ORIGINAL ARTICLE

SPECTRUM OF TRIGEMINAL NEURALGIA

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Background: Trigeminal neuralgia (TN) is a very painful condition characterized by paroxysmal shock like pain in the distribution of one or more branches of trigeminal nerve caused by neuro-vascular conflict at the root entry zone of trigeminal nerve. This study was conducted to analyse the demography and pattern of TN in our setup. **Methods:** This descriptive study was conducted in the Oral Surgery unit, Department of Dentistry, Ayub Medical College, Abbottabad, from April 2009 to October 2011. A total of 117 patients were included in study by convenience (non probability) sampling technique. All the patients presenting with the clinical features of TN were included in study. **Results:** Out of 117 cases, 49 (41.9%) were males and remaining 68 (58.1%) were females. Age of the patients ranged from 32–72 (53.90±10.21) years. Right side was involved in 63 patients (53.8%), while the left side was involved in 51 patients (43.6%). In only three cases (2%) there was bilateral involvement. The maxillary division was involved in 68 cases (58.1%) and mandibular division was involved in 37 cases (31.6%). The most common site of involvement was infra-orbital, which was involved in 68 cases (58.11%). The next common site was the mental nerve which showed involvement in 35 cases (29.9%) followed by inferior alveolar nerve which was affected in 14 cases (12%). Thirty three (28.2%) patients were having mild pain, 54 (46.2%) patients having moderate, 21 (18%) patients with severe and 9 (7.7%) patients were having very severe pain. No patient in our study had a family history of TN. Among our patients 103 (88%) patients underwent dental extraction for the same pain. **Conclusion:** The incidence of TN is more in old age especially in females. TN is frequently misdiagnosed in with tooth ache, so there is need to educate the medical practitioners and masses in order to avoid un-necessary tooth extractions.

Keywords: Trigeminal neuralgia, Neuralgia, Trigeminal nerve

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INTRODUCTION

Trigeminal neuralgia is a very painful condition characterised by paroxysmal shock like pain in the distribution of one or more branches of trigeminal nerve. It is due to neuro-vascular conflict at the root entry zone of trigeminal nerve.[1] It is a truly agonising condition in which the patient experience severe, lancinating pain associated with spasmodic contractions of the facial muscles during attack, a feature that led to the term 'Tic Douloureux'.[2]

The disorder has been known to exist for several hundred years and ancient writings suggest that it was recognised in much earlier time.[3] It is reputed to be one of the most painful condition in human experience.[4] The condition can interfere with the patient life directly with disabling pain and indirectly with fear of recurrence.[5,6]

The pain distribution is usually unilateral and follows the distribution of sensory distribution of the fifth cranial nerve (V), typically radiating to maxillary (V2) and mandibular division (V3). At times both divisions are affected. Physical and radiological examinations are used to eliminate alternate diagnosis.[7]

The pain is frequently evoked by non-noxious ipsilateral (trigger zone) stimulation, and neurological examination reveals, little or no deficits of trigeminal sensory or motor functions. The attack of pain lasts only for seconds, but recurs with variable frequency in clusters lasting days or months. Spontaneous remission lasting weeks to months often occur between flurries of attack. The pain occurs much less frequently during the night, and the patient often therefore can get rest and respite from their pain. When the process starts, the attacks may be infrequent with long periods of remission. With the time however, the exacerbation becomes longer and the remission generally gets shorter.[8]

From the symptomatic point of view, TN is classified into typical and atypical TN. In common terminology typical TN includes paroxysmal pain alone while atypical TN includes paroxysmal pain and constant pain.[9,10]

From aetiological point of view, TN is classified into primary or idiopathic TN and secondary TN.[10] Primary or idiopathic TN does not have a clear cause. Secondary or symptomatic TN has a known cause such as a tumour, multiple sclerosis or neurovascular compression. However cases associated with neurovascular compression are traditionally included in primary or idiopathic TN.[11] There can be a family history in 5% of the cases with TN and about 5% of the patients experience bilateral sequential pain.[12]

Current treatment usually begins with medication such as carbamazepine or phenytoin, which frequently provides relief from symptoms. Unfortunately, the pain relief may decrease over the time, and side effects may necessitate discontinuation of the medication. Many patients eventually require an operation for pain relief. Several percutaneous operative treatments for TN are in current use, including alcohol block, radiofrequency gangliolysis, and glycerol rhizotomy. However, these procedures create trigeminal nerve lesion, occasionally producing facial anaesthesia or keratitis.[13] This study was conducted to analyse the demography and pattern of TN in our setup.

MATERIAL AND METHODS

This descriptive study was conducted in the Oral surgery unit, department of Dentistry, Ayub Medical College, Abbottabad, from April 2009 to October 2011. A total of 117 patients were included in study by convenience (non probability) sampling technique. All the patients presenting with the clinical features of TN without any discrimination for gender and age; including known and newly diagnosed cases, were included in study. Patients with diseases other than TN, causing similar signs and symptoms including glasso-pharyngeal neuralgia, sinusitis, atypical facial pain, migraine, myo-facial pain dysfunction syndrome, and toothache were excluded from the study. After taking informed consent detailed history was documented followed by intra oral and extra oral examination to identify the affected branch/division of the trigeminal nerve. The diagnosis was based on the history, clinical examination and improvement of symptoms by carbamazipine. The branch of the trigeminal nerve recognised was confirmed with diagnostic local anaesthetic block injection using 2% lignocaine with 1:100,000 adrenaline solutions in all the cases. Pain frequency was measured by the number of episodes per day. The following descriptive criteria was used for scoring pain frequency; 0–5/day as mild, 6–10/day as moderate, 11–15/day as severe and >15/day as very severe. All the data were recorded and analysed using SPSS-14.

RESULTS

This study included 117 cases of TN, out of which 49 (41.9%) were males and remaining 68 (58.1%) were females. The male to female ratio was 1:1.38 with a female predominance. Age of the patients ranged from 32–72 (53.90±10.2) years. Mean age for the male patients was 54.76± 8.38 years, while mean age for female patient was 53.27±11.45 years. The most common age group was the sixth decade which included 47 (40.1%) patients, 33 (28.2%) patients in fifth and only 8 cases (6.8%) of TN above the age of 70 years. Rest of 26 (22.2%) were in the age group of 30-40 years and 3 (2.6%) patients were below 30 years of age. Out of 117 patients, the right side was involved in 63 patients (53.8%), while the left side was involved in 51 patients (43.6%). In only 3 cases (2.6%) there was bilateral involvement. The isolated maxillary division was involved in 68 cases (58.1%) and the isolated mandibular division was involved in 37 cases (31.6%). None of the patient was reported with isolated ophthalmic division involvement. The rest of 12 cases (10.3%) were reported with various combinations, that is, in 7 cases (6%) there was combined involvement of the maxillary and mandibular division. In 3 cases (2.6%) there was combined involvement of maxillary and ophthalmic division, while in one 2 cases (1.7%) there was involvement of all the three divisions of trigeminal nerve. While evaluating the exact site of involvement, the most common site of involvement was infra-orbital, which was involved in 68 cases (58.11%). The next common site was the mental nerve which showed involvement in 35 cases (29.9%) and the third was the inferior alveolar nerve which was affected in 14 cases (12%). All the patients were observed to have the trigger points.

Out of 117 patients with TN 33 (28.2%) patients were having mild pain, 54 (46.2%) patients having moderate, 21 (18%) patients with severe and 09 (7.7%) patients were having very severe pain. No patient in our study had a family history of TN. Among our patients 103 (88%) patients underwent dental extraction for the same pain.

DISCUSSION

Severe pain of odontogenic origin in the Oral & Maxillofacial region is well known to physicians & surgeons, but among the idiopathic pain TN is the most notorious form.[14] Trigeminal neuralgia is usually idiopathic, but may arise secondary to other conditions including intracranial space occupying lesions and multiple sclerosis.

Casey *et al*[12] described the clinical picture of the patients with TN as one of the painful condition of the face and there is no systemic illness. The same observation was noted in our patients where the presenting feature was only pain in the maxillofacial region while examination was normal. The presence of the trigger points is one of the characteristic features of TN. In a study by Ali *et al*,[15] the trigger points 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 117 patients, all the patients were having either intra oral or extra oral trigger point. All the previous studies have reported that the peak age of onset is between the fifth & sixth decade of life.[16] This trend was also seen in this study where the peak age of onset was the sixth decade and second peak in the fifth decade. There was not a single case of TN in

the first, second & third decade of life, so the disease is uncommon in the children and young adults. The mean age of onset of the patients with TN in this study was 53.90 years, but according to another study performed by Khettab *et al*[16] on 242 patients in 2005 in Peshawar, the mean age of onset was 43.88years which is much younger than the present study. However according to the Inayat *et al*[17] evaluating 41 patients showed the mean age of the onset was 59 years, which is closer to the mean age of the present study. In another study by Olsan *et al*[18] evaluating 156 patients of TN showed that the mean age of onset of TN is 65 years, which is quite older than the mean age of the study. Thus the onset of TN is a bit earlier in our part of world.

In our study male to female ratio was 1:1.38 which coincides with the results by Chen JF *et al.*[8] However these findings do not correlate with the study performed by Ahmed *et al*[19] where 66.7% of the patients were males, with male to female ratio of 2:1. As far as the side of involvement is concerned, this study is consistent with the other which shows that the usual side of involvement is right side of face.[20] In our study right side of the face was involved in 54% and the left side was involved in 44% and in 2% there was bilateral involvement of the trigeminal nerve. This trend was also seen in the study performed by Chen *et al.*[8]

The present study shows that the Maxillary division was affected more than the Mandibular division, which does not correlates with the study performed by Khetab *et al*[16] on 242 patients where the Maxillary and Mandibular divisions were affected almost equally i.e., 40.08% and 39.66% respectively. However, the study correlates with the study performed by Gomeg-Argnelles *et al*[21] and Ali *et al.*[15] In the present study there was not even a single case of isolated Ophthalmic division involvement which is true for the study of Khetab *et al*,[16] while in the study of Gomeg-Argnelles *et al*[21] the isolated Ophthalmic nerve was involved in 5.7% of the cases. Thus the national and international studies show that the Ophthalmic division is insignificantly affected by TN.

A study conducted by Sohail *et al*[22] in 2006, showed that the mental nerve was the most common affected site which was involved in 44% of the cases. The infra-orbital nerve was affected in 32% of the cases, while 24% of the cases showed inferior alveolar nerve involvement. So does the present study shows the greater involvement of the Infra orbital nerve. There were suggestions that TN may runs in the families. Casey *et al*[12] observed that there is a family history in approximately 5% of the cases of trigeminal neuralgia. But in the present study there was not even a single patient who has given us the family history of the disorder. Thus the disorder may not have any hereditary or genetic factor in the aetiology.

Trigeminal neuralgia is sometime correlated with the dental pathology and treatment.[2] In the present study a similar history was narrated from the patients. There were 88% patients who gave the history of tooth extraction. Casey *et al*[12] reported that 33% of the patients with TN undergone un-necessary dental extractions. Therefore this disorder may be more common in this locality but is usually misdiagnosed with the toothache.

CONCLUSION

The incidence of the disease is more in old age especially in females. TN is frequently misdiagnosed with toothache, so there is need to educate the medical practitioners and masses in order to avoid un-necessary tooth extractions.

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