

Change in Inferior Sclera Exposure Following Le Fort I Osteotomy in Patients With Midfacial Retrognathia

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Purpose: For facial esthetic reasons, no sclera should be exposed above or below the irises when the head of a patient who has a normal skeletal pattern is in a neutral position and the eyelids are in a relaxed position. This study evaluated the decrease in sclera exposure after maxillary advancement or impaction in patients with midfacial hypoplasia.

Patients and Methods: Forty-seven consecutive patients (24 male, 23 female) who underwent Le Fort I osteotomy were included. The patients were divided into 2 groups according to type of maxillary movement: group I underwent maxillary advancement (n = 23) and group II underwent maxillary advancement and impaction surgery (n = 24). Standardized preoperative and 6-month postoperative photographs of the frontal view of patients were evaluated using Adobe Photoshop CS5. The proportion of inferior sclera exposure to eye height was determined, and the proportional difference between the preoperative and postoperative orbital views was statistically analyzed.

Results: The proportion of inferior sclera exposure to eye height decreased by a ratio of 0.07 ($P = .001$) in the right and left eyes of the 47 patients, with an average maxillary advancement of 6.1 mm. The proportion of inferior sclera exposure to eye height of the right and left eyes decreased from 0.1 to 0.02 and from 0.09 to 0.02, respectively, in group I ($P = .001$). The proportion of inferior sclera exposure to eye height decreased in group II by a ratio of 0.06 in the right and left eyes ($P = .001$).

Conclusion: Inferior sclera exposure in patients with midfacial hypoplasia and retrognathia decreases significantly in accordance with the change in the lower eyelid position after maxillary advancement or impaction surgeries.

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J Oral Maxillofac Surg 72:166.e1-166.e5, 2014

The orbital region contributes substantially to the esthetics of the face. This region consists of the eyes, eyelids, eyelashes, and eyebrows. Each of these parts of the orbital region should be considered during an evaluation of facial esthetics.

The visible part of the eye accounts for approximately one sixth of the entire eye globe and is made up of 3 vital constituents: the white sclera, the colored iris, and the black pupil. The white color of the sclera comes from the density of the fibrous tissue that forms

the outer covering of the eyeball. The contrast between the exposed sclera and the colored iris and pupil relieves the eye movement.¹

The orbital cavity has a pyramid shape and contains the eye, extraocular muscles, eyelids, conjunctiva, lacrimal gland, optic nerve, and orbital fat. Eyelids are thin folds, which are covered with a flexible musculocutaneous lamella. The inner epithelium is continuous with the tarsus and sclera.² The position of the moveable lower eyelids can change after maxillary

Received from the Faculty of Dentistry, Baskent University, Ankara, Turkey.

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Received August 17 2013

Accepted September 17 2013

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0278-2391/13/01214-7\$36.00/0

<http://dx.doi.org/10.1016/j.joms.2013.09.025>