Orthodontic and Implant Treatment for Severe Crowding Complicated by Missing Molars

HISTORY AND ETIOLOGY

A 33-year-old female was referred by her dentist for orthodontic consultation to evaluate her Class II Division 2, mutilated dentition (*Fig. 1*). Bilateral miniscrews were evident in the infrazygomatic crest areas, that had been placed by her dentist, prior to the decision to send the patient for specialty evaluation. The patient's chief concern was an irregular dentition, with two missing teeth in the lower left posterior area (*Figs. 1-2*). No other contributing medical or dental history was reported.

Following 3 years and 11 months of orthodontic treatment, the crowding was relieved and the edentulous space was reduced from 14 to 8mm. As documented in Figs. 3-4, the patient was treated to an acceptable result and the residual space was restored with a single implant-supported prosthesis. Radiographic documentation of the pretreatment condition and the posttreatment result is provided in Figs. 5-6, respectively. Cephalometric data is presented in Table 1, and Fig. 7 shows the superimposed cephalometric tracings.

Fig. 1: Pretreatment intraoral photographs

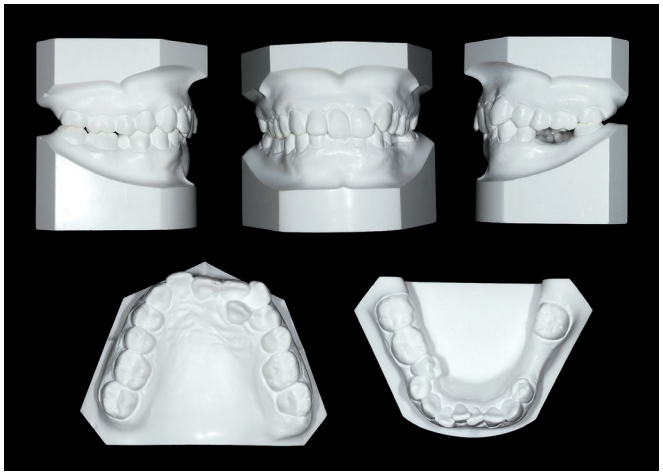

Fig. 2: Pretreatment study models

DIAGNOSIS

Skeletal:

Skeletal Class II (*SNA 79°, SNB 74°, ANB 5°*)

High mandibular plane angle (*SN-MP 38°, FMA 31°*)

Dental:

Class II molar relationship, 2mm on the right side, no first molar interocclusal relationship on the left side

OJ 1mm; OB 6mm

Upper midline was shifted 4mm to the left of the facial midline

Teeth #10 and #29 blocked-in

Dr. Shu Ping Tseng, Lecturer, Beethoven Orthodontic Course (left)
Dr. Chris Chang, Director, Beethoven Orthodontic Center (middle)
Dr. Eugene W. Roberts, Consultant, News and Trends in Orthodontics (right)

Fig. 3: Posttreatment intraoral photographs

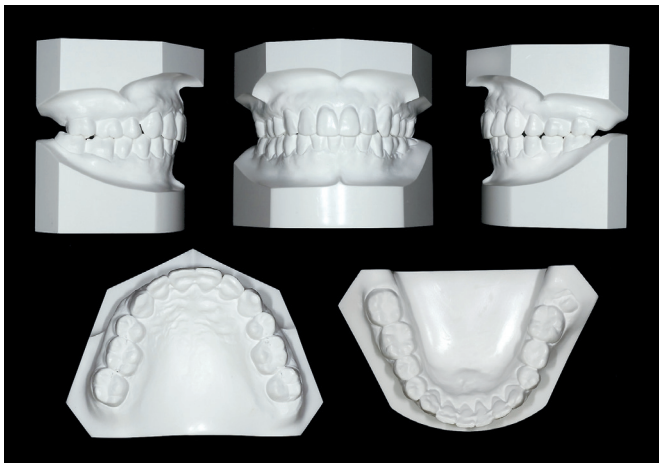

Fig. 4: Posttreatment study models

Teeth #19 and 20 missing

Lower left third molar is partially erupted.

ABO Discrepancy Index = 18

Facial:

Straight profile

Competent, slightly retrusive lips

SPECIFIC OBJECTIVES OF TREATMENT

Maxilla (*all three planes*):

- A - P: Maintain
- Vertical: Maintain
- Transverse: Maintain

Mandible (*all three planes*):

- A - P: Maintain
- Vertical: Maintain
- Transverse: Maintain

Maxillary Dentition

- A - P: Align block-in tooth #10, flare central incisors
- Vertical: Incisor intrusion
- Transverse: Relieve crowding and midline correction

Mandibular Dentition

- A - P: Decrease width of the edentulous distance
- Vertical: Incisor intrusion
- Transverse: Correct tooth #29 buccal crossbite

Facial Esthetics: Maintain

TREATMENT PLAN

Both maxillary first premolars were extracted and canines were retracted to create space to correct the block-in left lateral incisor and the midline deviation. For the lower arch, the patient refused extraction treatment. So tooth #18 was moved mesially to reduce the width of the edentulous space, due to the loss of teeth #19 and #20. Space closure retracted the mandibular left canine and first premolar,

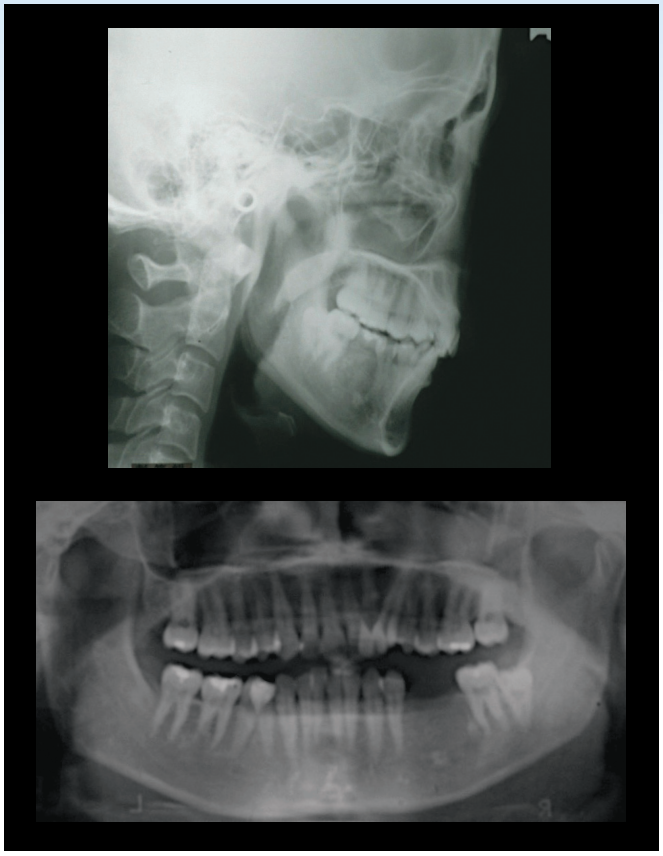

Fig. 5: Pretreatment pano and ceph radiographs

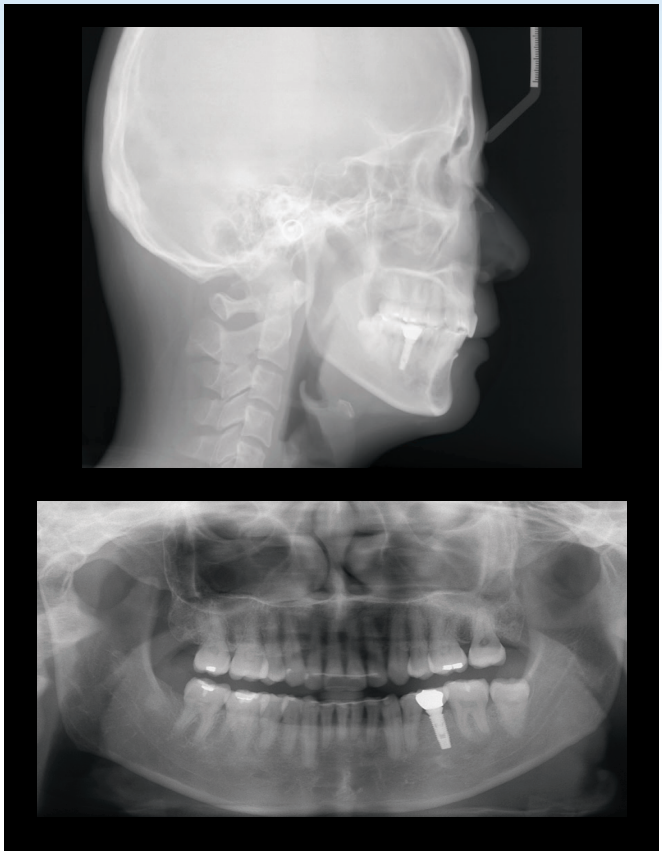

Fig. 6: Posttreatment pano and ceph radiographs

resulting in enough space to relieve lower arch crowding and help correct the midline discrepancy.

APPLIANCES AND TREATMENT PROGRESS

.022" Damon 3MX brackets (*Ormco*) were selected. The archwire sequence was .014 CuNiTi, .014x.025 CuNiTi, . 017x.025 TMA and .019x.025 SS. Two mini-screws (*2 x 12mm, OrthoBoneScrew, Newton's A, Inc.*), previously inserted in the maxilla were used to retract the maxillary canines to close extraction space and to correct the midline.

At the start of active treatment, one section of open coil springs was applied between the upper left central incisor and adjacent canine to create space for the block-in lateral incisor; meanwhile, upper

CEPHALOMETRIC			
SKELETAL ANALYSIS			
	PRE-Tx	POST-Tx	DIFF.
SNA°	79°	79°	0°
SNB°	74°	74°	0°
ANB°	5°	5°	0°
SN-MP°	38°	39°	1°
FMA°	31°	32°	1°
DENTAL ANALYSIS			
U1 TO NA mm	-5.5 mm	-4 mm	1.5 mm
U1 TO SN°	76°	86°	10°
L1 TO NB mm	-7 mm	-5 mm	2 mm
L1 TO MP°	83°	93°	10°
FACIAL ANALYSIS			
E-LINE UL	-3.5 mm	-3 mm	0.5 mm
E-LINE LL	-3 mm	-2.5 mm	0.5 mm

Table 1. Cephalometric summary

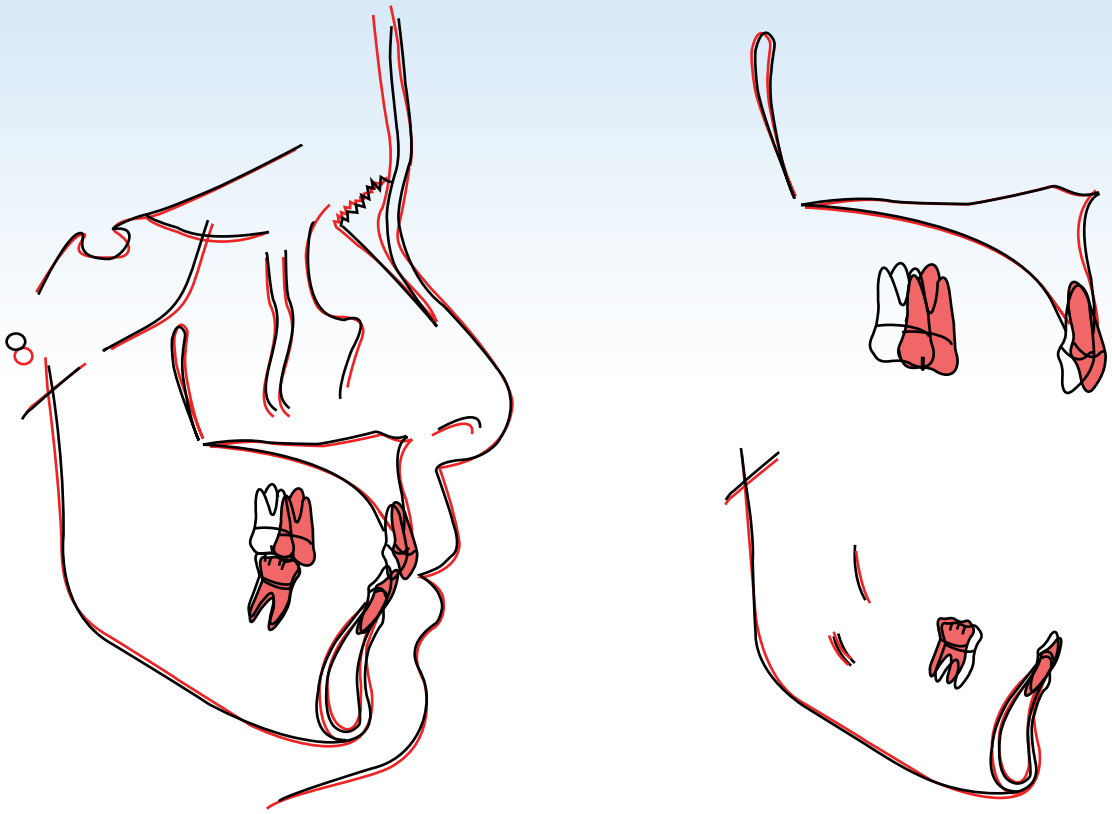

Fig. 7: Superimposed tracing showed posterior teeth were elongated and anterior teeth were flared without any significant skeletal change.

Fig. 8: Intraoral photos showed the alignment progress of tooth #10.

Fig. 9: Intraoral photos showed the progress of tooth #29 alignment.

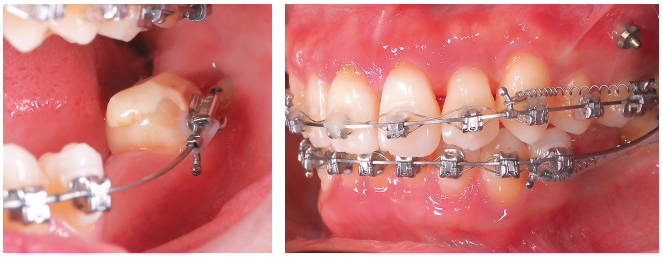

Fig. 10: Intraoral photos showed the force system for molar traction.

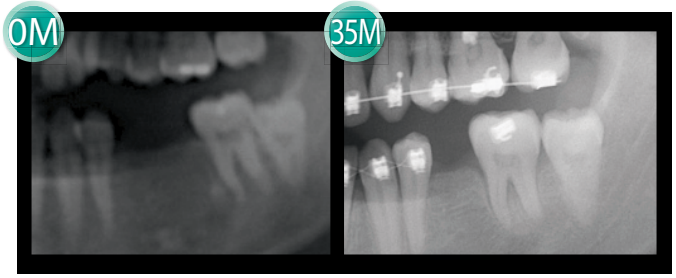

Fig. 11: X-ray film showed third molar drifted forward spontaneously.

canines were laced back to the miniscrews above the first molars to control incisal flaring. After 4 months of arch expansion, tooth #10 was bonded with a bracket and engaged on the arch wire, and the bite was opened with bite turbos on the posterior teeth (*Fig. 8*).

In the lower arch, an open coil spring was applied between #28 and #30 to open space for the block-in premolar. Limited progress was achieved after 8.5 months of expansion. A .014 CuNiTi wire segment engaged tooth #29 but there was still no progress after 2 months. After that an open coil spring, combined with the double wire technique, and crisscross elastics corrected the alignment of #29 in 2 months (*Fig. 9*).

By using mini screws and coil springs, the upper right extraction site was closed in 22 months. For

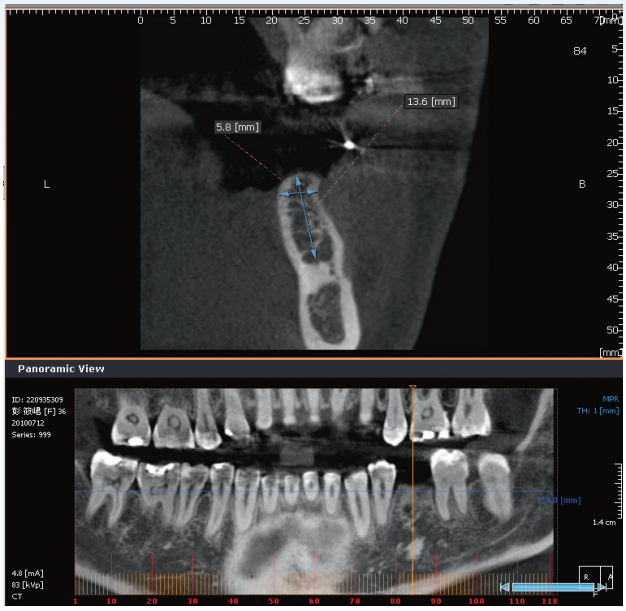

Fig. 12: 3D image showed the bone condition of implant site.

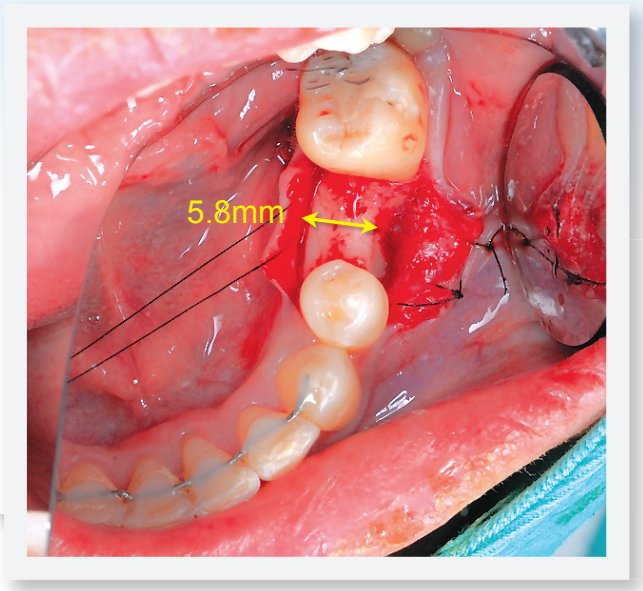

Fig. 14: Bone exposed after flap elevation.

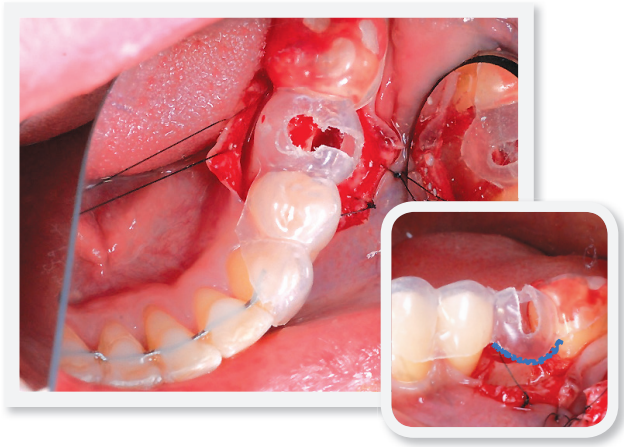

Fig. 13: Surgical stent

the lower left area, power chains, elastic threads and coil springs were used to pull the second molar forward by attaching a crimping hook on the arch wire. It took 31 months to decrease the width of the mandibular left edentulous area from 14mm to 8mm (*Fig. 10*). Moreover, the third molar drifted mesially spontaneously (*Fig. 11*), but it never erupted into occlusion.

At the debonding visit, an upper clear overlay retainer, as well as upper 2-2 and lower 3-3 fixed retainers were delivered. A fixed retainer to maintain space closure was cemented right after implant placement and restoration.

IMPLANT PLACEMENT

Before surgery, a three-dimensional cone beam computed tomography (*CBCT*) image was taken to evaluate bone density, volume (*H:13.6mm H x W:5.8mm*), and the anatomic structure of implant site (*Fig. 12*). A surgical stent was designed to guide the mesial-distal (*M-D*) position, buccal-lingual (*B-L*) position and axial angulation of the surgical bur to achieve an optimal future gingival margin (*Fig. 13*).

A mid-crestal incision was made with no.15 scalpel across the edentulous area. Sulcular incisions with

no.12 scalpel were performed on the buccal and lingual of the adjacent teeth. After exposing the bone with full thickness flaps, the buccal flap was sutured on the cheek and the lingual flap was pulled lingually with a needle holder to obtain a clear surgical view of the implant site (*Fig. 14*).[1]

Following the implant manufacturer's recommended drilling and insertion protocol, a 4.0 x 11.5mm fixture was inserted in the center of ridge with the prescribed angulation. The fixture depth was 3mm lower than the predicted clinical gingival margin, guided by the stent. The healing abutment was placed, and the flap was sutured with interrupted 5-0 nylon sutures. The positions of the teeth adjacent to the implant were retained with a bonded retainer made from .019X.025 stainless steel wire (*Fig. 15*). The prosthesis was planned for delivery 6 months later.

PROSTHESIS FABRICATION

After six months of healing, the healing abutment was removed and replaced with an abutment that had a 5mm core height and 2mm cuff height (*Fig. 16: a, b*). The torque ratchet was applied on the abutment until 35 N-cm was achieved. A snap impression with polyvinyl siloxane was fitted with an abutment analog, and type IV dental stone was poured to prepare a working cast (*Fig. 16: c, d, e, f*). Verifying the inter-occlusal space from the casts registration, suggested that trimming the abutment or the antagonist at chairside might be necessary to ensure an adequate inter-occlusal space. The marginal integrity of metal coping was confirmed with a dental explorer (*Figs. 17-18*). Once the finished crown was seated, the appropriate tightness of the contact area was confirmed with dental floss. After clinical adjustment and verification of the fit and

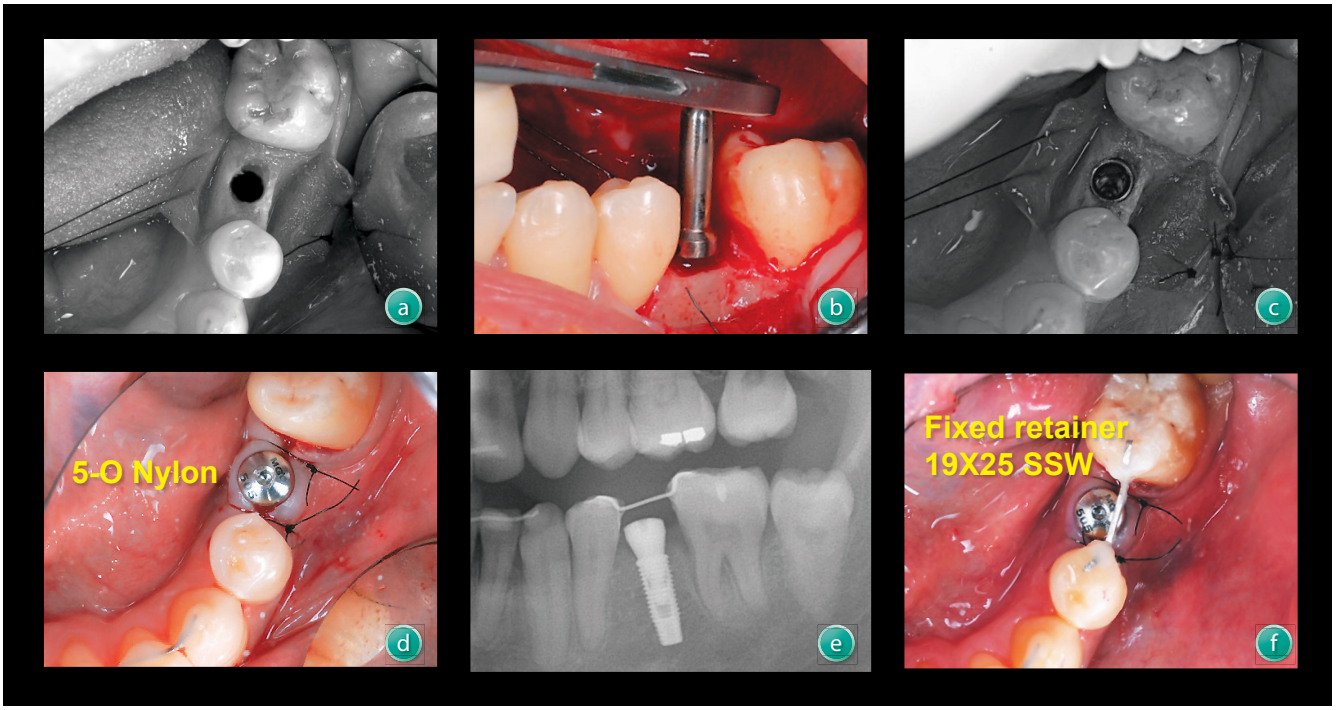

Fig. 15: Illustrations showed the surgical procedure for implant insertion.

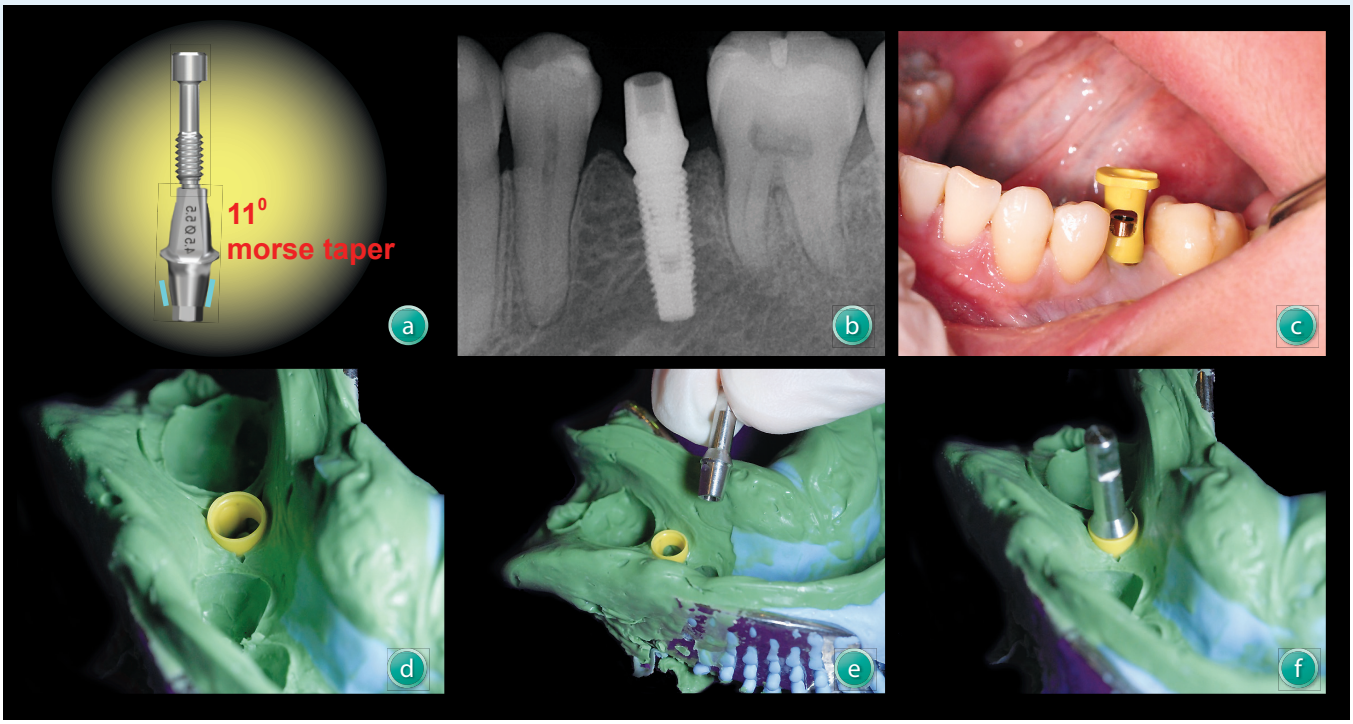

Fig. 16: a,b,11° Morse taper abutment. c,d, Snap impression copping. e,f, Analog in place.

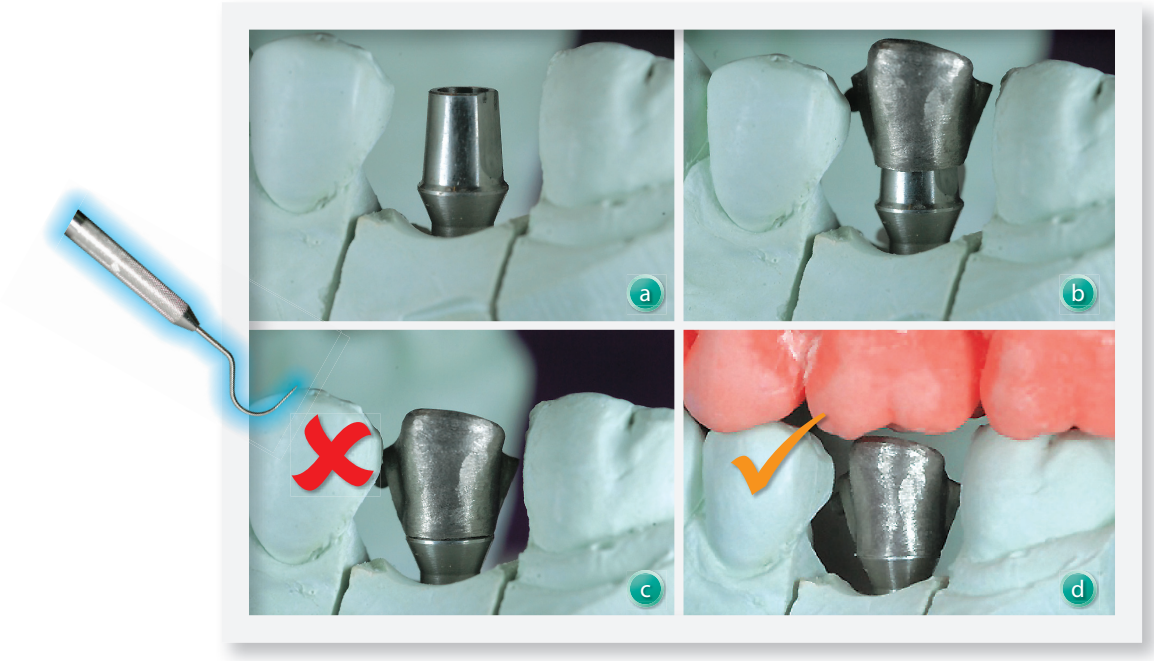

Fig. 17: Marginal integrity of metal copping was verified with a dental explorer (buccal view).

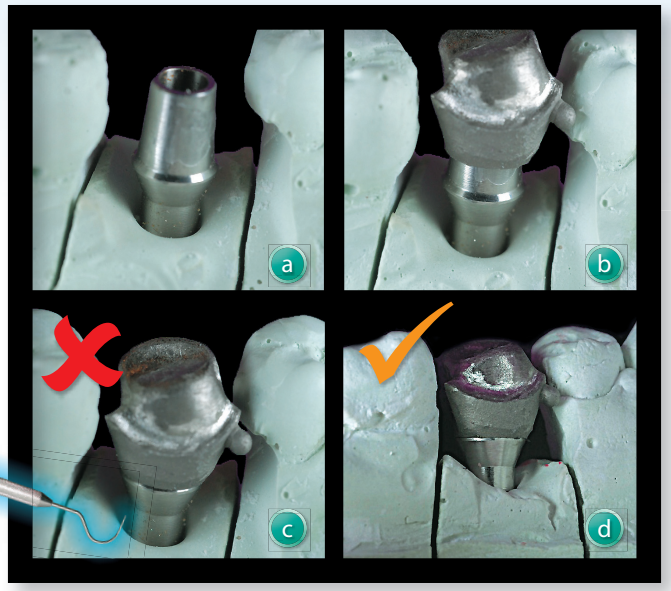

Fig. 18:
Marginal integrity of metal copping was verified with a dental explorer (lingual view).

occlusion, the definitive crown was completed and retained with temporary cement. The screw access hole was filled with composite resin. The crown remover on the lingual side was trimmed off 10 days later. The final prosthesis is shown in Fig. 19.

RESULTS ACHIEVED

Maxilla (*all three planes*):

- A - P: Maintained
- Vertical: Maintained
- Transverse: Maintained

Mandible (*all three planes*):

- A - P: Maintained
- Vertical: Maintained
- Transverse: Maintained

Maxillary Dentition

- A - P: Tooth #10 optimally aligned, incisors tipped labially
- Vertical: molars moved mesially
- Inter-molar / Inter-canine Width: Inter-molar width maintained and inter-canine width increased

Mandibular Dentition

- A - P: Maintained
- Vertical: Molars elongation
- Inter-molar / Inter-canine Width: Maintained

Facial Esthetics:

Maintained

Fig. 19: Final prosthesis.

RETENTION

The upper fixed retainer 2-2 and the lower fixed retainer 3-3 were bonded on every tooth. An upper clear overlay retainer was delivered. The patient was instructed to wear it full time for the first 6 months and nights only thereafter. Before fabrication of the implant supported prothesis, the edentulous space was maintained temporarily with a .019x.025 SS wire bonded on the adjacent teeth (*Fig. 15f*). The patient was instructed in proper home hygiene for maintenance of the retainers.

FINAL EVALUATION OF TREATMENT

The Cast-Radiograph Evaluation was scored at 24

points which was considered to be a board quality result. The major discrepancies were problems in alignment/rotation (*7 points*), marginal ridge discrepancy (*5 points*) and occlusal relationships (*4 points*). The lower midline was shifted 2mm to the left, resulting in a left side Class II canine relationship. The OB and OJ were ideal. The original profile was maintained as planned.

The parallelism and stability of the implant were good. The gingival contour of implant prosthesis was acceptable.

Overall, there was significant improvement in both dental alignment and occlusal relationship. The patient was satisfied with the result.

DISCUSSION

Full dentition should be taken into consideration for planning optimal dental treatment of complex, mutilated malocclusions. Critical consideration should be given to space distribution. For this patient, orthodontic treatment prior to implant placement and prosthesis fabrication, successfully relieved crowding and simplified the prosthesis fabrication (*Fig. 20*). In retrospect, it would have been wise to surgically uncover the lower left third molar to enhance its eruption during space closure of the edentulous space, mesial to the second molar. It may have been possible to align the third molar, thereby providing better occlusal contact for its antagonist, the upper left second molar. Using the retromolar implant, anchorage method of Roberts et al.,[2] it may have been possible to close the entire lower left edentulous space, but the treatment time would have been lengthened, because mandibular molars can be translated at a rate of only about 0.36mm per month.

In the upper arch, lace-back ties to the miniscrews prevented incisal flaring as space was created to align the block-in lateral incisor. This method favored canine retraction into the extraction spaces, and

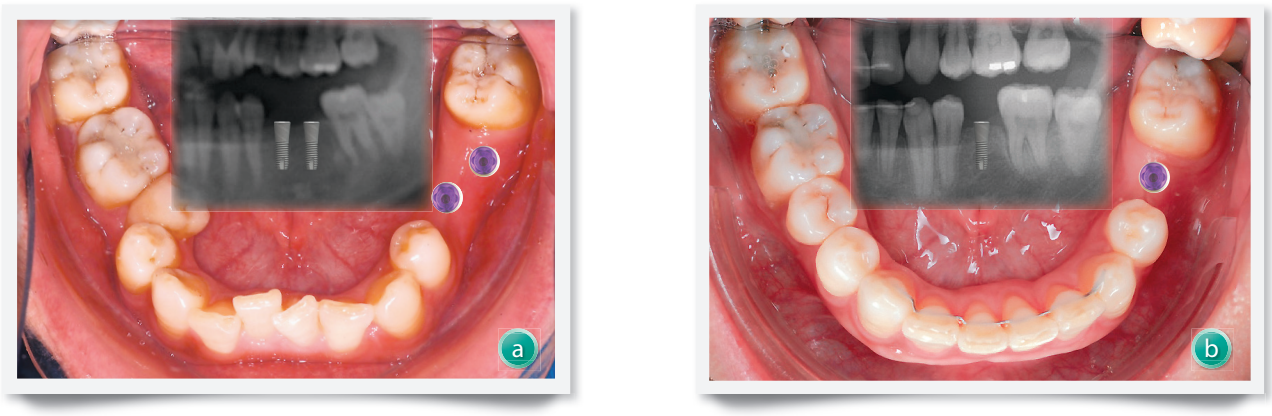

Fig 20:

a, Without orthodontic treatment intervention, the spaces might be filled with two implants in a crowding dentition.
b, With orthodontic treatment intervention, better long term prognosis is expected.

improved the angulation of the upper left canine. These efficient mechanics aligned the blocked-in lateral incisor, uprighted the tipped canine and closed the first bicuspid extraction spaces in only 7 months (*Fig. 8*).

Extraction of lower right second premolar was recommended to facilitate treatment, but the patient refused that option. Non-extraction therapy in the lower arch, combined with the use of coil springs to open space for tooth #29, was ineffective. However, significant progress was observed when cross-elastics and the double wire technique were also applied (*Fig. 21*). It took only 3 months to bring the block-in premolar into the arch. As expected, the lower midline was shifted to the left, and the canine relationship ended up being Class II (*Fig. 22*). This was considered an optimal result considering the restraints imposed by the patient.

In order to move teeth #17 and 18 mesially, a crimping hook was applied to the arch wire in front of #18. The position of the hook changed progressively, and a power chain as well as coil springs were applied between tooth #18 and the hook, for force delivery (*Fig. 10*). As previously mentioned, space closure with the retromolar implant method[2] was considered, but the extended treatment time was undesirable; the original space was about 15mm wide, which would have required about 45 months to close the space. However, the treatment option chosen required 47 months of treatment, in addition to an implant-supported prosthesis. In retrospect, the space closure approach was a viable option, particularly if the lower left

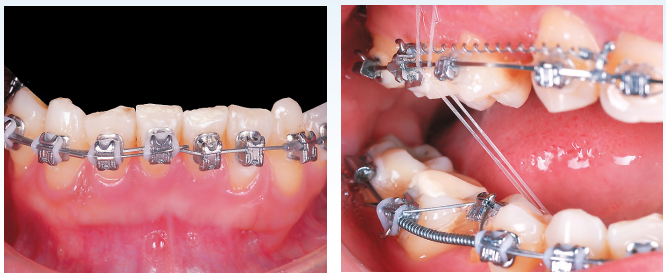

Fig. 21:
The accessary wire was tied over the main wire and brackets with O-rings.

Fig. 22:
The lower midline and occlusion of left side were compromised .

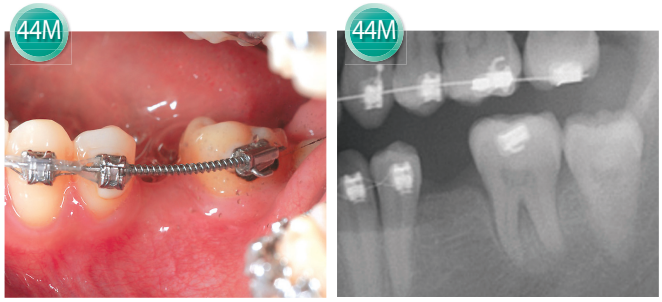

Fig. 23:
Malposed tube resulted in tipback molar, which might interfere with the protraction.

third molar could have been aligned to serve as an antagonist to the upper left second molar.

Treatment time is an important consideration in planning the management of large edentulous spaces, if the treatment requires protraction of

mandibular molars. Roberts[2] describes the bone physiology of 2nd and 3rd mandibular molars protracted into the space of a missing 1st molar. The relatively flat roots of the molars move through the center of the alveolar by resorbing primarily trabecular bone on the mesial surface and forming cortical bone on the distal surface of each root. For the first few millimeters of tooth movement, the molars move rapidly. However, when the trailing root engages the cortical bone formed by the leading root, the rate of molar protraction decreases. In addition to factors related to bone physiology, the incorrect orientation of the molar tube may lead to tip-back of the 2nd molar, which apparently contributed to the slow tooth movement for the present patient (*Fig. 23*). As a precaution, one should pay attention to the precise bonding or banding position of the buccal bracket. In the 47th month of active treatment, the present patient asked to stop the protraction process and restore the remaining space with a dental implant.

Misch[3] suggests that when mesiodistal space in molar area is 14mm, two implants with 4mm diameter is recommended (*Table 2*). However, when the full dentition was considered, teeth alignment and space redistribution by orthodontic treatment before placing the implant-supported prosthesis provided a more comprehensive treatment with a better prognosis (*Fig. 20*). After orthodontic treatment, a three-unit bridge or a single implant was suggested for filling up the remaining 8mm of space.

For better oral hygiene access and preservation of adjacent natural teeth, the patient chose to have a single implant to restore the dentition (*Table 3*).[4] Priest reported a 97% success rate of a posterior single tooth in a 10-year follow-up study. More importantly, no adjacent teeth serving as abutments would subsequently be lost due to endodontic failure.[5]

M-D dimension (mm)	Implant Diameter
7	4 mm
8 ~ 12	5 mm
12 ~ 14	Gain additional space,then place 2x4 mm
14	2x4 mm
15	1x4 mm, 1x5 mm
16	2x5 mm

■ Table.2 Molar replacement

Disadvantages of Fixed Partial Dentures
1. Mean life span often 10~15 years 2. Caries and endodontic failure of abutment teeth most common complication 3. Increased plaque retention of pontic increased caries and periodontal disease risk 4. Damage to healthy teeth 5. Failure of prosthesis related to loss of abutment teeth (8% ~18% within 10 years) 6. Fracture (porcelain, tooth) 7. Esthetics (anterior regions) 8. Uncemented restoration

■ Table.3 Disadvantages of Fixed Partial Denture

A natural premolar tooth root is 4.2mm in diameter at 2mm below the cementoenamel junction (*CEJ*). Therefore, the most common implant diameter is about 4mm at the crest module. This allows for approximately 1.5mm of bone on the proximal surfaces adjacent to natural teeth when the mesiodistal space is 7mm or greater.[6] The minimum implant length selected for posterior teeth is usually 9mm, and the longest length is at least 2mm less than the available bone height.[7] After verification with three-dimensional imaging, the available bone volume for the present patient was 5.8 in width and 13.6mm in height. Hence, a 4 x 11.5mm fixture was selected (*Fig. 12*). For better primary stability, preserving more buccal bone plate is indicated (*ideally 2mm thick*). Thus, the implant was inserted more lingually, which is expected to compromise the emergence profile of the crown (*Fig. 24*). In situations when primary stability of an implant cannot be achieved due to a severe bone defect,

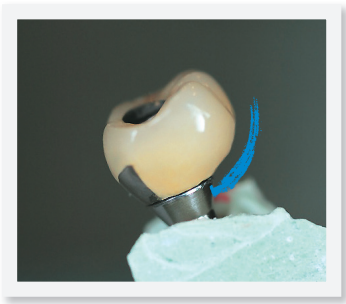

Fig. 24:

Compromised emerging profile of final prosthesis due to the lingual position of implant placement.

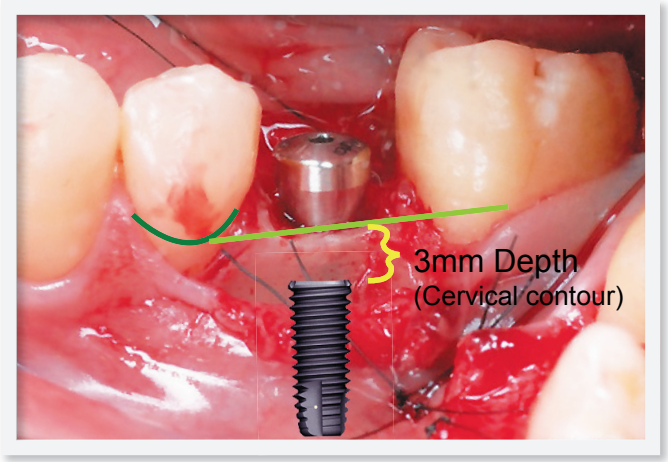

Fig. 25:

Ideally, the implant height is 3mm below the cervical contour of final prosthesis.

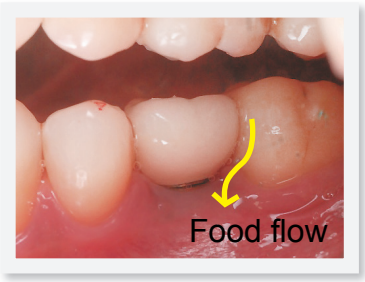

Fig. 26:

Supra-gingiva margin of final prosthesis due to inadequate depth of fixture. Yellow arrow showed the food flow on the uneven surface.

Fig.27:

Replacement the spur with a inlay box (green) would be a good alternation for the the future retrive.

or when implant placement is not possible in the ideal location for subsequent prosthetic therapy, ridge augmentation in a lateral direction has been shown to be a method with high predictability and a good success rate.[8] Therefore, ridge augmentation should be considered if the implant location will be compromised.

A well designed stent should provide guidance in the M-D, B-L position, axial inclination, as well as the height of implant placement. The Gargula[9] and Grunder[10] concepts of biologic width are 1mm of gingiva sulcus and 2mm of junctional epithelium and connective tissue. This 3mm of biologic width is a critical consideration for determining the ideal location of implant placement. implants should be placed with at least 2mm of buccal bone thickness and 3mm of fixture depth below the cervical contour.[11,12] Chang renamed it as the 2B-3D rule[13] to be considered for the future prosthesis. In this case, the implant depth was set relative to the CEJ of adjacent teeth, instead of the more ideal cervical contour of the final prosthesis. As such, the final prosthesis had a supra-gingival margin (*Figs. 25-26*). Although the esthetics was compromised, it was easier to maintain with good dental hygiene. In addition, the gingival line was uneven compared with the adjacent teeth; this could have been prevented by trimming the ridge to lower the bone height before implantation.

Before prosthesis fabrication, the space was maintained with .019X.025 stainless steel wire bonded to the adjacent teeth during the healing time (*Fig. 15*). This is particularly important for patients where the implant site was prepared orthodontically. Even slight relapse of the adjacent teeth can significantly impact the success of the subsequent implant-supported prosthesis.

The inter-arch dimension is crucial for crown design. For a porcelain fused to metal (*PFM*) crown, the ideal thickness of crown is at least 1.5mm (*0.3mm of metal and 1.2mm porcelain*). When dealing with inadequate inter-arch dimension, there are four ways to resolve the problem: 1. trim the abutment; 2. trim the antagonist; 3. use a screw retained crown; 4. intrude the antagonist by orthodontic mechanics.[14] For the present patient, a screw-retained crown was used. One of the greatest challenges for a cement-retained restoration is the removal of cement from deep sub-gingival margins, or a flat crown profile; however, screw loosening and porcelain fracture are two major complications of screw retained porcelain crown.

As mentioned above, better primary stability is achieved when the implant was inserted more lingually, which resulted in the flat profile of crown. Considering the compromised crown profile, caution should be exercised when occlusal adjustment is needed. The suggested adjustment protocol is as follows: reduce the contact force on the implant, compared to natural teeth in a normal bite; establish even contact force with natural teeth in a heavy bite; and avoid contact with natural teeth in lateral excursions. Furthermore, the immobility of the implant in contrast to the mobile adjacent teeth tends to cause food impaction and plaque accumulation on the cervical third of crown (*Fig.*

26). Thus, gentle soft tissue hygiene is advised considering the uneven surface of soft tissue around implant site.

Clinically bonding a spur on the lingual side provides a convenient point of force application to seat the crown and remove it if necessary. The lingual spur can be removed after permanent delivery of the prosthesis. However, if re-treatment is needed, crown removal can be difficult. A tip to solve this problem is to replace the spur with an inlay box as a good alternative to provide a force application point for removing the crown (*Fig. 27*).

CONCLUSION

Full mouth evaluation before any prosthesis fabrication is necessary for patients with missing teeth. Orthodontic treatment can correct alignment, improve the occlusal relation, and simplify prosthesis fabrication. Hence, the combined planning and execution of orthodontics and implant treatment is a progressive trend for complex malocclusions in adults with missing teeth.

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DISCREPANCY INDEX WORKSHEET

CASE # 1 PATIENT Shiao-Chung Pong

TOTAL D.I. SCORE 18

EXAM YEAR 2006
ABO ID# 9999

OVERJET

0 mm. (edge-to-edge)	=	1 pt.
1 – 3 mm.	=	0 pts.
3.1 – 5 mm.	=	2 pts.
5.1 – 7 mm.	=	3 pts.
7.1 – 9 mm.	=	4 pts.
> 9 mm.	=	5 pts.

Negative OJ (x-bite) 1 pt. per mm. per tooth =

Total = 0

OVERBITE

0 – 3 mm.	=	0 pts.
3.1 – 5 mm.	=	2 pts.
5.1 – 7 mm.	=	3 pts.
Impinging (100%)	=	5 pts.

Total = 3

ANTERIOR OPEN BITE

0 mm. (edge-to-edge), 1 pt. per tooth
then 1 pt. per additional full mm. per tooth

Total = 0

LATERAL OPEN BITE

2 pts. per mm. per tooth

Total = 0

CROWDING (only one arch)

1 – 3 mm.	=	1 pt.
3.1 – 5 mm.	=	2 pts.
5.1 – 7 mm.	=	4 pts.
> 7 mm.	=	7 pts.

Total = 7

OCCLUSION

Class I to end on	=	0 pts.
End on Class II or III	=	2 pts. per side ____ pts.
Full Class II or III	=	4 pts. per side ____ pts.
Beyond Class II or III	=	1 pt. per mm. additional ____ pts.

Total = 0

LINGUAL POSTERIOR X-BITE

1 pt. per tooth Total = 0

BUCCAL POSTERIOR X-BITE

2 pts. per tooth Total = 2

CEPHALOMETRICS (See Instructions)

ANB ≥ 6° or ≤ -2° = 4 pts.

Each degree < -2° _____ x 1 pt. = _____

Each degree > 6° _____ x 1 pt. = _____

SN-MP

≥ 38° = 2 pts.

Each degree > 38° _____ x 2 pts. = _____

≤ 26° = 1 pt.

Each degree < 26° _____ x 1 pt. = _____

1 to MP ≥ 99° = 1 pt.

Each degree > 99° _____ x 1 pt. = _____

Total = 2

OTHER (See Instructions)

Supernumerary teeth	_____ x 1 pt. =	_____
Ankylosis of perm. teeth	_____ x 2 pts. =	_____
Anomalous morphology	_____ x 2 pts. =	_____
Impaction (except 3rd molars)	_____ x 2 pts. =	_____
Midline discrepancy (≥3mm)	@ 2 pts. =	2
Missing teeth (except 3rd molars)	2 x 1 pts. =	2
Missing teeth, congenital	_____ x 2 pts. =	_____
Spacing (4 or more, per arch)	_____ x 2 pts. =	_____
Spacing (Mx cent. diastema ≥ 2mm)	@ 2 pts. =	_____
Tooth transposition	_____ x 2 pts. =	_____
Skeletal asymmetry (nonsurgical tx)	@ 3 pts. =	_____
Addl. treatment complexities	_____ x 2 pts. =	_____

Identify:

Total = 4

Exam Year	2011
ABO ID#	9999

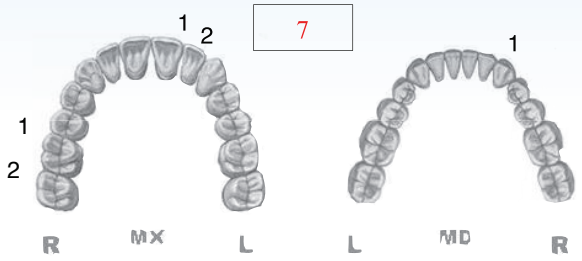
Examiners will verify measurements in each parameter.

Case # 1 **Patient** Shiao-Chung Pong

Total Score: 24

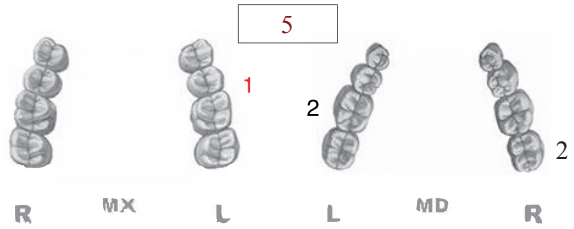
Alignment / Rotation

7



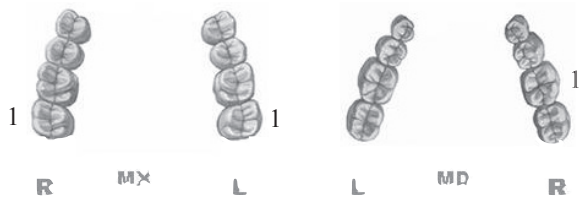
Marginal Ridge

5



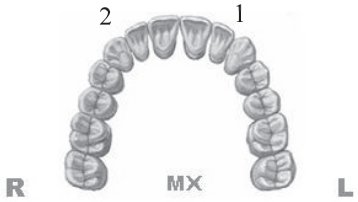
Buccolingual Inclination

3



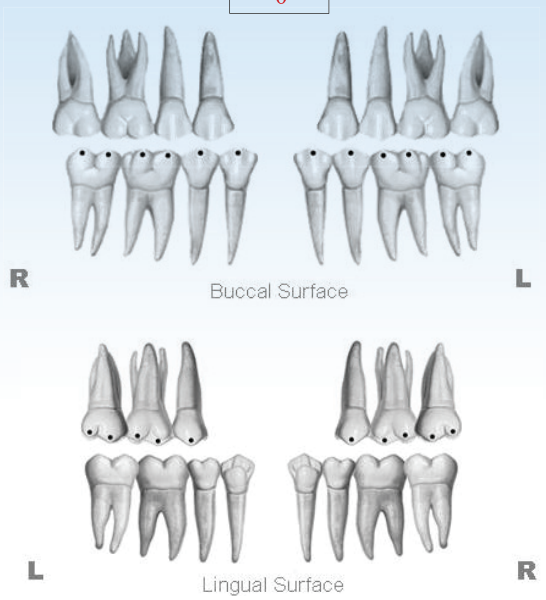
Overjet

3



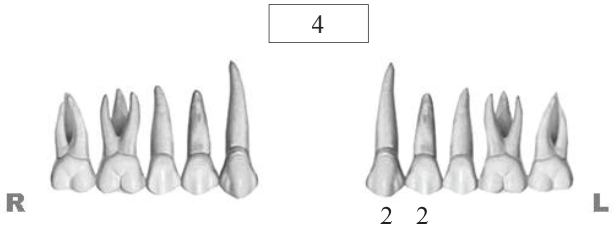
Occlusal contacts

0



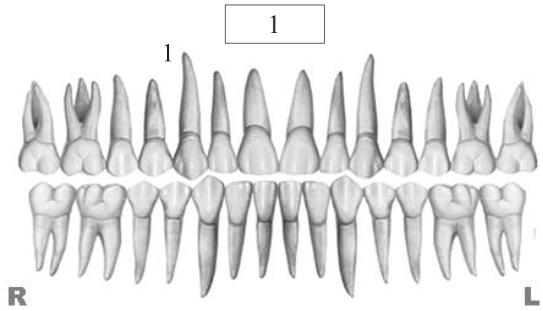
Occlusal relationships

4



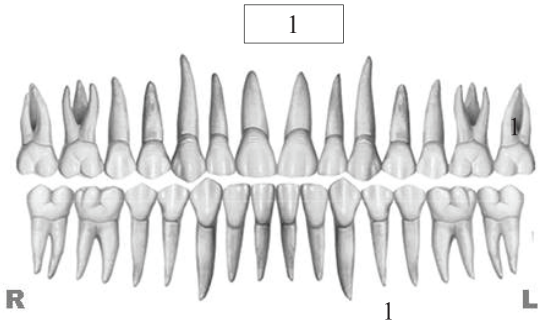
Interproximal Contacts

1



Root Angulation

1



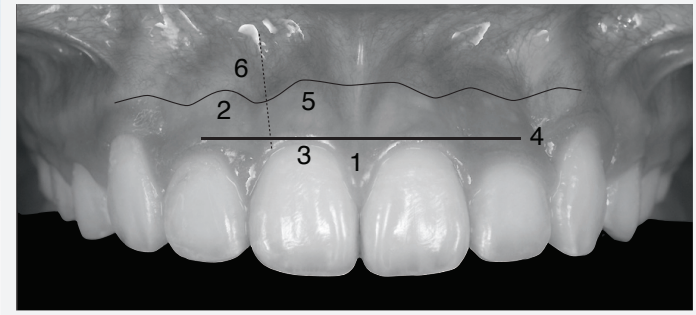
INSTRUCTIONS: Place score beside each deficient tooth and enter total score for each parameter in the white box. Mark extracted teeth with "X". Second molars should be in occlusion.

IBOI Pink & White Esthetic Score

Total Score: = 4

1. Pink Esthetic Score

Total = 2

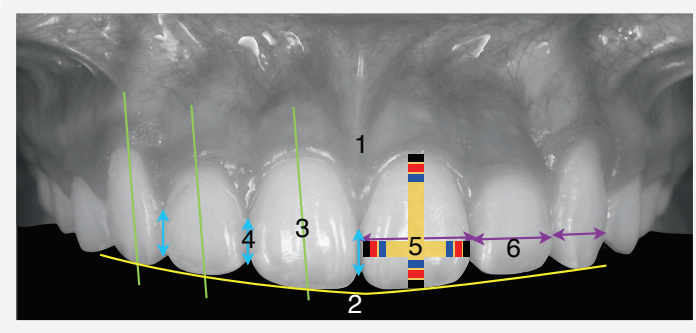


1. M-D Papilla	0	1	2
2. Keratinized Gingiva	0	1	2
3. Curvature of Gingival Margin	0	1	2
4. Level of Gingival Margin	0	1	2
5. Root Convexity (Torque)	0	1	2
6. Scar Formation	0	1	2

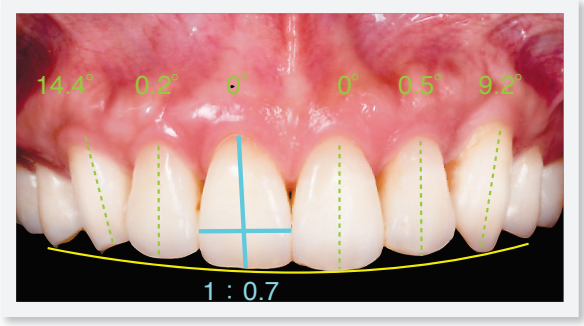
1. M&D Papilla	(0)	1	2
2. Keratinized Gingiva	(0)	1	2
3. Curvature of Gingival Margin	(0)	1	2
4. Level of Gingival Margin	0	(1)	2
5. Root Convexity (Torque)	0	(1)	2
6. Scar Formation	(0)	1	2

2. White Esthetic Score (for Micro-esthetics)

Total = 2



1. Midline	0	1	2
2. Incisor Curve	0	1	2
3. Axial Inclination (5°, 8°,10°)	0	1	2
4. Contact Area (50%, 40%, 30%)	0	1	2
5. Tooth Proportion(1:0.8)	0	1	2
6. Tooth to Tooth Proportion	0	1	2



1. Midline	(0)	1	2
2. Incisor Curve	(0)	1	2
3. Axial Inclination (5°, 8°,10°)	0	(1)	2
4. Contact Area (50%, 40%, 30%)	(0)	1	2
5. Tooth Proportion(1:0.8)	0	(1)	2
6. Tooth to Tooth Proportion	(0)	1	2