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Comparison of ependymomas and medulloblastomas located in the posterior cranial fossa: An anatomical and histopathological study

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Abstract

Posterior fossa tumors (PFTs) include medulloblastomas, atypical teratoid/rhabdoid tumors, pilocytic astrocytomas, ependymomas, and brainstem gliomas. We evaluated patients with surgery at our clinic, comparing epidemiological, clinical, radiological, and pathological characteristics of medulloblastoma and ependymoma to identify factors that might assist preoperative diagnosis, help to develop treatment algorithms, and have prognostic value after surgery. Pediatric patients from 0 to 16 and young adults from 16 to 29 years of age with surgery for pathologically confirmed ependymomas or medulloblastomas between January 2014 and January 2020 were eligible. The study included 19 patients, seven with ependymoma (37%) and 12 with medulloblastoma (63.2%). The ependymoma patients were 5.29 ± 5.85 years of age, the medulloblastoma patients were 11.58 ± 8.17 years of age, and 16 patients (84%) were children.Fifteen patients (79%) presented with signs of increased intracranial pressure and four (21%) presented with cerebellar findings. MRI found that 74% (14) of the PSTs were located in the midline, including six of the seven ependymomas (86%) and eight of the 12 medulloblastomas (67%). Enhancement was significantly greater in medulloblastomas compared with ependymomas (p = 0.022). In according to pathology results; synaptophysin, NSE, chromogranin and 50% GFAP positivity were observed in medulloblastoma. Ependymomas were S100 (43%) and vimentin (29%) positive. Ependymoma patients were younger than medulloblastoma patients and more were female. There were no significant differences in the clinical findings, but ependymomas were larger and had greater rates of enhancement and spinal metastasis compared with medulloblastomas.

Keywords: Epithelial Membrane Antigen/EMA; Ki-67; MRI; Posterior cranial fossa tumors.