanism of
injury that led to
symptoms of ON

RESULTS

Postoperative Outcomes

- Patients experienced significant reductions in frequency, duration, and intensity after surgery ($p < 0.05$)
- 88% improvement in occipital nerve pain at the surgical site

CONCLUSIONS

- The majority of patients experienced ON symptom onset within 1 week of trauma
- Surgical decompression is an effective treatment strategy for patients with trauma-associated ON
- Early screening for ON is recommended in patients with head or neck trauma

REFERENCES

- Olesen J. Headache Classification Committee of the International Headache Society (IHS) The International Classification of Headache Disorders, 3rd edition. *Cephalalgia*. 2018;38(1). doi:10.1177/0333102417738202
- Tepper S.J. Cranial Neuralgias. *Continuum (Minneapolis, Minn)*. 2018 Aug;24(4, Headache):1157-1178. doi: 10.1212/CON.0000000000000637. PMID: 30074554.
- Hazewinkel MHJ, Remy K, Black G, et al. Treatment delay from onset of occipital neuralgia symptoms to treatment with nerve decompression surgery: a prospective cohort study. *Pain Medicine (United States)*. 2024;25(5). doi:10.1093/pm/pnad154

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