Tzu Chi Medical Journal 23 (2011) 34–35

Contents lists available at ScienceDirect

Tzu Chi Medical Journal

journal homepage: www.tzuchimedjnl.com

Images in Clinical Medicine

Central neurocytoma

Pao-Sheng Yen*

Department of Medical Imaging, Buddhist Tzu Chi General Hospital and Tzu Chi University, Hualien, Taiwan

ARTICLE INFO

Article history:
Received 22 February 2011
Received in revised form
2 March 2011
Accepted 4 March 2011

A 19-year-old girl without any systemic disease was admitted because of intermittent headache, involuntary movement, dizziness, and tinnitus for more than 6 months.

Magnetic resonance (MR) imaging showed a large intraventricular tumor with obstructive hydrocephalus (Fig. 1). A near total surgical removal was then carried out and the pathological diagnosis was central neurocytoma (CN).

CN is an uncommon, benign, primary central nervous system tumor of neuronal origin that is usually located within the lateral and third ventricles. It was first described by Hassoun et al in 1982 and accounts for about 0.5% of primary brain tumors. This tumor classified as World Health Organization Grade II tends to occur more frequently in young adults and has no sex predilection. The average age of reported patients is 31 years, ranging from 17 years

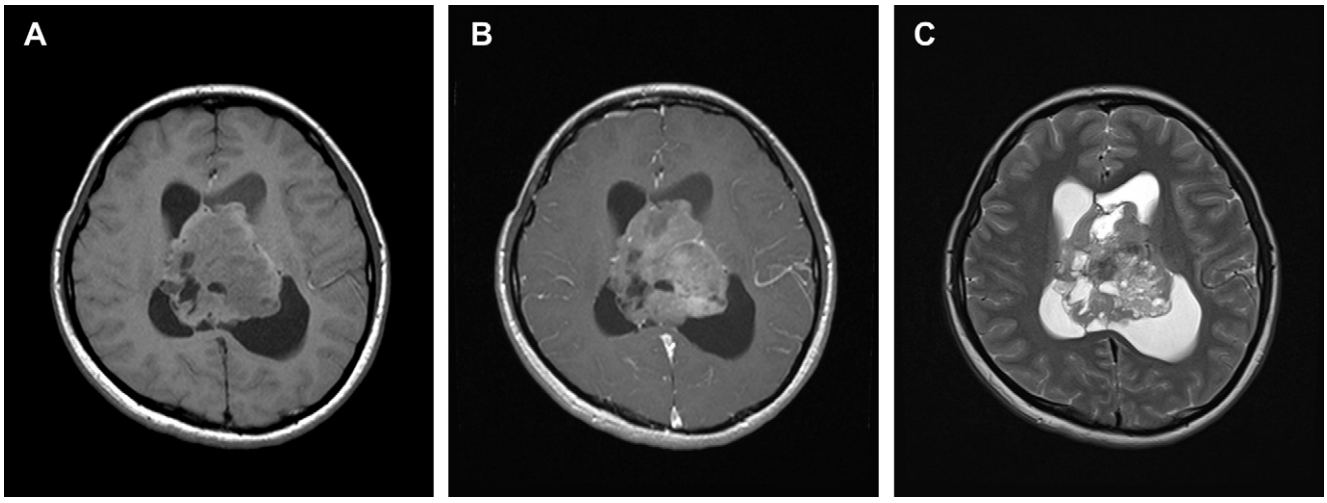

Fig. 1. (A) Axial noncontrast-enhanced and (B) contrast enhanced T1-weighted and (C) T2-weighted magnetic resonance images reveal a large, isointense, heterogeneous intraventricular mass originating from the septum pellucidum with broad base attachment to the body of the lateral ventricles. There is a mild degree of contrast enhancement of the solid portion of the tumor. Numerous cystic spaces within the tumor are also seen.

* Corresponding author. Department of Medical Imaging, Buddhist Tzu Chi General Hospital, 707, Section 3, Chung-Yang Road, Hualien, Taiwan. Tel.: +886 3 856 1825x3446.
E-mail address: bb1472@hotmail.com.

doi:10.1016/j.tcmj.2011.03.003

to 53 years. It is often associated with symptoms and signs of increased intracranial pressure.

Characteristic MR findings of CN include a main solid portion with intratumoral cystic changes and broad attachment to the septum pellucidum and/or lateral wall of the lateral ventricle. A CN is mainly isointense to gray matter on both T1- and T2-weighted images. Intratumoral cystic change is a common finding in CN and is present in more than 90% of reported cases. The degree of contrast enhancement of the solid portion is generally mild to moderate. Diffusion-weighted imaging may show a heterogeneous mass with predominantly high signal intensity. MR spectroscopy of the tumor may reveal significant high choline/creatine and low *N*-acetyl aspartate/choline ratios and some cases with an elevated glycine peak. Atypical forms of CN with extraventricular disseminated tumor and intratumoral hemorrhage have also been reported, however. CN should be differentiated from other intraventricular tumors, such as meningioma, ependymoma, giant cell astrocytoma, choroid plexus papilloma, and oligodendroglioma. The differential diagnosis is dependent on the age of the patient and the location of the tumor. Patients with meningioma are usually older than 30 years and those with choroid plexus papillomas are usually young children. Choroid plexus papillomas often show intense contrast enhancement. The typical locations of intraventricular meningioma, ependymoma, and giant cell astrocytoma are the trigone region, the fourth ventricle, and the region of the foramen of Monro, respectively, which are all different from that of CN. Intraventricular astrocytomas may calcify and show peritumoral edema, which is uncommon in CN. Existing radiologic descriptions indicate that intraventricular oligodendrogliomas may not be distinguishable from CN. Definitive diagnosis requires immunochemical study and electron microscopy.

Although CN is a relatively rare lesion, it should be considered in the differential diagnosis of intraventricular lesions in the presence of typical MR findings.

Further reading

[1] Hassoun J, Gambarelli D, Grisoli F, Pellet W, Salamon G, Pellissier JF, et al. Central neurocytoma: an electron microscopic study of two cases. Acta Neuropathol (Berl) 1982;56:151–6.
[2] Barbosa MD, Balsitis M, Jaspan TJ, Lowe J. Intraventricular neurocytoma: a clinical and pathological study of three cases and review of the literature. Neurosurgery 1990;26:1045–54.
[3] Goergen SK, Gonzales MF, McLean CA. Intraventricular neurocytoma: radiologic features and review of the literature. Radiology 1992;182:787–92.
[4] Yasargil MG, von Ammon K, von Deimling A, Valavanis A, Wichmann W, Wiestler OD. Central neurocytoma: histopathological variants and therapeutic approaches. J Neurosurg 1992;76:32–7.
[5] Nishio S, Tashima T, Takeshita I, Fukui M. Intraventricular neurocytoma: clinicopathological features of six cases. J Neurosurg 1988;68:665–70.
[6] Kocaoglu M, Ors F, Bulakbasi N, Onguru O, Ulutin C, Secer HI. Central neurocytoma: proton MR spectroscopy and diffusion weighted MR imaging findings. Magn Reson Imaging 2009;27:434–40.