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abstract

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Results of Surgery for Locally Advanced Neurogenic Tumors in the Retroperitoneal Space

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Introduction: Surgical treatment of locally advanced neuroblastoma in retroperitoneal localization in children is a key stage of combined therapy. The safety and feasibility of radical surgical intervention in patients of different risk groups with surgical risk factors remain the subject of debate.

Methodology: M&M's between 2018 and 2023, 112 surgical interventions were performed on patients with locally advanced neurogenic retroperitoneal tumors. The analysis included patients with circumferential vessel involvement or with two or more IDRF identified through imaging, including involvement of major vessels or their branches.

Neurogenic tumors were categorized based on their differentiation degree into benign tumors (ganglioneuroma in 7(6.3%) patients) and malignant ones (ganglioneuroblastoma in 14 (13%) and neuroblastoma in 91 (81%) patients). Comparative evaluation was conducted for tumor removal volumes based on intraoperative surgeon data and postoperative imaging (MSCT). Intra- and postoperative complications, factors increasing the risk of such complications, and methods for reducing their likelihood were analyzed.

Results: Comparing tumor removal radicality based on MSCT and surgeon data showed a statistically significant correlation, with Pearson's coefficient being 0.4. Intraoperative complications occurred in 29 (26%) patients, while postoperative complications occurred in 57 (51%) cases. Postoperative lymphorrhea was observed in 25 (22%). Hemodynamically significant blood loss (> 35% of circulating blood volume) occurred in 20 patients aged 5 months to 17 years (median 32 months). Intra-and postoperative thrombosis of major vessels was noted in 8 (7.6%) cases, with thrombotic postoperative complications in 5 of them. Four patients died within the first 90 days post-surgery. Overall survival with macroscopically radical surgery (> 95%) was 78%, while with subtotal removal (90-95%), it was 77%.

Conclusions: Both intraoperative surgeon data and postoperative imaging results can be used to assess tumor removal volume. Allowing residual tumor volume on major vessels and their visceral branches may help minimize intra- and postoperative complications.