Neoadjuvant chemotherapy for atypical teratoid rhabdoid tumors: case report.

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Abstract

Atypical teratoid rhabdoid tumors (ATRTs) are a rare pediatric brain tumor with high mortality rate. Several large series have reported achieving gross-total resection (GTR) in less than 50% of patients due to the lesions' large size, vascularity, and limited blood volume in young patients. While neoadjuvant chemotherapy for choroid plexus carcinomas in pediatric patients has become widely accepted, it has not been used as widely for other pediatric brain tumors. To the best of the authors' knowledge, there are only 3 published cases of neoadjuvant chemotherapy for ATRTs. In the present report, the authors present a fourth case of neoadjuvant chemotherapy for ATRT and review the available literature on this strategy. A 17-month-old child presented with a left ventricular ATRT for which imaging raised concern for a highly vascularized tumor. The authors undertook neoadjuvant chemotherapy with 2 cycles of Head Start II therapy, which reduced the size of the ventricular tumor by 35% and decreased the vascularity of the lesion on imaging. The estimated blood loss during resection was 425 ml and GTR was achieved. The patient continued with postoperative chemotherapy but suffered an on-therapy recurrence. While higher-quality data are necessary, available evidence suggests that neoadjuvant chemotherapy can reduce the size and vascularity of ATRTs and facilitate a surgical avenue for large or "inoperable" tumors.