Year: 2014; Volume: 1
Article ID: MD08; Pages: 10

BioMed Research

The Open Access Publisher

www.bmrjournals.com

BMR Medicine

Research Article

Clinical and Radiological Profile with Trigeminal Neuralgia

[1]Sharangouda Patil, [2]Sharanbasappa Karaddi and [3]Balaramsingh Thakur

[1]Department of Medicine, KBN Institution of Medical Sciences, Gulbarga, Karnatak, India
[2]Departments of Forensic Medicine and [3]Pathology, Navodaya Medical College, Raichur, Karnata, India

Correspondence should be addressed to Balramsingh Thakur; karegoudarjyothi@gmail.com

Received 25 January 2014; Accepted 19 February 2014; Published 21 February 2014

Abstract

The clinical description of severe facial pain, which is now known as trigeminal neuralgia. The tic refers mainly to the visible effects of the brief and paroxysmal pain that in classic trigeminal neuralgia lasts only a few seconds. The pain is reported as one of the most excruciating pain syndromes. It has been known to drive patients with trigeminal neuralgia to the brink of suicide. The pain is severe that it often causes the patient to wince or make an aversive head movement as if trying to escape the pain thus producing an obvious movement or tic. The study was conducted in 31 patients. All these patients were chosen from both inpatient as well as outpatient department. A detailed history of illness followed by clinical examination and investigations as detailed was done in all these patients. Pain was characteristically paroxysmal in all our patients, but in 12.9% patients pain was paroxysmal to begin with, but later became continuous. Mean duration of illness in these patients was 5.7 years. Age, sex and quality of pain did not show correlation with MRI and electrophysiological studies.

Keywords: Pain; Clinical; Radiological

Introduction

The clinical description of severe facial pain, which is now known as trigeminal neuralgia, can be traced back to more than 300 years. Aretaus of Cappadocia known for one of the first description of migraine is credited with first description of trigeminal neuralgia.[1] He described a headache in which 'spasms and distortions of countenance took place.

John Fothergill was the first to give a full and accurate description of trigeminal neuralgia in a paper titled "On a painful affliction of the face" which he presented to the medical society of London in 1773.[2]

Nicholas Andre coined the term tic-douloureux in 1756. The name tic-douloureux was first used to describe trigeminal neuralgia and remains synonymous with the classical form of trigeminal neuralgia.[3] The tic refers mainly to the visible effects of the brief and paroxysmal pain that in classic trigeminal neuralgia lasts only a few seconds. The pain is reported as one of the most excruciating pain syndromes. It has been known to drive patients with trigeminal neuralgia to the brink of suicide. The pain is severe that it often causes the patient to wince or make an aversive head movement as if trying to escape the pain thus producing an obvious movement or tic.

With more and more advances in the field of electrophysiological studies and techniques, with improvised and advanced neuroimaging techniques, the diagnostic accuracy has increased over the years. Although satisfactory treatment of this condition is still to come, pharmacotheurapcitics and drug trails are ongoing for the search of novel drugs for better control of symptoms. In the last few decades, surgery either external or percutanous procedures has provided a number of treatment options in terms of cost effectiveness, minimal invasiveness and morbidity.

Aims and Objectives

1. To study the clinical profile of patients with trigeminal neuralgia.(TN)
2. To evaluate the MRI findings in patients of TN.

Materials and Methods

The study was conducted in 31 patients. All these patients were chosen from both inpatient as well as outpatient department. A detailed history of illness followed by clinical examination and investigations as detailed was done in all these patients.

Inclusion criteria:

- ✓ Clinically pain restricted to one or more branches of trigeminal nerve either unilateral or bilateral
- ✓ Typical pain of trigeminal neuralgia which is lancinating or electric shock like in nature.
- ✓ The paroxysms of pain not lasting for more than a few seconds to minutes.

- ✓ The pain should not radiate beyond the area supplied by the trigeminal nerve.

Exclusion criteria

- ✓ Pain likely to be arising from other facial structures like sinusus, tooth, ocular structures or soft tissue.
- ✓ Pain arising from intra/extra cranial structures including vascular, tension and other types of headache.
- ✓ Atypical cephalalgia or facial pain.
- ✓ Patients with unreliable history.

Details of history includes the duration of illness, site of pain, quality of pain, triggering factor /factors and comorbid illnesses. Pain scoring was done as per Wong-Berger pain rating scale with '0' being no pain and 10 being worst pain. Sensation was checked in all the 3 divisions of V nerve along with motor power in temporalis and messator.

0	1	2	3	4	5	6	7	8	9	10
No pain	Just noticeable	Mild pain	Uncomfortable pain	Annoying pain	Just bearable	Moderate pain	Strong pain	Severe pain	Horrible pain	Worst pain

Observations

In our study, we included a total of 31 patients from both inpatient and outpatient departments.

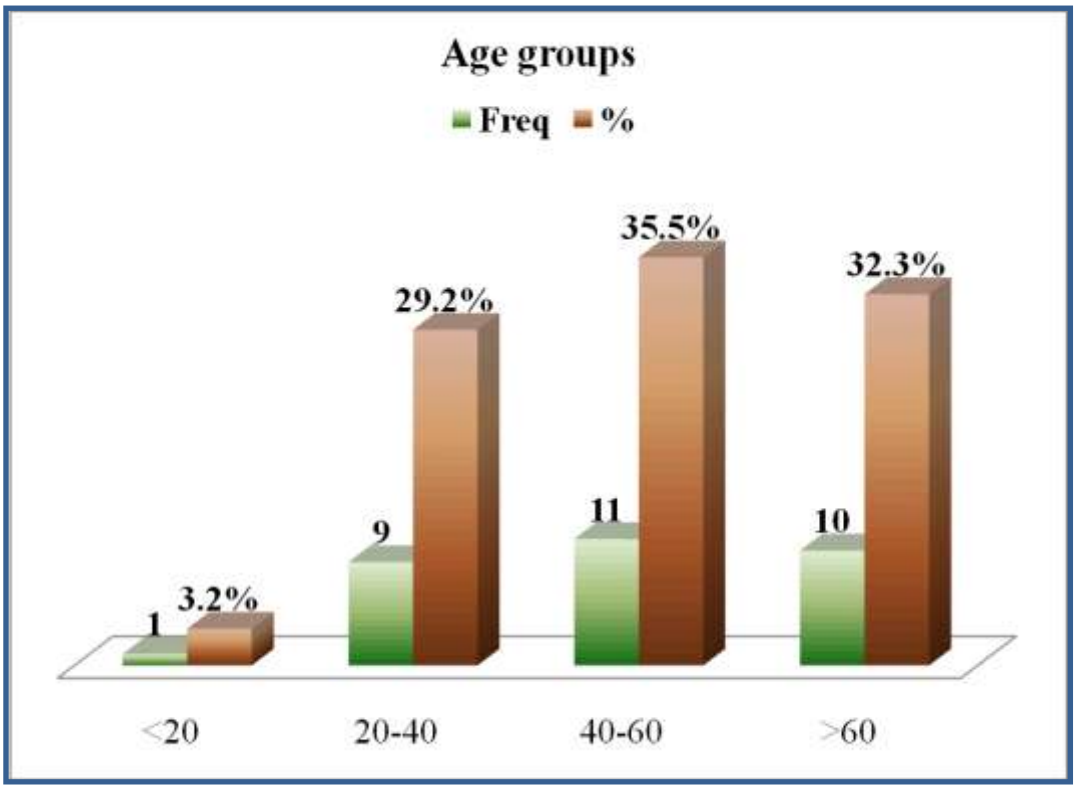
Age distribution (in years)

	N	Min	Max	Mean	Std.dev
Age	31	16	75	49.77	14.94

Sex

Sex	Freq	%
Male	**19**	**61.3**
Female	**12**	**38.7**

Age groups (in years)



Quality of pain

Quality of pain	No of patients	Paroxysmal	Paroxysmal later became continuous
In patients with abnormal MRI	10	8	2
In patients with normal MRI	13	12	1
Patients without MRI	8	7	1
Total	31	27	4

12.90% of our patients had paroxysmal episodes of pain which later became continuous. Mean duration of illness was 5.7 years in these patients.

Severity of pain during paroxysms

	Score	No. of Pts	%
Mild	0-3	0	0
Moderate	4-6	6	19.4
Severe	7-10	25	80.6
		31	100.0

Majority of our patients had pain score of 7-10 (in 80.6%). None had pain score <5.

Branches involved

Branches	No. of Pts	%
V1	02	6.4
V2	03	9.6
V3	07	22.5
V1+V2	02	6.4
V2+V3	05	16.1
All 3	12	38.7
V1+V3	00	00.0
Total	31	100.0

Branch V2 and V3 were most commonly involved. V1 was least involved.

Side of involvement

Side	Pts	%
Left	17	54.84
Right	14	45.16

Triggering factor / factors.

In our study a definite history of triggering factor/factors was found in 14 patients (45.1%).

T. Factors	No. of Patients	%
Touch	12	38.70
Washing face	7	22.58
Chewing / brushing	4	12.90
Air currents	4	12.90
Shaving	2	6.42

Triggering factors did not show any definite correlation with either MRI or EPS

Symptoms

Symptoms	No. of Patients	%
Burning pain	21	67.0
Electric shock like	26	83.8
Intense stabbing / pricking	22	70.9
Numbness	4	12.9

Clinical examination

Sensory examination found abnormalities in 10 patients (32.25%). EPS did not show any correlation.

Patients with	No. of Patients
Abnormal MRI	6
Normal MRI	1
No MRI done	3

Observations in MRI

MRI was done in 23 patients

Incidence of abnormalities with respect to V cranial nerve was 43.47% (10 Patients)

Among patients with abnormal MRI, 9 patients had abnormal vascular loops and 1 patients had SOL in left cavernous sinus.

Correlation with age

Mean age with abnormal MRI was 56.3 years.

Mean age with normal MRI was 52.6 years.

Correlation with severity of pain:

In patients with normal MRI pain was severe in 84.6%

In patients with abnormal MRI pain was severe in 80.00% and did not show any statistical significance.

Discussion

The present study was conducted in SRMCH & RI which is a tertiary health care centre. The study was conducted between August 2006 to August 2008. The patients included both from inpatient department as well as outpatient department during this period.

A detailed history followed by complete neurological examination was done in all these patients. After satisfying both inclusion and exclusion criterias they were included in the study. Thus 31 consecutive patients of trigeminal neuralgia were enrolled in our study.

Clinical Profile of patients:

Trigeminal neuralgia usually develops after the age of 40 years in 90% of the patients. In our study the mean age of patients was 49.77 years with standard deviation of 14.94. Only one of our patients was less than 20 years. In the western population trigeminal neuralgia is frequently seen in young population due to higher incidence of multiple sclerosis. TN is seen in nearly 4% of patients with multiple sclerosis and 2% of patients with TN have MS. In our country multiple sclerosis is uncommon as compared to the west.

In our study 61.3% were males and 38.7% were females. Trigeminal neuralgia is more common in females. In fact it is twice as common in males.[4] The incidence in males was high in our study may be due to more number of male patients visiting our hospital due to social factors. Neither age nor gender did not show any significant correlation between electrophysiological studies and MRI in our study.

The pain in trigeminal neuralgia occurs characteristically in paroxysms.[5] However when the disease process damages a sufficiently large number of trigeminal nerve fibres to produce sensory loss, patients usually report dysesthesias or constant pain rather than typical paroxysmal attacks of trigeminal neuralgia. Thus brainstem infarctions or invasive tumors rarely give rise to such neuralgic pain.

In our patients pain was paroxysmal but 12.90% of our patients had paroxysmal to begin with which later became more or less continuous in nature. In these patients the mean duration of illness was 5.7 years.

Electrophysiological studies did not show any significant correlation and MRI was normal in all these cases.

All our patients were asked to rate the severity of pain on Wong-Berger scale (0-10). 80.60% of patients rated their pain above 7 and 19.4% rated it as 6 (just bearable) during the episodes of paroxysms. None of our patients rated their severity of pain as <5. The correlation between severity and electrophysiological studies, MRI is discussed further. Severity was not related to duration, age, sex or branches involved.

In a study done by Jannetta P.J[6] in 1, 204 patients the frequency of involvement of trigeminal nerve branches seen by him is as follows.

V1	2.8%
V2	17.7%
V3	14.6%
V1+V2	17.2%
V2+V3	35.4%
All 3	12.3%
V1+V3	0.0%

In our study, all three branches (V1+V2+V3) were more frequently affected 38.7% followed by V3 alone in 22.5%.

This variation could be due to less number of patients in our study. Another study done by Dubner R.et.al[7] stated that among the three divisions of trigeminal nerves pain is more commonly located to V2 and V3 distribution and exceptionally rare in the distribution of V1 branch, which is consistant with our cases and findings in Jannetta's cases. Involvement of left side (54.84%) was common than right side (45.16%).

Various stimulii can trigger pain which is often consistent in each individual patient. A history of triggering factor/factors was present in 45.1% of our patients where as 55.9% of patients revealed that it was spontaneous. Pain was triggered by tactile stimulus in 38.70% of patients and in 22.58% of patients washing face with cold water precipitated pain. Chewing, brushing teeth, gush of wind and sleeping under fan triggered pain in 25.80% of patients. No correlation

between triggering factors and MRI or electrophysiological study was found in our study.

Description of pain by the patients was categorized as burning like pain, electric shock like sensation, intense stabbing, pricking or numbness. A significant number of patients (83.8%) described it as an electric shock like sensation. Intense stabbing and pricking type of pain was reported in 70.9%. But most of our patients described it as both electric shock like and intense stabbing. 67% of patients complained as burning type.

In idiopathic trigeminal neuralgia standard bedside neurological examination will be normal although transient hypo/hyperasthesia may be present. The finding of numbness in trigeminal distribution suggests secondary trigeminal neuralgia. In our patients sensory abnormalities were found in 32.25% of patients. 6 out of 10 patients with abnormal sensory findings had abnormalities in MRI too. Only one patients with normal MRI had abnormal sensory findings.

Conclusions

- The mean age of the patients in our study is 49.77 years, with 61.3% males and 38.7% females.
- Pain was characteristically paroxysmal in all our patients, but in 12.9% patients pain was paroxysmal to begin with, but later became continuous. Mean duration of illness in these patients was 5.7 years.
- Age, sex and quality of pain did not show correlation with MRI and electrophysiological studies.
- Maxillary and mandibular divisions were more frequently involved with higher incidence of left side involvement.
- 45.1% reported definite triggering factor/factors with tactile stimulus and cold face wash being the common triggering factors.
- 83.8% complained symptoms as electric shock like sensation followed by intense stabbing / pricking and burning pain in 70.9% and 67.0% respectively.
- Neither symptoms nor triggering factors had any definite correlation with MRI and EPS.
- Abnormalities in sensory examination was present in 32.25% patients and a quarter of these patients had abnormalities in MRI too where as EPS did not show correlation with sensory examination.
- 43.47% of patients had abnormalities in MRI with respect to V cranial nerve with 90% being abnormal vascular loops.
- Clinical parameters had no correlation with MRI findings.

References

1. Headache classification subcommittee of IHS. The international classification of headache disorders: 2nd ed. cephalgia 2004;24 suppl 1:9-160.
2. Brodal. A. Neurological anatomy in relation to the clinical medicine, 3rd ed, Newyork: oxford university press,1981:508-32.
3. Bayer. DB, strenger TG “Trigeminal Neuralgia: an overview” oral surg. Oral med oral pathol. 48(5):393-9.
4. Davey. R. Mir R, Al din as et al. Trigeminal cephalalgias and facial pain syndromes associated with autonomic dysfunction. cephalalgia. Aug 2005;25(8):605-11.
5. Merksey. H, Bogaduk .N et al Classification of chronic pain, description of chronic pain syndromes and definitions of pain terms. Seattle: IABP press;1994:59-71.

6. Merksey. H, Bogaduk .N et al Classification of chronic pain, description of chronic pain syndromes and definitions of pain terms. Seattle: IABP press;1994:59-71.

7. Dubner R, Sharav.Y. Idiopathic trigeminal neuralgia sensory features and pain mechanisms. Pain Oct 1987;31(1):23-33.