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Meningiomas in children: report of a consecutive series of 60 cases

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Objective: The management and prognostic factors of pediatric meningiomas are not well defined on the opposite of their adult's counterparts. The goal of this study was to report on the management and the outcome of a series of pediatric meningiomas treated in a single center.

Materials and Methods: The authors reviewed data of a cohort of pediatric meningiomas operated in Necker Hospital from 1978 to 2012. The epidemiological, clinical, radiological and pathological data and therapeutic management were analyzed.

Results: Fifty-one children (median age 10 years, male predominance) were eligible for this study after exclusion of 9 cases by histopathological review; 12 had Neurofibromatosis. The signs at onset were consistent with those reported in the literature. Cranial meningiomas were predominant with only 2 spinal cases. The surgical resection was total and subtotal in 31 and 20 patients respectively and radiotherapy was performed in 11. After histopathological review, WHO grade I and II were the more frequent (43.1% and 49% respectively). Interestingly, 18 cases had invasive features. With a median follow up of 5.1 years the 10-years OS was 90.8% and the PFS was 61.8%. The 2 patients who died had both a clear-cell meningioma grade 2. A shorter PFS was associated with incomplete surgery and skull-base location ($p<0.001$) and marginally with histopathological grade 2 ($p=0.055$). Multivariable analysis showed that patients who underwent incomplete resection and a meningioma located in the skull base had worse PFS ($p=0.012$ and $p=0.05$ respectively). The association with neurofibromatosis showed non-significant relation for outcome.

Conclusion: Extent of surgical resection and location are prognostic factor for pediatric meningiomas. They are characterized by a high rate of histological invasive features but the WHO classification may not reliably and reproducibly predict outcome, unlike in adults. Further biological analysis may help to improve prognostication in children.