

# Case Report :

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



Dr. Hyeonseok Jinn and Pf. Sung-Hwan Choi  
Department of Orthodontics, The Institute of Craniofacial Deformities,  
Yonsei University, College of Dentistry, Seoul, Republic of Korea

### 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)

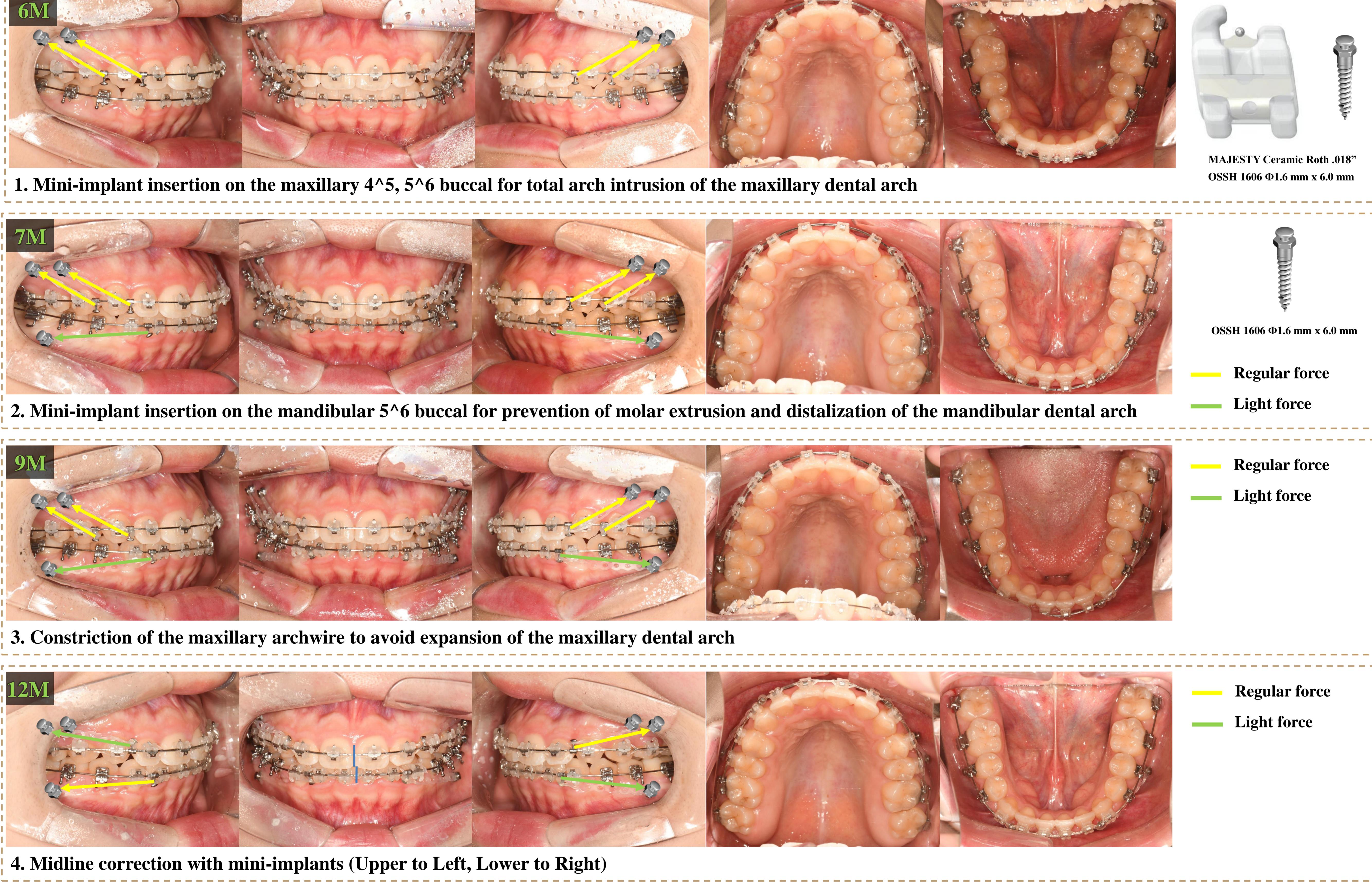


#### • Cephalometric analysis

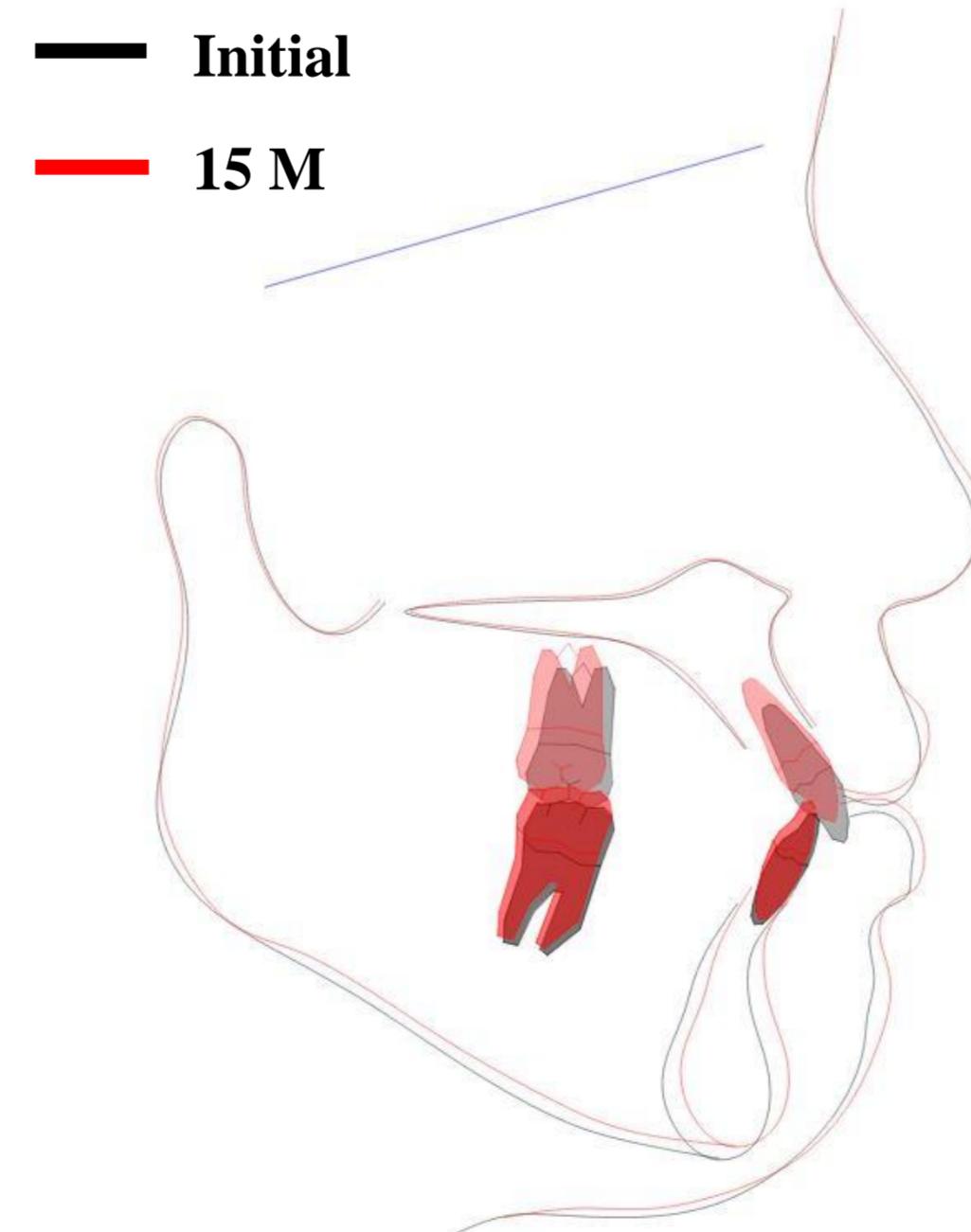
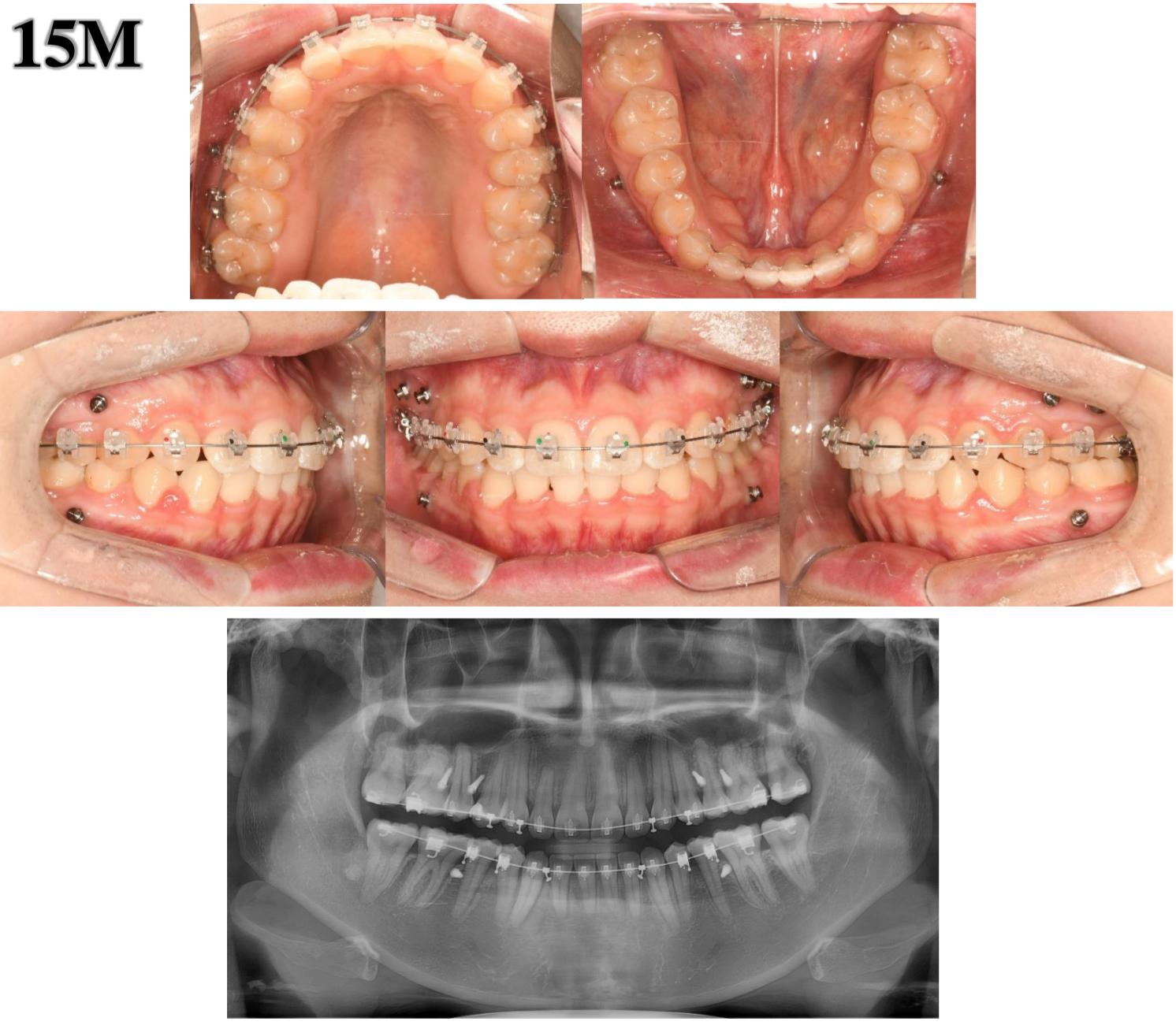
|       | Mean    | Initial |         | Mean    | Initial  |
|-------|---------|---------|---------|---------|----------|
| ANB   | +2.4°   | +2.0°   | U1-STM  | +2.2 mm | +4.9 mm  |
| Wits  | -2.8 mm | -1.2 mm | SN-GoMe | 34.0°   | 41.5°    |
| U1-SN | 106.0°  | 103.8°  | AFH     | 99.1 mm | 137.7 mm |
| 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



### Results



#### • 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-STM  | +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.