Exophytic Intraspinal Extension of Cerebellar Glioma
—Case Report—

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Abstract

A 49-year-old female presented with a 2-year history of occipitalgia, a 3-month history of dysesthesia, and dull sensation of the left upper extremity. T₁-weighted magnetic resonance (MR) imaging revealed a low-intensity mass without gadolinium-diethylenetriaminepenta-acetic acid enhancement extending from the cisterna magna to the spinal canal. T₂-weighted MR imaging revealed a high-intensity mass. Neuroradiological findings were inadequate to establish the mass as intra-axial or extra-axial. Operative findings discovered an intra-axial mass which was totally removed. Histological examination found the mass was an oligoastrocytoma. Cerebellar glioma developing exophytically is very rare. Adequate surgical removal is possible and likely to be curative if total.

Key words: cerebellar glioma, exophytic tumor, mixed glioma

Introduction

Gliomas usually invade the brain parenchyma, and with the exception of ependymomas, only rarely develop exophytically. Brainstem glioma or optic glioma is sometimes exophytic, but mainly extra-axial cerebellar glioma is very rare.

We describe a rare case of glioma originating in the cerebellar tonsil and developing exophytically into the subarachnoid space of the spinal canal.

Case Report

A 49-year-old female had a chief complaint of a 2-year history of occipitalgia. She visited our hospital with additional dysesthesia and dull sensation of the left upper extremity persisting for 3 months. Examination found no abnormal neurological findings. T₁-weighted magnetic resonance (MR) imaging revealed a low-intensity mass without gadolinium-diethylenetriaminepenta-acetic acid enhancement in the region ranging from the cisterna magna to the spinal canal (C-2 vertebra). T₂-weighted MR imaging revealed a high-intensity mass. Angiography showed no tumor stain. These findings were insufficient to establish the mass as intra-axial or extra-axial.

Suboccipital craniotomy and C-1 and C-2 laminectomy were performed. Incision of the dura and arachnoid membranes exposed a white, hypovascular, tongue-like mass (Fig. 2). The mass was easily detached from the spinal cord and medulla, since it was covered with the pia mater. Resection in the cranial direction revealed a massive tumor which had developed exophytically from the cerebellar tonsil. Total removal was achieved macroscopically. Histological examination showed the tumor was oligoastrocytoma of World Health Organization grade II without tumor cells on the surface of the resected tumor (Fig. 3).

No radiotherapy or chemotherapy was performed. She was discharged without neurological deficits. The tumor has not recurred for 2 years.

Discussion

Astrocytoma of the cerebellum accounts for 5% of all gliomas, and the prognosis is generally good. Many cases of astrocytoma are pilocytic astrocytoma. However, the prognosis for patients with diffuse glioma, like the present patient, is generally
Exophytic Glioma of Cerebellum

Fig. 1  MR images showing the plastic mass (arrows) extending from the foramen magnum to the spinal canal as a low-intensity area on T1-weighted images (upper row), and as a high-intensity area on T2-weighted images (lower row).

not good, partly because the infiltrating nature of this type of glioma makes total removal difficult, but this is possible in exophytically developed gliomas. Only one case of exophytically developed glioma of the cerebellum has previously been reported. However, our present case suggests the prognosis may be good for such patients, even with diffuse glioma.

Primary leptomeningeal astrocytoma is known, but our patient had primary glioma in the cerebellum, with exophytic extension into the subarachnoid space. Histological examination showed the developing tumor was covered with pia mater, without Purkinje's cells, basket cells, or granular cells in the extra-axial lesion. It is unclear why the tumor development had this form. Absence of proteinases and chemotactic factors may be responsible, although this is only one possible explanation and there is no data to elucidate these observations. Cerebellar glioma mainly located extra-axially is an extremely rare and adequate surgical removal is curative.

References


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Fig. 2 Intraoperative photograph (upper) showing the exophytic mass covering the cervical spinal cord (C: cerebellum, T: tumor), and the removed tumor (lower).

Fig. 3 Photomicrograph of the tumor specimen showing the surface of the tumor indicating astrocytoma with pia mater on the left side, and the characteristics of oligodendroglioma on the right. HE stain, ×150.

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