Undetermined Fibrous Tumor with Calcification in the Cerebellopontine Angle

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In this report, we introduce an undetermined fibrous tumor with calcification occurring in the cerebellopontine angle (CPA). A 51-year-old woman was admitted with a short history of dizziness. Computed tomography and magnetic resonance images revealed a 2 × 2 × 2 cm sized mass at the left CPA which was round and calcified. There was no dura or internal auditory canal involvement. At surgery, the tumor was located at the exit of 7th and 8th cranial nerve complex. It was very firm, bright yellow and well encapsulated. Histologic findings revealed that the tumor was predominantly composed of fibrous component, scant spindle cells and dystrophic calcification. Immunohistochemical staining demonstrated positive for vimentin and negative for epithelial membrane antigen (EMA), S-100 protein, CD34, factor XIIIa and smooth muscle actin. The diagnosis was not compatible with meningioma, schwannoma, metastatic brain tumors, and other fibrous tumors. Although the tumor was resected in total, long term follow-up monitoring is necessary due to the possibility of recurrence.

KEY WORDS : Calcification • Cerebellopontine angle • Immunohistochemistry • Tumor.

INTRODUCTION

Intracranial tumors with calcification, which are present at cerebellopontine angle (CPA), consist of various benign and malignant tumors including meningioma, schwannoma, malignant glioma, metastasis and solitary fibrous tumors (SFT)1,2,4,10. Preoperative diagnosis is done by computed tomography, magnetic resonance (MR) images and thallium-201 SPECT which show dural involvement, bony erosion, proliferation potential and infiltration pattern to the normal parenchyma8,23. Differential diagnosis is a critical issue because the tumor can be treated not only by surgical excision but also with radiosurgery, conventional radiotherapy depending on clinical and radiological features16. However, it is sometimes difficult to determine the diagnosis and thus should be confirmed by the histopathologic examination. Here, we present a rare case of fibrous tumor with calcification which was located at left CPA. Although the tumor was resected in total, long-term follow up monitoring is necessary for the possible recurrence.

CASE REPORT

A 51-year-old woman was admitted with a history of dizziness for several months. She did not show any hearing impairment, facial palsy or cerebellar signs. Computed tomography (CT) revealed a 2 × 2 × 2 cm sized mass in the left CPA. Thallium-201 SPECT did not show thallium uptake increase in tumor compared to contralateral cerebellum (data not shown). There was no electrophysiologic evidence of facial neuropathy and audiogram resulted in normal range. In MR images, the tumor was hypointense signal on T2-weighted image and isointense on T1-weighted image with minimal contrast enhancement (Fig. 1). In addition, there was no contrast enhancement of the dura including left tentorium cerebelli. Furthermore, it seemed not to be related to the lower cranial nerves. At surgery, we identified that the tumor was very firm, bright yellow and well encapsulated round mass. It was also not adherent to the adjacent dura mater. The tumor was completely resected via a left suboccipital approach. After removal, there was small arachnoid adhesion at root exit region of 7th and 8th cranial nerve complex but no connection.
with these cranial nerves (Fig. 2). Histopathologically, the tumor was predominantly composed of fibrous component, scant spindle cells and dystrophic calcification. Immunohistochemical staining demonstrated positive for vimentin and negative for epithelial membrane antigen (EMA), S-100 protein, CD34, factor XIIIa and smooth muscle actin (Fig. 3).

The postoperative course was uneventful and 6 months follow-up MR images did not show remnant tumor or recurrence (Fig. 4).

**DISCUSSION**

Considering CT and MR images that the tumor was located in extraaxial CPA region, main differential diagnosis included meningioma, schwannoma and rarely metastatic tumors at first.

Meningioma is usually originated from arachnoid meningotheial cells and the dural membrane involving tumor shows strong contrast enhancement in MR images, although isolated meningioma can rarely be seen. Histopathologically, meningiomas are characterized by whorls of cells, nuclear pseudo-inclusions and psammoma bodies. It can be immunostained for EMA, and sometimes S-100 protein, CD34, factor XIIIa and smooth muscle actin (Fig. 3). The postoperative course was uneventful and 6 months follow-up MR images did not show remnant tumor or recurrence (Fig. 4).
negative for EMA, S-100 and positive for vimentin. However, CD34 staining was negative in the presenting case. Therefore, we could not confirm it as SFT.

There is one similar pattern to calcifying fibrous pseudotumor (CFP) in our case. CFP is a rare, benign tumor with a predilection for children and young adults that typically presents as a circumscribed nodule in subcutaneous or deep soft tissues or in other visceral sites. It is histologically characterized by a cicatrictive lesion composed of thick hyalinized collagenous, fibrous tissue including scanty spindleshaped cells with psammatomatous or dystrophic calcifications. In immunohistochemistry, CFP is ordinarily positive for vimentin, factor XIIIa and CD68 and negative for smooth muscle actin, musclespecific actin, and CD 34. However, in our case, there was no lymphoplasmocytic inflammatory cell infiltration and the tumor was negative for factor XIIIa staining. In addition, we could not find any report for CFT which was originated from CPA.

CONCLUSION

We report a rare case of surgically removed CPA fibrous tumor with calcification which was not determined in histopathologic examination. Although the tumor demonstrated benign characteristics in this case, long term follow-up should be done because most of tumor described can recur.

References