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## Surgical management of posterior fossa medulloblastoma in children: The Lyon experience

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### Abstract

**Introduction:** Modern approach for the treatment of posterior fossa medulloblastomas remains a challenge for pediatric neurosurgeons and pediatric oncologists and requires a multidisciplinary approach to optimize survival and clinical results.

**Material and methods:** We report the surgical principles of the treatment of posterior fossa medulloblastomas in children and how to avoid technical mistakes especially in very young patients. We also report our experience in a series of 64 patients operated from a medulloblastoma between 2000 and 2018 in Lyon.

**Results:** All patients had a craniospinal MRI. Eighty-one percent of the patients (n=50) had strictly midline tumor while 19% (n=14) had lateralized one. Eleven percent (n=7) had metastasis at diagnosis on the initial MRI. Forty-one percent (n=29) had an emergency ETV to treat hydrocephaly and the intracranial hypertension. All patient underwent a direct approach and a complete removal was achieved in 78% (n=58) of the cases on the postoperative MRI realized within 48h postsurgery. Histological findings revealed classical medulloblastoma in 73% (n=46), desmoplastic medulloblastoma in 17% (n=11) and anaplastic/large cell medulloblastoma in 10% (n=7). Patients were classified as low risk in 7 cases, standard risk in 30 cases and high risk in 27 cases. Ninety-six percent (n=61) of the patient received radiotherapy. Seventy-six percent (n=48) received pre-irradiation or adjuvant chemotherapy. At last follow-up in December 2018, 65% (n=41) of the patient were in complete remission, 12% (n=8) were in relapse and 27% (n=15) had died from their disease. The overall survival at five, ten and fifteen years for all the series was of 76%, 73% and 65.7% respectively.

**Conclusions:** Medulloblastomas remain a chemosensible and radiosensible disease and the complete surgical removal represents a favorable prognostic factor. The extension of surgery has also to be weighted in consideration of the new biomolecular and genetic knowledge that have to be integrated by surgeons to improve quality of life of patients.

**Keywords:** Cerebellum; Management; Medulloblastoma; Posterior fossa tumor; Surgical technique.

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