Journal of Cardiovascular Disease Research

ISSN:0975-3583,0976-2833 VOL12,ISSUE02,2021

ORTHODONTIC-SURGICAL TREATMENT OF SKELETAL FACIAL ASYMMETRY: A CASE REPORT

Alap Shah[1*], Sanjana Desai[2], Dhwani Pancholi[3], Aditi Mehta[4], Niyati Nathwani[5], Rushvi Mistri[6]

[1]Professor and Head of The Department, Department of Orthodontics & Dentofacial Orthopaedics, Karnavati school of dentistry, Karnavati University, Uvarsad, Gandhinagar.
Email: alap_shah06@yahoo.com

[2]Reader, Department of Orthodontics & Dentofacial Orthopaedics, Karnavati school of dentistry, Karnavati University, Uvarsad, Gandhinagar.
Email: sanjanadesai@karnavatiuniversity.edu.in

[3]Senior Resident, Department of Orthodontics & Dentofacial Orthopaedics, Karnavati school of dentistry, Karnavati University, Uvarsad, Gandhinagar.
Email: dhwanipancholi17@gmail.com

[4]Senior Resident, Department of Orthodontics & Dentofacial Orthopaedics, Karnavati school of dentistry, Karnavati University, Uvarsad, Gandhinagar.
Email: mehtaaditi99@gmail.com

[5]Senior Resident, Department of Orthodontics & Dentofacial Orthopaedics, Karnavati school of dentistry, Karnavati University, Uvarsad, Gandhinagar.
Email: niyatinathwani9050@gmail.com

[6]Senior Lecture, Department of Orthodontics & Dentofacial Orthopaedics, Karnavati school of dentistry, Karnavati University, Uvarsad, Gandhinagar.
Email: rushvi@ksd.ac.in

Corresponding Author: Dr. Alap Shah (alap_shah06@yahoo.com)

Introduction:

Facial asymmetry, defined as the difference in the size, shape, or relationship of two sides of the face and it has a high correlation with facial harmony, attractiveness, and beauty.[1]It is important to understand the components of facial asymmetry for diagnosing and planning orthodontic treatment or orthognathic surgery.[2] Nature always has its compensation to mask any deformity. About 4mm of skeletal deformity is masked by soft tissue. Laterality is most common on the lower one-third of the face. Severt and Proffit reported that patients showing dentofacial deformity like jaw deviation, deviation towards the left side was found present in more than 85% of their sample[3].

Diagnosis:

A 20 years old male patient came to the Department of Orthodontics & Dentofacial Orthopedics, Karnavati School of Dentistry, with a chief complaint of asymmetry of the face and irregularly placed teeth. The extraoral examination reveals leptoprosopicfaceform, dolichocephalic headform, convex profile, chin deviation on the left side with incompetent lips. On functional examination, the mandibular deviation was observed on the left side and lateral tongue thrusting habit was found. The intraoral examination revealed a Class I molar relation with proclined upper and lower anterior, reverse overjet, lateral open-bite on the right side, midline diastema, and missing upper right and left canine (Figure 1).

ISSN:0975-3583,0976-2833 VOL12,ISSUE02,2021

Cephalometric readings suggest Skeletal class III with the retrognathic maxilla, orthognathic mandible, and vertical growth pattern and Proclined and bodily forward upper and lower anterior teeth. (Table 1).

Orthopantomogram (OPG) reveals a prominent antigonial notch on the left side, all the third molars impacted, and anodontia concerning 13 and 23.

Figure: 1 Pre-treatment photographs and radiographs

Table 1 - Summary of cephalometric measurements.

Cephalometric Parameters	**Pretreatment**	**Pre-Surgical**	**Posttreatment**
SNA	75	77	82
SNB	78	79	78
ANB	-3	-2	4
AO-BO	-14	-14	-1
ANS-PNS	41	43	40
Go-Pog	74	74	68
Y-axis	64	65	63
FMA	42	43	38
FMIA	54	59	60
IMPA	84	78	82
SN-MP	49	49	46
PAL-MP	46	45	38
MP-OCCL	27	25	23
Jarabak's ratio	54	55	59
U1-SN	112	106	105
U1-NA	37	28	22
U1-NA	17	13	5
L1-NB	33	27	28
L1-NB	14	9	9
Interincisal angle	114	127	125
Nasolabial angle	94	97	95

Treatment Objectives: >To Restore Facial Harmony.

ISSN:0975-3583,0976-2833 VOL12,ISSUE02,2021

>To achieve a functionally stable Skeletal, Dental, and Soft tissue relationship.

> To correct lateral tongue thrust Treatment Plan:

Pre-Surgical Phase: (Figure 2).

- 3rd molar were extracted.
- Alignment of upper arches
- Alignment of lower arches: By Extraction of 1st premolars

Figure: 2 Pre-surgical photographs and radiographs

Surgical phase:

- Lefort-1 maxillary osteotomy with 5 mm impaction & rotation on left side
- Vertical ramus osteotomy with 7 mm set back of mandible
- Genioplasty of 4mm with right side rotation.

Post-surgical phase(Figure 3).

- Finishing and Detailing
- Retention phase
- Upper and lower fixed retainer

Figure: 3 Post-surgical photographs and radiographs

ISSN:0975-3583,0976-2833 VOL12,ISSUE02,2021

Treatment Progress:

All third molars were extracted. A standard 0.022-inch MBT appliance was used. Maxillary and mandibular arches were banded and bonded and presurgical procedures started with the initial leveling and alignment process. The sequential change of archwires were 0.016 nickel-titanium (NiTi), 0.017 x 0.025 NiTi, 0.019 x 0.025 NiTi, 0.019 x 0.025 SS. Then en masse retraction process was started in the lower arch on 19 x 25 SS wire with sliding mechanics. Presurgical dental alignment and leveling have been achieved in 10 months. And then the surgical procedures were completed and in post-surgical treatment, settling elastics were given for interdigitation of teeth in occlusion. The total active treatment period (including the orthognathic surgery) was approximately 30 months. After removal of the fixed appliances, Lingual Fixed retainer were given.

Figure: 4 After de-bonding photographs and radiographs

Treatment Results:

The post-treatment results showed a substantial improvement in the patient's facial esthetics with class I molar and canine relation and normal function of TMJ and mutually protected occlusion was achieved. the severe facial asymmetry was corrected and the vertical pattern was reduced. The patient exhibited an attractive smile with a better proportion between the middle and the lower face. Moreover, an improved soft tissue profile with a normal chin was also observed in the lateral photographs. (Figure 5)

ISSN:0975-3583,0976-2833 VOL12,ISSUE02,2021

Figure: 5 follow up 5 years after surgery

References:

1. Shah S, Joshi M. An assessment of asymmetry in the normal craniofacial complex. Angle Orthod1978;48:141-8.
2. Sutton PRN. Lateral facial asymmetry: methods of assessment. Angle Orthod1968;38:82-92.
3. Allgayer S, Mezzomo FS, et al Orthodontic-surgical treatment of skeletal facial asymmetry: A case report. Dental Press J Orthod2011;16:100-10.
4. Kuroda S, Murakami K, Morishige Y, Takano-Yamamoto T. Severe Class II malocclusion with facial asymmetry treated with intraoral vertical-sagittal ramus osteotomy and LeFort I osteotomy. Am J Orthod Dentofacial Orthop2009;135:809-19.
5. Baik UB, Han KH, Yoo SJ, Park JU, Kook YA. Combined multisegmental surgical-orthodontic treatment of alveolar protrusion and chin retrusion with severe facial asymmetry. Am J Orthod Dentofacial Orthop 2013; 143: S148-60.
6. Schouman T, Baralle MM, Ferri J. Facial morphology changes after total maxillary setback osteotomy. J Oral Maxillofac Surg 2010;68:1504-11.
Ko EW, Huang OS, Chen YR. Characteristics and corrective outcome of face asymmetry by orthognathic surgery. J Oral Maxillofac Surg 2009;67:2201-2209.