Radiological features of cerebellar glioblastoma.
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Abstract
BACKGROUND AND PROPOSE: Glioblastoma (GBM) is the most common type of malignant primary central nervous system tumor in adults; however, the prevalence of GBM arising in the cerebellum is extremely low. This study aimed to demonstrate the radiological features of cerebellar GBMs, including computed tomography (CT), magnetic resonance imaging (MRI), diffusion-weighted imaging (DWI), and (18)F-fluorodeoxyglucose (FDG)- and (11)C methionine (MET)-positron emission tomography (PET) findings.

MATERIALS AND METHODS: We retrospectively reviewed seven patients with cerebellar GBM (six men and one woman: mean age: 56 years, range: 18-73 years). We reviewed medical records and radiological data, including preoperative CT, MRI and PET. All patients underwent CT and MRI. DWI data were acquired in four patients. Three patients underwent FDG- and MET-PET examinations. All patients underwent total or subtotal tumor resection and received pathological diagnoses.

RESULTS: Four patients had imaging findings consistent with GBM and received preoperative cerebellar GBM diagnoses. Two patients exhibited homogeneous patchy and nodular enhancement without necrosis on MRI, which resembled malignant lymphoma and metastasis. One case exhibited Lhermitte-Duclos disease-like parallel linear striations (i.e., "tiger-striped" appearance). Although the imaging findings of these three patients were inconsistent with GBM, pathological diagnosis confirmed cerebellar GMB.

CONCLUSIONS: Some evaluated cases of cerebellar GBM did not exhibit the common CT, MRI, and PET findings of supratentorial GBM, leading to considerable difficulty with preoperative differential diagnosis.

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KEYWORDS: Cerebellar glioblastoma; Computed tomography; Magnetic resonance imaging; Positron emission tomography