

## Outcome of Microvascular Decompression (MVD) for Trigeminal Neuralgia

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### **ABSTRACT**

**Objective:** To assess the outcome of patients of Trigeminal Neuralgia after Microvascular Decompression (MVD).

**Design:** Case Series.

**Place and Duration of Study:** Bolan Medical Complex Hospital, Quetta from July 2008 to July 2015.

**Materials and Methods:** Patients of all age group and both gender were included. Those patients were included in study that was not relieved by conservative treatment.

**Results:** 40 patients included in study, 30 patients were male and 10 patients were female. Male to female ratio 3:1. The majority of the patients were over 50 years of age. Duration of symptoms in all the patients was more than one year. All of patients were not responding to medical treatment (Anticonvulsant, Antispasmodic and Pain Killers) after one year treatment. All of patients were operated. Procedure was microvascular decompression. They were followed for the period of one year. Most of the patients were pain free after surgery and few patients develop minor complications.

**Conclusion:** Micro vascular decompression is treatment of choice in those patients who stop responding to the conservative treatment.

**Abbreviations:** MVD: Microvascular Decompression. MRI: Magnetic Resonance Imaging. CT: Computed Tomography.

**Keywords:** Trigeminal Neuralgia, Anti-Epileptic, Microvascular Decompression.

### **INTRODUCTION**

Pain of Trigeminal Neuralgia is characterized by sudden shock like sensations and lasts for seconds to minutes. The pain on the area of face is triggered usually by light stimulation, like chewing, eating, talking or even a wind etc.<sup>1</sup> Diagnosis of Trigeminal Neuralgia is basically depend on clinical basis but the other investigation like CT Brain and MRI Brain is mandatory to exclude other pathology like tumors and other space occupying lesions.<sup>2</sup>

Reflex test can be helpful to determine the symptoms caused by a compressed nerve or another condition. The Trigeminal Neuralgia usually managed initially by medicines and many people do not need

further treatment. Nonetheless, over times some people with the same condition may stop responding to medicine therapy or may experience unpleasant adverse effects of these drugs. Medical treatments usually used are anticonvulsant like carbamazepine, alternatively, other drugs like Gabapentin, Antispasmodics and pain killers are effective too. For those people who don't respond to conservative treatment, injections or surgery offered second line of therapy for Trigeminal Neuralgia. A surgery including peripheral Neurectomy can be helpful but the Microvascular Decompression is the best surgical option.

This surgical procedure includes, repositioning or

removing of aberrant blood vessels that are compressing the trigeminal root by placement of soft cushion between the nerves and the vessels, so stop the nerve from malfunctioning.

### MATERIAL AND METHODS

This study was conducted in Bolan Medical Complex Hospital, Quetta from July 2008 to July 2015.

Total 40 cases of Trigeminal Neuralgia were included in study and those patients were responded initially to medical treatment but there were not responding to conservative treatment for more than one year. It included patients of all age groups and both gender.

Those patients who respond to medical treatment or other minor surgical procedure were not included in the study. Gender Incidence: Male to female ratio 30 male and 10 female (Table 1). Age Incidence: There were 25 patients whose age was more than fifty years and the younger of patient was of 20 years old (Table 2).

**Table 1: Gender.**

Gender	No. of Patient	Percentage (%)
Male	25	62.5%
Female	15	37.5%
<b>Total</b>	<b>40</b>	<b>100%</b>

**Table 2: Age Distributions.**

Age Group (Years)	No. of Patients	Percentage (%)
20 – 25	2	5%
25 – 30	3	7.5%
30 – 35	2	5%
35 – 40	6	15%
40 – 45	7	17.5%
45 – 50	10	25%
50 – 55	5	12.5%
55 – 60	3	7.5%
60 – 65	2	5%
<b>Total</b>	<b>40</b>	<b>100%</b>

### Clinical Features

Pain in the left side was involved in 30 patients and only 10 patients were suffering from pain on right side.

All the patients were conservatively managed on medication more than one year. CT and MRI were done in all patients to exclude other pathology.<sup>3</sup>

### Operative Procedure

When conservative treatment failed, Microvascular Decompression was done in all cases. The procedure involves lifting of Blood vessel which are in compressing the Trigeminal nerve root near its entry zone. During MVD an incision is made behind the ear on the affected side. Craniectomy done and with the help of microscope the artery in contact with trigeminal nerve roots was relocated and placed a small soft cushion between the nerve and arteries. The nerve root was cut (Neuroectomy) in three patients during this procedure.

Per operatively on arterial loop was found to compress the 5<sup>th</sup> cranial nerve in 90% of patients only in one patient vein was found we don't found loop of vessel and the nerve root was cut in entry zone.

**Table 3: Side of Pain on Face.**

Side	No. of Patient	Percentage (%)
Right	22	55%
Left	18	45%
<b>Total</b>	<b>40</b>	<b>100%</b>

**Table 4: Complications.**

S. No.	Name of Complication	No. of Patient	Percentage (%)
1.	Wound Infection	6	15%
2.	Facial Numbness	2	5%

### Outcome

Most of the patients were pain free after surgery but mild pain re-occur in few patients which was subside after 2 months of period.

### Complication

Numbness of the face was observed in two patients.

Four patients develop wound infection that were subsided with Antibiotic treatment, one patient develop small subdural hematoma which subsided with conservative treatment.

## DISCUSSION

Trigeminal Neuralgia is a chronic neuropathic pain that affects the distribution of one or more branches of trigeminal nerve. Trigeminal Neuralgia is of two types; Typical and Atypical. **The typical** form manifests as an episode of sudden, severe, sharp and stabbing like pain in one side of the face that lasts for seconds to few minutes.

Even mild stimulation like brushing to teeth, Chewing, Shaving etc may trigger a jolt of excruciating pain. It starts from mild pain and may progress to longer and more frequent episodes of excruciating pain. Trigeminal Neuralgia affects women more than man with a female and male ration of 3:2 and peak age of onset is older than 50 years.<sup>4</sup> Variety of treatment options are available for Trigeminal Neuralgia. Additionally, other options can be used in case conservative treatment failed to responds.

The other treatment options involve glycerol injections in trigeminal ganglion along with Thermo coagulation of rootlets or ganglion.<sup>5</sup>

In recent years Gama Knife radiosurgery is emerged as another treatment option who are not relieved on conservative treatment success rate is good having minimal complication but cost effective.<sup>6</sup>

Literature review showed that trigeminal neuralgia is more common in female, while in our study it was found more common in male.<sup>7</sup>

In other study the common age was above 60 years but in our study it was more than 50 years but less than 60 years. In our study 90% find a loop of vessel in compressing trigeminal nerve roots, while in other studies it was less than 90%,<sup>8</sup> other studies patients were under went MVD showed that immediate post-operative relief of pain was complete in 82%, Partial in 16% and absent in 2% on 1 year follow up visit. Same was observed in our study excellent outcome in 30% patient, good in 10% patient and poor in 10% patients.<sup>9</sup> Complication of MVD include severe facial numbness, burning sensation, facial weakness, hearing less, recurrence rate is 15%.<sup>10</sup> In our study the recurrence rate is lower.

The minimally invasive retro-sigmoid approach for MVD is the best option in most of study and our

study observe same. The complication rate was high in our study as compare to other that might be because of poor sterilization.

## CONCLUSION

Microvascular Decompression is treatment of choice in patients typically suffering from Trigeminal Neuralgia. In which conservative therapy is failed and arterial loop decompressing at nerve entry zone with placement of soft cushion between nerve and vessel is treatment of choice (MVD).

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## REFERENCES

1. Wilkins RH, Trigeminal Neuralgia introduction in Wilkins RH and Rengachry SS. Editions Neurosurgery MC Grow High Blood Company (USA), 1985: 2337-44.
2. Baker FG, Jeneta PJ, Bissonette DJ, Shield PJ, Lorkins MV, Jho HD- Microvascular Decompression for hemifacial pain, Journal of Neurosurgery, 1995, Feb. 82 (2): 201-210.
3. Kenthey Casey MD, Benign Essential Blepharospasm Research Foundation New letter, 2006 Vol: 25 (2): 10.
4. Campas, Beritez MK, Kuffman AM, Neurovascular Compression finding in Trigeminal Neuralgia – J Neurosurgery, Sep 2008; 109 (3): 416-20.
5. Lunford MD Trigeminal Neuralgia Treatment by Glycerol Rhizotomy Hill book Company (USA), 1985: 2345-50.
6. EL Gareem, HF Badr, EL Dine, M. Talat, AM Magnana, J-Endoscopy as a Joot of minimum invasive Trigeminal Neuralgia Surgery – Otto Neurotoll. 2002; 23 (2): 132-5.
7. Shin JC, Chung UH, Kim YC, Park CI Prospective study of MVD in Trigeminal Neuralgia, Neurosurgery, 1997 April. 40 (4): 730-734.
8. Jeneta PJ, Trigeminal Neuralgia treated by Microvascular decompression in Wilkins RH and Rangacheri H. Blood Company (USA), 1985: 2345-50.

9. Brrogi, Ferrali et al MVD for Trigeminal Neuralgia, J Neural Neurosurgery Psychiatry, 2000; 68 (1): 59-64.
10. Payner TD, Tew JR Recurrence of Trigeminal Neuralgia after MVD, 1996 Apr; 38 (4): 686-692.

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