ScientificScholar®
Knowledge is power
Publisher of Scientific Journals

www.surgicalneurologyint.com

Surgical Neurology International

Editor-in-Chief: Nancy E. Epstein, MD, Clinical Professor of Neurological Surgery, School of Medicine, State U. of NY at Stony Brook.

SNI: General Neurosurgery

Editor
Eric Nussbaum, MD
National Brain Aneurysm and Tumor Center, Twin Cities, MN, USA

SNI
Open Access

Case Report

Supratentorial convexity schwannoma unrelated to cranial nerves: Case report and review of the literature

Daisuke Wajima[1], Shuta Aketa[1], Taiji Yonezawa[1]

[1]Department of Neurosurgery, Osaka Police Hospital, Tennoji, Osaka, Japan.

E-mail: *Daisuke Wajima - wajima@naramed-u.ac.jp; Shuta Aketa - akeshu@oph.gr.jp; Taiji Yonezawa - yonesawa@mta.biglobe.ne.jp

***Corresponding author:**
Daisuke Wajima,
Department of Neurosurgery,
Osaka Police Hospital, Tennoji,
Osaka, Japan.

wajima@naramed-u.ac.jp

Received : 20 April 2020
Accepted : 13 May 2020
Published : 06 June 2020

DOI
10.25259/SNI_193_2020

Quick Response Code:

ABSTRACT

Background: Intracranial schwannoma not related to cranial nerves is rare entity, and difficult to be diagnosed preoperatively. Here, we experienced a case of convexity schwannoma mimicking convexity meningioma, and discuss about the characteristics of such cases based on the past published reports.

Case Description: A 48-year-old man presented with a sudden onset of seizures. Brain magnetic resonance image (MRI) revealed a small mass lesion in the peripheral aspect of the right parieto-frontal lobe. The mass was isointense on T1-weighted and hyperintense on T2-weighted MRI, with homogenous enhancement after contrast medium administration. After the feeder embolization on the previous day, removal of the tumor was performed. The tumor revealed a well-demarcated, firm, spherical tumor beyond, and beneath the dura and was relatively easy to be separated from the brain. Histologically, the tumor was observed to be in subarachnoid space extending to outer space of dura-mater, intimately attached to the pia mater. The histological diagnosis was schwannoma.

Conclusion: In our case, MRI findings are similar to convexity meningioma; however, the pathological diagnosis was schwannoma. Cerebral convexity is an extremely rare location for schwannoma. We emphasize that schwannoma, not related to cranial nerves, may arise in the subdural convexity space.

Keywords: Convexity schwannoma, Unrelated cranial nerve origin, Review

INTRODUCTION

The majority of intracranial schwannomas arises from the cranial nerves and usually occurs in the middle decades of life. Intracranial schwannoma not associated with cranial nerves is infrequent and usually involves in neurofibromatosis, and occurs among children or young adults.[14] However, schwannoma, not related to cranial nerves nor neurofibromatosis Type I, is very rare entity. We describe a middle-age man with a supratentorial convexity schwannoma, and we review the previous reports about such cases, and then discuss the characteristics of these cases and their magnetic resonance image (MRI) findings.

CASE REPORT

A 48-year-old man experienced a sudden onset of seizures in his left lower limb. He had never previously experienced such an episode. Gadolinium-enhanced MRI (Gd-MRI) revealed a small, homogenous-enhancing mass in the peripheral aspect of the right parieto-frontal lobe. The

patient was referred to our hospital for further evaluation. The results of the physical examination performed at the time of admission were unremarkable. No cutaneous stigmata of neurofibromatosis Type I was observed. A neurological examination revealed no significant findings.

The lesion appeared as a well-defined, isosignal intensity area on T1-weighted MRI [Figure 1a], was hyperintense on T2-weighted MRI [Figure 1b], and also hyperintense on fluid attenuation inversion recovery MRI [Figure 1c]. The lesion demonstrated homogenous enhancement on Gd-T1-weighted MRI [Figure 1d-f]. Curvilinear enhancement was observed beneath the parietal bone but was unlikely to represent a "dural tail sign;" however, these findings are similar to convexity meningioma. T2-weighted MRI showed definite evidence of perilesional edema. Digital subtraction angiography showed some feeding arteries (right middle cerebral artery branch) [Figure 2a and b], right anterior cerebral artery branch [Figure 2c and d], and right middle meningeal artery (MMA) branch [Figure 2e and f]. Preoperative feeder embolization targeted to the right MMA branch was performed [Figure 2g and h].

Our preoperative diagnosis was an extra-axial tumor, such as convexity meningioma or other tumors. A whole-body evaluation revealed no evidence of malignancy. The patient underwent a parietal craniotomy, with total resection of the tumor. During surgery, tumoral invasion beyond the dura mater was observed [Figure 3a]. When the dura was opened, a well-demarcated, firm, spherical tumor was observed beneath the arachnoid membrane. The tumor was elastic, hard, grayish in color, and loosely adherent to but separable from the dura mater [Figure 3b]. The tumor was totally removed piece by piece, with the adjacent brain tissue and dura [Figure 3c]. Postoperative MRI showed the total removal of the tumor [Figure 3d-f]. The postoperative course was uneventful, and the patient was discharged without neurological deficits.

In light-microscopic assessments, the tumor was composed predominantly of Antoni Type A, and intermingled with Antoni Type B [Figure 4a]. Immunohistochemical staining was positive for S-100 protein [Figure 4b] but negative for glial fibrillary acidic protein, cluster of differentiation 34, epithelial membrane antigen [Figure 4c], signal transducer and activator of transcription 6 [Figure 4d], progesterone receptor, and synaptophysin. The histopathological diagnosis was schwannoma. The tumor was observed to be in the subarachnoid space extending to outer space of dura mater, intimately attached to the pia mater [Figure 4e and f]. Electron-microscopic studies were not performed.

DISCUSSION

Intracranial schwannoma are benign tumors that typically arise from the Schwann cells en-sheathing the axons beginning at the point of their exit from the pia mater. They usually develop among middle-age adults. Intracranial schwannomas comprise 6 to 8% of intracranial tumors.[44] Intracranial schwannomas not related to cranial nerves have

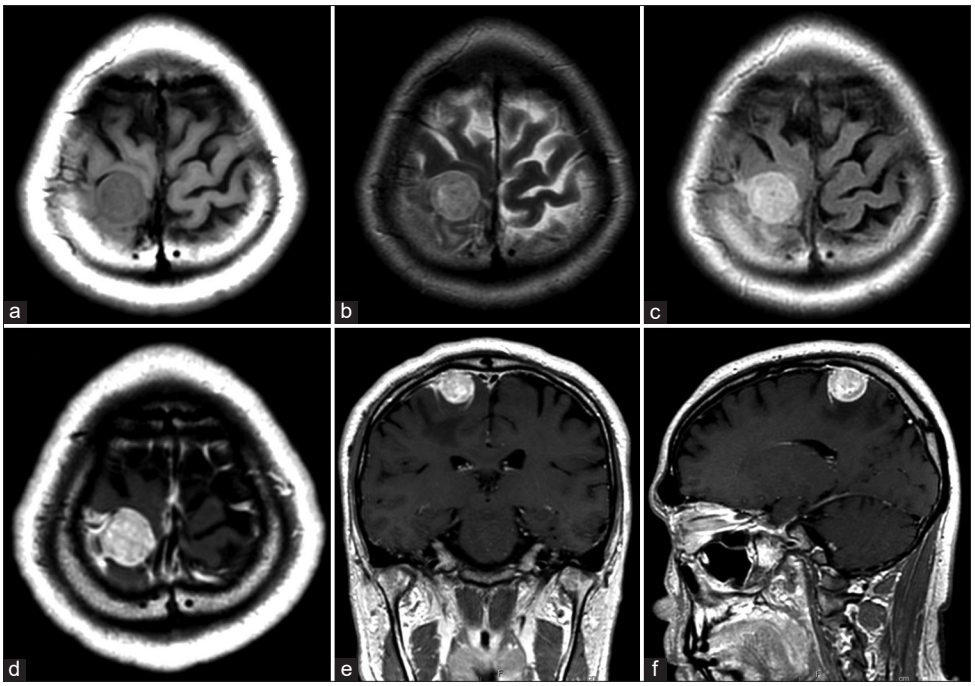

Figure 1: Preoperative magnetic resonance images (MRI). Preoperative MRI showed right frontal mass lesion. The lesion was isointense in T1-weighted MRI (a), hyperintense in T2-weighted MRI (b), hyperintense in fluid attenuation inversion recovery image (c), and homogenous enhanced with gadolinium intravenous injection (d: Axial image, e: Coronal image, and f: Sagittal image).

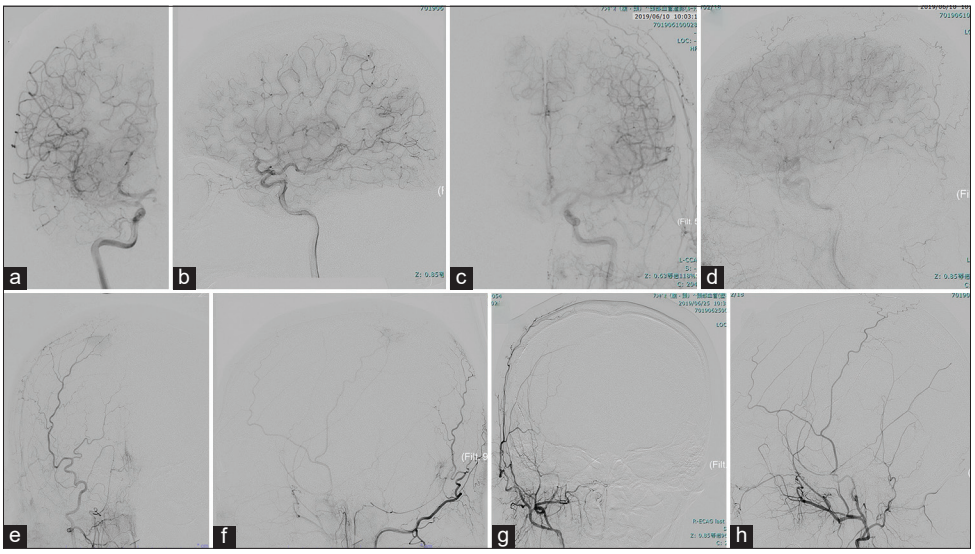

Figure 2: Digital subtraction findings (DSA). Preoperative DSA showed some feeding arteries (right middle cerebral artery branch [Right carotid artery angiography (Rt CAG)], a: Axial view, b: Lateral view), right anterior cerebral artery branch (Lt CAG, c: Axial view, d: Lateral view), and right middle meningeal artery (MMA) branch (Rt external CAG, e: Axial view, f: lateral view). Preoperative feeder embolization targeted to right MMA branch was performed (Rt external CAG, g: Axial view, h: Lateral view).

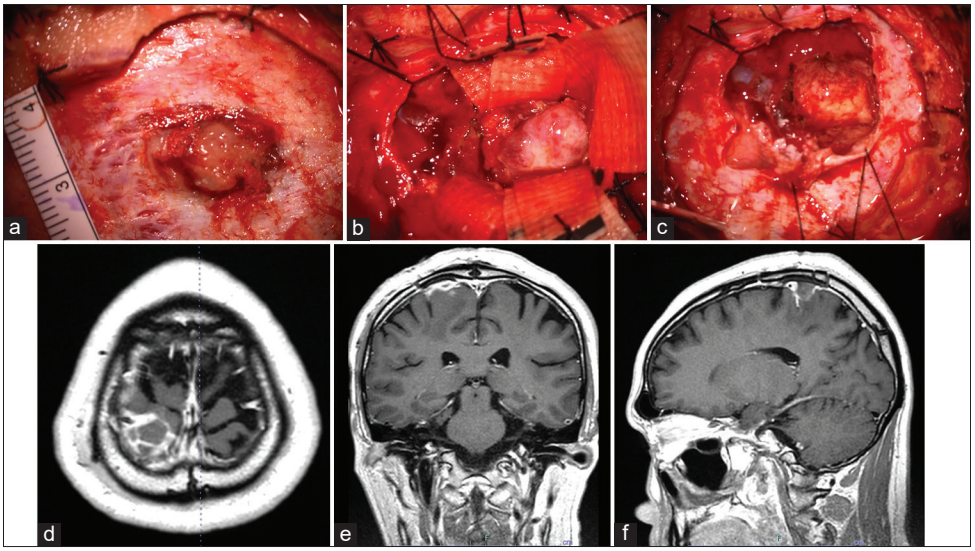

Figure 3: Intraoperative findings and postoperative MRI findings. During surgery, tumoral invasion beyond the dura mater was observed (a). When the dura was opened, a well-demarcated, firm, spherical tumor was observed beneath the arachnoid membrane. The tumor was elastic, hard, grayish in color, and loosely adherent to but separable from the dura mater (b). The tumor was totally removed piece by piece, with the adjacent brain tissue and dura (c). Postoperative MRI showed the total removal of the tumor (d: Axial view, e: Coronal view, f: sagittal view).

been reported to exhibit a predilection for occurrence among children and young adults.[14]

Intracranial schwannomas not related to cranial nerves are relatively rare; 74 cases have been reported.[1-32,34-41,43,45-60] in the English literature since the first article was published by Gibson *et al*. in 1966.[3] The previous reports are reviewed in [Table 1]. There are 74 cases (Age: 0.5–84 years [average 31.7 years], male 42 cases/female 32 cases) reported previously. Cyst formation was observed in more than half of cases. Lesion location is dominant in intraparenchymal region (Convexity schwannoma (Left frontal: one case, Left temporal: two cases, Right frontal: three cases, Right parietal: one case, and Right occipital: one case), intraparenchymal schwannoma (Left frontal: four cases, Left temporal: eight cases, Left parietal: three cases, Left occipital: four cases, Right frontal: three cases, Right temporal: six cases, Right parietal: five cases, Right occipital: three cases, and Cerebellum: ten cases), Brain stem: two cases, Pons: four cases, Medulla:

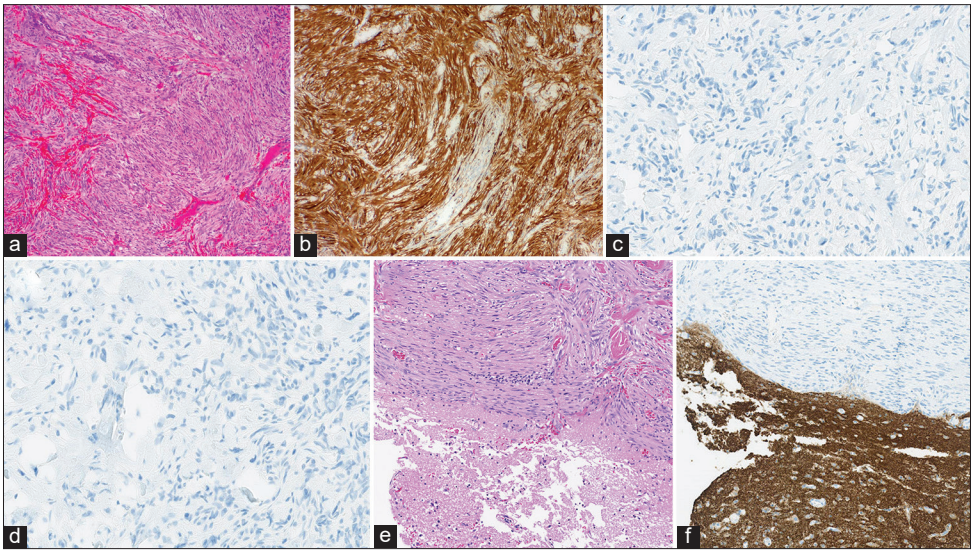

Figure 4: Histology findings. Compact bundles of thin, elongated, finely fibrillated cells, which tend to exhibit nuclear palisading (Antoni Type A) and which are intermingled with a looser pattern of Antoni Type B, can be observed. The adjacent cortex contained no tumor cells (a: hematoxylin and eosin (HE); original magnification, ×10). Immunohistochemical staining was positive for S-100 protein (b) but negative for glial fibrillary acidic protein (GFAP), cluster of differentiation (CD) 34, epithelial membrane antigen (EMA) (c), signal transducer and activator of transcription 6 (STAT 6) (d), progesterone receptor (PgR), and synaptophysin. The histopathological diagnosis was schwannoma. The tumor was observed to be in the subarachnoid space extending to the outer space of dura-mater, intimately attached to the pia mater (e: HE staining, f: Synaptophysin immunostaining).

Table 1: Clinical features of intracranial schwanommas (convexity) unrelated to the cranial nerves.

Authors	Year	Age	Gender	Symptoms	Cystic	Size	Location	Extent of Resection	Follow-up	Postoperative state
Ghosh *et al.*	1992	27	Male	Seizure	No	3.0 cm	Right frontal convexity	Total	N/A	N/A
Frim *et al.*	1992	11	Female	Seizure	Yes	4.0 cm	Left temporal convexity	Total	15 Months	No symptoms
Nakayama *et al.*	2002	53	Male	Seizure Nausea	Yes	1.5 cm	Left frontal convexity	Total	N/A	No symptoms
Paredes *et al.*	2012	19	Male	Seizure	No	1.0 cm	Right occipital convexity	Total	2 Years	No symptoms
Ma *et al.*	2013	24	Female	Seizure	Yes	8.0 cm	Right frontal convexity	Subtotal	N/A	N/A
Wilson *et al.*	2016	34	Male	Incidental	No	2.4 cm	Left temporal convexity	Total	2.5 Years	No symptoms
Raswan *et al.*	2017	70	Male	Seizure	No	8.0 cm	Right frontal convexity	Total	N/A	No symptoms
Present case	2019	48	Male	Seizure	Yes	3.0 cm	Right parieto-frontal convexity	Total	N/A	No symptoms

three cases, intraventricle (Lateral ventricle: six cases, Third ventricle: one case, and Fourth ventricle: five cases)). Total removal was performed in 57 cases, and in 33 cases out of these 57 cases, good outcome was reported postoperatively. Especially, postoperative course in all cases of the convexity schwannomas is good (data shown in Table 2).

It is reasonable to consider the possibility that intracranial schwannomas not related to cranial nerves may develop from ectopic Schwann cells, because there are no Schwann cells in the central nervous system. Proposed hypotheses include: (1) the presence of Schwann cells in the autonomic nerves of the subarachnoid vessels, (2) the conversion of pial cells into

Table 2: Clinical features of intracranial schwannomas unrelated to the cranial nerves.

Sites	Cases	Average ages	Male/Female ratio (%)	Symptoms (%)	Cyst formation (%)	Average size (cm)	Detailed sites (%)	Total resection (%)	Postoperative ratio of no symptom or improved (%)
Convexity	8	35.75 years old	75	Seizure 87.5	50	3.86	Frontal 50 Temporal 25 Occipital 12.5 Parietal 12.5	87.50	100
Parenchymal	36	23.63 years old	55.60	Seizure 55.6 Headache 27.8	61.10	4.18	Frontal 22.2 Temporal 36.1 Occipital 13.9 Parietal 27.8	88.90	87.50
Cerebellar	9	56 years old	44.40	Gait disturbance 55.6	58.30	3.18	Cerebellar hemisphere 66.7 Vermis 33.3	66.70	88.90
Brain stem	9	34 years old	66.70	Gait disturbance 88.9	55.60	1.79	Pons 44.4 Medulla 44.4 Midbrain 11.1	44.40	77.80
Ventricle	12	31.1 years old	58.30	Headache 33.3 Visual disturbance 50	83.30	3.19	Lateral ventricle 50 Third ventricle 8 Fourth ventricle 42	83	92

Schwann cells, and (3) the presence of sensory nerves in the meninges of the convexity.

Although several hypotheses have been proposed to explain the origin of ectopic Schwann cells within the central nervous system, the histological origin of these tumors remains controversial. Proposed hypotheses include:

Schwann cell hyperplasia

Riggs and Clary proposed Schwann cell hyperplasia as the origin of intracranial neurinomas;[42] nonneoplastic Schwann cells accompanied by the perivascular nerve plexus, especially autonomic nerves, proliferate in certain chronic diseases of the spinal cord and may give rise to schwannomas.

Schwannosis

The term "Schwannosis" was introduced by Russell and Rubinstein,[59] to indicate a hamartomatous lesion consisting of Schwann cells and related reticulin fibers in the substance of the spinal cord and pons.

Reactive changes after injury

Nelson and Rennels[33] stated that nonneoplastic Schwann cells are sometimes observed in certain pathological conditions, such as multiple sclerosis, old infarctions, and certain experimental conditions, and they suggested that differentiated Schwann cells might arise as a result of tissue injury.

The possible differentiation of multipotent mesenchymal cell into Schwann cells (Neural crest origin)

Feigin and Ogata[13] postulated that Schwann cells might be derived from multipotential mesenchymal cells of the neural crest.

In our case, the tumor was present not within the brain parenchyma but in the subarachnoid space, extending to epidural space. It is possible that schwannomas could arise from small nerves in the subarachnoid space or the leptomeninges. Although several cases of schwannomas attached to the dura have been reported[16,45,52,57] including our case, no authors confirmed that the tumors arose from dural nerves.

The imaging findings in our case were similar to convexity meningioma; however, there were no evident findings of "dural tail sign," but the enhanced lesion extending along the meningeal or subarachnoid space; this location for schwannomas is exceedingly rare.

The differential diagnosis includes subdural, epidural, or leptomeningeal nodular brain metastasis, meningioma, glioma, and some granulomatous lesions (such as tuberculoma, fungal infections, and parasitic infections) when a well-demarcated spherical lesion associated with ring enhancement is observed adjacent to the cerebral convexity.

These lesions are uncommon, except for meningiomas, gliomas, and metastases.

CONCLUSION

We have reported on a middle-age man with a schwannoma located in the subarachnoid space and have presented computed tomography and MRI findings. Although there was no diagnostic clue indicating a convexity schwannoma (because of the rarity and nonspecific imaging features of such tumors), it should be recognized that schwannomas may arise in such rare locations as the subarachnoid space.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

REFERENCES

1. AlbBatly AA, ZAkzouk RS, Alhaidey AK. An atypical case of intracerebral schwannoma. Pan Afr Med J 2014;18:342.
2. Aryanpur J, Long DM. Schwannoma of the medulla oblongata. Case report. J Neurosurg 1988;69:446-9.
3. Bardosa MD, Rebelo O, Barbosa P, Goncalves J, Fernandes R. Cystic intraventricular schwannoma: Case report and review of the literature. Neurocirugia (Astur) 2001;12:56-60.
4. Benedict WJ Jr., Brown HG, Sivarajan G, Prabhu VC. Intraventricular schwannoma in a 15-year-old adolescent: A case report. Childs Nerv Syst 2008;24:529-32.
5. Casadei GP, Komori T, Scheithauer BW, Miller GM, Parisi JE, Kelly PJ. Intracranial parenchymal schwannoma. A clinicopathological and neuroimaging study of nine cases. J Neurosurg 1993;79:217-22.
6. Celikoglu E, Hakan T, Bozbuga M. Cystic schwannoma of the falx cerebri. J Clin Neurosci 2007;14:589-92.
7. Consales A, Rossi A, Nozza P, Raveqnani M, Garre ML, Cama A. Intracerebral schwannoma in a child. Br J Neurosurg 2010;24:306-8.
8. Di Biasi C, Trasimeni G, Iannilli M, Polettini E, Gualdi GF. Intracerebral schwannoma: CT and MR findings. AJNR Am J Neuroradiol 1994;15:1956-8.
9. Dow GR, Hussein A, Robertson IJ. Supratentorial intraventricular schwannoma. Br J Neurosurg 2004;18:561-2.
10. Erdogan E, Onguru O, Bulakbasi N, Baysefer A, Gezen F, Timurkaynak E. Schwannoma of the lateral ventricle: Eight-year foolow-up and literature review. Minim Invasive Neurosurg 2003;46:50-3.
11. Erongun U, Ozkal E, Acar O, Uygun A, Kocaoqullar Y, Gungor S. Intracerebral schwannoma: Case report and review. Neurosurg Rev 1996;19:269-74.
12. Ezura M, Ikeda H, Ogawa A, Yoshimoto T. Intracerebral schwannoma: Case report. Neurosurgery 1992;30:97-100.
13. Feigin I, Ogata J. Schwann cells and peripheral myelin within human central nervous tissues: The mesenchymal character of Schwann cells. J Neuropathol Exp Neurol 1971;30:603-12.
14. Frim DM, Ogilvy CS, Vonsattal JP, Chapman PH. Is intracerebral schwannoma a developmental tumor of children and young adults? Case report and review. Pediatr Neurosurg 1992;18:190-4.
15. Gao Y, Qin Z, Li D, Yu W, Sun L, Liu N, *et al*. Intracerebral schwannoma: A case report and literature review. Oncol Lett 2018;16:2501-10.
16. Ghatak NR, Norwood CW, Davis CH. Intracerebral schwannoma. Surg Neurol 1975;3:45-7.
17. Ghosh S, Chandy MJ. Solitary ectopic intracerebral schwannoma. Br J Neurosurg 1992;6:163-6.
18. Gibson AA, Hendrick EB, Copen PE. Case reports. Intracerebral schwannoma. Report of a case. J Neurosurg 1966;24:552-7.
19. Gokay H, Izgi N, Barlas O, Erseven G. Supratentorial intracerebral schwannomas. Surg Neurol 1984;22:69-72.
20. Guha D, Kiehl TR, Krings T, Valiante TA. Intracerebral schwannoma presenting as classic temporal epilepsy. J Neurosurg 2012;117:136-40.
21. Ishihara M, Miyagawa-Hayashino A, Nakashima Y, Haga H, Takahashi JA, Manabe T. Intracerebral schwannoma in a child with infiltration along perivascular spaces resembling meningioangiomatosis. Pathol Int 2009;59:583-7.
22. Jaimovich R, Jaimovich SG, Arakaki N, Sevlever G. Supratentorial intraventricular solitary schwannoma. Case report and literature review. Childs Nerv Syst 2013;29:499-504.
23. Jung JM, Shin HJ, Chi JG, park IS, Kim ES, Han JW. Malignant intraventricular schwannoma. Case report. J Neurosurg 1995;82:121-4.
24. Kasantikul V, Brown WJ, Cahan LD. Intracerebral neurilemmoma. J Neurol Neurosurg Psychiatry 1981;44:1110-5.
25. Landouceur D, Bergeron D, Lamarche JB, Lamontagne L. Cystic schwannoma of the brainstem. Can J Neurol Sci 1989;16:357-60.
26. Lee S, Park SH, Chung CK. Supratentorial intracerebral schwannoma: Its fate and proper management. J Korean Neurosurg Soc 2013;54:340-3.
27. Lin J, Feng H, Li F, Zhao B, Guo Q. Intraparenchymal schwannoma of the medulla oblongata. Case report. J Neurosurg 2003;98:621-4.
28. Ma L, Yang SX, Wang YR. Intracerebral schwannoma mimicking parasagittal meningioma. J Craniofac Surg 2013;24:e541-3.
29. Maiuri F, Colella G, D'Acunzi G, De Caro Mdel B. Malignant intracerebellar schwannoma. J Neurooncol 2004;66:191-5.
30. Messing-Junger AM, Riemenschneider MJ, Reifenberger G. A 21-year-old female with a third ventricular tumor. Brain Pathol 2006;16:87-8.
31. Muzzafar S, Ketonen L, Weinberg JS, Schllingerhout D. Imaging and clinical features of an intra-axial brain stem schwannoma. AJNR Am J Neuroradiol 2010;31:567-9.
32. Nakayama K, Nakayama T, Matsuoka Y, Kono K. Supratentorial convexity leptomeningeal schwannoma: Case report. Neurosurgery 2002;51:1295-8.

33. Nelson E, Rennels M. Innervation of intracranial arteries. Brain 1970;93:475-90.
34. New PF. Intracerebral schwannoma. Case report. J Neurosurg 1972;36:795-7.
35. Oertel MF, Nolte KW, Blaum M, Weis J, Gilsbach JM, Korinth MC. Primary intraventricular schwannomas. Clin Neurol Neurosurg 2009;111:768-73.
36. Ost AH, Meyer R. Cystic intraventricular schwannoma: A case report. AJNR Am J Neuroradiol 1990;11:1262-4.
37. Paredes I, Roldan LJ, Ramos A, Lobato RD, Ricoy JR. Intraparenchymal schwannomas: Report of two new cases studied with MRI and review of the literature. Clin Neurol Neurosurg 2012;114:42-6.
38. Pimentel J, Tavora L, Cristina ML, Antunes JA. Intraventricular schwannoma. Childs Nerv Syst 1998;4:373-5.
39. Prakash B, Roy S, Tandon PN. Schwannoma of the brain stem: Case report. J Neurosurg 1980;53:121-3.
40. Raswan US, Bhat I, Samoon N, Arif SH, Laharwal M, Chhiber SS, *et al*. Supratentorial extraparenchymal schwannoma mimicking parasagittal meningioma: A rare case report. Surg Neurol Int 2017;8:228.
41. Redekop G, Elisevich K, Glibert J. Fourth ventricular schwannoma. Case report. J Neurosurg 1990;73:777-81.
42. Riggs HE, Clary WU. A case of intramedullary sheath cell tumor of the spinal cord: Consideration of vascular nerves as a source of origin. J Neuropathol Exp Neurol 1957;16:332-6.
43. Rodriguez-Salazar A, Carrillo R, de Miguel J. Intracerebral schwannoma in a child: Report of a case. Childs Brain 1984;11:69-72.
44. Russell DS, Rubinstein DS. Schwannomas. In: Russell DS, Rubinstein LJ, editors. Russell and Rubinstein's Pathology of Tumors of the Nervous System. Vol. 5. London: Arnold Publisher; 1989. p. 535-60.
45. Sarkar C, Mehta VS, Roy S. Intracerebellar schwannoma. Case report. J Neurosurg 1987;67:120-3.
46. Schwartz AM, Sotrel A. Intracerebral and intracerebellar neurilemoma. South Med J 1988;81:385-8.
47. Shalit MN, Toledo E, Sandbank U. Intracerebral schwannoma. Acta Neurochir (Wien) 1982;64:253-8.
48. Sharma MC, Karak AK, Gaikwad SB, Mahapatra AK, Mehta VS, Sudha K. Intracranial intraparenchymal schwannomas: A series of eight cases. J Neurol Neurosurg Psychiatry 1996;60:200-3.
49. Sharma RR, Gurusinqhe NT, Lynch PG, Parekh HC, Bertolis G. Intraparenchymatous schwannoma of the cerebellum. Br J Neurosurg 1993;7:83-9.
50. Sharma V, Newton G. Schwannoma of the medulla oblongata. Br J Neurosurg 1993;7:427-9.
51. Srinivas R, Krupashnkar D, Shasi V. Intracerebral schwannoma in a 16-year-old girl: A case report and review of the literature. Case Rep Neurol Med 2013;2013:171494.
52. Stefanko SZ, Vuzevski VD, Maas AI, van Vroonhoven CC. Intracerebral malignant schwannoma. Acta Neuropathol 1986;71:321-5.
53. Tanabe M, Miyata H, Okamoto H, Watanabe T, Hori T, Masakawa A, *et al*. Brainstem schwannoma-case report. Neurol Med Chir (Tokyo) 1996;36:880-3.
54. Ten H, Adachi K, Yamaguchi F, Matsuno A, Teramoto A, Morita A. Occipital lobe epilepsy was presented in a patient with intracerebral schwannoma: A case report and literature review. Int J Neuosci 2019;129:308-12.
55. Tran-Dinh HD, Soo YS, O'Neil P, Chaseling R. Cystic cerebellar schwannoma: Case report. Neurosurgery 1991;29:269-9.
56. Tsuiki H, Kuratsu J, Ishimaru Y, Nakahara T, Kishida K, Takamura M, *et al*. Intracranial intraparenchymal schwannoma: Report of three cases. Acta Neurochir (Wien) 1997;139:756-60.
57. Van Rensburg MJ, Proctor NS, Danziger J, Orelowitz MS. Temporal lobe epilepsy due to an intracerebral schwannoma: Case report. J Neurol Neurosurg Psychiatry 1975;38:703-9.
58. Weiner HL, Zaqzaq D, Babu R, Weinreb HJ, Ransohoff J. Schwannoma of the fourth ventricle presenting with hemifacial spasm. A report of two cases. J Neurooncol 1993;15:37-43.
59. Wilson BR, Steinberg JA, Snyder V, Jiang MN, Carter BS. Histologic evidence for arteriovenous malformation-like vasculature occurring within an intracerebral schwannoma: A case report and review of the literature. World Neurosurg 2016;92:582e9-13.
60. Zagardo MT, Castellani RJ, Rees JH, Rothman MI, Zoarski GH. Radiologic and pathologic findings of intracerebral schwannoma. AJNR Am J Neuroradiol 1998;19:1290-3.

How to cite this article: Wajima D, Aketa S, Yonezawa T. Supratentorial convexity schwannoma unrelated to cranial nerves: Case report and review of the literature. Surg Neurol Int 2020;11:143.