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.
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), S100 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 meningo-thelial 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).
There was no increased thallium uptake in our case and the pathological features were not compatible with schwannoma and CD34 positivity may occur in 89%. However, there was no intracanalicular involvement of the tumor in our case and the pathological features were not compatible with schwannoma. There was no increased thallium uptake or deep soft tissues or in other visceral sites. It is histologically characterized by a cicatricose lesion composed of thick hyalinized collagenous, fibrous tissue including scanty spindle-shaped cells with psammomatous 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 found 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

1. Asaoka K, Barrs DM, Sampson JH, McElvene JT Jr, Tucci DL, Fukushima T: Intracanalicular meningioma mimicking vestibular schwannoma. Am J Neuroradiol 23:1493-1496, 2002
2. Biggs ND, Fagan PA, Turner JJ, Doust B: Solitary fibrous tumor of the cerebello-pontine angle. Skull Base Surgery 9:295-299, 1999
3. Bikmar K, Cosar M, Kurtkaya-Yapicier O, Ilpakcicogluy AC, Gokalp CA: Recurrent solitary fibrous tumour in the cerebellopontine angle. J Clin Neurosci 12:829-832, 2005
4. Brian DM, Caterina G, Michael JL: Ganglioglioma in the cerebello-pontine angle in a child. Case report and review of the literature. J Neurosurg 107:292-296, 2007
5. Dervan PA, Tobin B, O'Connor M: Solitary (localized) fibrous mesothelioma: evidence against mesothelial cell origin. Histopathology 10:867-875, 1986
6. Fetsch JF, Montgomery EA, Meis JM: Calcifying fibrous pseudotumor. Am J Surg Pathol 17:502-508, 1993
7. Hori E, Kurimoto M, Fukuda O, Takahashi C, Nagai S, Oya T, et al.: Recurrent intracranial solitary fibrous tumor initially diagnosed as hemangiopericytoma. Brain Tumor Pathol 24:31-34, 2007
8. Huang L, Ling X, Xu W, Fu Y, Gao W: MRI differentiation diagnosis of occupying lesions in cerebellopontine angle area. Chin Ger J Clin Oncol 5:197-199, 2006
9. Jang KS, Oh YH, Han HX, Chon SH, Chung WS, Park CK, et al.:
Calcifying fibrous pseudotumor of the pleura. *Ann Thorac Surg* 78: 87-88, 2004
10. Katoh M, Aida T, Imamura H, Aoki T, Yoshino M, Kashiwazaki D, et al.: Calcified vestibular schwannoma in the cerebellopontine angle. *J Clin Neurosci* 14: 1207-1209, 2007
11. Kawahara K, Yasukawa M, Nakagawa K, Katsura H, Nagano T, Iwasaki T: Multiple calcifying fibrous tumor of the pleura. *Virchows Arch* 447: 1007-1008, 2005
12. Kim KA, Gonzalez I, McComb JG, Giannotta SL: Unusual presentations of cerebral solitary fibrous tumors: report of four cases. *Neurosurgery* 54: 1004-1009; discussion 1009, 2004
13. Klemperer P, Rabin CB: Primary neoplasms of the pleura: a report of five cases. *Arch Pathol* 11: 385-412, 1931
14. Koçak A, Cayli SR, Sarac K, Aydn NE: Intraventricular solitary fibrous tumor: an unusual tumor with radiological, ultrastructural, and immunohistochemical evaluation: case report. *Neurosurgery* 54: 213-216; discussion 216-217, 2004
15. Lau SK, Weiss LM: Calcifying fibrous tumor of the adrenal gland. *Hum Pathol* 38: 656-659, 2007
16. Lunsford LD, Niranjan A, Flickinger JC, Maitz A, Kondziolka D: Radiosurgery of vestibular schwannomas: summary of experience in 829 cases. *J Neurosurg* 102: 195-199, 2005
17. McLean CA, Laidlaw JD, Brownhill DS, Gonzales MF: Recurrence of acoustic neurilemmoma as a malignant spindle-cell neoplasm. *J Neurosurg* 73: 946-950, 1990
18. Milligan BD, Giannini C, Link MJ: Calcifying fibrous pseudotumor of the pleura: a rare location. *Ann Thorac Surg* 76: 2081-2082, 2003
19. Mito K, Kashima K, Daa T, Kondoh Y, Miura T, Kawahara K, et al.: Multiple calcifying fibrous tumors of the pleura. *Virchows Arch* 446: 78-81, 2005
20. Nascimento AF, Ruiz R, Hornick JL, Fletcher CD: Calcifying fibrous 'pseudotumor': clinicopathologic study of 15 cases and analysis of its relationship to inflammatory myofibroblastic tumor. *Int J Surg Pathol* 10: 189-196, 2002
21. Shibata K, Yuki D, Sakata K: Multiple calcifying fibrous pseudotumors disseminated in the pleura. *Ann Thorac Surg* 85: 3-5, 2008
22. Tihan T, Viglione M, Rosenblum MK, Olivi A, Burger PC: Solitary fibrous tumors in the central nervous system. A clinicopathologic review of 18 cases and comparison to meningeval hemangiopericytomas. *Arch Pathol Lab Med* 127: 432-439, 2003
23. Yoss NF, Vrionis FD, Heilman CB, Robertson JH: Meningiomas of the cerebellopontine angle. *Surg Neurol* 53: 439-446; discussion 446-447, 2000
24. Wada T, Suzuki M, Beppu T, Arai H, Yoshida Y, Ogawa A, et al.: A case of subcortical meningioma. *Acta Neurochir (Wien)* 142: 209-213, 2000
25. Wostra WH, Gerald WL, Rosai J: Solitary fibrous tumor. Consistent CD34 immunoreactivity and occurrence in the orbit. *Ann J Surg Pathol* 18: 992-998, 1994
26. Wright DH, Naul LG, Hise JH, Bauserman SC: Intraventricular fibroma: MR and pathologic comparison. *AJNR Am J Neuroradiol* 14: 491-492, 1993