

**RESUME OF THE CASE**

|                  |  |
|------------------|--|
| CANDIDATE NUMBER |  |
| CASE NUMBER      |  |

**SUMMARY OF THE CASE**

|                       |   |  |
|-----------------------|---|--|
| PATIENT NAME          | : |  |
| SEX                   | : | <b>Female</b>  |
| TYPE OF MALOCCLUSION  | : | <b>Angle class I malocclusion with crowding</b>  |
| TREATMENT STARTED     | : | <b>AGE: 19.2years    DATE: 28/01/2014</b>  |
| TREATMENT ENDED       | : | <b>AGE: 21.3years    DATE: 01/03/2016</b>  |
| ACTIVE TREATMENT TIME | : | <b>2.2years</b>  |
| TYPE OF APPLIANCE     | : | <b>Lingual appliance(Kurz7<sup>th</sup>/Ormco), anchor screw, modified transpalatal arch</b> |

**BEFORE TREATMENT INTRA ORAL PICTURES**



**AFTER TREATMENT INTRA ORAL PICTURES**



**CANDIDATE NUMBER:**

**CASE NUMBER:**

**NAME** :

**BORN** : 13/11/1994

**SEX** : Female

**PRE-TREATMENT RECORDS** : AGE: 19.0years DATE:18/11/2013

**CLASSIFICATION** : Angle Class I malocclusion with crowding

**TEETHMISSING BEFORE TREATMENT** : None

**TREATMENT PLAN** : Extraction of four 1<sup>st</sup>bicuspids (14,24,34,44)

**APPLIANCE** : Lingual appliance (kurz7<sup>th</sup>/Ormco) , anchor screw, modified transpalatal arch

**TREATMENT STARTED** : AGE: 19.2years DATE:28/01/2014

**TREATMENT ENDED** : AGE: 21.3years DATE:01/03/2016

**ACTIVE TREATMENT TIME** : 2.1years

**POST-TREATMENT RECORDS** : AGE: 21.3years DATE:01/03/2016

**RETAINERS** : Tooth positioner DATE:01/03/2016

**RETENTION ENDED** : a) upper : do DATE:Continued  
: b) lower : do

**RETENTION TIME** :

**(POST-)RETENTION RECORDS** : AGE: DATE:

**TIME OUT OF RETENTION** :

# DIAGNOSTIC DESCRIPTION OF THE MALOCCLUSION

## A. SUMMARY

Patient's chief complaint was crowding and high canine. Skeletal relations were range of normal (A-N-Pg:0.3° ,S-N/Go-Gn:33.1° ). Molar relations were Angle Class I. Arch length discrepancy was -7.1mm in upper arch, -4.7mm in lower arch. For improve crowding, extraction of four 1<sup>st</sup>bicuspid(14,24,34,44) were needed. Anchorage value was needed as maximum. By using anchor screw on midpalatal and modified transpalatal arch, maximum anchorage was achieved.

## B. EXAMINATION OF HEAD AND FACE

From lateral view , patient's profile was straight.  
Frontal view was almost symmetrical.  
From smile view , high canine was shown.

## C. FUNCTIONAL EXAMINATION

Nothing relevant

## D. INTRAORAL EXAMINATION

Molar relationship was Angle Class I on both sides.  
Overbite was +1.3mm and overjet was +2.6mm.  
Lower midline was shifted to right 1.3mm.  
Crowding was shown on both arches.  
Crossbite (12,22/33,42,43)

## E. DENTAL CASTS

Maxillary arch: Arch length discrepancy was -7.1mm, ovoid-shaped with crowding  
mesial rotation(17) labial tipping (13,23) ,lingual tipping(12,22)  
Mandibular arch: Arch length discrepancy was -4.7mm, ovoid-shaped with crowding  
mesial rotation(37,47) , distal rotation(34),lingual tipping(32,42)  
distal tipping(42)  
Occlusion Sagittal: Angle Class I molar relationship. Overjet +2.6mm.  
Occlusion Vertical: Overbite +1.3mm.  
Occlusion Transversal: Lower midline was shifted to right 1.3mm.



FRONTAL



SMILE



45°



PROFILE

## FACIAL PHOTOGRAPHS BEFORE TREATMENT

CASE NUMBER

DATE:18/11/2013

AGE:19.0years





Right Buccal



Left Buccal



Center

Upper Occlusal



Lower Occlusal



## INTRA-ORAL COLOUR PHOTOGRAPHS OF THE OCCLUSION BEFORE TREATMENT

CASE NUMBER:

DATE:18/11/2013

AGE:19.0years



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LATERAL SKULL RADIOGRAPH BEFORE TREATMENT

CASE NUMBER:

DATE:18/11/2013

AGE:19.0years



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**TRACING OF LATERAL SKULL RADIOGRAPH  
BEFORE TREATMENT**

CASE NUMBER:

DATE:18/11/2013

AGE:19.0years



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FACIAL RADIOGRAPHS BEFORE TREATMENT

CASE NUMBER:

DATE:18/11/2013

AGE:19.0years





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**PERIAPICAL OR PANORAMIC RADIOGRAPHS  
BEFORE TREATMENT**

CASE NUMBER:

DATE:18/11/2013

AGE:19.0years

# CEPHALOMETRIC MORPHOLOGICAL ASSESSMENT I

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|  | Pre-treatment                      | Mean SD     |
|--|------------------------------------|-------------|
| <i>Sagittal Skeletal Relations</i>               |                                    |             |
|  | <i>Sagittal Skeletal Relations</i> |             |
| Maxillary Position<br>S-N-A                      | 78.9°                              | 82° ± 3.5°  |
| Mandibular Position<br>S-N-Pg                    | 78.6°                              | 80° ± 3.5°  |
| Sagittal Jaw Relation<br>A-N-Pg                  | 0.3°                               | 2° ± 2.5°   |
| <i>Vertical Skeletal Relations</i>               |                                    |             |
|  | <i>Vertical Skeletal Relations</i> |             |
| Maxillary Inclination<br>S-N / ANS-PNS           | 12.2°                              | 8° ± 3.0°   |
| Mandibular Inclination<br>S-N / Go-Gn            | 33.1°                              | 33° ± 2.5°  |
| Vertical Jaw Relation<br>ANS-PNS / Go-Gn         | 20.9°                              | 25° ± 6.0°  |
| <i>Dento-Basal Relations</i>                     |                                    |             |
|  | <i>Dento-Basal Relations</i>       |             |
| Maxillary Incisor Inclination<br>⊥ - ANS-PNS     | 125.1°                             | 110° ± 6.0° |
| Mandibular Incisor Inclination<br>⊥ - Go-Gn      | 101.0°                             | 94° ± 7.0°  |
| Mandibular Incisor Compensation<br>⊥ - A-Pg (mm) | 5.3mm                              | 2 ± 2.0mm   |
| <i>Dental Relations</i>                          |                                    |             |
|  | <i>Dental Relations</i>            |             |
| Overjet (mm)                                     | 2.6mm                              | 3.5 ± 2.5mm |
| Overbite (mm)                                    | 1.3mm                              | 2 ± 2.5mm   |
| Interincisal Angle<br>⊥ / ⊥                      | 112.5°                             | 132° ± 6.0° |

CASE NUMBER:

DATE:18/11/2013

AGE:19.0years

# RADIOGRAPHIC ANALYSIS BEFORE TREATMENT

## A. INTRAORAL / PANORAMIC RADIOGRAPH

17,27 had fillings.

18,28,38,48 were impacted.

## B. INTERPRETATION OF CEPHALOMETRIC ASSESSMENT

### 1. **Sagittal Skeletal Relations:**

Maxillary and mandibular position were normal.

(S-N-A:78.9° , S-N-Pg:78.6° , A-N-Pg:0.3° )

### 2. **Vertical Skeletal Relations:**

Maxillary inclination beyond the range of normal.

Mandibular inclination was the range of normal.

Vertical jaw relation was the range of normal.

(S-N/ANS-PNS:12.2° , S-N/Go-Gn :33.1° , ANS-PNS/Go-Gn:20.9° )

### 3. **Dento-Basal Relations:**

Maxillary incisors and mandibular incisors were inclined labially.

Mandibular incisor compensation was protrusive relative to A-Pg line.

( $\underline{1}$ -ANS-PNS : 125.1° ,  $\bar{1}$ -Go-Gn :101.0° ,  $\bar{1}$ -A-Pg:5.3mm)

### 4. **Dental relations:**

Overjet +2.6mm, Overbite +1.3mm

Interincisal angle was below the range of normal.

( $\underline{1}/\bar{1}$  112.5° )

Molar relation was classI.

# TREATMENT PLAN AND THE REASON FOR IT

## **Treatment plan**

- 1, Implantation on midpalatal
- 2, Placement modified transpalatal arch
- 3, Ligation the anchor screws with the modified transpalatal arch for anchorage reinforcement
- 4, Indirect bonding to both arches the lingual appliance (kurz7<sup>th</sup> brace)
- 5, Extraction 1<sup>st</sup> bicuspid of upper and lower (14,24,34,44) to create space
- 6, Extraction third molars(18,28,38,48)
- 7, Leveling
- 8, Torquing
- 9, Retraction of upper and lower incisors
- 10, Detailing

## **The reason**

From lateral cephalogram, there were no problems with skeletal relations. Crowding and high canine were shown.(A.L.D. upper:-7.1mm, lower:-4.7mm)

Upper and lower incisors were inclined labially and were protruded from A-Pg line.

Treatment goal was to correct crowding, incisors inclination and incisors protrusion.

Upper and lower 1<sup>st</sup> bicuspid were extracted for improve these problems.

Anchorage value was decided as maximum on both arch.

Maximum anchorage was achieved by using ligated anchor screws with modified transpalatal arch.





Right Buccal



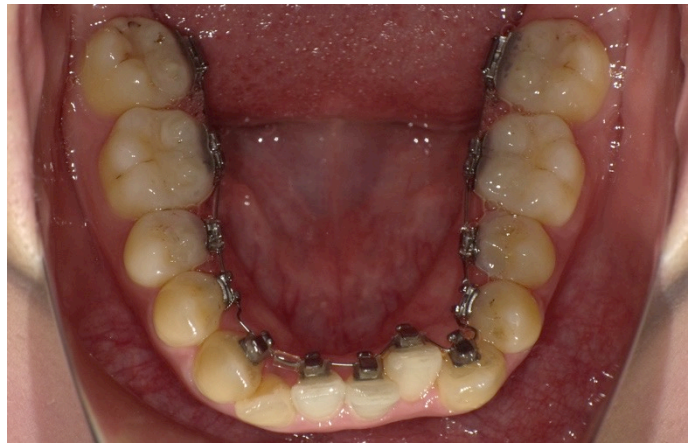
Left Buccal



Center

Upper Occlusal

Lower Occlusal



## INTRA-ORAL COLOUR PHOTOGRAPHS OF THE OCCLUSION BETWEEN TREATMENT

CASE NUMBER:

DATE:12/03/2014

AGE:19.3years





Right Buccal

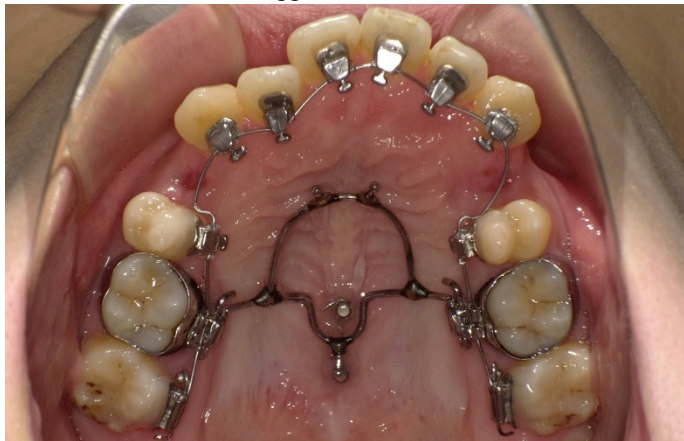


Left Buccal

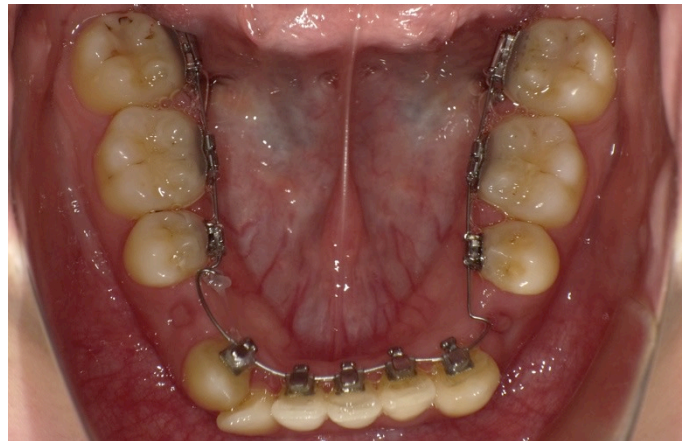


Center

Upper Occlusal



Lower Occlusal



## INTRA-ORAL COLOUR PHOTOGRAPHS OF THE OCCLUSION BETWEEN TREATMENT

CASE NUMBER:

DATE:26/04/2014

AGE:19.5years



Right Buccal



Left Buccal

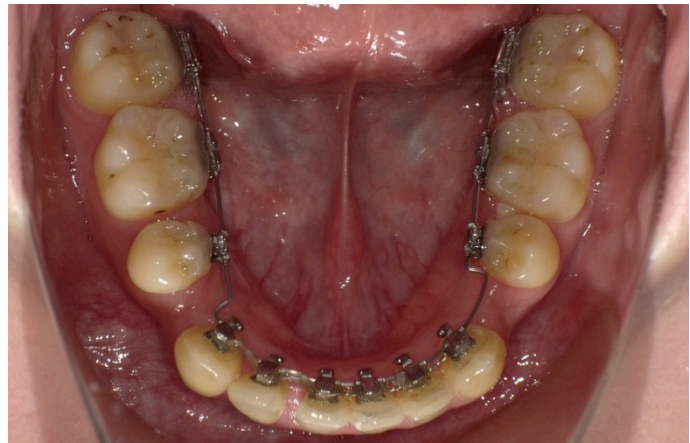


Center

Upper Occlusal



Lower Occlusal



# INTRA-ORAL COLOUR PHOTOGRAPHS OF THE OCCLUSION BETWEEN TREATMENT

CASE NUMBER:

DATE:25/10/2014

AGE:19.11years





Right Buccal



Left Buccal



Center

Upper Occlusal



Lower Occlusal



## INTRA-ORAL COLOUR PHOTOGRAPHS OF THE OCCLUSION BETWEEN TREATMENT

CASE NUMBER:

DATE:26/08/2015

AGE:20.9years



## RÉSUMÉ OF THE TREATMENT CARRIED OUT INCLUDING ANY DIFFICULTIES ENCOUNTERED

17/12/2013 Diagnosis

28/01/2014 Implantation(Induce mini screw /GC :1.8mm/8mm )

Place modified transpalatal arch

18/02/2014 Indirect bonding to maxillary arch

(Kurz7<sup>th</sup> brace/Ni-Ti .012)

12/03/2014 Indirect bonding to mandibular arch

(Kurz7<sup>th</sup> brace/Ni-Ti .012)

01/04/2014 Extraction(14,44)

08/04/2014 Extraction(24,34)

25/10/2014 Started upper incisor retraction (TMA .017 × .025)

06/12/2014 Started lower incisor retraction (S.S. .016 × .022)

04/11/2015 Detailing ( $\beta$ -titanium .0175 × .0175)

04/02/2016 Extraction (18,28,38,48)

01/03/2016 Removed the appliance, Started retention



FRONTAL



SMILE



45°



PROFILE

FACIAL PHOTOGRAPHS AT COMPLETION OF TREATMENT

CASE NUMBER:

DATE:01/03/2016

AGE:21.3years





Right Buccal



Left Buccal



Center

Upper Occlusal

Lower Occlusal

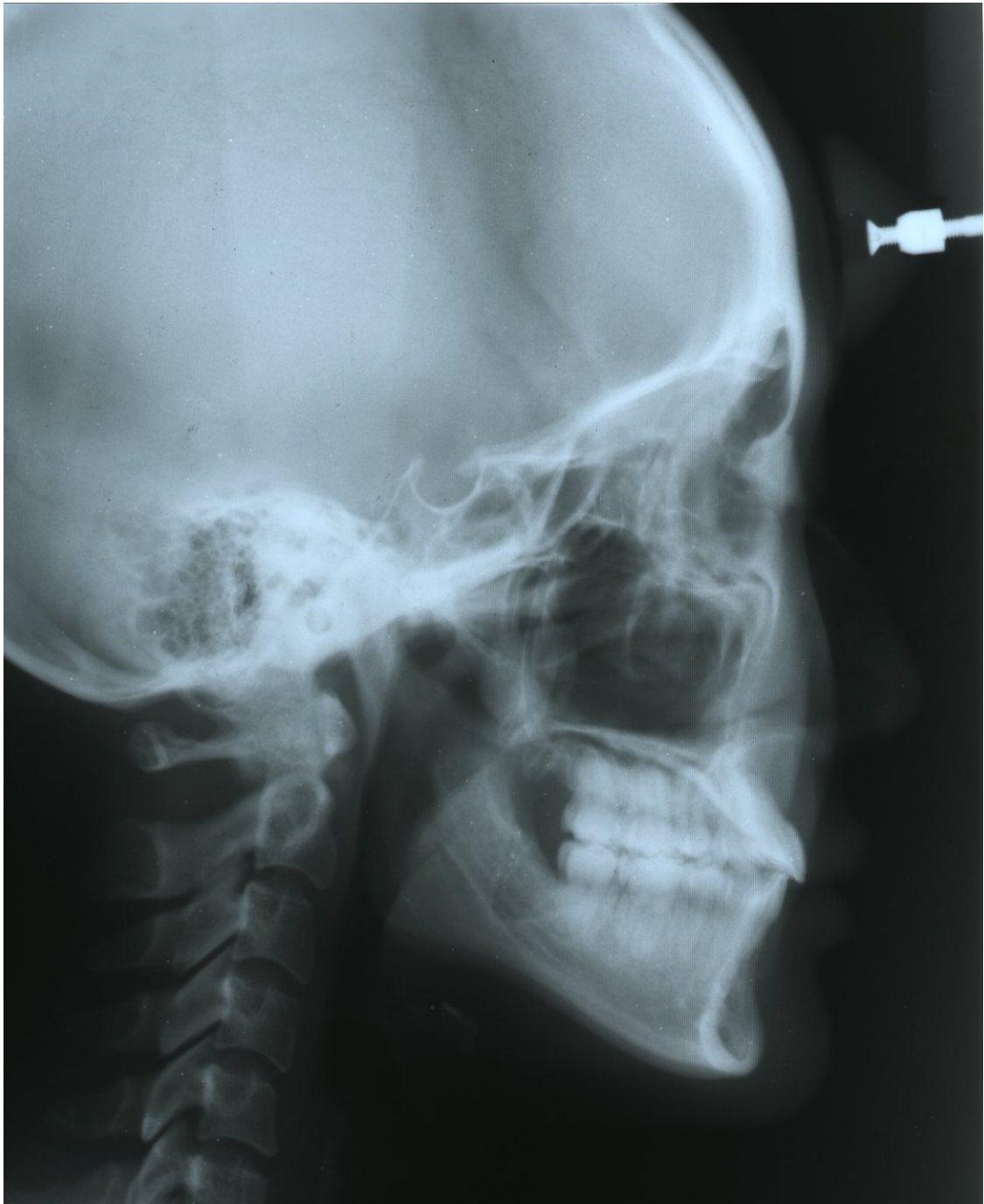


## INTRA-ORAL COLOUR PHOTOGRAPHS OF THE OCCLUSION AT COMPLETION OF TREATMENT

CASE NUMBER:

DATE:01/03/2016

AGE:21.3years



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LATERAL SKULL RADIOGRAPH AT  
COMPLETION OF TREATMENT

CASE NUMBER:

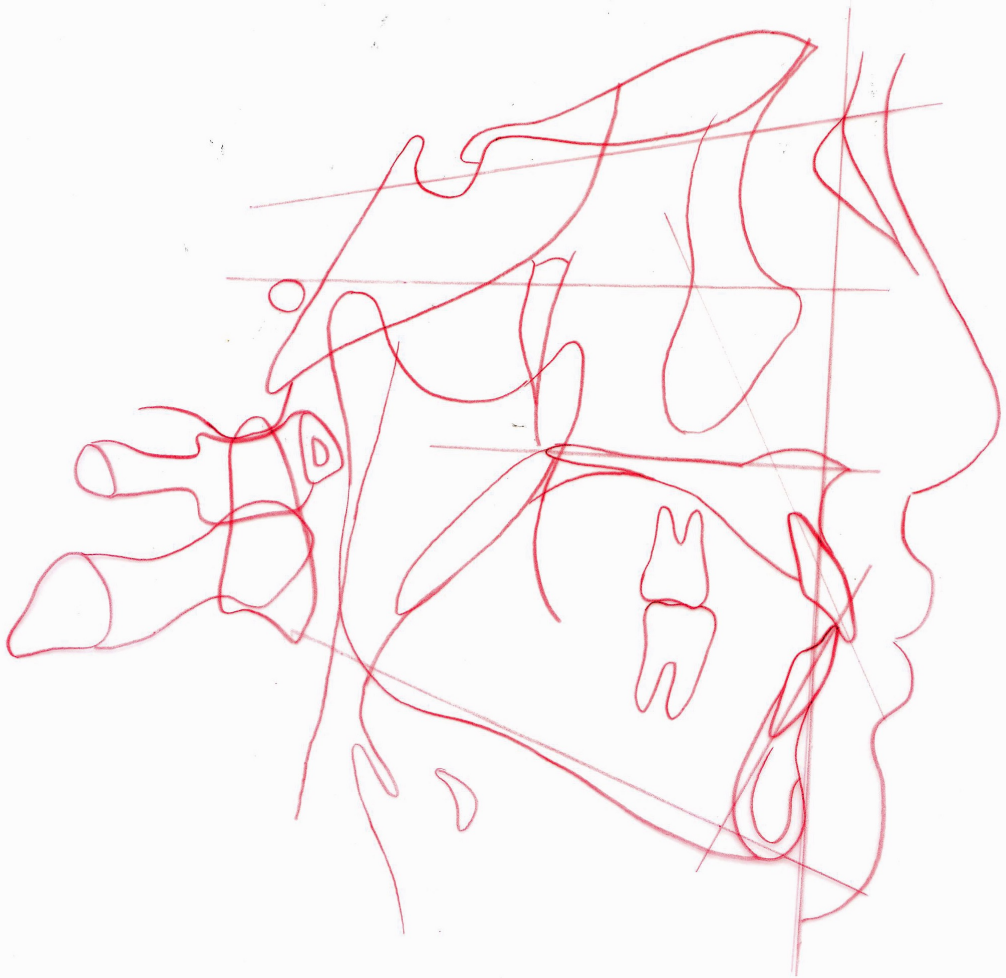
DATE:01/03/2016

AGE:21.3years

POST TREATMENT

01/03/2016

21.3years



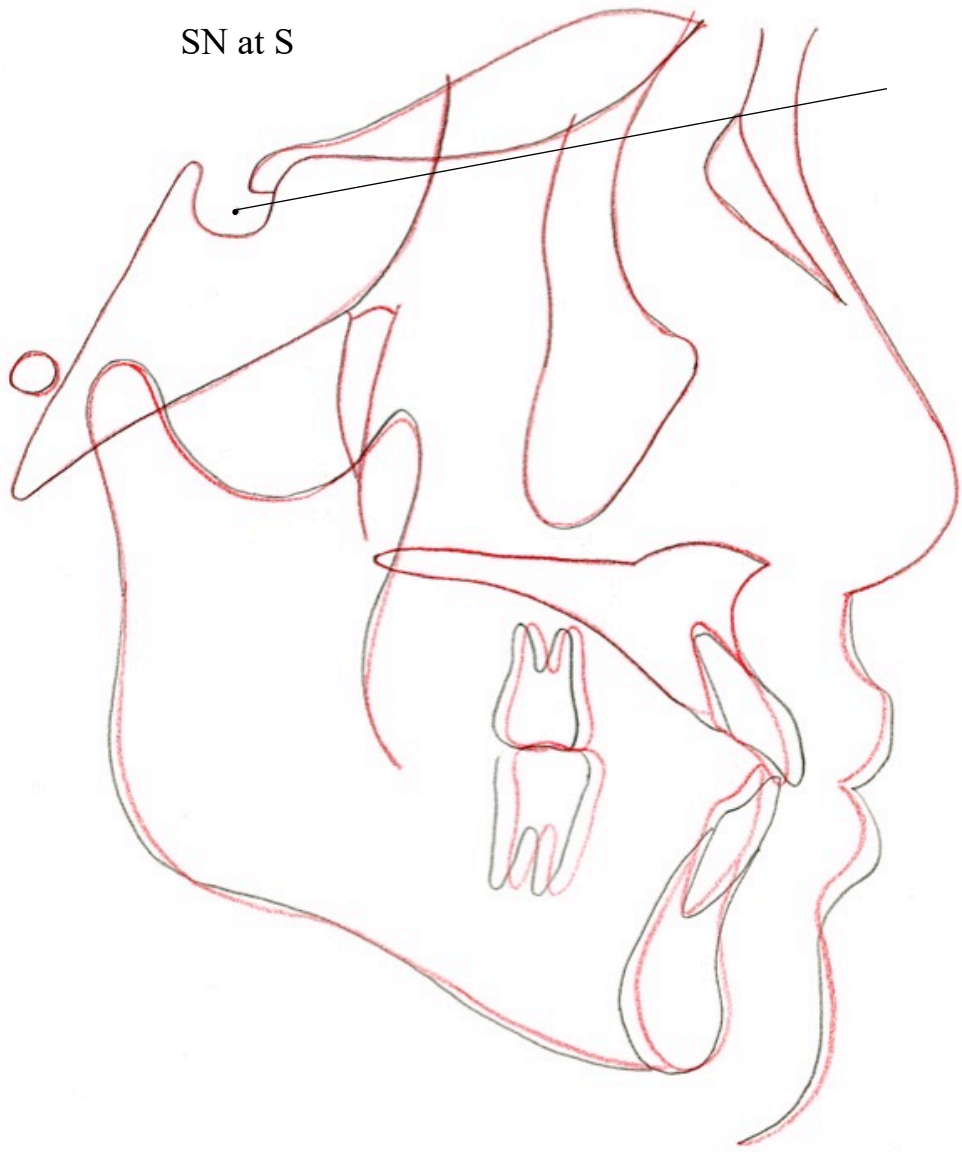
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**TRACING OF LATERAL SKULL RADIOGRAPH  
AT COMPLETION OF TREATMENT**

CASE NUMBER:

DATE:01/03/2016

AGE:21.3years



SN at S

### SUPERIMPOSITION

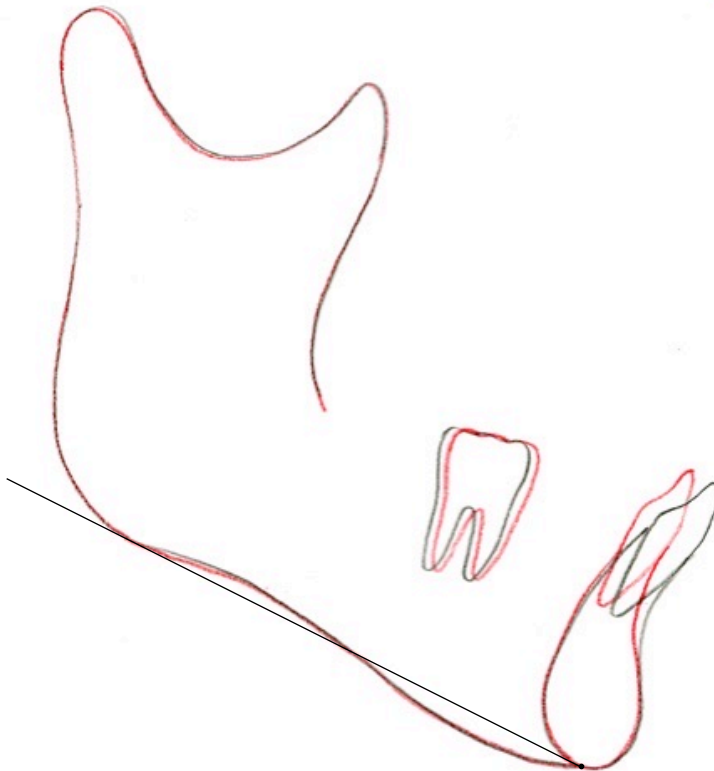
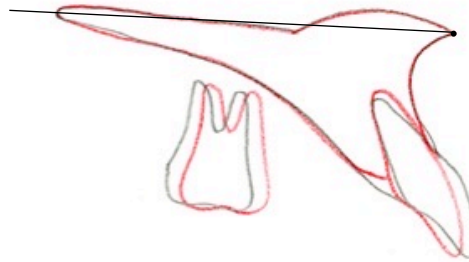
CASE NUMBER:

DATE:01/03/2016

AGE:21.3years



ANS-PNS at ANS



Mandibular plane at Me

SUPERIMPOSITION



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## FACIAL RADIOGRAPHS POST TREATMENT

CASE NUMBER:

DATE:01/03/2016

AGE:21.3years



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PERIAPICAL OR PANORAMIC RADIOGRAPHS  
AT COMPLETION OF TREATMENT

CASE NUMBER:

DATE:01/03/2016

AGE:21.3years

# CEPHALOMETRIC MORPHOLOGICAL ASSESSMENT II

|   | Pre-treatment                      | Post-treatment | Mean SD     |
|---|------------------------------------|----------------|-------------|
| <i>Sagittal Skeletal Relations</i>                      |                                    |                |             |
|   | <i>Sagittal Skeletal Relations</i> |                |             |
| Maxillary Position<br>S-N-A                             | 78.9°                              | 78.9°          | 82° ± 3.5°  |
| Mandibular Position<br>S-N-Pg                           | 78.6°                              | 78.7°          | 80° ± 3.5°  |
| Sagittal Jaw Relation<br>A-N-Pg                         | 0.3°                               | 0.2°           | 2° ± 2.5°   |
| <i>Vertical Skeletal Relations</i>                      |                                    |                |             |
|   | <i>Vertical Skeletal Relations</i> |                |             |
| Maxillary Inclination<br>S-N / ANS-PNS                  | 12.2°                              | 12.1°          | 8° ± 3.0°   |
| Mandibular Inclination<br>S-N / Go-Gn                   | 33.1°                              | 32.9°          | 33° ± 2.5°  |
| Vertical Jaw Relation<br>ANS-PNS / Go-Gn                | 20.9°                              | 20.8°          | 25° ± 6.0°  |
| <i>Dento-Basal Relations</i>                            |                                    |                |             |
|   | <i>Dento-Basal Relations</i>       |                |             |
| Maxillary Incisor Inclination<br><u>1</u> - ANS-PNS     | 125.1°                             | 116.9°         | 110° ± 6.0° |
| Mandibular Incisor Inclination<br><u>1</u> - Go-Gn      | 101.0°                             | 94.6°          | 94° ± 7.0°  |
| Mandibular Incisor Compensation<br><u>1</u> - A-Pg (mm) | 5.3mm                              | 3.3mm          | 2 ± 2.0mm   |
| <i>Dental Relations</i>                                 |                                    |                |             |
|   | <i>Dental Relations</i>            |                |             |
| Overjet (mm)  | 2.6mm                              | 2.6mm          | 3.5 ± 2.5mm |
| Overbite(mm)  | 1.3mm                              | 2.2mm          | 2 ± 2.5mm   |
| Interincisal Angle<br><u>1</u> / <u>1</u>               | 112.5°                             | 126.9°         | 132° ± 6.0° |

CASENUMBER: Pre-treatment DATE:18/11/2013

AGE:19.0years

Post-treatment DATE:01/03/2016

AGE:21.3years

INTERVER:2.1years

# RADIOGRAPHIC ANALYSIS AT COMPLETION OF TREATMENT

## A. INTRAORAL / PANORAMIC RADIOGRAPH

Crowding and high canine were improved.

14,18,24,28,34,38,44,48 were extracted.

Root parallelism was good.

No root resorption.

## B. INTERPRETATION OF CEPHALOMETRIC ASSESSMENT

### 1. Sagittal Skeletal Relations:

No significant change compared with before treatment.

( S-N-A:78.9° →78.9° , S-N-Pg:78.6° →78.7° ,

A-N-Pg:0.3° →0.2° )

### 2. Vertical Skeletal Relations:

No significant change compared with before treatment.

(S-N/ANS-PNS:12.2° →12.1° ,S-N/Go-Gn :33.1° →32.9° ,

ANS-PNS/Go-Gn:20.9° →20.8° )

### 3. Dento-Basal Relations:

Maxillary incisors and mandibular incisors were inclined to lingual.

Mandibular incisor compensation was normal.

( $\underline{I}$ -ANS-PNS : 125.1° →116.9° , $\bar{I}$ -Go-Gn :101.0° →94.6° ,

$\bar{I}$ -A-Pg:5.3mm→3.3mm)

### 4. Dental relations:

Overjet +2.6mm→ +2.6mm, Overbite +1.3mm→ +2.2mm

Interincisal angle was the range of normal. ( $\underline{I}\bar{I}$  112.5° →126.9° )

## DESCRIPTION OF THE TREATMENT RESULT

### **Treatment result orientation**

- 1) Crowding and high canine were improved.
- 2) Midline discrepancy was mostly corrected.
- 3) Maxillary and mandibular incisor inclination and position were improved.
- 4) Retention: Tooth positioner

From comparison of before and after treatment lateral cephalogram, skeletal relations were maintained.

About dental relations, by using anchor screw and modified transpalatal arch, maximum anchorage was achieved.

From superimposition of lateral cephalogram, sufficient results were achieved.

## DESCRIPTION OF THE POST-TREATMENT EVALUATION OF RETENTION

Patient use positioner at night.

Occlusion is stable.

Teeth positions are stable.





Right Buccal



Left Buccal

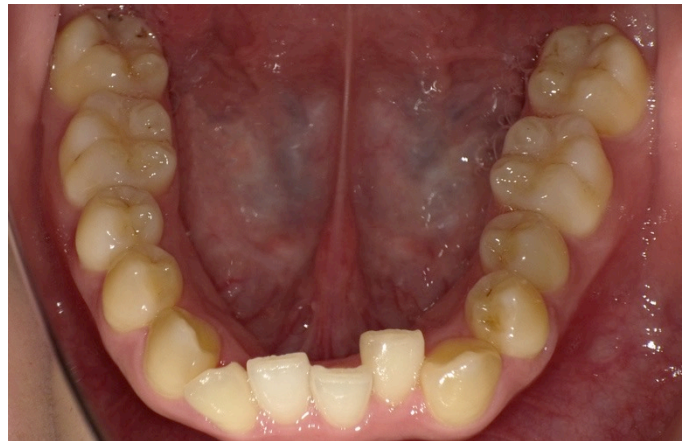


Center

Upper Occlusal



Lower Occlusal



## INTRA-ORAL COLOUR PHOTOGRAPHS OF THE OCCLUSION BETWEEN TREATMENT

CASE NUMBER:

DATE:28/01/2014

AGE:19.2years



Right Buccal



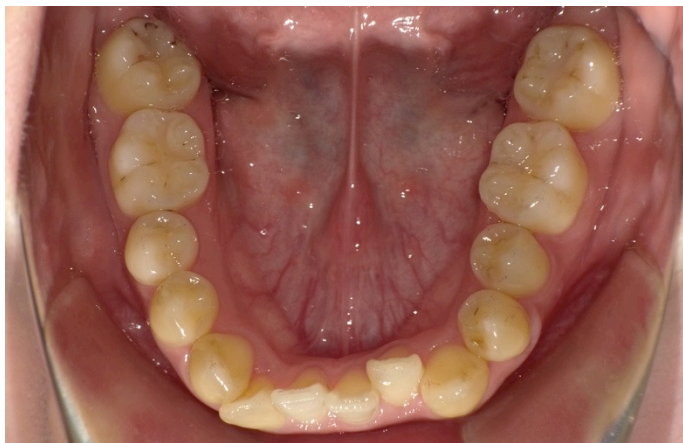
Left Buccal



Center

Upper Occlusal

Lower Occlusal



## INTRA-ORAL COLOUR PHOTOGRAPHS OF THE OCCLUSION BETWEEN TREATMENT

CASE NUMBER:

DATE:18/02/2014

AGE:19.3years





Right Buccal



Left Buccal

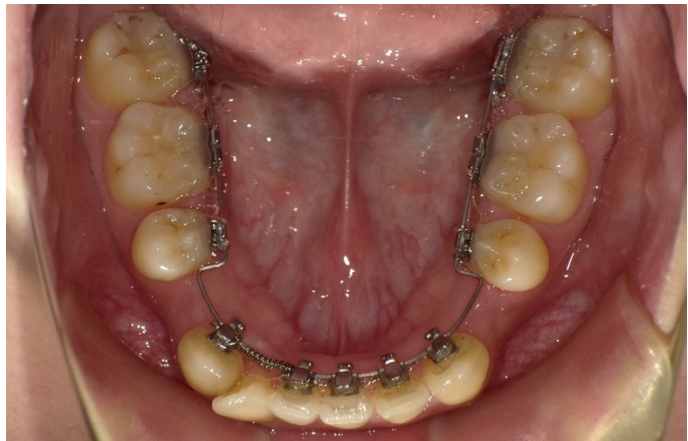


Center

Upper Occlusal



Lower Occlusal



## INTRA-ORAL COLOUR PHOTOGRAPHS OF THE OCCLUSION BETWEEN TREATMENT

CASE NUMBER:

DATE:05/07/2014

AGE:19.7years



Right Buccal



Left Buccal

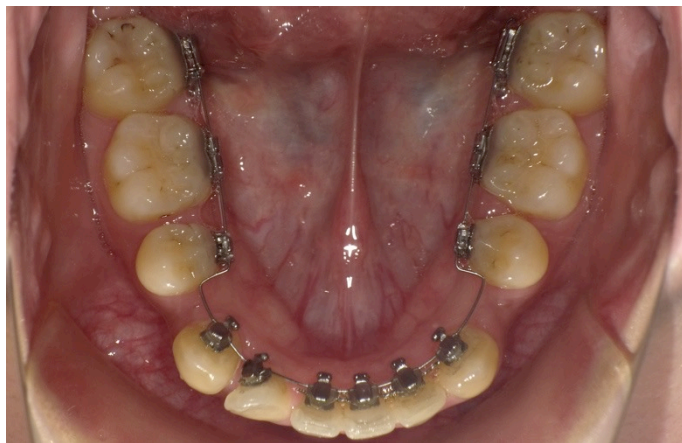


Center

Upper Occlusal



Lower Occlusal



## INTRA-ORAL COLOUR PHOTOGRAPHS OF THE OCCLUSION BETWEEN TREATMENT

CASE NUMBER:

DATE:01/09/2014

AGE:19.9years