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**Background:** In patients with occipital neuralgia that is refractory to optimal medical management, surgical decompression can be an effective treatment option. However, in clinical practice, nerve decompression surgery is not routinely considered as part of the occipital neuralgia therapeutic algorithm.

**Objectives:** The aim of this study was to a) evaluate the time between onset of occipital neuralgia symptoms and nerve decompression surgery, b) perform a cost comparison analysis between surgical and non-surgical treatment of occipital neuralgia and c) report postoperative results of nerve decompression for occipital neuralgia.

**Methods:** 1,112 subjects who underwent screening for nerve decompression surgery at Weill Cornell Medical Center and Massachusetts General Hospital between September 2012 and November 2022 were screened for a diagnosis of occipital neuralgia. 367 (33%) patients met the inclusion criteria. Demographic information, timing of occipital neuralgia symptom onset, and preoperative/postoperative pain characteristics were prospectively collected. Direct and indirect cost associated with the non-surgical treatment of occipital neuralgia were calculated for the period between onset of symptoms and surgery.

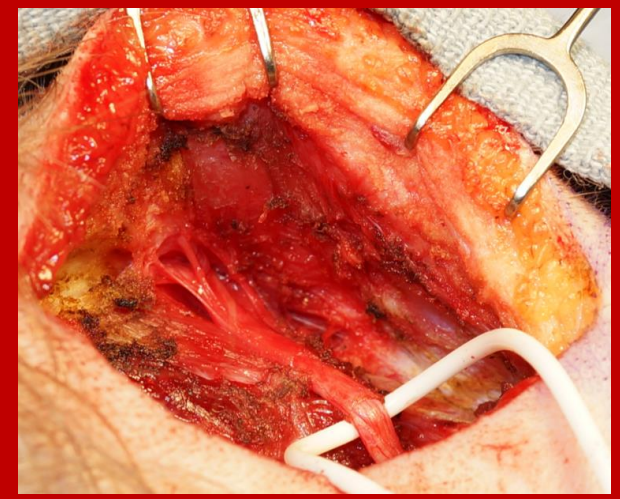


Figure 1. Occipital nerve decompression surgery

Annual cost non-surgical treatment occipital neuralgia				
Variable	Total cost		Range	
Direct cost	\$ 14,209.88	\$ 4,994.70	-	\$ 23,425.06
Indirect cost	\$ 14,518.95	\$ 11,424.72	-	\$ 17,773.35
<b>Total per year</b>	<b>\$ 28,728.83</b>	<b>\$ 16,419.42</b>	-	<b>\$ 41,198.41</b>
<b>Total in 19 years</b>	<b>\$ 545,847.75</b>	<b>\$ 311,968.90</b>	-	<b>\$ 782,769.82</b>

Table 1. Annual cost non-surgical treatment occipital neuralgia

**Results:** After screening, 226 (73%) patients underwent occipital nerve decompression. The average time between onset of occipital neuralgia and nerve decompression was 19 years (7.1-32). The median number of pain days per month decreased by 17 days (0-26, 57%) (p<0.001), the median pain intensity on a 0-10 scale decreased by 4 (2-8, 44%) (p<0.001), and median pain duration in hours was reduced by 12 hours (2-23, 50%) (p<0.001). The annual mean cost of non-surgical occipital neuralgia treatment was \$28,728.82 (\$16,419.42-\$41,198.41) per patient. The mean cost during the 19-year timeframe prior to surgery was \$545,847.75(\$311,968.90-\$782,769.82), while the mean cost of occipital nerve decompression surgery was \$12,000.00.

**Conclusion:** This study demonstrates that patients suffer from occipital neuralgia for an average of 19 years prior to undergoing nerve decompression surgery that reduces symptom severity significantly. Therefore, nerve decompression surgery should be considered earlier in the treatment course of occipital neuralgia that is refractory to conservative treatment to prevent patient morbidity and decrease direct and indirect healthcare costs.