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Thalamic tumors in children: evaluation of surgical strategy

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Introduction: Indication for resection of thalamic tumours in children has always been debated, varying from only biopsy strategy to total resection attempts independently from radiological diagnosis. Generally, thalamic tumours are considered unfavourable for resection because of high morbidity rate reported and controversial correlation with longer survival. In this study we reviewed our experience with thalamic tumours since 1998 to appraise our practice and surgical strategies and to determine which factors guided treatment.

Methods: Medical records and imaging studies were obtained in 17 children with thalamic tumours operated on between 1998 and 2011. Tumours arising from hypothalamus, optic pathways, pineal region, brainstem and ventricles were excluded.Age at presentation, duration and type of symptoms, radiological features, treatment received, surgical approach, follow-up and survival were recorded. Type of surgery was classified as biopsy, partial resection (<90%), subtotal resection (>90%) or total.

Results: The patients ranged in age from 2 to 15 (median 7.4 years). The tumours were treated by biopsy alone (stereotactically or endoscopically) in 10 cases, by biopsy followed by resection in 4 cases and resection alone in 5 cases. Partial resection was then achieved in 33% of cases, subtotal in 44% and total in 22%. The tumours were approached via a transcortical transtemporal route in 7 cases and transcallosal route in 2 cases.The tumour diagnosis was pilocytic astrocytoma 37% of cases, oligodendroglioma in 28%, astrocytoma grade II in 43%, astrocytoma grade III in 18%, glioblastoma in 6% and glioneuronal tumour in 6%.Five children suffered transient morbidity after surgery, two of them after biopsy.Two children died during follow-up.

Conclusions: Recent improvement in imaging techniques and surgical tools make more aggressive surgery technically feasible and safe.