

Effect of a Single Application of Pulsed Dye Laser Treatment of Port-wine Birthmarks on Intraocular Pressure

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Background A new pathophysiologic mechanism has been proposed that indicates that periorbital port-wine birthmarks (PWBs) serve as alternate collateral blood passageways when orbital venous drainage is impaired. The occlusion of such collateral venous channels could, therefore, potentially exacerbate impaired ocular venous flow and trigger the development or worsening of glaucoma in patients with Sturge-Weber syndrome. We investigated to what extent a single application of laser therapy, which occludes only the most superficial portions of a facial PWB, might affect intraocular pressure. Pressures before and after laser treatment were measured to determine pressure difference in 15 patients receiving laser treatment.

Observations The greatest pressure differences were observed in patients with a PWB closest to the eye ($P = .02$). Posttreatment pressures were significantly decreased, relative to pretreatment pressures, only in patients with a PWB on the eyelid compared with patients with a facial PWB not near the eyes (2.33 vs 0.75 mm Hg; $P = .004$). No correlation was found between change in pressure and patient age, PWB size, or number of previous treatments.

Conclusions A single laser application to a PWB does not appear to show a clinically relevant change in intraocular pressure. Further study is needed longitudinally in a broad range of patients.