Clinical Neurology and Neurosurgery 115 (2013) 1110–1113

Contents lists available at SciVerse ScienceDirect

Clinical Neurology and Neurosurgery

journal homepage: www.elsevier.com/locate/clineuro

Case report

Gamma knife radiosurgery for lymphoplasmacyte-rich meningioma

Wei-Hsin Wang[a,d], Cheng-Chia Lee[a,d], Shih-Chieh Lin[b,d], Wan-Yuo Guo[c,d], Donald Ming-Tak Ho[b,d], Min-Hsiung Chen[a,d], David Hung-Chi Pan[a,d], Yang-Hsin Shih[a,d], Ming-Teh Chen[a,d,*]

[a] Department of Neurosurgery, Neurological Institute, Taipei Veterans General Hospital, Taiwan
[b] Department of Pathology, Taipei Veterans General Hospital, Taiwan
[c] Department of Radiology, Taipei Veterans General Hospital, Taiwan
[d] School of Medicine, National Yang-Ming University, Taipei, Taiwan

ARTICLE INFO

Article history:
Received 2 June 2012
Received in revised form 7 August 2012
Accepted 17 August 2012
Available online 8 September 2012

Keywords:
Lymphoplasmacyte
Meningioma
Gamma-knife
Radiosurgery

1. Introduction

Lymphoplasmacyte-rich meningioma with the features of plasmocytoma was first described in 1971 [1]. In 1993, lymphoplasmacyte-rich meningioma was proposed as a variant of meningioma in the World Health Organization classification [2]. Since lymphoplasmacyte-rich meningioma has neoplastic and inflammatory features simultaneously, its biological behavior and prognosis are not so clearly understood. We report a case of lymphoplasmacyte-rich meningioma in a 60-year-old female who underwent a subtotal surgical resection. However, the residual tumor progressed on the suprasellar region one year after operation, and we arranged Gamma-Knife radiosurgery (GKS) for her. Seven months after GKS, significant tumor shrinkage was noted without any adverse radiation effects (ARE). There is a difference in response to radiation between benign meningiomas and lymphoplasmacyte-rich meningiomas. This interesting clinical course may help us understand more about this rare meningioma.

2. Case report

A 60-year-old female patient had an unsteady gait and severe dizziness for 6 months. The patient also presented with dysmetria and positive cerebellar signs. Magnetic resonance imaging (MRI) disclosed an extensive left tentorial-clivopetrosal extra-axial tumor that was irregular in shape and compressed the brain stem. A subtemporal craniotomy with subtotal tumor removal was performed. Microscopic examination of the meningeal tumor showed nests of neoplastic meningothelial cells admixed with prominent chronic inflammatory cell infiltration, including lymphocytes and plasma cells. Those neoplastic meningothelial cells were polygonal with indistinct cell borders imparting a syncytial pattern and some of the neoplastic cells had nuclear pseudoinclusion. EMA immuno-reactivity was observed in those neoplastic meningothelial cells. The lymphocytes were composed of a mixed population of B-cells (CD20 immuno-reactive) and T-cells (CD3 and CD43 immuno-reactive). The histopathologic features and immunostaining results were compatible with those of lymphoplasmacyte-rich meningioma (Fig. 1). Two months after operation, MRI revealed a residual tumor in the left tentorial and cavernous sinus area. One year later, the follow-up MRI revealed spontaneous regression in the left tentorial area. However, progression in the cavernous sinus area and suprasellar area were also noted.

Due to progression of residual tumor, GKS was performed. The dose at the target center was 21.82 Gy and the dose at the target periphery was 12 Gy (at a 55% isodense level) (Fig. 2). The tumor volume in this case was 16.83 ml before GKS and 5.73 ml after 21 months follow-up. The tumor reduction of the patient was up to 66%, and it was much higher than that of our other meningioma patients (post GKS: average 32% reduction by 3 years follow-up) [3] (Fig. 3).

* Corresponding author at: Department of Neurosurgery, Neurological Institute, Taipei Veterans General Hospital, National Yang Ming University, 17f, #201, Sec. 2, Shih-pai Road, Taipei 112, Taiwan. Tel.: +886 2 28757491; fax: +886 2 28757588.
E-mail address: whwang@vghtpe.gov.tw (M.-T. Chen).

0303-8467/$ – see front matter
http://dx.doi.org/10.1016/j.clineuro.2012.08.031

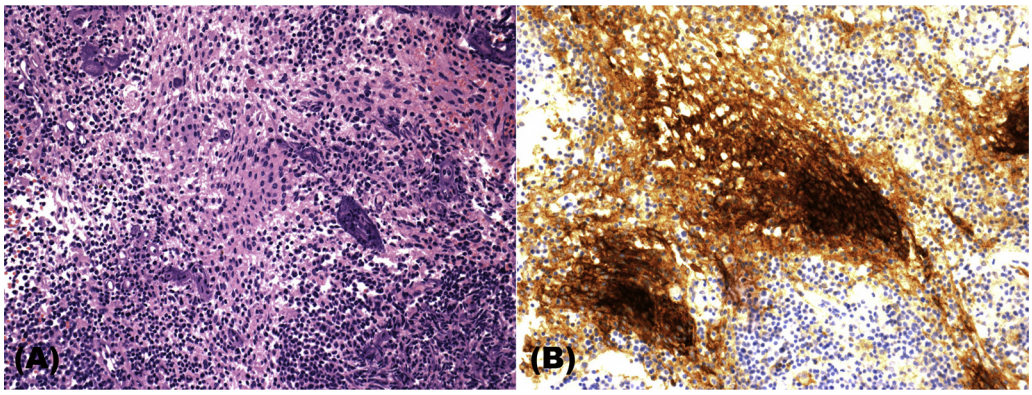

Fig. 1. (A) Lobules of neoplastic meningothelial cells with syncytial pattern admixed with numerous lymphocytes and plasma cells (hematoxylin and eosin 100×). (B) Neoplastic meningothelial cells with EMA immuno-reactivity (EMA, 100×).

3. Discussion

Lymphoplasmacyte-rich meningioma is a rare and special variant. Some intracranial neoplasms or masses with histological features similar to lymphoplasmacyte-rich meningioma, such as choroid meningioma, plasma cell granuloma, multiple myeloma, solitary plasmacytoma, giant lymphoid hyperplasia, sinus histiocytosis, lymphomatoid granulomatosis, idiopathic hypertrophic pachymeningitis, should be differentiated.

Only 25 reported cases of lymphoplasmacyte-rich meningiomas involved in the central nervous system (CNS) were found in the literature (Table 1). Surgical resection was the treatment of choice,

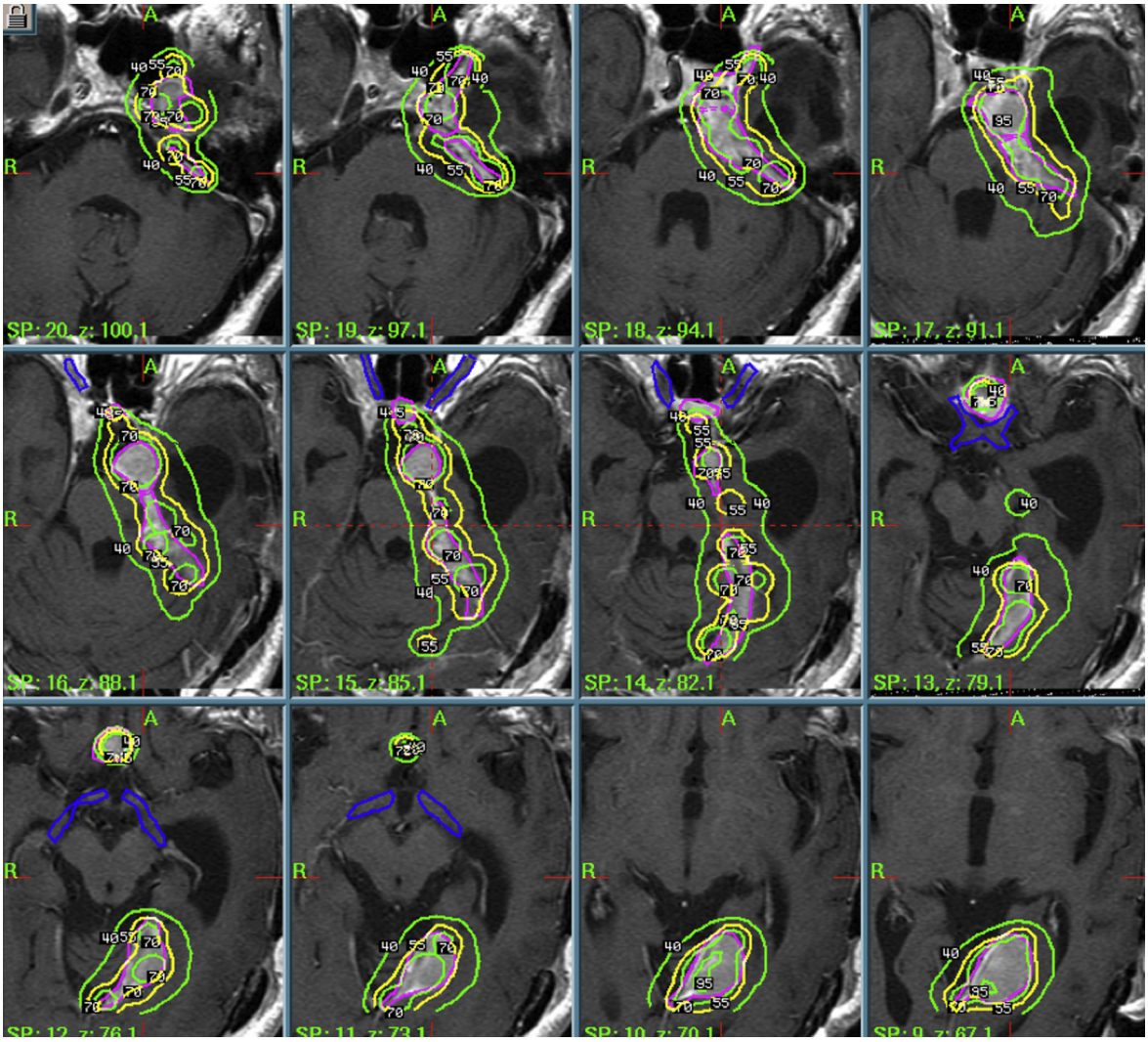

Fig. 2. The GKS treatment plan. The dose at the target center was 21.82 Gy and the dose at the target periphery was 12 Gy (at a 55% isodense level). The yellow line is the 50% isodose level of radiation. The blue line represents the optic nerve, which should not be exposed to radiation doses of more than 10 Gy. (For interpretation of the references to color in this figure legend, the reader is referred to the web version of the article.)