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A Retrospective Study on Incidence of Misdiagnosis of Trigeminal Neuralgia

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Abstract

Background: *Neuralgic pain is often difficult to diagnose in the orofacial region because of difficulty in localization, which often leads to misdiagnosis and carrying out unnecessary dental treatment like dental extraction, root canal treatment, periodontal surgery, etc. the present study was done retrospectively to find the incidence of the trigeminal neuralgia and its misdiagnosis.* ***Methods****: The present study was carried out retrospectively in the Department of Oral Surgery. Last 5 years patient records were checked by the department of oral surgery to find cases of trigeminal neuralgia. All detailed records were collected and sorted.* ***Results:*** *In our study, 47.63% of patients were found to be misdiagnosed and 31.57 %, 10.52%, and 5.26% of patients were found to be undergone treatments like dental extraction, root canal treatments, and periodontal surgery, respectively.* ***Conclusion:*** *Correct diagnosis of trigeminal neuralgia patients is important to avoid the patient's financial as well asmental burden.*

Keywords*: Dentist, Neuralgia, Trigeminal neuralgia., Diagnosis*

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Introduction

Diagnosis and treatment of pain are one of the most challenging and rewarding aspects of the general practice. About 22 % of the general population experiences pain in the orofacial region; in any given 6-month period. Persistent and chronic pain is more common in the head and neck than in any other part of the body.[1,2] The term neuralgia is used to describe unexplained peripheral nerve pain, and the head andneck are the two most common sites of such type of neuralgias.[3] Trigeminal neuralgia is defined as "sudden, usually unilateral, severe, brief, stabbing recurrent episodes of pain within the distribution of one or more branches of the trigeminal nerve, which has a profoundeffect on the quality of life".[3] It is a condition in which the patient experience severe, lancinating pain along with spasmodic contractions of the facial muscles during an attack, and this feature led to the term 'Tic Douloureux'.[1] Misdiagnosis of orofacial pain is very common. The convergence of sensory neurons to higher centers makes interpretation and localization of pain symptoms difficult.[2] Also referred pain can be present from myofascial, neurovascular, sinus, and cardiac structures and lead to the frustrating diagnostic efforts of the general practitioner.[2] Although, for the most part, tooth pain is usually resolved with endodontic treatment, in case of rare instances clinical response is not predictable and pain persists even after intervention. These cases may decrease both the patient's and dentist's confidence in clinical diagnosis and treatment. More importantly, the patient may undergo

many other irreversible dental treatments like dental extraction or periodontal therapy, with no resolution of the pain symptoms.[2] Therefore, the present study was done retrospectively to find out the incidence of such misdiagnosis and unnecessary dental treatments.

Materials and Methods

The present study was carried out retrospectively in the Department of Oral Surgery. Records of the last 5 years of trigeminal neuralgia were obtained and a total of 19 patients werestudied.

Inclusion criteria:

1. All the patients were clinically diagnosed with trigeminal neuralgia.
2. Patients of all age groups without any discrimination for their gender.
3. All patients including known and newly diagnosed cases.

Exclusion criteria:

Patients having diseases other than TN, causing similar signs and symptoms; like sinusitis, glossopharyngeal neuralgia, migraine, atypical facial pain, toothache, and myofascial pain dysfunction syndrome were excluded from the study.

After taking permission from the ethical committee, detailed case history records were obtained from the available documents. The diagnosis was based on the history, clinical examination, and improvement of symptoms by carbamazepine. The branch of the trigeminal nerve recognized and confirmed with diagnostic local anesthetic block injection using 2% lignocaine with 1:100,000 adrenaline solutions in all cases was noted. Pain frequency was noted as thenumber of episodes per day.

Results

This study included 19 cases of trigeminal neuralgia; out of which 08 (42.10 %) were males and the remaining 11 (57.89 %) were females. The male to female ratio was 1: 1.5; with a female predominance. The age of the patients ranged from 31 to 68 years. The mean age for the patients was 43.54 years.

Out of 19 patients, the right side was involved in 11 patients (57.89%), while the left side was involved in 08 (42.10%) patients. No patient had shown bilateral involvement. The isolated maxillary division was involved in 09 cases (47.36%) and the isolated mandibular division was involved in 08 (42.10%) cases. The isolated ophthalmic division was not involved in any patients. One patient reported a combination of involvement of maxillary and ophthalmic division and one patient showed involvement of maxillary and mandibular nerve involvement. (Table 1)

Table 1: Table showing the distribution of the TN patients according to the trigeminal nerve branch involved.

Affected Nerve	Side of the face		Total
	Right	Left	
Maxillary	05	04	09
Mandibular	05	03	08
Maxillary and mandibular	01	00	01
Maxillary	00	01	01
Total	11 (57.89%)	08 (42.10%)	19

Out of the 19 patients with trigeminal neuralgia, 06 (31.57%) patients underwent dental extraction for the pain, 02 (10.52%) underwent root canal treatments, and 01 (5.26%) patients underwent periodontal surgery of one or more teeth. (Table 2)

Table 2: Number of patients undergone different treatments before the diagnosis of trigeminal neuralgia.

Treatment is done in patients	Number of patients
Dental extraction	06 (31.57%)
Root canal treatment	02 (10.52 %)
Periodontal surgery	01 (5.26 %)
Total	09 (47.36%)

Discussion

TN has been known to exist for several hundred years and various ancient writings suggest that it was recognized at a much earlier time.[4] It was noted to be one of the most painful conditions in human experience.[5] TN can interfere with the patient life directly with tremendous pain and indirectly with recurrence fear. The pain distribution is most commonly unilateral and

often follows the sensory distribution of the fifth cranial nerve (V), typically radiating more commonly to maxillary (V2) and mandibular division (V3). At times both divisions can be affected. Physical and radiological examinations are used to eliminate another alternative diagnosis.[1,6] In a previous study by Ali FM et al[3], the trigger points at various sites were present during the clinical examination of more than 90% of the patients with TN. A similar finding was also noted in the present study. In our study of 19 patients, all the patients were having either intra-oral or extra-oral trigger points. while in the study of Loh HS et al[7], 61 percent of patients were present with the trigger zones.

The mean age of onset of the patients with TN in this study was 43.54 years. Another study by Olson S et al., 9 evaluated 156 patients with TN and showed that the mean age of onset of TN is 65 years, which is older than the mean age of our study. Also, in a study by Loh HS et al., [7], the mean age of the patients was 54.90 years. In a study by Loh HS et al,[7] Females comprised 63.7 percent of the patients, representing a ratio of 1.75:1. In our study the female to male ratio was 1.5:1. The present study shows that the Mandibular division was affected almost equal to the Maxillary division, which correlates with the study performed by Khetab U et al[9] on 242 patients where the Maxillary and Mandibular divisions were affected almost equally i.e., 40.08% and 39.66% respectively. However, the present study does not correlate with the study performed by Gomeg-Argnelles JM et al[10]. The finding of right-side affliction in the present study was correlating with the finding of a study by Loh HS et al.,[7]. TN is sometimes correlated with dental pathology and other treatment procedures.[7] In the present study a similar history was noted in the patients. There were 31.57% of patients who gave a history of tooth extraction. Loh HS et al[7] and Casey KF et al[11] reported that 88% and 33% of the patients with TN underwent unnecessary dental extractions, respectively. Similarly, a finding of extraction was reported by Acharya SR et al[12]. Therefore, as this disorder is more common in this locality, it is usually misdiagnosed with a toothache.[1]

It is well known that dental extractions have been performed based on the wrong diagnosis. This is an error that an inexperienced dentist may commit when confronted with a case of trigeminal neuralgia in its initial stage when the pain may mimic that of toothache.[7] Also, in some cases, the patient underwent multiple dental treatments like root canal therapy or periodontal surgery, etc.[13] Clinical features include persistent pain and often commencing along with some form of dental treatment, particularly root canal therapy. Over 80% of patients relate the onset of their pain to dental treatment, including local anesthesia.[14] In the present study 10.52% underwent root canal therapy of one or more teeth. A similar finding was noted by Matwychuk MJ et al[2], where unnecessary root canal treatment was done.

The reasons for the misdiagnosis of TN may be a lack of education & awareness of:

- Classical characteristics of the disorder
- Diagnostic Criteria of TN
- Atypical aspects
- Effective treatment & typical response to treatment
- Lack of expertise and
- Due to the difficulties in diagnosing the mechanisms triggering the attacks of TN, it is important to conduct the interview, careful history and adequate time should be given to complete their opening statement. In addition, examinations such as; imaging, and studies for clinical evaluation of the anatomy of the trigeminal nerve and adjacent structures can be performed.[7,15,16]

Conclusion

The sharp shooting pain of the Trigeminal neuralgia often disturbs the normal lifestyle of the patient. Proper diagnosis of trigeminal neuralgia patients is important for the patient's health, as misdiagnosis often leads to carrying out unnecessary treatments like dental extraction, root canal treatments, and periodontal surgery.

***Conflict of Interest*: None**
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