

Frequency of Trauma Associated Pain Among other Orofacial Pain in Patients Attending Dental And Maxillofacial Outpatient Clinics of a Tertiary Care Hospital

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Abstract

Background: Orofacial pain is a multifactorial complaint frequently encountered in dental and maxillofacial outpatient clinics. The causes range from dental pathologies to trauma and neuralgias and understanding their distribution is essential for efficient clinical management and planning.

Objective: To evaluate how often different types of orofacial pain occur and how are they distributed among patients visiting dental and maxillofacial outpatient clinics of a tertiary care institution ;with the aim of supporting targeted care and enhancing preparedness in specialized domains of orofacial pain management.

Methods: This cross sectional study was conducted in the oral and maxillofacial surgery outpatient department of Abbasi Shaheed Hospital, Karachi from 30th June 2016 till 30th December 2016. A total of 289 patients satisfying inclusion and exclusion criteria were randomly selected. Among the total,100 patients were diagnosed with trauma -associated orofacial pain ,including cases linked to road traffic accidents, sports injuries, fall and interpersonal violence and abuse. The age, duration and severity noted and pattern diagnosed.

Result: Trauma -associated orofacial pain was identified as the most frequently observed category among patients seeking care at the dental and maxillofacial outpatient department of Abbasi Shaheed Hospital. This pattern was especially notable in younger age groups and male patients, highlighting trauma as a major contributor to orofacial pain burden in the tertiary care setting.

Conclusion: Trauma emerged as the most frequent cause of orofacial pain among outpatient attendees. Maxillofacial clinics and wards routinely manage a high volume of trauma related orofacial pain cases, ranging from minor soft tissue injuries to complex maxillary and mandibular fractures. This pattern highlights the need for sustained trauma focused infrastructure, training and resource allocation within public sector maxillofacial units.

Key words: Pattern, Orofacial Pain, Visual Analogue Pain Scoring System

Introduction:

Orofacial pain refers to discomfort occurring in areas above the neck, specifically in front of the ears and beneath the orbitomeatal line, also within the oral cavity.^{1,2,3} Orofacial pain includes odontalgia, neuralgia, psychogenic, traumatic, vascular, myofacial joint related or other idiopathic variants. Persistent orofacial pain is often linked to mental stress, Social dysfunction and diminished life quality, economic crisis and high disease burden.^{3,4}

With regards to gender, a greater proportion of females have been observed to pursue treatment for orofacial pain as compared to their male counterparts.⁵ Many common and severely disabling pain conditions originates from structures supplied by the trigeminal nerve (head, face, masticatory musculature, temporomandibular joint and associated structures). As per the Okeson Classification of Orofacial Pain, is categorized into physical causes (Axis 1) and psychological origins(Axis 2) conditions. Physical conditions covers

conditions related to the Temporomandibular joint (TMJ) and disorders of the Musculoskeletal systems (masticatory muscles and cervical spine); Neuropathic pains, episodic (trigeminal neuralgia [TN]) and continuous (peripheral/ centralized mediated) pains and neurovascular disorders (migraine). Psychological (Axis 2) conditions include mental health related causes primarily involving anxiety and mood disturbances.^{1,2,3} Myofacial pain syndromes, temporomandibular disorders (TMD), neuralgias, ENT diseases, dental pain, tumors, neurovascular pain or psychiatric diseases commonly exhibit overlapping symptoms making precise diagnosis more difficult due to their varied clinical features. Identifying the actual cause of pain therefore plays a key role in reaching actual diagnosis and shaping the treatment strategy.⁴

Most studies revealed that the major reason for Orofacial pain was pulpitis, secondary to periodontal pain and pericoronitis. There were few patients who suffered from TMJ disorders, dysfunction and neuralgia. Other causes were least observed, like tumors and carcinoma (Oral Squamous Cell Carcinoma or salivary neoplasm etc.).⁶ According to a population based study published in August 2013 in South east Iran, out of 1800 interviewees 55.1% reported toothache⁷. D.E Peterson in the year 2011 in his study says that the incidence of oral mucositis in patients receiving high dose head and neck radiation has approached 85% according to WHO stats.⁸

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The cause salivary gland obstruction is either strictures or calculi. Strictures within the ducts are a more frequent cause responsible for approximately 25% of benign salivary obstruction while calculi account for the majority at 73.2%. Temporomandibular joint associated pain was mild in 48.2%, moderate in 11.3% and severe in 3% in a study involving 2507 college students with a total sample of 336 students carried out on Brazil in July 2012.

The purpose of this research is to identify the most frequently encountered types of Orofacial pain within our local context, as well as the patterns in which they typically occur. This will help to allocate the budget for patients suffering from Orofacial pain and will greatly aid in the management protocol that is both crucial for treatment planning in hospital setting and will be serviceable in the best interest of the patients. The outcome of such a study will help in establishing a more targeted or focused approach towards the management of Orofacial Pain in future.

Methodology

This was a descriptive Cross sectional study carried out in the Outpatient clinics of Oral and Maxillofacial Surgery Department at Abbasi Shaheed Hospital, Karachi for six months between, 30th June 2016 to 30th December 2016. By using WHO sample size calculator, with a 5% margin of error and prevalence of benign salivary gland obstruction = 25% with 95% confidence interval, a total sample size of 289 was obtained. The Sampling Technique used was Non probability Consecutive Sampling.

A total of 289 individuals were enrolled based on predefined inclusion and exclusion criteria. All adult patients ranging between 18 and 70 years were included in the study, complaining of Pain in the Orofacial region after experiencing physical trauma anytime between 1 day and 1 year in the head and neck region only. Patients whose presenting complaint did not include Orofacial Pain were excluded from the study. Patients with neurological deficit or speech problems, and patients who have been undergoing chemotherapy or radiotherapy have also been excluded from this study. After obtaining institutional review board approval, the study was carried out for a period of 6 months in the Oral and Maxillofacial Department of Abbasi Shaheed Hospital Karachi. All patients were treated by same surgeon, the same set of questions were asked for pain in history taking and on the basis of clinical examination specific radiographic investigation were carried out if at all necessary to confirm the diagnosis. Each participant rated the intensity of their pain using the VAS (Visual Analogue Scale) a standardized chart ranging from 1 (mild) to 10 (most severe) type of pain.

The collected data analyzed using SPSS version 17. Quantitative variables including pain, age, duration and VAS (Visual Analogue Score) scores were assessed through mean and standard deviation. Qualitative factors such as gender and pain severity were expressed using frequencies and percentages. Stratification was applied to control effect modifiers such as age, gender, duration and pain intensity. A Chi square test was then performed considering a P value less than or equal to 0.05 considered as statistically significant.

Results

A total of 306 students participated in the study, comprising 42.5% (n=130) males and 57.5% (n=176) females. Of these, 76.8% (n=235) were enrolled in MBBS and 23.2% (n=71) in

BDS. Overall, 57.5% (n=176) were from first year and 42.5% (n=130) from final year.

Based on the urgency index, 12.7% (n=39) of students had a low urgency index, 49.7% (n=152) had a high urgency index, and 37.6% (n=115) were classified as having urgency addiction. Figure 1 describes urgency scores in gender, academic year and program.

Table I:

STRATIFICATION OF TRAUMA ASSOCIATED PAIN ACCORDING TO AGE:

		trauma		Total	p value
		no	yes		
what is age of the patient	15-30yrs	136	78	214	
	31-45yrs	28	17	45	
	46-60yrs	19	3	22	0.163
	61-70yrs	6	2	8	
	Total	189	100	289	

Table II:

STRATIFICATION OF TRAUMA ASSOCIATED PAIN ACCORDING TO GENDER:

		trauma		Total	p value
		no	yes		
what is the gender of the patient	male	90	80	170	
	female	99	20	119	0
Total		189	100	289	

DISCUSSION

Patients presenting in clinics complaining of orofacial pain with trauma as the etiological factor usually give a positive history of recent trauma. Road traffic accidents in teens and above account for the most number of cases^{10,11}, falls in children and interpersonal violence are less observed in this study. Fractures due to pathological reasons were excluded from study.

Altered occlusion is frequently associated with fractures of the mandible, but may also occur due to soft tissue trauma in the TMJ, or fractures of the alveolus, teeth or maxilla¹⁰.

If a mandibular fracture affects the course of the inferior alveolar nerve, it may lead to neurosensory impairment such as altered sensation or paresthesia. Limited mandibular movement or noticeable deviation can also suggest an underlying fracture. Such limitations may also be caused by internal injuries to the TMJ or the presence of a hematoma. The patient will complain of joint pain and localize at the same site as TMJ but the only factor that demarcates pain arising in TMJ due to other reasons will be a positive history of trauma¹². The diagnosis can only be reached after complete history taking, psychosocial evaluation and physical examination. The physical examination includes intra oral examination of dental hard and soft tissues, buccal and vestibular mucosa, lips, tongue, gingivae, salivary glands, tonsils and faucial pillars¹³. Extra oral examination comprises of detailed muscle examinations, assessment of the temporomandibular joint, along with cranial nerve examination. Diagnostic confirmation involves investigations such as blood tests, local anaesthetic trials, biopsies of suspected lesions, ultrasound imaging and basic radiographic views.¹⁴

Orofacial pain is uniquely difficult to diagnose due to the dense and overlapping innervation of the region by the trigeminal nerve, which dominates the somatosensory system of the face.¹⁵ Multiple orofacial structures share similar nociceptive

pathways leading to referred pain, overlapping systems, and a lack of precise localization. This complex interplay within the trigeminal system often obscures the exact source of pain, making differential diagnosis challenging.^{16,17} Prompt intervention is essential for cases involving severe pain and anxiety as they provoke cardiovascular complications due to stress. Very few patients scored a 9 or 10 on the Visual Analogue Score. After ensuring airway, breathing and circulation are stable, a brief neurologic assessment is recommended. Elective trauma cases which present in the outpatient department usually do not need emergency protocols and advanced trauma life support. Individuals with mandibular fracture commonly experience paresthesia or describe the discomfort as unusual or unfamiliar. The patient's past medical and surgical history, medication use and known drug allergies should also be reviewed.¹⁰

Conclusion

1. Trauma associated orofacial pain is the most frequent pattern 34.6% recorded at Dental and Maxillofacial outpatient department of Abbasi Shaheed, a tertiary care hospital located in District North, Karachi.

References

1. Shephard MK, Macgregor EA, Zakrzewska JM. Orofacial pain: a guide for the headache physician. Headache. 2014;54(1):22-39.
2. IK Crombie, PR Croft, SJ Linton, L LeResche, M Von Korff (eds) Epidemiology of Pain. Seattle, WA:IASP Press;1999:171–202.
3. Scully C, Felix DH. Oral Medicine-Update for the dental practitioner Orofacial Pain. Br Dent J. 2006; 200(2):75-83.
4. Cioffi I, Perrotta S, Ammendola L, Cimino R, Vollaro S et al. Social impairment of individuals suffering from different types of chronic orofacial pain. Prog Orthod. 2014; 15(1):27.
5. Franco I AL, Runho GH, Tesseroli de Siqueira JT, Camparis CM. Body pain maps improve the report of painful complaints in patients with orofacial pain. Rev.dor 2012; 13(1):9-13
6. Shetty A, James L, Nagaraj T, Abraham M. Epidemiology of orofacial pain. A retrospective study. JCRI 2015;2(1):12- 15.
7. Kakoei Shahla Prevalence of toothache and associated factors, A population based study in South East Iran. Iran Endod J.2013; 8(3)123-8.
8. Peterson D.E, Bensadoun R-J, Roila F, management of oral and gastrointestinal mucositis, EMSO clinical practice guidelines, AOO22(supplement 6):vi78-vi84 2011
9. RK Ngu, JE Brown, EJ Whaites, NA Drage, SY Ng, and et al ,Salivary duct strictures: nature and incidence in benign salivary obstruction.2014;36(2):63-7
10. Fonseca RJ, Barber HD, Powers MP, Frost DE, editors, Oral and maxillofacial trauma 1st ed. Philadelphia:Saunders;2002.chapter 4,initial assessment and trauma care.
11. Sethi RK, Kozin ED, Fagenholz PJ, Lee DJ, Shrime MG, Gray ST. Epidemiological survey of head and neck injuries and trauma in the United States. Otolaryngol Head Neck Surg. 2014;151(5):776-84
12. Murphy MK, MacBarb FR, , Wong EM, and Athanasiou AK, Temporomandibular Joint Disorders: A Review of Etiology, Clinical Management, and Tissue Engineering Strategies. Int J Oral Maxillofac Implants. HSS Manuscript 2013; 28(6): e393–e414.
13. Royhman D, Radhakrishnan R, Yuan JC, Mathew MT, Mercuri LG, Sukotjo C. An electrochemical investigation of TMJ implant metal alloys in an artificial joint fluid environment: the influence of pH variation. J Craniomaxillofac Surg. 2014 Oct;42(7):1052-61
14. Nix A Wilfred, Acute and Chronic Pain, Muscles, Nerves and Pain, <https://content.ebookshelf.de/media/reading/L-9679106->

2. The study generated evidence that major bulk of trauma patients with injuries associated with head and neck region ranging from minor injuries to major trauma leading to complaints of mild to severe orofacial pain are being presented more in the maxillofacial outpatient clinics both directly and after emergency treatment for follow up reasons than other causes related to orofacial pain (65.4%).

Recommendations

1. This study will be of use in establishing audit and preference- based treatment protocol for orofacial pain, improving orofacial trauma care set ups, establishing hospital finances targeted to trauma care and upgrading rehabilitation of severely injured patients.
2. Establishing a Visual Analogue Pain Score measuring system in dental and maxillofacial outpatient clinics instead of the conventional set of interrogatories predicting severity from clinicians perspective.

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912386dbb9.pdf books Springer link, chap 13, pp 111-127

15. Patrick Haggard, Lieke de Boer Oral Somatosensory awareness -Neuroscience & Biobehavioral Reviews Volume 2014; 47(1), 469-84
16. Svensson P, Kumar A. Assessment of risk factors for oro-facial pain and recent developments in classification: implications for management. J Oral Rehabil. 2016;43(12):977-989.
17. Davis D Karen, Moayedi Massieh Theories of pain: from specificity to gate control, Journal of Neurophysiology. 2013;109(1): 5-12

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Author Contributions

1. Saqba alam: Data Collection and Analysis.
2. Shazia shah: Study Design and Article Writing.