Epidermoid Tumor Within Meckel’s Cave
—Case Report—

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Abstract

A rare case of an epidermoid tumor lying within Meckel’s cave is reported. A 27-year-old housewife presented with complaints of right facial hypesthesia for two and a half years. On examination she had partial loss of touch sensation in the right trigeminal nerve distribution. Magnetic resonance imaging revealed a tumor located at the right petrous apex and cavernous sinus. The epidermoid tumor was excised through a lateral basal subtemporal approach. The symptoms resolved following surgery.

Key words: Meckel’s cave, epidermoid tumor, trigeminal nerve, cavernous sinus

Introduction

A rare case of an epidermoid tumor located within the Meckel’s dural cave is reported. Our literature search revealed reports of 21 cases of epidermoid tumors in this location. The clinical features of these lesions at an unusual location are briefly discussed.

Case Report

A 27-year-old housewife had numbness and occasional tingling paresthesia over the right side of the face for two and a half years. Examination revealed hypesthesia in the distribution of the right trigeminal nerve. The motor function of the trigeminal nerve and corneal sensations were normal. There was no other neurological deficit. Magnetic resonance (MR) imaging showed a tumor in the region of the right petrous apex and cavernous sinus. The tumor was hypo- to isointense on the $T_1$-weighted images and hyperintense on the $T_2$-weighted images, and had peripheral enhancement after gadolinium administration (Fig. 1). The lesion was explored through a right lateral basal subtemporal “interdural” approach and characteristic epidermoid tumor lying entirely within the dural confines of the Meckel’s cave was identified and resected. The fifth cranial nerve fibers displaced around the tumor capsule were preserved. The venous spaces of the cavernous sinus and other cranial nerves were not exposed. After tumor resection, the cerebellopontine angle cistern was opened, resulting in release of a large amount of cerebrospinal fluid (CSF) in the field. The communication with CSF cistern was packed with muscle and the wound was closed.

The postoperative recovery was uneventful. Histological examination confirmed that the tumor was an epidermoid cyst, consisting of keratinized and stratified squamous epithelium (Fig. 2). The patient was free of facial hypesthesia following surgery. Follow-up MR imaging confirmed total excision of the tumor.

Discussion

Epidermoid tumors represent 0.2% to 1% of all primary intracranial tumors. Epidermoid tumors are commonly located in the cerebellopontine angle and suprasellar cisterns, and less commonly in the middle cranial fossa, dipleo, and spinal canal. Meckel’s cave is a rare location for epidermoid tumor, and only 21 such cases have been reported previously.

Patients with Meckel’s cave epidermoid have varied presentation. The most common manifestation
reported a 36-year-old man who had diplopia due to left abducens nerve palsy. Rarely, compression of the venous channels of the cavernous sinus may lead to venous engorgement of ophthalmic veins and in exophthalmos.\textsuperscript{3}

Radical surgical removal of epidermoid tumor in Meckel's cave resulted in relief of symptoms in most reported patients with only minimum morbidity. Beck and Menezes\textsuperscript{11} observed that postoperative recovery of the fifth cranial nerve function may be incomplete whilst the ocular muscle paresis improves better. This feature is based on the observation that tumors in Meckel's cave compress the ocular nerves rather than becoming intrinsically involved with its fibers, as is the case with the fifth cranial nerve.

The tumor in the present case was located entirely within the dural confines of Meckel's cave on exploration through the infratemporal fossa interdural approach.\textsuperscript{3} The dura of the cavernous sinus protected the carotid artery and the cranial nerves during dissection. Following radical tumor resection, complete symptomatic recovery was achieved within one month. Ohta's patient had complete resolution of the third and fifth cranial nerve paresis after the tumor was excised through the orbitozygomatic approach.\textsuperscript{3} The capsule was not excised in this case to avoid injury to the trigeminal nerve, internal carotid artery, and cranial nerves inside the cavernous sinus. Beck and Menezes\textsuperscript{11} explored the lesion by a subtemporal intradural approach. Miyazawa et al.\textsuperscript{7} have recommended the monitoring of trigeminal sensory evoked response. Preoperatively this procedure helps to prognosticate neurological recovery and intraoperatively in avoid-

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Fig. 1  \textit{left:} Axial T\textsubscript{1}-weighted magnetic resonance (MR) image showing the hypo- to isointense tumor in the lateral wall of the right cavernous sinus.  \textit{center:} Coronal T\textsubscript{1}-weighted MR image showing marked hyperintensity of the tumor.  \textit{right:} Coronal T\textsubscript{1}-weighted MR image with gadolinium showing peripheral enhancement of the capsule of the epidermoid cyst.

Fig. 2  Photomicrograph showing features typical of epidermoid tumor. The cyst is lined by stratified squamous epithelium with hyalinized dense connective tissue wall and contains keratin debris. HE stain, original magnification $\times 250$.
ing inadvertent neurological injury.
In conclusion, considering that epidermoid tumors are avascular and soft and can be relatively easily resected, the preoperative diagnosis of these lesions can help in limiting the extent of surgical exposure. Epidermoid tumor needs to be added to the multitude of lesions occurring in Meckel’s cave.

References


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