

Meckel's Cave Lipoma

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Abstract

Meckel's cave tumors are uncommon intracranial tumours. Lipoma in meckel's cave is a rare entity. CT & MRI imaging are modalities used to evaluate meckel's cave lesion. We report a case of Meckel's cave lipoma presenting with trigeminal neuralgia.

Key Words

Meckel's Cave, Lipoma, Trigeminal nerve, CT, NCCT, MRI

Introduction

Meckel's cave (trigeminal cave or meckel's cavity) is a cerebrospinal fluid containing arachnoid pouch protruding from the posterior cranial fossa and houses the trigeminal ganglion. Meckel's cave tumors account for only 0.5 % of all intracranial tumors and the most common pathologies at this location include meningiomas and schwannomas (1,2). Central nervous system lipomas are uncommon lesions and can be associated with hypoplasia of the corpus callosum (3, 4). A wide variety of abnormalities can cause trigeminal neuropathy, including those primary to the trigeminal nerve itself and those that secondarily involve the nerve or one of its branches. Dysfunction of the nerve can be a consequence of supranuclear, nuclear, or infranuclear disease (5). Neuropathy of the trigeminal nerve can involve its full course; from its course nuclei in the brainstem to its peripheral branches (5). The Trigeminal nerve can be divided into four segments - brainstem, cistern, the meckel's cave&cavernous sinus and extracranial (5). Multiple sclerosis, infarct, and glioma are the most common abnormalities in the brainstem leading to trigeminal neuropathy (5). Trigeminal neuralgia arising from the meckel's cave and cavernous sinus is frequently due to meningiomas, trigeminal schwannomas, epidermoid cysts, metastasis, pituitary adenomas aneurysms and malignant tumours. (5). Lipoma in meckel's cave is a rare cause of trigeminal neuralgia.

Care Report

A year 42year old male patient presented with history of numbness and neuralgia in the territory of the second, third and finally first division of the left trigeminal nerve over a period of many years. NCCT scan of head done in January 2014, & it showed a hypodense lesion of Fat

density in the middle cranial fossa in the region of meckel's cave with focal dense calcification with in it (*Fig 1*). MRI brain was subsequently done and it showed a well defined mass lesion in left meckel's cave, exhibiting predominantly hyperintense signal intensity T1W as well as T2W imaging with foci of low signal on all pulse sequences Mass elson suggestive of likely calcification (*Fig 2*). Fat saturated T1W imaging showed suppression of the signal of predominant fat component of the lesion. Susceptibility weighted imaging confirmed the areas of calcification with in the lesion. Lesion measures 1.88 cm (CC) x 1.61 cm (AP) x 1.60 cm (transverse) in size. Meckel's cave lipomas infiltrate the trigeminal nerve fascicles & nerve is not separately delineated from the mass lesion, although the left trigeminal nerve is seen to be entering the meckel's cave (*Fig 3*). Postcontrast T1W imaging reveals no abnormal contrast enhancement of the mass lesion.

Discussion

Diagnosis of meckel's cave lipoma should be made on the basis of the predominant fat content of the mass lesion, presence of calcification and absence of any significant contrast enhancement and absence of any bony erosion. The presence of bony erosion is more commonly seen in the trigeminal schwannomas and is distinctly unusual for lipomas (6). Lipomatous meningioma, lipomatous degeneration of a schwannoma are least likely possibility in this case (6). Patients with mass lesions arising from meckel's cave can present at any age from second year of life upto the seventh decade of life (7). Bilateral Intratentorial lipomas with meckel's cave and cerebellopontine angle extension has been reported in the literature (8). Although the theory explaining the

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Fig 1. (a-f) NCCT Head (a:-axial, B,d,f-Coronal, c,e-sagittal) reveals hypodense lesion of fat density in the left meckel's cave with focal dense calcification with in it.

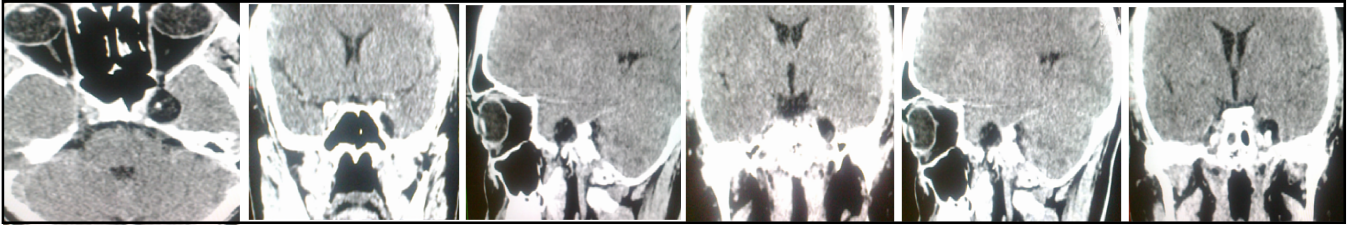


Fig 2. (a-d) MRI Images reveal a meckel's cave lesion having hyperintense to isointense signal on T2W imaging (a,b-axial T2W) and iso to hyperintense signal on T1W imaging (3-Sagittal T1W, 4-axial T1W)

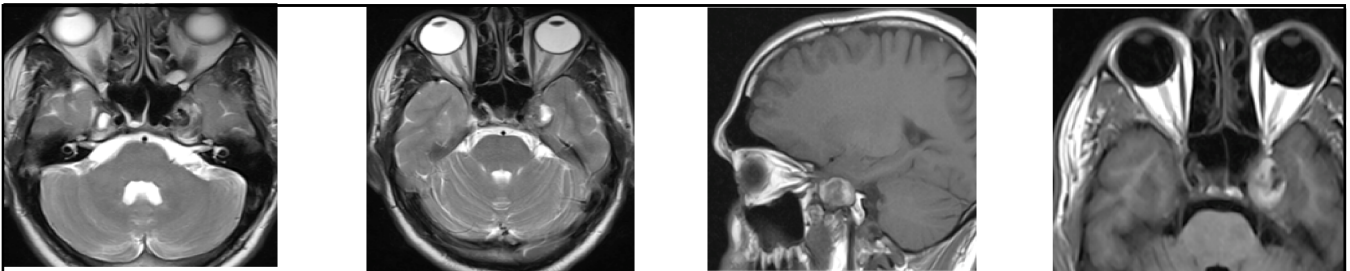
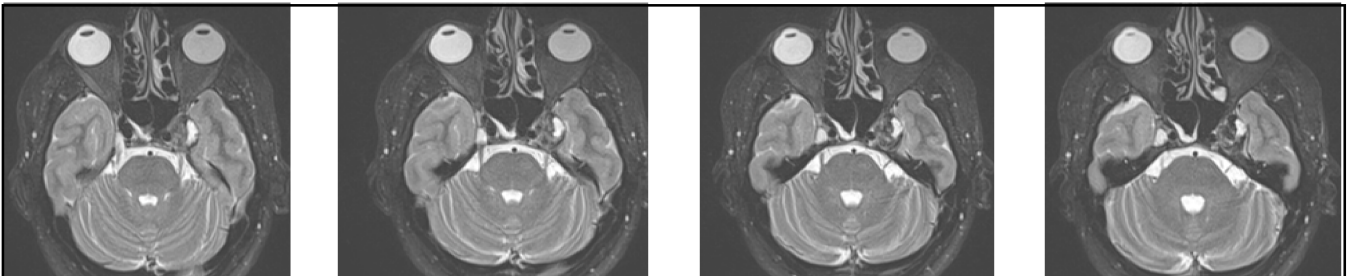


Fig 3 (a-d) Contiguous thin sections of T2W SPC sequence reveals left trigeminal nerve entering the meckel's cave & thereafter inconspicuous nerve with in the meckel's cave, not separately identified from the lesion.



pathogenesis of intracranial lipomas involves persistence and maldifferentiation of the primitive meninx primitive, another alternative possibility that lipomas arise from within Meckel's caves and extend to the tentorial edge is also considered an alternative possibility (8). Most of these patients with lesions in meckel's cave present with symptoms referred to trigeminal nerve. The various pathologies entities of meckel's cave, encountered so far in literature are meningioma, lipoma, schwannoma, malignant melanotic schwannoma, arachnoid cyst, neurofibroma, epidermoid tumor, chordoma, Amyloidoma and all of these should be considered in the differential diagnosis (6,9).

Conclusion

In conclusion, rare lesions like meckel's cave lipoma should be considered in differential diagnosis of all lipid-containing lesions of meckel's cave region.

References

1. Vorster SJ, Lee JH, Ruggieri P. Anatomy of the gasserian ganglion. *AJNR. Am J Neuroradiol* 1998; 19 (10): 1853-5.
2. Gottfried ON, Chin S, Davidson CH, Couldwell WT. Trigeminal Amyloidoma: case report and review of literature. *Skull Base* 2007; 17(5): 317-24.
3. Tuwit CI, Barkovich AJ. Pathogenesis of Intracranial lipoma: MR study in 42 patients. *AJNR Am J Neuroradiol* 1990; 11:665-674.
4. Suzuki M, Takashima T, Kadoya M, et al. Pericallosal lipomas: MR features. *J Comput Assist Tomogr* 199; 15:207-209.
5. Majorie CBLM, Verbeeten B, Dol JA, Peeters F L M. Trigeminal Neuropathy : Evaluation with MR imaging. *Radiographics* 1995; 15:795-811.
6. Ruocco MJ, Robles HA, Krishna CV, et al. Intratenorial lipomas with Meckel's Cave and Cerebellopontine Angle extension. *AJNR Am Neuroradiol* 1995;16: 1505-06
7. Beck DW, Menezes AH. Lesions in Meckel's cave: variable presentation and pathology. *J Neurosurg* 1987;67:684-89.
8. Dahlen RT, Johnson CE, Harnsberger H R, et al. CT and MR Imaging characteristics of Intravestibular Lipoma. *AJNR Am Neuroradiol* 2002; 23:1413-17.
9. Gultasli N, Hauwe L, Bruneau M, et al. Bilateral Meckel's cave amyloidoma: a case report. *J Neuroradiology J Neurol* 2012;39:119-22.