Pediatric Meningioma

El Beltagy et al., retrospectively reviewed the medical records of 39 pediatric patients who were treated for CNS meningiomas in Children's Cancer Hospital-Egypt (CCHE-57357) 2007-2017.

The prevalence of pediatric meningioma was 1.42%. Four cases had type 2 neurofibromatosis (NFII). The mean age was 8.19 years. The presence of NFII was associated with challenging multiple lesions, older age of presentation and poorer prognosis and functional outcome. Convexity was the commonest location. Gross total resection (GTR) was achieved in 28 cases, subtotal resection (STR) in 8 cases, and biopsy was decided in 3 patients. Histopathological examination revealed WHO grade I in 16 patients and higher grades in 23 patients (59%). The 5-year overall survival (OS) rate was 87.8% while the 5-years event-free survival (EFS) rate was 85.6%. Tumor location, histopathology, and clinical presentation were not statistically correlated to prognosis.

Pediatric CNS meningiomas are uncommon pediatric tumors but of an aggressive clinical and pathological behaviors as compared to adult meningiomas. The presence of NFII is associated with a poorer prognosis and functional outcomes. Although being challenging, the maximum and safe surgical excision should be exercised even in recurrent cases in order to achieve the best outcome. Adjuvant radiotherapy provides good tumor control for inoperable residual atypical or anaplastic meningiomas [1].

46: Li H, Zhao M, Jiao Y, Ge P, Li Z, Ma J, Wang S, Cao Y, Zhao J. Prediction of High-Grade Pediatric Meningiomas: Magnetic Resonance Imaging Features Based on T1-Weighted, T2-Weighted, and Contrast-Enhanced T1-Weighted Images. World Neurosurg. 2016 Jul;91:89-95. doi: 10.1016/j.wneu.2016.03.079. Epub 2016 Mar 30. PubMed PMID: 27046015.

Case reports

An 11-year-old boy who sustained a head injury resulting from a left frontal skull fracture 8 years previously experienced a convulsive attack. Imaging revealed a meningioma in the left frontal convexity. Total removal of the tumor with a hyperostotic section was successfully achieved. Intraoperative investigation showed tumor invasion into the adjacent frontal cortex. Histologically, the surgical specimen revealed a transitional meningioma with brain invasion and a small cluster of rhabdoid cells. This led to a final pathological diagnosis of an atypical meningioma with rhabdoid features. The postoperative course was uneventful, and no recurrence of the tumor was found after 2 years without adjuvant therapy.

Lessons: This is the first report of a pediatric meningioma with rhabdoid features occurring at the site of a skull fracture. Meningiomas that contain rhabdoid cells without malignant features are not considered to be as aggressive as rhabdoid meningiomas. However, the clinical course must be carefully observed for possible long-term tumor recurrence [2]

1)

El Beltagy MA, Enayet AE, Atteya MME, Reda M, Refaat A, Taha H, Ahmed S, Abdelaziz A. Management of pediatric CNS meningiomas: CCHE-57357 experience in 39 cases. Childs Nerv Syst. 2019 May 24. doi: 10.1007/s00381-019-04156-6. [Epub ahead of print] PubMed PMID: 31127346.

2)
Takata S, Tamase A, Hayashi Y, Tachibana O, Sato K, Iizuka H. Pediatric meningioma with rhabdoid features developed at the site of skull fracture: illustrative case. J Neurosurg Case Lessons. 2021 Oct 4;2(14):CASE21107. doi: 10.3171/CASE21107. PMID: 36131573; PMCID: PMC9563953.