



Pattern of Presentations of Non-odontogenic Pain in Oral Medicine Clinic of Lagos University Teaching Hospital (LUTH)

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Authors' contributions

This work was carried out in collaboration between all authors. Author EOO designed the study, performed the statistical analysis, wrote the protocol, and wrote the first draft of the manuscript. Author GAA supervises the conduct of the data collection and managed the analyses of the study while author AFD managed the contributed to the literature searches. All authors read and approved the final manuscript.

Original Research Article

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ABSTRACT

Background: Many patients visit dentists as a result of pain. It may have non-odontogenic causes such as lesions of vascular, neurologic/psychological, muscular, bone structures or referred from surrounding structures, or odontogenic, in which case the cause of the pain is the tooth and/or tooth supporting structures. Non odontogenic pain is often challenging to diagnose with consequent inappropriate treatment, leading to frustration of the patients and loss of confidence in the managing physician. Hence, attention on the pattern of distribution of these groups of facial pain would assist in their management.

Aims: To describe the pattern of presentation of non-odontogenic pain among patients who attend oral medicine clinic in LUTH

Methodology: A retrospective review of all cases of non odontogenic pain seen in oral medicine clinic of Lagos University Teaching Hospital (LUTH) between May 2010 and May 2011 was done using the clinic records and patients' case notes. The recorded parameter includes patients' age, sex and the clinical diagnosis. The results were analysed with SPSS software

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Results: A total number of 221 patients were seen, 144 (65%) were diagnosed with one form of non-odontogenic pain. The age distribution of subjects with non odontogenic pain ranged from 15 to 85 yrs (45yr+13.8) with the peak age of occurrence at 51-55yrs. On the other hand, those with odontogenic pain were most prevalent at the peak age of 21-40yr, mean age of 37.3+13.6. Female predilection was observed in all subjects. Dentine hypersensitivity, pulpitis and periodontitis were some of the odontogenic pain diagnosed while the various non odontogenic pain diagnosed includes burning mouth 34(23.6%), Aphthous ulceration 28(19.4%), Trigeminal neuralgia 16(11.1%), Candidiasis 11(7.4%), Lichen planus 7(4.6%), Erythemamultiforme 7(4.6%), and Herpes zoster 3(1.9%). Others include mucous membrane pemphigoid and traumatic ulcer.

Conclusion: Non-odontogenicpain is relatively common presentations in oral medicine. Burning mouth sensation due to herbal toothpaste use was the most prevalent.

Keywords: Non-odontogenic pain; burning mouth; dentine hypersensitivity; herbal toothpaste.

1. INTRODUCTION

Pain is defined as an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage [1]. Pain makes individuals withdraw from potentially damaging situation, protect a damaged body part while it heals, and avoid damaging situations in the future [2]. It is a powerful stimulus and a potent factor that drive patients to seek dental treatments [3]. Dental pain has been described as a major public health problem due to its enormous impact on individuals and community at large [4-6]. It has been reported to be the most common reason for dental consultation [4]. It is also one of the major causes of child absenteeism from school, and adult; a major cause of absenteeism from working place, hence could potentially reduce the productivity of the country [7]. Joseph et al. [8] had earlier reported after studying 698 adult subjects that 15% of subjects had at least one dental visit as a result of dental/orofacial pain. Similar reports were also found in Nigerian population where dental pain was found to be the major presenting complaints in patients who presented for dental treatments [9-11].

Orofacial pain can be classified into acute and chronic. Acute pain is associated with unpleasant sensation which is limited to normal healing time required to overcome the causative mechanism while chronic pain usually persist for months beyond the usual course of acute disease process. Chronic pain is often associated with poorly defined pathology, poor response to treatment, associated disability and chronic depression [12]. Pain, when it is present in chronic form could have a significant psychological implication an in extreme cases association with suicidal tendency has been reported [13-15].

Most odontogenic pain have their origin in the pulpal or periodontal tissue such as arising from caries, fracture, periodontitis, dentoalveolar abscess, pericoronitis, dentine hypersensitivity and so on [12,16]. These odontogenicpain are managed well and predictably by dental personnel. Good/comprehensive history, thorough clinical examination and request for investigations like pulp testing and radiographs are some of the necessary tools in making successful management [17]. The various treatment options include endodontic therapy, subgingival curettage, periodontal surgery, exodontias (extraction) or any other treatments as the case may be [16].

Non odontogenic pain on the other hand is not usually easy to diagnose as many patients tend to use different terms to describe their pain and these descriptions can be confusing due to the subjective nature of pain. The most important step towards proper management is to be suspicious that the pain may not be of dental origin [12]. Okeson et al. [12] highlighted certain warning symptoms of non odontogenic pain as follows: spontaneous multiple toothache, simulating, burning, non-pulsatile toothache, persistent recurrent toothache, presence of constant, unremitting, nonvariable toothache, pain not responsive to conventional dental treatment, no decrease in pain following local anaesthesia, toothache without adequate local cause. Non odontogenic pain is usually caused by pathology from surrounding structures like muscles (myofascial pain dysfunction, myositis, myospasm), Joint (TMD), bones (maxillary sinusitis, mastoiditis), neuropathic pain (Trigeminal neuralgia, glossopharyngeal neuralgia, post herpetic neuralgia), psychogenic (Atypical facial pain, atypical odontalgia), vascular (temporal arteritis, vascular headache), referred (cardiac) or idiopathic (Burning mouth syndrome) [18-21]. Trigeminal neuralgia is one of the commonly observed cases. It is a neuropathic pain characterized by severe, unilateral, lancinating/electrical pain and paroxysmal pain in the area of distribution of trigeminal nerve [22]. It is associated with little or no discomfort between episodes. For the classic (primary) type, there is no observable pathology. Intracranial pathology and multiple sclerosis may be present in symptomatic (secondary) type. Demyelination of the nerves, compression by posterior cerebellar artery and trauma to the intracranial course of the trigeminal nerve has been postulated as the possible cause of the disease. Trigger zones may be isolated on the face/mouth on examination with the patients assuming a posture that prevent these zones from being touched. The treatment modality has been medical and surgical. The medications include carbamazepine, gabapentin. Good response to medications has been reported. Surgical options are usually indicated in symptomatic types when pathologies that require surgical management are present [22,23]. Management of non odontogenic pain thus require expertise as it tends to challenge the diagnostic ability of the clinician [12,17,24].

However, more than 90% of orofacial pain are odontogenic in origin and so when patients present with this relatively uncommon cases of non odontogenic pain, misdiagnosis often results because most care givers attribute the pain to odontogenic origin [12,16,25]. This in turn leads to mistreatment with no relief of the pain and other symptoms as well as increase morbidity. Cases of wrong management of non odontogenic pain have been reported [26,27]. A study like this is therefore necessary to describe the pattern of presentation of the relatively uncommon facial pain so as to aid clinicians making appropriate diagnosis whenever they are confronted with these conditions.

2. METHODOLOGY

This is a retrospective study carried out at the Oral Medicine clinic of the dental Centre of the Lagos University Teaching Hospital (LUTH). All cases of orofacial pain seen in the clinic from May 2010 to May 2011 were included in the study. Cases where the case notes could not be traced were excluded. Clinical records (Case notes) of all the patients were retrieved from the records department and the recorded information on each stage of the patients' management were copied on a spread sheet in Parts I to IV as follows:

Part I records the subjects' biodata, this include age, sex, marital, address, occupation and marital status. Part II records information on the presenting complaints, history of presenting complaint, past dental history and family and social history, and relevant past medical history. Part III records information on the clinical diagnosis made, requested investigations and their respective results (common investigations are exfoliative cytology, blood sugar

tests which include FBA and 2HPP, hematologic work up and incisional biopsy). Part IV records information on treatment given and responses to the therapy during the review visits. The overall information was computed and frequencies of each cases of non odontogenic pain were calculated using Microsoft SPSS 2007.

3. RESULTS AND DISCUSSION

3.1 Socio Demographics and Herbal Dentifrices Use

A total of 221 patients were seen at the Oral Medicine Clinic during the study period. Non odontogenic pain was diagnosed in 144(72%) consisting of 50(45%) males and 94(55%) females. Odontogenic pain was found in 77 subjects, 39(50.6%) female and 38(49.4%) males. The differences in age and sex between the groups were statistically significant, $P < 0.001$ Table 1.

The age range of subjects ranged from 15 to 80years. The peak age of occurrence of non odontogenic pain was found at 51-60year while odontogenic pain was most frequent at 21-40 year. The differences were statistically significant, $p < 0.001$ Fig. 1.

3.2 Distribution of Subjects with Non Odontogenic Pain

Burning mouth was the most prevalent lesion, seen in 34(23.6%) of subjects with non odontogenic pain. Although it was observed more in female (26%) as against 18.7% in males, the differences in sex distribution was not statistically significant. Majority of the lesions were more prevalent in females but the differences were not significant. Among the lesions with the lowest frequency were radiation mucositis, mastoditis and neuritis Table 2.

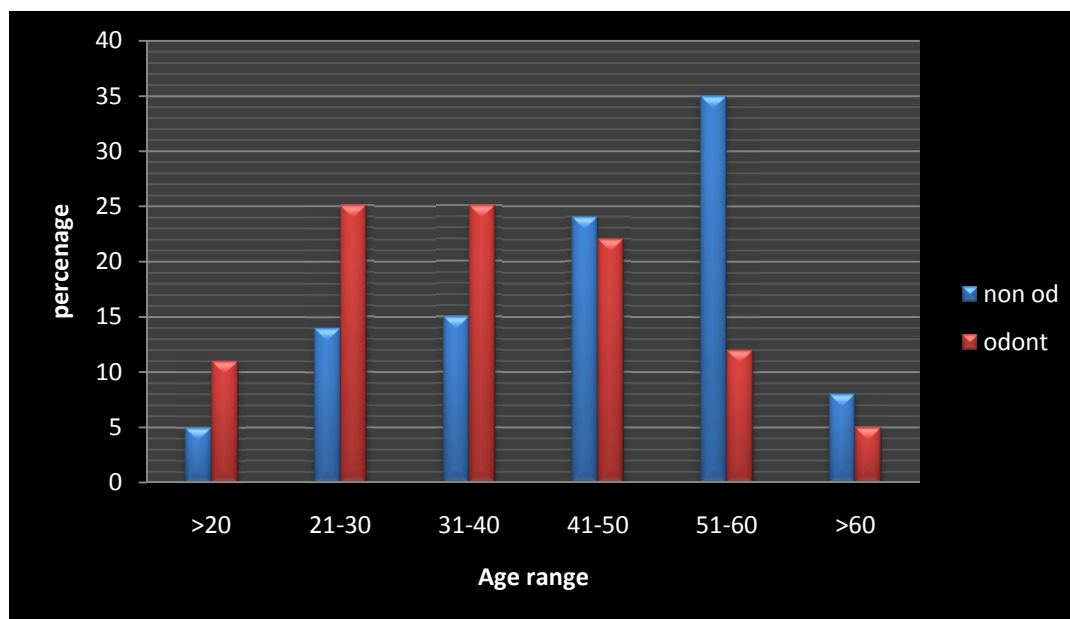


Fig. 1. Age distribution of subjects with odontogenic and non odontogenic pain
Table 1. Age and sex distribution of subjects

Characteristics	All subjects N=221	Non odontogenic n=144	Odontogenic n=77	P-value
Age (SD)	42.5(14.22)	45.3(13.8)	37.3(13.56)	P<0.001
Sex				
Male(%)	86(38.9)	48(33.3)	38(49.4)	
Female(%)	135(61.1)	96(66.7)	39(50.6)	P<0.001

Fisher's exact, P<0.05

Table 2. Distribution of subjects with non odontogenic pain

Characteristics	All subjects with non odontogenic (N=144)	Male (N=48)	Female (N=96)	P value
Burning mouth				
Present (%)	34(23.6)	9(18.7)	25(26)	
Absent (%)	110(76.4)	39(81.3)	71(74)	P=0.331
Aphthous ulcer				
Present	28(19.4)	9(18.7)	19 (19.8)	
Absent	116(80.6)	39(81.3)	77 (80.2)	P=0.882
Lichen planus				
Present	7(4.9)	3(6.2))	4(4.2)	
Absent	137(95.1)	45(93.8)	92(95.8)	P=0.584
Candidiasis				
Present	11(7.6)	4(8.3)	7(7.3)	
Absent	133(92.4)	44(91.7)	89(92.7)	P=0.824
TMJ dysfunction				
Present	11(7.6)	2(4.2)	9(9.4)	
Absent	133(92.4)	46(95.8)	87(90.6)	P=0.280
Erythema multiforme				
Present	7(4.9)	5(10.4)	2(2.1)	
Absent	137(95.1)	43(89.6)	94(97.9)	P=0.028*
Sialadenitis				
Present	4(2.8)	2(4.2)	2(2.1)	
Absent	140(97.2)	46(95.8)	94(97.9)	P=0.473
Neuritis				
Present	3(2.1)	2(2.3)	1(1.0)	
Absent	141(97.9)	46(95.8)	95(99.0)	P=0.216
Herpes zoster				
Present	3(2.1)	1(2.1)	2(2.1)	
Absent	141(97.9)	47(97.9)	94(97.9)	P=1.000
Migraine				
Present	3(2.1)	1(1.2)	2(1.5)	
Absent	141(97.9)	47(97.9)	94(97.9)	P=1.000
Atypical ulceration				
Present	1(0.7)	1(0.4)	0	
Absent	143(99.3)	47(97.9)	96(100)	Indeterminnate
Chemical burns				
Present	1(0.7)	0	1(1.0)	
Absent	143(99.3)	48(100)	95(99.0)	Indeterminnate
HIV gingivitis				
Present	1(0.7)	0	1(1.0)	
Absent	143(99.3))	48(100)	95(99.0)	Indeterminnate
Mastoditis				
Present	1(0.7)	1(0.4)	0	
Absent	143(99.3))	47(97.9)	96(100)	Indeterminnate
Radiation mucositis				
Present	1(0.7)	0	1(1.0)	
Absent	143(99.3))	48(100)	95(99.0)	Indeterminnate

Fisher's exact. In cases where the lesion were not present in box sexes, P value is inderteminante

3.3 Distribution of Subjects with Odontogenic Pain

Periodontitis was the most frequent odontogenic pain seen, present in 38(44.3%) subjects. Other odontogenic pain seen include dentine hypersensitivity and pulpitis Table 3.

Table 3. Distribution of patients with odontogenic pain

Characteristics	All subjects with odontogenic pain N=77	Male N=38	Female N=39	P-value
Dentine Hypersensitivity				
Present	30(40)	13(43.3)	17(43.6)	P=1.000
Absent	47(60)	28(73.7)	22(56.4)	
Periodontitis				
Present	38(44.3)	15(39.5)	23(59)	P=1.000
Absent	39(55.7)	23(60.5)	16(41)	
Pulpitis				
Present	9(11.7)	5(13.2)	4(10.3)	P=0.316
Absent	68(88.3)	33(86.8)	35(89.7)	

Fisher's exact

3.4 Orofacial Pain and Herbal Dentifrices Use among All Subjects

Positive history of herbal dentifrices use was most frequent among subjects with burning mouth syndrome 33(97.1%), the difference was statistically significant, $P < 0.001$. Herbal use was also present in subjects with aphthous ulcer 3(10.7%), Lichen planus 2(25%), Candida 1(9.1%) and Trigeminal neuralgia 1(6.6%) but the differences were not statistically significant Table 4.

Table 4. Orofacial pain and herbal dentifrices use among all subjects

Characteristics	Positive history of herbal use	Negative history of herbal use	Total	P value
All subjects				
Non-odontogenic (n=144)	42(29.2)	102(70.8)	144(100)	P<0.001*
Odontogenic (n=77)	2(2.6)	75(97.4)	77(100)	
Burning mouth				
Present (n=34)	33(97.1)	1(2.9)	34(100)	P<0.001*
Absent (n=187)	11(5.9)	176(94.11)	187(100)	
Aphthous ulcer				
Present (n=28)	3(10.7)	25(89.3)	28(100)	P=0.309
Absent (n=193)	41(21.2)	152(78.8)	193(100)	
Lichen planus				
Present (n=8)	2(25)	6(75)	8(100)	P=1.000
Absent (n=213)	42(19.7)	170(80.3)	213(100)	
Candida				
Present (n=11)	1(9.1)	10(90.9)	11(100)	P=0.127
Absent (n=210)	44(21)	166(79)	210(100)	

Table 4 Continued...

Erethema multiforme				
Present (n=7)	0(0)	7(100)	7(100)	
Absent (n=214)	44(20.6)	170(79.4)	214(100)	P=0.350
Trigeminal neuralgia				
Present (n=16)	1(6.3)	15(93.7)	16(100)	
Absent(n=205)	43(30)	162(70)	205(100)	P=0.205
Chemical burn				
Present(n=1)	1(100)	0(0)	1(100)	
Absent(n=220)	43(19.5)	177(80.5)	220(100)	P=0.199
Sialadenitis				
Present(n=4)	1(25)	3(75)	4(100)	
Absent(n=117)	43(19.8)	174(80.2)	117(100)	P=1.000
Dentine hypersensitivity				
Present(n=30)	2(6.7)	28(93.3)	30(100)	
Absent(n=191)	42(22)	149(78)	191(100)	P=0.052

Fisher's exact

4. DISCUSSION

Orofacial pain is a common presentation in the dental office. Studies addressing the distribution of non odontogenic pain is scanty in the literature, the few available ones talked about non odontogenic pain after dental procedure for example after endodontic therapy reported by Donald et al. [28]. Lipton et al reported that 22% of the U.S populations have orofacial pain on more than one occasion in a 6-month period [29]. This study, however, which was focused on the pattern of distribution of non odontogenic pain, revealed that patients who visit Oral Medicine clinic on account of pain present with more of non odontogenic pain (72%) than odontogenic pain (28%). This is in contrast to most studies that reported a higher prevalence of odontogenic pain in dental office [6,16,17,26]. The reason for this variant finding may not be unconnected to the clinic where the study was done. The category of patients seen in Oral Medicine clinic include those with oral mucosa lesions, medically complex patients with dental symptoms, orofacial pain and other oral complaints that require medical therapy. All patients who presented in our hospital are always seen firstly at the Oral diagnosis clinic where those who require other forms of treatment (exodontial, restoration e.t.c) would have been referred appropriately to the corresponding units for treatment. The only few cases of odontogenic pain seen in our clinic are those cases where the general dental practioners in Oral diagnosis clinic require our opinion on the diagnosis. Consistent with majority of the studies, non odontogenic pain was found to be more common among the females [5,8,10,29].

Also in this study, mean age of patients with non odontogenic pain was found to be 45.3+/-13.8 with a peak range of 51-60yrs while the mean age of subjects with odontogenic pain was 37.3+/-13.56) consistent with the reports of Suzuki et al. [30] who reported mean age of 40+/-13.8 for patients with burning mouth syndrome. This study, in addition, showed that the average age of patients with non odontogenic pain is significantly lower.

The fact that various forms of non odontogenic pain are seen in Oral medicine clinic was also further established in this study. The common one includes burning mouth sensation, temporomandibular joint dysfunction, candidiasis, aphthous ulcer to mention a few. Burning mouth sensation was found to be the most frequent. Also, in majority of subjects with burning mouth was positive history of herbal toothpaste found. This close association raises

the suspicion that herbal toothpaste may play some role(s) in the pathogenesis of oral burning. Herbal toothpaste use is rapidly gaining recognition in this part of the world as people were made to believe through the media advertisements that the herbal toothpaste works better than the conventional fluoride containing toothpaste. Herbal toothpaste may contain additives that may induce peripheral neuropathy on the oral mucosa [25]. Positive history of herbal dentifrices use was also found in patients with aphthous ulcer, lichen planus but the differences was not significance.

Aphthous ulcer is another lesion frequently seen in this study, seen in 19.4% of cases. This was greater than 0.5% prevalence reported by Zain among the Malaysian population [31]. The Malasian study was however done in the community while this study was done in the clinic. Besides, stress has been strongly associated with aphthous ulcer and could probably play a role in this finding because this study was done in a Lagos, a major commercial center in the country. The majority of subjects are trying to cope with varying stress of life in the busy city.

Lichen planus was found in 7 (4.9%) patients, this prevalent was higher than the reports of McCartan et al who reported 1.5% prevalence [32]. The design of this study as a clinic based may also account for the higher prevalence. The prevalence of TMJ dysfunction syndrome from this study was 7.6%, this is lesser than the 11.1% prevalence reported Ohno et al. [33]. Ohno et al. [33] study was however done among students who are probably more predisposed to TMJ dysfunction due to academic stress.

5. CONCLUSION

This study had showed that non odontogenic pain is a common presentation in Oral Medicine clinic, accounting for 72% of all patients who visit the clinic on account of orofacial pain. It also showed various forms of lesions/conditions that can present with non odontogenic pain in the dental clinic, such include burning mouth syndrome, TMD, radiation mucositis etc. Results from this study also showed middle age occurrence of orofacial pain and occurrence of non odontogenic pain in relatively older population than those with odontogenic pain, the difference was found to be statistically significant. The use of herbal dentifrices was also found to be strongly associated with the occurrence of oral burning symptoms. More studies, however, is needed to establish the possible cause-effect relationship between herbal dentifrice and oral burning symptoms. Likewise, more scientific studies will also be needed to determine the possible constituent(s) of herbal dentifrices that could cause oralburning sensation.

CONSENT

Not applicable.

ETHICAL APPROVAL

Not applicable.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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