

Case Report :

Non-surgical control of vertical maxillary excess with mini-implants to achieve esthetic facial profile and smile

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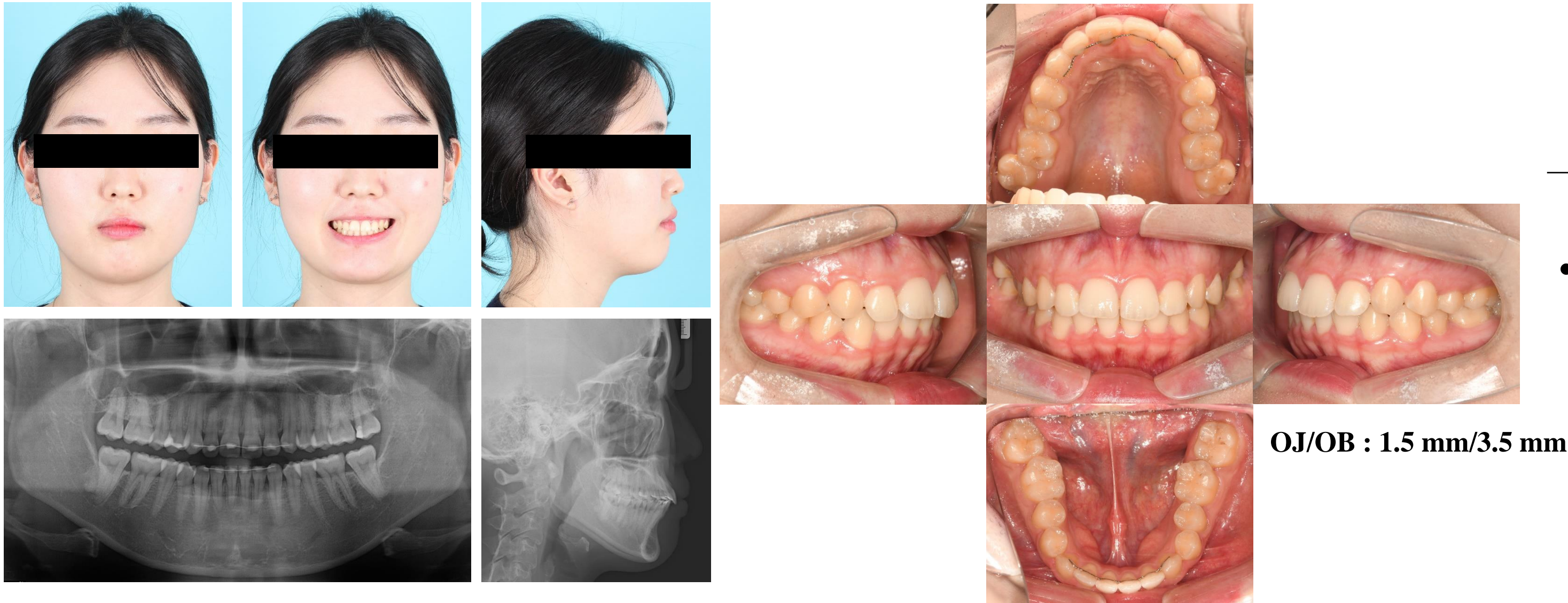


Introduction

- Vertical maxillary excess (VME), which is defined as an excessive maxillary development in the vertical plane, is commonly followed with gummy smile, long face and sometimes, anterior openbite.
- Mini-implant assisted intrusion of the maxillary arch has recently been thought as a non-surgical treatment for VME.
- In this case report, we introduce a case of Skeletal Class I patient with VME, who successfully improved gummy smile and facial profile via total arch intrusion of the maxilla with mini-implants.

Patient information

- Age & Gender : 26Y / Female
- C.C : Gummy smile, long face, lip incompetency
- PDH : Fixed orthodontic treatment d/t crowding (a private clinic)



Cephalometric analysis

	Mean	Initial		Mean	Initial
ANB	+2.4°	+2.0°	U1-STMs	+2.2 mm	+4.9 mm
Wits	-2.8 mm	-1.2 mm	SN-GoMe	34.0°	41.5°
U1-SN	106.0°	103.8°	AFH	99.1 mm	137.7 mm
IMPA	94.0°	93.8°	PFH	85.0 mm	82.9 mm

- Diagnosis: Skeletal class I
with vertical maxillary excess
with hyperdivergent facial profile
with gummy smile
with lip incompetency

Treatment Progress

6M

1. Mini-implant insertion on the maxillary 4^5, 5^6 buccal for total arch intrusion of the maxillary dental arch

7M

2. Mini-implant insertion on the mandibular 5^6 buccal for prevention of molar extrusion and distalization of the mandibular dental arch

9M

3. Constriction of the maxillary archwire to avoid expansion of the maxillary dental arch

12M

4. Midline correction with mini-implants (Upper to Left, Lower to Right)

Results

15M

Cephalometric analysis

	Initial	15 M
ANB	+2.0°	+2.0°
Wits	-1.2 mm	-2.2 mm
U1-SN	103.8°	105.8°
IMPA	93.8°	90.5°
U1-STMs	+4.9 mm	+3.3 mm
SN-GoMe	41.5°	38.5°
AFH	137.7 mm	133.3 mm
PFH	82.9 mm	83.2 mm

- By 6 months of total arch intrusion of the maxillary arch, the patient with VME showed 1.6 mm decrease of upper incisal show, 3.0° decrease of mandibular plane angle, and 4.4 mm decrease of anterior facial height.
- Total 6 mini-implants (Upper 4, Lower 2, OSSH 1606) were used to control patient's vertical height and to prevent extrusion of lower molars.
- After 15 months of treatment, the patient was satisfied with her shortened facial height, reduced gummy smile. She also expressed enhanced comfort and decreased muscle activation when her lips were closed.

Conclusions

- Proper use of orthodontic mini-implants can achieve satisfying results in the treatment of VME.
- Careful biomechanical consideration is needed for successful treatment results.

