

# The Spectrum of Chronic Postoperative Pain in Head and Neck Cancer:



## A Descriptive Phenotypic Study

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### Introduction

Chronic Postoperative Pain (CPOP) significantly impairs quality of life in head and neck cancers (HNCs) survivors, with prevalence estimates of 42% in meta-analyses<sup>1</sup>. Despite its clinical significance, the nuanced presentation of CPOP in this population remains poorly understood. This study aimed to define the spectrum of distinct painful phenotypes associated with CPOP after curative HNC treatment, offering a clearer characterization of this complex condition.

### Materials and Methods

A prospective study was conducted on 100 patients who presented with CPOP (Table 1).

**Table 1:** Diagnostic criteria for CPOP in HNC patients

- A. Any pain limited to the head, face, and neck region persisting or recurring for >3 months and fulfilling criteria B-D.
- B. All of the following:
  - a. History of radical oncological treatment
  - b. Imaging or pathological evidence of complete disease remission; and
  - c. Clinical or imaging evidence of postoperative changes in the underlying tissue
- C. Onset of pain within 6 months of treatment completion
- D. Pain may be associated with somatosensory signs and symptoms
- E. Not better accounted for another ICOP and ICHD-3 diagnosis.

All patients underwent a comprehensive clinical assessment and were stratified in one or more painful phenotypes based on modifications of criteria given in the International Classification for Orofacial Pain (ICOP-1) and International Classification for Headache Disorders, third edition (ICHD-3)<sup>2,3</sup>.

### Results

Among the participants included, 54% were male, and the mean age of the cohort was  $49.64 \pm 10.31$  years. The most common cancer type was squamous cell carcinoma (81%). The most prevalent primary disease sites were the tongue (36%), buccal mucosa (17%) and mandible (16%). Most participants had radiation therapy (93%) and surgical tumor resection (83%). The average pain intensity was  $5.32 \pm 1.83$ . However, the worst pain intensity over the last month was  $7.73 \pm 1.32$ . Other pain characteristics are summarised in Table 2. Masticatory and cervical myofascial pain and burning pain disorder were the most common phenotypes, and on average, two different phenotypes co-existed. Statistically significant correlation were noted between sensory alteration and oral burning phenotype, and tightness and myofascial phenotype.

**Table 2:** Summary of signs and symptoms of the study population (n = 100).

| Study Characteristics | Classification   | Descriptive Statistic |
|-----------------------|------------------|-----------------------|
| Pain intensity        | Current (0 – 10) | $5.32 \pm 1.83$       |
|                       | Least (0 – 10)   | $3.67 \pm 2.04$       |
|                       | Worst (0 – 10)   | $7.73 \pm 1.32$       |
| Laterality of pain    | Unilateral       | 62 (62%)              |
| Periodicity of pain   | Constant         | 85 (85%)              |
| Pain quality          | Sharp            | 10 (10%)              |
|                       | Electric         | 2 (2%)                |
|                       | Burning          | 47 (47%)              |
|                       | Throbbing        | 11 (11%)              |
|                       | Stinging         | 10 (10%)              |
|                       | Dull ache        | 86 (86%)              |
|                       | Stabbing         | 11 (11%)              |
| Tightness             |                  | 78 (78%)              |
| Xerostomia            |                  | 57 (57%)              |
| Dysphagia             |                  | 8 (8%)                |
| Dysgeusia             |                  | 21 (21%)              |
| Trismus (<20 mm)      |                  | 22 (22%)              |

### Conclusion

The CPOP among HNC survivors is not a single entity but rather a spectrum of distinct clinical presentations that mirror phenotypes observed in established pain disorders. This

study underscores the importance of recognizing these distinct phenotypes to improve diagnostic accuracy and develop targeted therapeutic interventions.

**Table 3:** Summary of clinical phenotypes of the study population (n = 100).

| Clinical Phenotype       | Classification    | Descriptive Statistic |
|--------------------------|-------------------|-----------------------|
| Clinical phenotypes      | Frequency/patient | $2.14 \pm 0.89$       |
| Myofascial pain disorder | Any               | 82 (82%)              |
|                          | Masticatory       | 68 (68%)              |
|                          | Cervical          | 68 (68%)              |
| Jawbone pain disorder    |                   | 17 (17%)              |
| Burning pain disorder    | Any               | 47 (47%)              |
|                          | Oral cavity       | 41 (%)                |
|                          | Cervicofacial     | 8 (8%)                |
| Neuralgia                |                   | 2 (2%)                |
| Persistent pain disorder | Any               | 11 (11%)              |
|                          | Oral              | 5 (5%)                |
|                          | Cervicofacial     | 7 (7%)                |

### References

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