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TRIGEMINAL NEURALGIA;
DIFFICULTIES DURING SURGERY WITHOUT PROIR MRI SCREENING

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ABSTRACT... **Design:** A retrospective study of 40 cases of Trigeminal Neuralgia who were treated surgically (by MVD, micro-vascular decompression). **Place & Duration:** Department of Neurosurgery Quaid-I-Azam Medical College / Bahawal Victoria Hospital Bahawalpur during four (4) year period from January 2003 to December 2006.These patients were resistant to medical treatment so MVD was performed. Methods Total number of patients is (40) forty. In 10 patients CT scan brain and especially for posterior fossa was performed before surgery to rule out any suspected tumour pathology. In the remaining 30 cases no MRI or CT scanning of brain was done before surgery and diagnosis of Trigeminal Neuralgia was made on clinical grounds. **Results:** Posterior fossa was opened by standard right or left retro-mastoid approach depending upon the side of pain. In 27 out of 40 cases the superior cerebellar artery (SCA) was the offending vessel. In 5 cases, only the vein was the cause of pain. In 2 cases, vein and artery, both were the offending vessels. In 2 cases, only arachnoidal adhesions were the cause of pain. And in 4 cases, after opening the posterior fossa it was found that cause of pain is a tumour of trigeminal nerve (3 cases) or meningioma (1 case) of cerebellopontine angle. **Conclusion:** From these operative findings of tumours in the posterior fossa in cases of Trigeminal Neuralgia, it is concluded that all the patients suffering from Trigeminal Neuralgia should be screened with MRI prior to surgery to rule out any tumour pathology as a cause of Trigeminal Neuralgia, so that proper preparations be made before surgical intervention.

INTRODUCTION

Trigeminal Neuralgia is a sudden, severe, electric current like pain in the distribution of trigeminal nerve. It is paroxysmal in nature and is having trigger point as well. It is initiated by touching, talking, chewing, face washing and even by wind.

Pathophsiology of Trigeminal Neuralgia is progressive demyelination of the trigeminal nerve at its root entry zone so it becomes easily irritated and pain gets started.

In most of the cases the cause of the Trigeminal Neuralgia is a vessel which is compressing the nerve at the root entery zone and in majority of the cases it is an artery. Other causes of Trigeminal Neuralgia are, Multiple Sclerosis, veins at the root entery zone, tumours of that region and some times, archnoidal adhesions at root entery zone are responsible for it.

Different theories have been postulated to explain the cause of trigeminal neuralgia. One of the most common is based on the observation ,that demyelination of large diameter A fibers is found at the trigeminal root entry zone in patients with trigeminal neuralgia. It has been widely speculated that this demyelination comes from the compression of trigeminal nerve by an artery or vein at the root entry zone.

MATERIALS & METHODS

40 cases of trigeminal neuralgia are included in this study who were treated by surgery. Microvascular Decompression was performed in these patients at Department of Neurosurgery Quaid-I-Azam Medical

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College /Bahawal Victoria Hospital, Bahawalpur. It is a retrospective study. Study span is 4 years from January 2003 to December 2006.

AIMS OF STUDY

These were to find out pitfalls and difficulties during surgery without prior MRI studies.

RESULTS

In this study it was find out that in 4 out of 40 cases, the cause of Trigeminal Neuralgia was a tumour in the Cerebellopontine angle. 3 out of these 4 cases were, neurofibroma of Trigeminal Nerve and one case was meningioma of cerebellopontine angle. So it came out to be a tumour cause, in 10% of the cases.

Table-I. Etiology of trigeminal neuralgia (n = 40)

Cause	No. Of Cases	%age
Arterial compression	27	67.5
Venous compression	05	12.5
Arterial & venous compression	02	05.0
Tumours	04	10.0
Arachnoidal adhesions only	02	05.0
Total	40	100%

DISCUSSION

In some patients with Trigeminal neuralgia, the trigeminal nerve is affected by pathologic process at some point between gasserian ganglion and the pons by a benign tumour within the cerebellopontine (CP) angle e.g. meningioma, epidermoid cyst, vestibular schwannoma or Arterio Venous Malformations (AVMs).

Such benign cerebellopontine (CP) angle tumours may be found in as many as 5-8% of patients who present with Tic Douloureux. However, in our study the tumour cause of trigeminal neuralgia came out to be 10 %.

MRI with and without contrast is performed to rule out extra –axial CP angle Tumours and AVMs before MVD for Trigeminal Neuralgia.

In about 5-8% of the cases the trigeminal neuralgia results from benign tumours in the CP angle such as meningioma, epidermoid tumours or acoustic neuroma (10% in our study).

Diagnostic radiologic studies such as CT or MRI are normal in usual patients with Tic- Douloureux, but they are performed to identify the exceptional patient with recogniseable etiologic conditions like tumours in the CP angle.

Although most cases of Trigeminal neuralgia are caused by vascular compression, other structural disease is present in secondary trigeminal neuralgia which can produce either typical or atypical pain. For example a mass may displace and damage the nerve, resulting in pain.

In cases of typical and atypical trigeminal neuralgia, a brain MRI with contrast is required. An MRI is sensitive for the exclusion of intracranial lesions that can rarely cause trigeminal neuralgia.

Other causes of trigeminal neuralgia are compressive lesions such as tumours or vascular malformations or rarely infarction of the root entry zone. For this reason MRI should be performed once clinical diagnosis of Trigeminal Neuralgia has been made.

The etiology of the idiopathic form of trigeminal neuralgia is unknown ,though the condition may some time occur as a symptom of multiple sclerosis resulting from a plaque of demyelination at the point of entry of trigeminal root into the brain stem. Rarely it can be a first symptom of a posterior fossa tumour in the Cerebellopontine angle.

The most common pathology associated with trigeminal nerve is trigeminal neuralgia or tic douloureux. The pain of trigeminal neuralgia is described as shooting, stabbing or electric current like in nature in the affected zones. Tumours in the middle fossa and the Cerebellopontine angle may also affect one or more portions of trigeminal nerve.

The neurological examination and imaging studies are generally without demonstrable abnormalities in trigeminal neuralgia. It is important to remember ,however ,that patients with multiple sclerosis or tumours of the cerebellopontine angle can present with classic features of trigeminal neuralgia.

For this reason ,imaging studies including MRI of the brain and posterior fossa should be standard before the various treatment modalities are considered.

CONCLUSION

Conclusion derived from this study is, as 5-8% cases (10% in our series) of trigeminal neuralgia are due to tumours in the cerebellopontine angle so every patient suffering from trigeminal neuralgia must be investigated with MRI studies of brain before embarking upon surgery so that proper preparations can be made before hand if the tumour is the cause of trigeminal neuralgia.

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