



EXTERNAL AUDITORY MEATUS: LANDMARK FOR V OSEOTOMIES IN SQUARE FACE CORRECTION: A TECHNICAL NOTE

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ABSTRACT

The authors present a new technique for planning of V-osteotomies in correction of square face. A static bony landmark: External acoustic meatus (EAM) is used for planning the osteotomy cuts on stereolithographic model which provides accurate replication of planned osteotomy cuts on table.

KEYWORDS : square face, low gonial angle, square face correction, v-osteotomies, mandibular v-line, stereolithography

INTRODUCTION

In East Asian population, a square face is considered repulsive as it imparts a coarse and masculine look. Therefore, Oriental women prefer to have an ovoid and slender facial contour, which is thought to be more feminine and appealing.¹ Square face gives a positive look on males where as it gives negative glance for females. With increasing influence of fashion and social communications, more and more women are opting for a slender elliptical face, conventionally known as "melon seed face" or "goose egg face."² This facial contour epitomizes a kind and gentle nature. Technically square face with low gonial angle deformity, means the gonial angle (Are-Go-Me) is below 110 degree and the mandible plane angle (MP-HP) is <20 degree.¹

Before surgical approach, one should rule out masseteric hypertrophy by clinical and radiographical examination. For soft tissue deformity, square face can be corrected by botox or masseterectomy.

For hard tissue deformity, various procedures have been described in literature such as mandibular outer cortex split ostectomy, mandibular V line ostectomy, mandibular sliding/narrowing genioplasty, mandibular chin augmentation and many more.¹ For planning such procedures, the crucial step is to reciprocate the planned osteotomy cut symmetrically intraoperatively. To minimize intra operative and postoperative morbidity, to improve pre-operative form and function, 3-D models have been used to guide and assist in surgical procedures.³

In the case discussed, V-line osteotomy procedure was the treatment planned for the correction of square face.

The osteotomy cuts were planned on a stereolithographic model. While performing all such procedures the cuts get muddle on table due to soft tissue changes. So to prevent this error, we determined a static bony landmark: EXTERNAL AUDITORY MEATUS. The osteotomy cuts are planned and measured on steriolithographic model from this bony landmark, which was then transferred intraoperatively to achieve desired bilateral symmetrical osteotomy cuts.

Technique

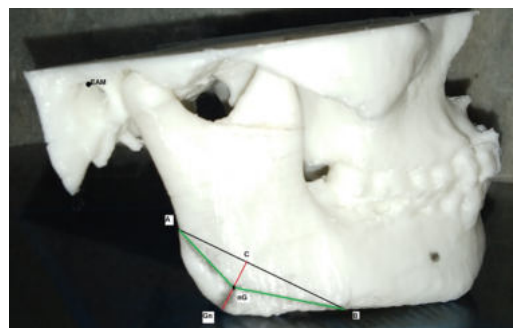
In 3-D steriolithographic model 3 points were marked as discussed in table 1.

Tables

Table 1

Point A	Point of start of osteotomy at posterior border of mandible
Point B	Anterior point of finish of osteotomy on inferior border of mandible
Point C	A point from which a perpendicular line is drawn from line A-B falling on gonion. (gonial angle > 110 degrees)
Point nG	The new gonial angle anywhere on line C-Gn based on length of reduction.

Figure 1



Legend

Draw a line from point A and B. Drop a perpendicular from Gn on AB which meets at C. The new Gonion nG can be chosen on Line CGn based on the amount of angle to be reduced i.e. Gn nG.

The curvilinear line is drawn joining point A-C and point C-B. This line depicts the V line osteotomy cuts. External auditory meatus was taken as the reference point. The distance between point A to EAM, point B to EAM and point C to EAM were measured and replicated on other side of the model with the help of caliper.

These osteotomy cuts were replicated intra-operatively from steriolithographic model to patient on table after measuring the distance from EAM to point A, B and C. (figure 1)

DISCUSSION

This technique provides accurate reciprocation of osteotomy cuts from steriolithographic model to the patient on table intra-operatively as EAM is a static bony landmark. The use of

3-D models significantly improved predictability of clinical outcomes when compared to similar treatments without its use.³

This technique has minimal or no chances of discrepancy in osteotomy cuts as a static bony landmark – EAM was used, unlike in soft tissue landmarks which changes the osteotomy cuts intra-operatively due to edema or retraction.

It also proves to be advantageous as it gives superior on table accuracy, less intraoperative time and bilaterally symmetrical contoured cuts.

Acknowledgement

Conflicts of interest – No

Ethical approval was taken from ethical committee. Approval is attached in Supplementary data sheet.

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This is a technical note of a unique technique which discusses the preoperative surgical plan over a stereolithographic model for better results.

Patient consent was taken, but no clinical photographs revealing the patient's personal identity is included in the manuscript for publish.

All authors have viewed the manuscript and have agreed to submit the manuscript.

REFERENCES

1. Surgical designs and techniques for mandibular contouring based on categorisation of square face with low gonial angle in orientals - Jihua Li - Journal of Plastic, Reconstructive & Aesthetic Surgery (2012) 65, e1 ee8
2. Clinical observations of correction of square jaw in East Asian Individuals- Ashish Khadka, BDS, Yuchun Hsu, DDS, Jing Hu, MD, Qishi Wang, DDS, Songsong Zhu, MD, En Luo, MD, and Jihua Li, MD, phd, Chengdu, China - SICHUAN UNIVERSITY
3. Use of 3-D Stereolithographic Models in Oral and Maxillofacial Surgery 2010- Pushkar Mehra, Jeremy Miner, Richard D'Innocenzo , Mohammed Nadershah. J. Maxillofac. Oral Surg. (Jan-Mar 2011) 10(1):6–13 DOI 10.1007/s12663-011-0183-3