Outcome of MVD for Trigeminal Neuralgia

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This article depicts the general outcome of patients suffering from trigeminal neuralgia and Microvascular decompression was done. We have discussed the surgical technique, number of patients in different age group, offending vessels/other lesion and division involved in number of cases. The patients were treated surgically and clinically re-examined for 6 months postoperatively. The effect of surgical treatment was good.
Key words: Microvascular decompression for trigeminal neuralgia.

Trigeminal neuralgia is a painful condition of the face depicted by Fothergill (1776). Pain comes suddenly, excruciating, lasts for a short time, returns at irregular intervals. Eating, talking and chewing can precipitate this pain. Talking or the least motion of facial muscles, a gentlest touch of a hand or handker-chief will sometimes bring on the pain, whilst a strong pressure on the part has no effect (Morely, 1990). It is more common in women than in men.

Description of trigeminal neuralgia had been observed in earlier Medical Publication. In 1671 Dr. Johanner Bausch published some detail about trigeminal neuralgia. The sudden wincing contraction of facial muscles in response to severe pain of trigeminal neuralgia resulted in its name, tic douloureux.

Fothergill (1776) wrote the first detail account of the condition based on a series of 16 cases. He noted that pain is sudden in onset and occurs in paroxysms. Since 1776 this condition has become well recognized entity (cited by Wilkins 1985). Although some affective treatment have been devised for its control, its basis is still poorly understood.

Materials and methods

Twenty five patients underwent microvascular decompression for trigeminal neuralgia in Department of Neurosurgery Nishtar Hospital, Multan (10) and Lahore General Hospital Lahore (15) Unit-I from March 1994 to August 1996.

Initially all patients were treated medically (with carbamazepine). These patients were refractory to medical therapy, because of lack of response, loss of effective response or development of intolerable side effects.

Preoperative evaluation

1. For postoperative comparison, each patient had detailed neurological examination with special emphasis to V cranial nerve function.
2. X-ray skull, PA/Lat. View were taken in every case.
3. CT scan brain plain and with contrast was done of every patient. Slice thickness posterior fossa was 4mm to 8mm. This was done mainly to exclude a tumour or unsuspected structural lesion in the posterior fossa.
4. Angiography was not done routinely in one patient to rule out an aneurysm in the vicinity of trigeminal nerve roots.

A small retromastoid craniectomy varying from 2.3 by 3.0 cm in size was performed it was ensured that junction of transverse sinus superiorly and sigmoid sinus anteriorly was exposed. The supralateral dural flap was incised to the lateral sinus and dura is sutured to the galea, tenting the lateral sinus up and away. The retractor was placed superficially over he lateral aspect of the superior surface of cerebellum. At this point of operative procedure, the operation table was rotated slightly away from the surgeon to aid exposure. Arachnoid was dissected under loop magnification (4x) with microdissector and microscissors. Cerebellum was retracted inferomedially and arachnoid over the Vth nerve was divided and CSF allowed to drain. The 5th nerve was freed from the offending vessels by microdissection and a piece of muscle or spngostone or muslin cloth was placed. The size of muscle/sponge piece/muslin cloth was 0.5x0.75cm. It was neither too large that may cause compression nor so small that might be dislodged. We used muscle piece or spongostone because of its advantage of appropriate eleasticity, simplicity of acquisition, and the least of foreign body reaction. The retractor was removed and the dura was closed. The incision was closed in layers and a small dry dressing was applied. Postoperatively, the head was elevated about 15 degrees.

Results

The ages of the patients ranged from 21-70 years. Seventeen patients had involved right side of face while 8 patients had symptom on left side of face. No case of bilateral neuralgia was examined. There were twenty one males and four females.

Majority of the patients had maxillary and mandibular nerve involvement (7). Seven patients had ophthalmic and maxillary involvement. In four cases only madibular and in other four only maxillary division was involved. Two patients had neuralgic pain in all divisions of trigeminal nerve and only one patient had involvement of ophthalmic and mandibular division (Table 3).

CT scan of all patients were normal except two patient. One had right CP angle tumour and other had right epidermoid cyst.

Table 1: Number of patients in different age group (n=25)

Age Group	=n	%age
21-30 years	1	4
31-40 years	6	24
41-50 years	5	20
51-60 years	9	36
61-70 years	4	16

Table 2: Division involved number of cases (n=25)

Division Involved	=n	%age
Mandibular & Maxillary	7	28
Maxillary & Ophthalmic	7	28
Mandibular & Ophthalmic	1	4
Maxillary only	4	16
Mandibular only	4	16
Ophthalmic only	0	-
All three divisions	2	8

Table 3: Offending Vessels / other Lesions (n=25)

Vessels	=n	%age
Superior cerebellar artery	14	56
Anterior inferior cerebellar artery	4	16
Posterior inferior cerebellar artery	2	8
Unnamed / unidentified vessel	2	8
Epidermoid cyst	1	4
Rt CP angle tumour (acoustic neuroma)	1	4
Vein	1	4
Total Site of Compression	25	100
Anteroinferior	10	40
Anterosuperior	12	48
Inferolatteral	2	8
Between sensory and motor roots	1	4

Discussion

Numerous surgical approaches to trigeminal neuralgia problem have developed as a result of uncertainty surrounding the etiology of the disease. Currently one of the most debatable explanation for disease is that it is due to distortion and compression of the trigeminal nerve root entry zone by one or more tortuous vessels. Dandy (1934) and later Gardner Mikols (1959) were the first to propose the vascular and compressive etiologies respectively. Annetta (1977) took a definite step in developing and popularizing the posterior fossa MVD operation for the treatment of trigeminal neuralgia. We attained favourable results in our series of twenty five patients study.

In identification of vascular compression, routine radiographic procedure including CT scan were not helpful except in two cases, in which we identified CP angle tumour (Acoustic neuroma) and epidermoid cyst. Our patients were non affording and we did not utilize the facility of magnetic resonance imaging technique. High resolution magnetic resonance imaging for demonstration of vascular compression and oblique sagittal resonance imaging method have been developed to provide better visualization of vascular compression of nerves.

In our study, we found that trigeminal neuralgia is a disease of middle age group (21-70 years). There was a slight difference, noted in the findings of Bederson and Wilson (1989) who reported a mean age group of 53 years. Akio Morita (1989) reported 66 years etc. Barba Alksne (1984) reported trigeminal neuralgia in very old patients who were above 90 years of age. In the study Klun (1992), 125 cases, out of 220 were above 50 years and 56 patients of 42 years.

In our series, male predominance is there as twenty two males and three females, making a ratio of (7:1). This is quite in contrast to reports from other authors. Bederson et al (1989) presented a report of 2:5 male to female ratio, was 9:12 in Klun (1992) in Akio Morita series there was female predominance. There may be two following causes. The main cause of this gross difference could be the criteria for the selection of the patients.

Females presented during this period with trigeminal neuralgia were relatively weak and some of them were suffering from serious medical ailments like ischaemic heart disease, so they were subjected to relatively easier and less time consuming procedure like extradural partial rhizotomy.

The second cause could be that this disease may be relatively more prevalent in males in this part of the world.

Recurrence

In our series of twenty five patient, all remained pain free except one. This patient was about 36 years old, had a minor degree of neuralgic pain, six months after surgery. Muscle piece placed between nerve root and compressing vessel might have dislodged as mentioned by Janneta (1990). Plain CT scan brain was done with 2mm slices, was entirely normal.

Conclusion

Although our series of twenty five patients, is not as large as others but it clearly confirms the vascular compression is highly related to pathogenesis of trigeminal neuralgia. Patients treated with microvascular decompression seems to have a number of advantages. Neuralgia is relieved in all patients with preservation of sensation in distribution of trigeminal nerve so there is no risk of anaesthesia dolorasa. CT scan of brain was helpful to rule out any SOL at CP angle. Microvascular decompression offers the greatest potential for relief of symptoms without drastic side effect. Experience is required to safely expose the 5th nerve at root entry zone. We strongly believe that after medical treatment microvascular decompression should be the treatment of choice in trigeminal neuralgia. With experienced hand, good results with minimum side effects may be anticipated. It is a major surgical procedure on vital area of brain with a potential for serious side effect.

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