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TRIGEMINAL NEURALGIA

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ABSTRACT... sshazam@brain.net.pk **Objectives:** trigeminal Neuralgia is a severe lancinating pain and is associated with conflict between a vessel and 5th cranial nerve. Micro vascular Decompression (MVD) of the nerve relieves this pain. **Material & Methods:** We reviewed 60 patients who underwent MVD for medically intractable trigeminal neuralgia. The outcome of procedure was assessed retrospectively. **Results:** Preoperative symptoms ranged from 3 months to 10 years. Right side of face was affected in 32 and left in 28 patients. Mandibular division (21.6%) was the most commonly involved branch for referred pain. Superior cerebellar artery was the commonest offending vessel in 86.6% of cases. Trigeminal root entry zone location (70%) was the commonest site of conflict. Postoperative pain relief showed excellent results in 86.6%, good in 10.0% and poor in 3.4%. Recurrence rate was 1.5% per year. **Conclusion:** MVD is safe, effective and treatment of choice for trigeminal neuralgia.

Key Words: Trigeminal Neuralgia, Offending Vessel, Microvascular Decompression.

INTRODUCTION

Microvascular Decompression was first introduced by Dandy in 1934 and later popularized by Peter Jannetta[1,2].

Trigeminal Neuralgia is a severe lancinating shock like pain within the distribution of 5th cranial nerve. Usually these patients present after multiple visits to dental surgeons and local General Practitioner and Physicians.

The cause of this pain has been associated with conflict between a vessel and the 5th cranial nerve from its origin from brainstem to its exit at Meckle's cave[3].

In order to perform Microvascular Decompression, microscope, micro-surgical instruments and application of microsurgical techniques are mandatory[4].

MATERIAL AND METHOD

We reviewed 60 cases of trigeminal neuralgia in whom Microvascular Decompression was done between 2000-2004. There were 34 females and 26 males, age ranged between 20 to 70 years. CT or MRI was performed in all

cases.

Carbamazepine, phenytion and Baclofen were used as a single drug or in combination in all patients prior to surgery. Surgery was only performed when pain become intractable despite medical treatment.

Under general anesthesia lateral position was made and post auricular 6 cm incision was made in all cases. Retro-mastoid 5cm craniotomy was done after opening dura crescentically, cerebellar hemisphere was retracted. Angle between transverse and sigmoid sinus was exposed. The arachnoid layer was divided, conflict between the vessel and 5th nerve was identified. Compressive vessel was dug out from indentation site by micro vascular techniques. The Teflon prosthesis was placed between vessel and nerve to relocate the vessel.

RESULTS

Preoperative symptoms ranged between 3 months to 10 years. Right side face was affected in 32 and left side in 28 cases.

Trigeminal root entry zone is the portion of the 5th nerve which belongs to the central nervous system and is the site which is involved most commonly which means this area has to be explored in all cases even though conflict is seen in the mid or exit of the nerve. When distortion of nerve was observed results were excellent.

Table I. Branch Distribution of Referred pain

Branch	%age	No. of pts
V1	01.6%	1
V2	18.3%	11
V3	21.6%	13
V1+V2	20.0%	12
V2+V3	25.0%	15
V, V2+V3	13.3%	15

V1=Opthalmic, V2=Maxillary, V3=Mandibular

Branch distribution of referred pain is listed in table I. Offending vessels involved are shown in table II. Location of neurovascular conflict is summarized in table III while degree of conflict is shown in table IV. Relationship of vessel with nerve and complications are summarized in table V& VI respectively.

Factors for good outcome were short duration, typical presentation, single artery compression and complete decompression.

Table II. Offending Vessels Involved

Offending Vessels	% age	No. of pts
Superior cerebellar artery	86.6%	52
Antero-Inferior cerebellar artery	25.0%	15
Transverse pontine vein	26.6%	16

Table III. Location of Neurovascular Conflict

Location of Conflict	%age	No. of pts
Trigeminal root entry zone	70.0%	42
Mid third of nerve	23.3%	14
Exit at Meckle's Cave	06.6%	4

Table IV. Degree of Conflict

Degree of conflict	%age	No. of patients
Simple contact	10.0%	6
Distortion of nerve	48.3%	29
marked indentation	41.6%	25

Factors for worse outcome were venous compression, longer duration, a typical presentation and partial decompression. Recurrence meant transition from excellent outcome to good or poor outcome. Five patients developed recurrence within two year. These were in the initial learning period in the first year of study. The annual risk of recurrence is about 1.5% per year. Recurrence was treated with resumption of

medication, second MVD operation and/or ablative procedure.

Excellent results means complete relief of pain. Good results meant 75% reduction in pain. Poor results meant more than 25 % of preoperative level of pain leading to resumption of medication, second surgery or ablative procedure (Table VII).

Table V. Relationship of vessels with Nerve		
Position of Vessel	**%age**	**No. of patients**
Supero-medial	60.0%	36
Supero-lateral	31.6%	19
Inferior	08.4%	5

Table VI. Complications		
Complications	**%age**	**No. of patients**
Mild hearing loss	3.3%	2
Transient diplopia	1.6%	1
Transient facial weakness	3.3%	2
CSF leak	3.3%	2
Chemical meningitis	6.6%	4

Table VII. Post Operative Pain Relief		
Post op pain relief	**%age**	**No. of patients**
Complete (Excellent)	86.6%	52
Partial (Good)	10.0%	6
Absent (Poor)	03.4%	2

Complete decompression and relocation and placement of prosthesis are mandatory to have excellent result.

DISCUSSION

Trigeminal neuralgia is a troublesome disease. The relief provided by drugs decreases over time[5]. About half of all patients require an operation for pain relief[6].

Female sex and a longer preoperative history of tic have been reported as risk factors for recurrence after microvascular decompression[7].

Ataxia, disequilibrium and gait disturbances sometimes found in early postoperative period at hospital discharge are usually fully recovered within 2 weeks[8].

Low rates of severe postoperative facial numbness 1% and dysaesthesia in our study is an advantage when compared to radio frequency thermal rhizotomy[9] and glycerol rhizotomy[10].

Operative findings are also corrected with outcome, more severe vascular compression of trigeminal root had more successful relief of symptoms after MVD[11].

Recurrence rate in our study was 1.5% per year is comparable to international studies[12]. The mandatory exploration of root entry zone has led to decreased recurrence rate[13].

In the follow-up, our results are in the range of reported series[14,].

CONCLUSION

MVD is safe, effective and treatment of choice for intractable pain which is recommended for all ages with minimal complications.

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