

hypertension, myocardial ischaemia and infraction. If the patient is hypotensive, boluses of 5 to 10 µg of adrenaline are given every 1 to 2 min. In the case of cardiovascular collapse, boluses of 100 µg are administered every minute together with closed chest cardiac compressions. A higher dose of adrenaline is needed during anaesthesia in comparison to the non-anaesthesia setting, because both general and regional anaesthesia impair the sympathetic response². After the initial therapy, some other drugs, although less important, can be given, like histamine 1 receptor antagonists (promethazine IM). Histamine antagonists compete with histamine at the receptor sites. The usefulness of corticosteroids in treating acute reactions is controversial too. Corticosteroids may require 12-24 h to work; these inhibit phospholipase A2, thus decreasing the mediators formed out of arachidonic acid. Other therapies are inhaled bronchodilators for persistent bronchospasm and catecholamines in infusion for persistent hypotension. After the reaction the patient can be extubated if there is no residual airway oedema. Facial or sclera oedema and absence of an air leak after deflation of the cuff of the endotracheal tube suggest residual airway oedema⁴.

CONCLUSION

Anaphylaxis during anaesthesia presents a diagnostic dilemma. A high index of suspicion should be kept as early diagnosis and treatment is vital for survival of the patient.

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Case Report

Radiological Imaging in Trigeminal Nerve Schwannoma: A Case Report and Review of Literature.

Shibani Mehra, U.C. Garga, Suresh

Department of Radiology, Dr. Ram Manohar Lohia Hospital & PGIMER, New Delhi.

Abstract: Trigeminal nerve schwannomas are rare benign slow growing tumors that constitute 1-2% of all cerebellopontine angle masses and 0.7-0.28 % of all intra cranial tumors. Depending on the site of origin, namely, from the trigeminal root, the gasserian ganglion or the cisternal portion of the nerve, these tumors may present as posterior fossa, middle cranial fossa or dumb bell shaped masses. Extracranial extension to other compartments in the head and neck also occur. Imaging has a major role to play in diagnosis of these slow growing tumors. Radiological Imaging with both CT and MRI not only provides the accurate diagnosis of these tumors based on their site of origin and the extent of the nerve involvement; it also differentiates these tumors from other posterior or middle cranial fossa masses. Imaging has the potential to detect malignant transformation in these otherwise benign tumors. MR Imaging is decidedly superior to CT imaging in the precise diagnosis of Trigeminal schwannomas, but the skull base foramina, through which the V cranial nerve branches exit, are best assessed by computed tomography.

INTRODUCTION

Schwannomas are tumors arising from the Schwann cells in the axon myelin sheaths. Trigeminal Schwannomas are rare intracranial tumors that account for a mere 0.8 - 8% of intracranial Schwannomas¹. These benign tumors are known to have an extracranial component and can grow out into the infratemporal compartment or into the pterygopalatine fossa, through the foramina in the skull vault². They may occur sporadically or in association with Neurofibromatosis type 2. Malignant transformation of previous benign masses is known³. The advances in radiological imaging and the advent of Magnetic Resonance Imaging in particular, have enabled noninvasive imaging of the cranial nerves and Trigeminal Schwannomas can be diagnosed using these modalities before these slow growing tumors become large enough to cause symptoms⁴. Two cases of Trigeminal schwannoma are being discussed and presented with their radiological imaging findings.

CASE REPORT

Case-I

We discuss and present the imaging findings in a 57 year old female who presented with right sided proptosis and diplopia and ipsilateral facial pain. The patient was referred for imaging. MR imaging was performed on a 1.5 Tesla Siemens Somatom Balance scanner in the axial, sagittal and coronal planes using phased head coil for the brain and subsequently oblique sagittal and coronal imaging of the orbit was also performed. T1W images in all three planes were obtained after an intravenous Gadolinium injection. MR images demonstrated a large, well marginated mass in the middle cranial fossa that was isointense to gray matter on T1W images and hyperintense to it on T2W and FLAIR images. The mass was centred in the middle cranial fossa at the Meckel's cave with involvement of right cavernous sinus and encasement of the right internal carotid artery [Fig 1a,b]. Anteriorly the mass was seen to extend into the right orbit, displacing the globe and the optic nerve and causing proptosis, while posteriorly, it was

abutting the right side of pons, indenting the prepontine cistern, and there was involvement of right medial temporal lobe laterally [Fig 2]. Computerized Tomography of the brain was performed subsequently on Philips 40 slice spiral scanner and the images obtained were further reconstructed at bone algorithm. CT images revealed destruction of large part of lesser wing and body of sphenoid bone on right side with enlargement and erosion of the ipsilateral superior orbital fissure, foramen ovale and foramen rotundum, and erosion of apex of petrous bone on the right by the large hypodense well marginated densely enhancing mass. There was marked enhancement of the mass after intravenous gadolinium administration with non-enhancing tiny areas interspersed giving a speckled appearance [Fig 3 a ,b]. Inferior extension of the mass into the right infratemporal fossa through the foramen rotundum was also observed [Fig 3 c]. On the basis of the MR and CT features and the location of the mass, a diagnosis of Schwannoma of right Trigeminal nerve involving the Gasserian ganglion and its postganglionic ophthalmic (V1) and maxillary (V2) divisions, was made. Absence of dural tail of enhancement and of associated hyperostosis of the vault ruled out the possibility of meningioma of the planum sphenoidale.

Case -II

Our second case was a 45 year male who had diplopia and hemianopsia with right sided facial pain along the trigeminal nerve distribution since 8 months. MRI of the brain was performed and a large dumb-bell shaped extra-axial mass was detected at the right cerebello-pontine angle, extending anteriorly from the posterior cranial fossa to the middle cranial fossa, causing partial obliteration of the left perimesencephalic cistern [Fig 4 a]. The mass had gray matter isointense signal on T1W, T2W and FLAIR Images, with few tiny necrotic foci within [Fig 4 b]. Avid homogenous contrast uptake and enhancement by the mass was seen in the post-gadolinium scans [Fig 4 c]. This mass was also seen involving the Meckel's cave and the posterior right cavernous sinus with displacement of the right internal carotid artery and widening of the right foramen Ovale. The dumb-bell shape, the location of the mass along the preganglionic and ganglionic segment of the trigeminal nerve, and its enhancement pattern enabled a diagnosis of Trigeminal Schwannoma.

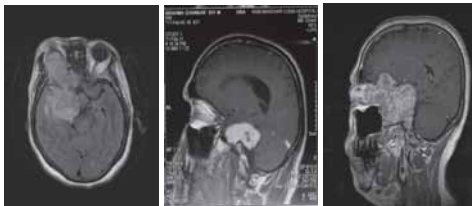


Fig. 1

Fig. 2

Fig. 3

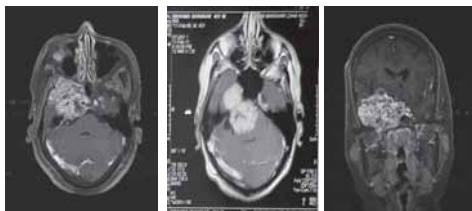


Fig. 3a

Fig. 3b

Fig. 3c

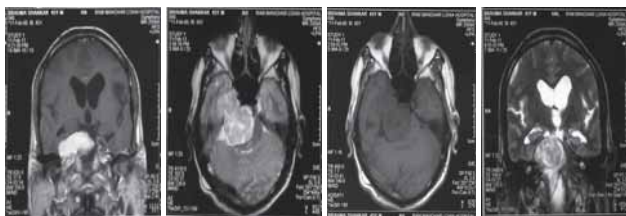


Fig. 4

Fig. 4a

Fig. 4b

Fig. 4c

DISCUSSION

The trigeminal nerve (cranial nerve V) is the largest cranial nerve and is responsible for tactile, proprioceptive and nosioceptive sensory supply of the face along with motor supply to the muscles of mastication. The principal sensory nucleus and the motor nucleus of the nerve lie in the lateral aspect of pons while the mesencephalic nucleus extends from the upper pons to the midbrain. The nerve exits the brainstem at the ventral aspect of mid pons and proceeds across the prepontine cistern anteriorly towards the Meckel cave, where the sensory Gasserian ganglion of the Trigeminal nerve is located. The three divisions namely the ophthalmic (CNV1), maxillary (CNV2) and mandibular (CNV3), branch out from the ganglion. The Meckel's cave is a dural invagination along the medial aspect of the middle cranial fossa, continuous with the prepontine cistern.

Trigeminal schwannomas present with dysesthesia, mild facial pain, frontotemporal headaches; or with symptoms caused by mass effect and compression of adjacent structures namely conductive hearing loss from Eustachian tube blockage, diplopia or hemianopsia from cavernous sinus involvement, or facial soft tissue asymmetry⁵. The patients present in middle age, typically in the third and fourth decades and a slight female predilection exists. Painful schwannomas are unusual and when marked pain or neurologic deficit exist, malignancy must be excluded.

IMAGING CLASSIFICATION OF TRIGEMINAL SCHWANNOMAS

Trigeminal schwannomas can arise and localize along the neurolemmal-glia junction, the sensory Gasserian ganglion or along the distal branches of the nerve. These are classified into three main types depending on their location⁶. The unique and extensive intra and extracranial course of the nerve however allows them to extend into multiple compartments.

- Preganglionic schwannomas - These are confined anterior to the pons and localized predominantly in the posterior compartment where they need to be differentiated from cerebellopontine angle masses such as acoustic schwannoma, epidermoid and meningioma.
 - Ganglionic schwannomas - These arise from the Gasserian ganglion and are thus centred at the Meckel's cave which houses the crescentic trigeminal ganglion and lies posterolateral to the cavernous sinus adjacent to the apex of the petrous temporal bone. Extension from this location to the cavernous sinus may be seen. These present as middle cranial fossa masses and must be differentiated from Pituitary tumors, which are midline in location and Chordomas, which involve both the petrous apex as well as the clivus with significant osteolysis.
 - Postganglionic schwannomas -These involve one or more divisions of the Trigeminal nerve and therefore are seen extending into the orbit anteriorly (V1) or into the infratemporal (V2) or pterygopalatine fossa (V3). The postganglionic Schwannomas sometimes need to be differentiated from retrograde intracranial extension of primary nasopharyngeal tumors and should be suspected when the associated extracranial and infratemporal component of the mass is substantial. Two other categories of Trigeminal schwannomas have been described⁷ and these are-
 - Schwannomas of the lateral skull base- The origin of this variety of Trigeminal schwannomas is from the pre-foramino fissural segment of the V cranial nerve. The mass is localized at the lateral skull base primarily with only a small middle cranial fossa component.
 - Extracranial Trigeminal schwannomas- These are purely extracranial in location, arising from the post foramino-fissural segment of the Trigeminal nerve and have no intracranial component at all.
- Trigeminal schwannomas thus can have a multi-compartment

presentation. Those that involve two compartments, namely both middle and posterior cranial fossa, have a bilobed appearance and are typically seen straddling the prepontine cistern, with a dumb-bell shape. This is because both Preganglionic and Ganglionic segments of the V nerve are involved.

Trigeminal Schwannomas: CT features

These middle cranial fossa masses appear typically isodense on noncontrast CT imaging and are seen to enhance substantially with intravenous contrast. CT with bone window settings is best to detect associated expansion, erosion and remodelling of the skull base foramina, with foramen Ovale or Rotundum respectively, showing erosion and enlargement as the Mandibular and the Maxillary divisions of the cranial nerve V exit⁸.

Trigeminal Schwannomas: MR imaging

MR imaging with gadolinium based contrast medium is the investigation of choice for diagnosing these tumors due to the greater contrast resolution and the ability of MR to provide precise anatomic localization of lesions. MR imaging has the advantage of being free from the posterior fossa bone artefacts. On T1 weighted images, Trigeminal schwannomas are seen to be smoothly marginated, isointense to the gray matter; while on T2W and FLAIR images they appear typically hyper intense to the gray matter. Prominent and homogenous enhancement is characteristically seen on gadolinium administration although 70% of larger Schwannomas can show tiny cystic degeneration foci and heterogeneous enhancement⁹. The masses demonstrate a bilobed appearance and seen straddling across the prepontine cistern when they involve both the middle as well as the posterior cranial fossa¹⁰. The absence of any subjacent edema points to their origin from the nerve and not from the cerebral parenchyma. They tend to be somewhat more inhomogenous in appearance compared to Vestibular schwannomas and are more anteriorly located compared to the latter. The Schwannomas that extend from the Gasserion ganglion along one or more divisions of the Trigeminal nerve are called Giant Schwannomas¹¹.

CISS MR imaging has the capacity to visualize the individual cranial nerves and display the exact anatomical location of the mass along the nerve. Diffusion MR demonstrates T2 shine through effect in the form of bright signal on both DW and ADC images.

Diagnosing malignant transformation in these benign tumors is possible by imaging alone. The imaging features that point to malignancy are:- irregular margins of the tumor, extensive nerve involvement, erosion and destruction of the basilar foramina out of proportion in comparison to the size of the tumor, and rapid tumor growth appreciated on serial scans¹².

CONCLUSION

MR and CT imaging both are important to accurately diagnose Trigeminal Schwannomas. MR provides better visualization of the cranial nerves while CT best visualizes the foraminal involvement at the skull base. As these tumors are slow growing and can assume great dimensions before they produce symptoms, MR imaging is of importance in early detection of these tumors. A diagnosis of primary Schwannoma of V nerve must be strongly considered in patients presenting with symptoms of Trigeminal neuralgia or diplopia.

Our first case was a giant Ganglionic and Postganglionic Trigeminal Schwannoma with involvement of both ophthalmic and maxillary divisions of V nerve while the second case was the bilobed Preganglionic and Ganglionic variety of Trigeminal Schwannoma.

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Case Report

Transverse Testicular Ectopia-A Case Report and A Review of Literature.

M. Bhaskar, P. S. Saravanan, A. Ravinthar, J. Rajasekar Sandeep, Dhinesh B. Kalaiselvan

Department of Surgery, Meenakshi Medical College Hospital & Research Institute, Enathur, Kancheepuram, Tamil Nadu, India

Abstract: Transverse testicular ectopia (TTE) in which both testis lie in the same side of the scrotal sac, is a extremely rare anomaly. Per operatively, we made a diagnosis of TTE during inguinal exploration in a patient with right inguinal hernia and left side cryptorchidism. After right inguinal hernioplasty, orchidectomy of the ectopic left testis was done due to its high location in the inguinal canal and inability to mobilize the ectopic testis without jeopardizing its blood supply. Post operatively a search for uro-genital anomalies and karyotyping has done. A review of the literature details: investigative approaches, controversies regarding orchidectomy with orchidopexy, management of persistent Mullerian Duct Anomalies.

INTRODUCTION

Transverse Testicular Ectopia (TTE), also known as Testicular Pseudo – Duplication, Unilateral double testis, Transverse aberrant

testicular maldescent, is an extremely rare congenital anomaly in which both testes descend through the same inguinal canal/ hemiscrotum. It was first reported by von Lenhosek in 1886¹. The patients often

Correspondence: Dr. Dhinesh Babu K., Department of General Surgery, Meenakshi Medical College Hospital & Research Institute, Enathur, Kancheepuram, Tamil Nadu – 631 552, India Fax: 044-27264098, e-mail: drdhinesh86@gmail.com