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ABSTRACT SUBMISSION TITLE: *C1 - Reducing Invasive Interventions without Increasing Complications: Drainless Calvarial Vault Remodeling for Isolated Sagittal Craniosynostosis*

Additional Author(s):
Amanda Awad MD; Lauren Angnardo, MD; Dzifa Kpodzo, MD, MPH; Stephanie Bray, MD

Abstract Presenting Author:
Christina Rudolph, MD

Plastic Surgery Residency Training Program:
Albany Medical College

Abstract Text:

PURPOSE:

Calvarial vault remodeling (CVR) for craniosynostosis allows for intracranial expansion and improves head shape. Drains are frequently utilized to reduce periorbital edema, and wound healing complications secondary to seroma or hematoma formation. These drains can be an avenue for contamination, bother the patient, require removal, and contribute to ongoing post-operative blood loss. The aim is to evaluate whether forgoing drain placement during CVR impacts immediate and long-term outcomes. It will be demonstrated that forgoing drains do not increase complications and reduce repeated lab draw needs. This is the first stage of a quality improvement initiative to optimize post-operative care and reduce invasive interventions following CVR.

METHODS:

A retrospective review of children who underwent CVR for isolated sagittal craniosynostosis from 2017-2024 was conducted. Evaluated factors and outcomes included age, drain use, blood loss, intraoperative or post-operative transfusion and

hematocrit levels, number of post-operative lab draws, periorbital edema, length of stay, and complication rates.

RESULTS:

Eight children (average age 10.57 months) underwent drain placement and five children (average age 13.61 months) underwent no drain placement during CVR. While there was no significant difference in preoperative and end of case hematocrit, when comparing post-operative hematocrit with post-operative day one levels, patients with drains had an average drop of 3.2 hematocrit units in comparison to only 1.1 units in those without drains. 100% of drainless patients and 75% of the drain group patients underwent intraoperative transfusion. Patients with drains had them for 2 to 4 days. One patient underwent post-operative transfusion on day one due to increased drain output. Patients with drains had significantly more lab draws (0 to 7 hematocrits) after the first post-operative morning in comparison to those without (0 to 1). The likelihood of post-operative periorbital edema inhibiting eye opening did not increase with forgoing drain use. There was no significant difference in length of stay between drain and no drain groups (3.3 vs 3.6 days). There were no intraoperative complications, no concern for CSF leak, and no post-operative hematomas, seromas, wound breakdown or infection in either group.

CONCLUSIONS:

Forgoing drain use during CVR did not increase severe periorbital edema risk, length of stay or post-operative complications. Due to no drain use, post-operative blood loss was limited and while it did not significantly affect post-operative transfusion rates, it significantly decreased the need for further interventions like frequent lab draws, thereby improving post-operative patient comfort.