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The role of resorbable plate combined with bone substitute in orbital wall reconstruction

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Background: Orbital wall fractures, especially those that involve the orbital floor, may induce many complications. Moreover, lack of sufficient treatment may lead to persistent enophthalmos and/or hypoglobus; therefore, it is essential to reduce and reconstruct bony defects adequately. Many orbital floor reconstruction methods have been developed to date, using various materials such as biological substances, resorbable plates, permanent plates, or alloplastic materials. Among these, alloplastic materials were focused on for their safety and ease of use. However, debate continues on which material is ideal for large defects that are bigger than 2.5 cm² in size. The authors have used resorbable plates combined with bone substitutes for large orbital floor defect reconstructions, and hereby present the results with relevant long-term follow up data.

Methods: A total of 57 patients with traumatic orbital floor fracture were included in the study. Patients were divided into two groups whether their orbital walls were reconstructed by resorbable plate alone or resorbable plate combined by bone substitute. Surgical results were evaluated by computed tomography (CT) at least 12 months postoperatively. Both orbital floor height discrepancy and orbital volume change were calculated compared with preoperative CT.

Results: The average area size of the orbital floor defect showed no significant difference. But the average volume discrepancy and vertical height discrepancies were significantly lower in group reconstructed with resorbable plate combined with bone substitute. Also the exophthalmometric measurement was differing in two groups with no statistical significance.

Conclusion: The authors used resorbable plates with bone substitute rather than resorbable plate only to repair orbital floor defects larger than 2.5 cm² in size, and obtained long-lasting, effective reconstruction with minimal complications. Based on such results, the authors also proposed the presented method as a good alternative technique for large orbital floor reconstructions.

Biography

Ho Kwon is a Professor in Plastic and Reconstructive Surgery Department, Uijeongbu St. Mary's Hospital. He earned his MSc and PhD in Plastic and Reconstructive Surgery at Catholic University of Korea, Seoul, Republic of Korea. He had been visiting Plastic and Reconstructive Surgery Department at Harvard Medical School as a Professor for 2 years (2001-2002). He can perform surgery in every plastic surgery field, and has a specialty in Craniofacial Reconstructive Surgery, Microvascular Surgery, Breast Reconstructive Surgery, among others.

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