

RECONSTRUCTION OF LARGE ORBITAL FRACTURES WITH HIGH-DENSITY POROUS POLYETHYLENE CHANNEL IMPLANTS

Yu-Hong Lai, Cheng-Hsien Chang,
Hwei-Zu Wang

Large orbital fractures involving floors and medial walls are difficult to correct with soft implants, such as thin Silastic plates. Instead, a rigid but malleable implant has to be used. The high-density porous polyethylene (HDPE) is constructed with parallel channels that accept miniplates or microplates for fixation. The HDPE has the characteristics of hydroxyapatite, allowing rapid vascularization and tissue ingrowth. We used the implant to reconstruct 4 cases of large orbital fractures, involving floor and medial fractures. All 4 patients were male, aged 28, 41, 44, and 74 years old, respectively. All 4 cases were approached by a conjunctival incision with lateral cantholysis. After herniated tissue being pulled back from the sinuses, the HDPE channel implants were shaped and contoured to fit the bony defect of floor and medial wall. After the implant being properly positioned, the miniplate inserted in the channel was fixed to the inferior orbital rim. In an average follow-up of 6.25 months, no complication such as visual loss, infection, migration, or extrusion occurred. Three patients had preoperative enophthalmos, and postoperatively, enophthalmos resolved in 2 cases and improved in another one. Eyeball duction limitation improved in all four cases. No binocular diplopia existed in central 30-degrees of visual field. Although a longer follow-up and larger number of cases are required to evaluate the efficacy of the HDPE channel implant to reconstruct large orbital fractures, this series has shown its potential.

Key words: blowout fracture, orbital floor and medial fractures, porous polyethylene, orbital reconstruction.

Received: September 15, 1998, Revised: October 20, 1998, Accepted: January 4, 1999.

Department of Ophthalmology, Kaohsiung Medical College Hospital,

Correspondence and reprint requests to: Cheng-Hsien Chang, Department of Ophthalmology, Kaohsiung Medical College Hospital, 100, Shy Chang 1st Rd., Kaohsiung, Taiwan.