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Abstract P11: Pediatric Orbital Floor Fractures: Clinical and Radiological Predictors of Tissue Entrapment and the Effect of Operative Timing on Ocular Outcomes

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RESULTS: 358 breasts underwent reconstruction before protocol implementation and 135 afterwards. Patients were similar in terms of demographics and surgical characteristics. There was a significantly reduced incidence of clinically relevant infection after protocol implementation (10.1% to 2.9%, $p=0.009$). Logistic regression analysis confirmed that the protocol was independently associated with a decrease in infection risk (OR 0.244, $p=0.017$). Post-protocol, no gram positive bacteria were isolated among cultures obtained from infected periprosthetic fluid. Radiation and drain duration greater than 21 days were independently associated with greater risk for infection.

CONCLUSIONS: Our evidence-based protocol was associated with a significant decline in infection rates among implant based breast reconstruction patients, and was particularly effective for gram-positive infections. We will continue to employ this protocol in our practice, and will consider future directions for addressing gram negative infections as well.

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Pediatric Orbital Floor Fractures: Clinical and Radiological Predictors of Tissue Entrapment and the Effect of Operative Timing on Ocular Outcomes

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PURPOSE: Although rare, orbital floor fractures in the pediatric population are cause for concern. Specifically, children's bones exhibit considerable elasticity, increasing their risk of tissue entrapment. These injuries have the potential to produce acute constitutional symptoms and poor long-term ocular outcomes. This study aims to determine the clinical and radiological predictors of tissue entrapment and to establish how operative timing influences ocular outcomes.

METHODS: We retrospectively reviewed the medical records of pediatric patients who acutely presented with orbital floor fractures at our institution from October 2007

to October 2015. 152 patients, aged less than 18 years, were consulted, managed, and followed-up by pediatric plastic surgery and ophthalmology services. Patients were considered to have experienced poorer ocular outcomes at follow-up if they had persistent enophthalmos, extraocular movement restriction, or diplopia. Independent t-tests and Fisher's exact tests were used to analyze the association between variables at both presentation and outcome.

RESULTS: 152 patients with 159 orbital floor fractures (seven bilateral) were included in the study. 122 (80.3%) patients were male, and the mean age was 12.2 ± 4.2 years. Twelve patients (7.9%) sustained orbital floor fractures with tissue entrapment. At presentation, extraocular movement restriction, diplopia, nausea, and vomiting were all associated with tissue entrapment ($P < 0.001$). Facial computed tomography scans detected all cases of tissue entrapment, with a sensitivity of 100% and specificity of 97.9%. Amongst patients with trapdoor fractures, the presence of nausea and/or vomiting was predictive of tissue entrapment: positive predictive value 80%, and negative predictive value 100%. For all patients, regardless of fracture configuration, vomiting alone had a negative predictive value of 94.1% for tissue entrapment. For patients with tissue entrapment, poorer ocular outcomes were significantly associated with the length of operation ($P=0.007$), but not with the time interval to operation ($P=0.146$).

CONCLUSION: Whilst EOM restriction and diplopia have a well-established relationship with tissue entrapment, they are often difficult to accurately assess in children in the emergency room setting. Pain and edema frequently complicate the interpretation of these signs, and a lack of cooperation during physical examination may also obscure deficits. Nausea and vomiting are valuable predictors of tissues entrapment, particularly when EOM restriction and diplopia are equivocal. In our study, radiological findings were predictive of entrapment, but a lack of consistent language in this area limits the external validity of these results. Our study also draws attention to the relationship between operation length and poorer ocular outcomes. Operation length may be a surrogate marker of case severity/complexity, surgical technique and/or surgeon experience; where possible, optimizing these factors may improve ocular outcomes.

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Functional Outcomes Following Soft Tissue Reconstruction and Attempted Limb Salvage After Lower Extremity Trauma