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Schwannoma-like Breast Metastasis in the Meckel Cave: Case Report

Metástase de mama semelhante a um schwannoma no cavo de Meckel: Relato de caso

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Abstract

Tumors of the Meckel cave are very rare lesions, especially if they are malignant. We report the case of a patient who presented with a breast metastasis in the Meckel cave and a clinical presentation similar to that of a fifth nerve schwannoma.

Keywords
- Meckel cave
- metastasis
- breast metastasis
- schwannoma
- meningioma
- trigeminal tumors

Resumo

Os tumores do cavo de Meckel são lesões muito raras, especialmente se forem malignos. Relatamos o caso de uma paciente que apresentou metástase mamária no cavo de Meckel e quadro clínico semelhante a schwannoma do quinto nervo.

Palavras-chave
- cavo de Meckel
- metástase
- metástase de mama
- schwannoma
- meningioma
- tumor trigeminal

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Introduction

The Meckel cave is a small dural pouch, filled with liquor, which is located at the petrous apex of the temporal bone and contains the sensitive ganglion of the trigeminal nerve. Tumors in this region are quite rare, and they are usually benign. The most common tumors are fifth-nerve schwannoma and meningioma.[1,2] We report the case of a patient who had breast metastasis in the Meckel cave presenting as a schwannoma of the fifth nerve.

Case Report

A 67-year-old female patient came to our service complaining of facial hypoesthesia and diplopia. The patient reported she had started with hypoesthesia on the right face $\sim$ 1 year before. Initially, there was only a slight numbness, but it progressed to a complete loss of sensation. In addition, the patient reported that in the previous three months she had started to show diplopia mainly when looking to the right side. The patient had no previous comorbidities. Upon the neurological examination, the patient presented tactile and thermoalgesic hypoesthesia in the entire right hemiface, slight atrophy of the masseter muscle, as well as paresis of the VI cranial nerve, identified by a slight convergent strabismus. The direct and consensual corneopalpebral reflex was abolished on the right side. The patient denied any type of facial pain. The rest of the exam was normal.

Apparently, the patient was previously healthy. However, she had treated a breast cancer with chemotherapy in 2017, and had achieved complete remission of the disease.

Initially, a magnetic resonance imaging scan of the skull was requested. This exam showed an expansive lesion in the projection of the right trigeminal cistern, measuring around 2.7 $\times$ 1.2 cm, with extension to the tentacle, cavernous sinus and inferiorly to the Gasser ganglion, with homogeneous contrast enhancement (►**Fig. 1**).

Due to the prolonged and insidious clinical scenario and the rarity of metastases in the Meckel cave, our main diagnostic hypothesis was fifth-nerve schwannoma, especially due to its higher prevalence and its clinical manifestations. However, the patient also had another extra-axial lesion, measuring 1 cm, located in the left frontal parasagital region, which captured contrast homogeneously, raising the hypothesis of multiple meningiomas, although there was no dural tail. In addition, the metastasis hypothesis had not been ruled out; however, it was unlikely, since the primary cancer had been controlled for a long time, and the progression of current symptoms occurred quite insidiously. Perineural spread of carcinomas from the infratemporal or pterygopalatine fossae can also invade the cavernous sinus; nonetheless, we consider this type of tumor to be unlikely, since they are extremely rare, and fat obliteration has not been observed in these fossae.

Surgical treatment of the lesion was indicated, with an interdural approach to the Meckel cave. Intraoperatively, we were able to easily resect the entire lesion. In the postoperative period, the patient progressed well and was quickly discharged in good general condition.

In the one-month postoperative follow-up, the patient presented a significant improvement in hypoesthesia in the face, as well as an improvement in strabismus. However, she still persisted with diplopia when looking to the right. On the anatomopathological analysis of the lesion, a breast-cancer metastasiswas identified. Subsequently, the patient was referred to the oncologist, who performed an extensive investigation to search for other metastatic sites, and indicated a complementary treatment with radiotherapy. No other metastic sites were found.

Discussion

Neoplasms of the Meckel cave are extremely rare, and correspond to $\sim$ 0.5% of all intracranial neoplasms.[1] Most lesions in this region are benign, with fifth-nerve schwannoma being the most common lesion by far. In addition, several other benign lesions, such as epidermoid cysts, lipomas, chondromas, among others, have also been described.[1,3] However, malignant neoplasms are not common.

Lesions to the Meckel cave may expand and injure the fifth-nerve ganglion or invade the posterior fossa and injure the fifth nerve in its cisternal portion. When the lesion affects the ganglion, the patients generally have facial pain; however, when there is nerve involvement alone, the complaint of facial pain is not usually important, and hypoesthesia is the most common symptom.[4] Further complaints of diplopia, paresis and

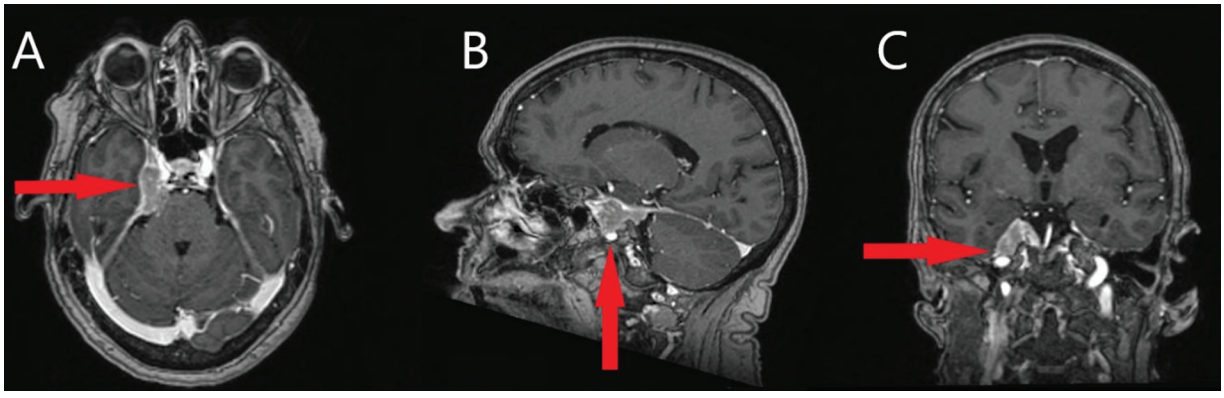

Fig. 1 T1-weighted magnetic resonance image; (**A**) axial, (**B**) sagittal, and (**C**) coronal views showing an expansive lesion in the trigeminal cistern on the right, extending to the tentorium, cavernous sinus, and inferiorly to the Gasser ganglion, with contrast enhancement.

atrophy of the chewing muscles and exophthalmos are also common, especially in benign tumors when there is an anterior extension of the tumor. There may still be facial paralysis, hearing loss, and absence of the corneal-eyelid reflex.

In the case herein reported, the patient had both a lesion in the cavity itself and in a cisternal portion, which ended up manifesting without a painful condition.

Soni et al[5] evaluated 21 cases of metastasis of the Meckel cave and compared them with the case series in the literature on schwannomas and meningiomas, and identified that patients with malignant tumors of the Meckel cave are more likely to develop pain, paraesthesia and motor deficit when compared with patients with schwannomas and cavity meningiomas. In addition, the average time until the development of metastasis is also an important differentiating factor. Soni et al.[5] identified an average of 15 months for the development of metastasis in the Meckel cave, while Delfini et al.[6] identified 33 months for meningiomas, and McCormick et al.,[7] 39 for fifth-nerve schwannomas. Our patient presented metastasis at $\sim$ 12 months, which was already a sign more compatible with metastasis of the Meckel cave. If it were a metastasis in almost any other location of the central nervous system, 12 months of presentation would speak more in favor of a benign neoplasm; however, in the Meckel cave, a duration with this average seems to be more characteristic of malignant neoplasms.

Conclusion

Our case illustrates a case of an elderly patient with a previous history of breast cancer already in remission, who had a single brain metastasis in the Meckel cave presenting as a schwannoma.

In the vast majority of cases, the first hypotheses of neoplasms in the Meckel cave are schwannoma and meningioma, especially if the patient has no history of previous neoplasia. However, although Meckel cave metastases are less likely, they should be considered, and further investigation of a primary site should be performed, especially in the case of older patients with a history of previous neoplasia and faster clinical presentation.

Conflict of Interests

The authors have no conflict of interests to declare.

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