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

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#### **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. It is important to understand the components of facial asymmetry for diagnosing and planning orthodontic treatment or orthognathic surgery. 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<sup>3</sup>.

### **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 leptoprosopic face form, 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).

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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.

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- >To achieve a functionally stable Skeletal, Dental, and Soft tissue relationship.
- > To correct lateral tongue thrust Treatment Plan:

# Pre-Surgical Phase: (Figure 2).

- O 3<sup>rd</sup> molar were extracted.
- Alignment of upper arches
- Alignment of lower arches: By Extraction of 1<sup>st</sup> 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.

# <u>Post-surgical phase</u>(Figure 3).

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



Figure: 3 Post-surgical photographs and radiographs

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# **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)

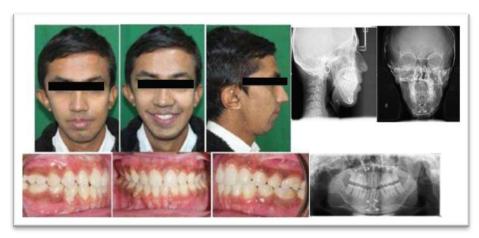


Figure: 5 follow up 5 years after surgery

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