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Glioblastoma/high-grade glioma with a primitive neuronal component including rhabdoid differentiation that was difficult to diagnose: A case report

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Abstract

Glioblastoma with a primitive neuronal component (GBM-PNC) is a rare subtype. In this case, GBM-PNC was difficult to diagnose conclusively because the specimen consisted of only a few high-grade glioma components. A 73-year-old woman presented with sensory aphasia and minor right-sided hemiplegia. Imaging revealed a neoplastic lesion with a maximum diameter of approximately 5 cm in the left frontal lobe for which surgery was performed. Histologically, most atypical cells were immature components with high nuclear-cytoplasmic ratios and immunopositive for neuroendocrine markers. Minor components of atypical glial cells were found at tumor margins. Rhabdoid cells were observed in undifferentiated components. Immunostaining was positive for glial fibrillary acidic protein (GFAP), nestin, and Olig2 in both undifferentiated and atypical glial cells. The major undifferentiated components showed significantly low GFAP, nestin, and Olig2 expression levels within the foci of the undifferentiated components, in contrast to the atypical glial component, neurofilaments and synaptophysin were immunopositive for undifferentiated components. Rhabdoid cells were immunopositive for myogenin, desmin, and HHF35, suggesting their differentiation into striated muscles. This was a particularly rare case because rhabdoid differentiation was observed in PNC.

Keywords: Brain tumor; Diagnostic pitfall; Glioblastoma with a primitive neuronal component (GBM-PNC); Rhabdoid differentiation.