Corrective Outcomes after Bimaxillary Orthognathic Surgery for Developmental Facial Asymmetry (Changes of Head Posture & Upper Face)

Chae Eun Yang, MD; Seung Gee Kwon, MD; Jina Lee, DDS, PhD; Dae-Hyun Lew*, MD, PhD

Abstract

**Background:** Most people have minor to moderate facial asymmetry which has no aesthetic or functional significance. People with distinctive facial asymmetry tend to mask their asymmetry by postural camouflage. People with such tendency usually tilt their head to balance chin point to midline, however, it can lead to false impression of orbital dystopia. After bimaxillary orthognathic surgery, we noticed that orbital canting and head tilting have improved. Furthermore, bleary eyes seem to be improved, too (Figure 1). The purpose of this study is to investigate these postoperative changes quantitatively and address the effect of jaw surgery on other part of face and posture.

**Methods:** 10 patients who underwent LeFort I osteotomy combined with bilateral sagittal split osteotomy of the mandible for developmental facial asymmetry in past 10 years were selected. We compared two 1:1 anteroposterior photos in reproducible position preoperatively and postoperatively. We measured degree of orbital canting and head tilting using reference lines, the area of eye opening with Image J program.

**Results:** After bimaxillary orthognathic surgery, eye canting decreased from 2.6 to 1.5 degree, eye and lip lines came closer to parallel. Degree of head tilting also decreased from 3.4 to 1.3 degree. Although not statistically significant, eye opening area became wider after surgery.

**Conclusions:** Patients who have distinctive facial asymmetry try to hide their asymmetry by postural camouflage which can cause tilted head position and canted orbital plane. According to previous study, most of these patients have masked temporomandibular joint problems. (1-3) Patients want have surgery for aesthetic reasons even though they don't have functional problem with mastication or occlusal position. In this study, we found that correction of lower facial skeletal asymmetry through bimaxillary orthognathic surgery can improve head tilting and orbital canting. We assume that gradual adaptation of redistribution of jaw muscle activity pattern cause alteration of facial alignment and postural change.(1)

**References**
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