Cortical gluing and Ringer lactate solution inflation to avoid cortical mantle collapse and subdural fluid collections in pediatric neurosurgery: safety and feasibility.

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Abstract:

INTRODUCTION: Subdural fluid collections following intraventricular and/or paraventricular procedures in pediatric neurosurgery are common and can be hard to treat. We describe our technique to close cortical defects by the aid of a fibrin adhesive and subsequent Ringer inflation with the aim to avoid cortical mantle collapse and to prevent the development of subdural fluid collections.

MATERIALS AND METHODS: We report the preliminary results of a prospective study on a consecutive series of 29 children who underwent 37 transcortical or transcallosal surgical procedures since 2008 in our department.

RESULTS: In 17 procedures, we performed a transcortical approach on lesions, and in other 19 operations, we operated by a transcallosal. In 5/17 transcortical approaches (29%) and in 3/20 transcallosal approaches (15%), we observed a 5-mm-thick subdural fluid collection of the 5 patients with subdural fluid collections in the transcortical group, 3 patients (17%) underwent surgery for symptomatic or progressive subdural fluid collections. Of the 3 patients in the transcallosal group, a subduro-peritoneal shunt was necessary only for 1 patient (5%). At the very end of the treatment (including chemotherapy and radiotherapy), it was possible to remove the subduro-peritoneal shunt in all these patients because of disappearance of the subdural fluid collections.

CONCLUSION: In pediatric patients after transcortical or transcallosal procedures, the use of a fibrin adhesive to seal surgical opening and subsequent inflation of the residual cavity with Ringer lactate solution to avoid cortical mantle collapse seems safe and appears to prevent the development of subdural fluid collections.