中華民國贋復牙科學會

贋復會訊

2025. SEP.
第 29 卷 第 3 期

病例討論　病例討論一
病例討論二
病例討論三
專題討論　美觀區植牙的牙周補綴考量
人像畫
IADR~ 學術與遊樂兼顧之旅

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病例討論特輯

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美觀區植牙的牙周補綴考量

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IADR~ 學術與遊樂兼顧之旅

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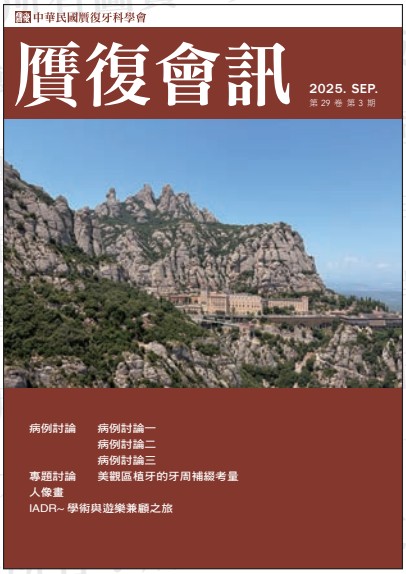

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本期執行編輯 / 賴珮翎、陳奉儀

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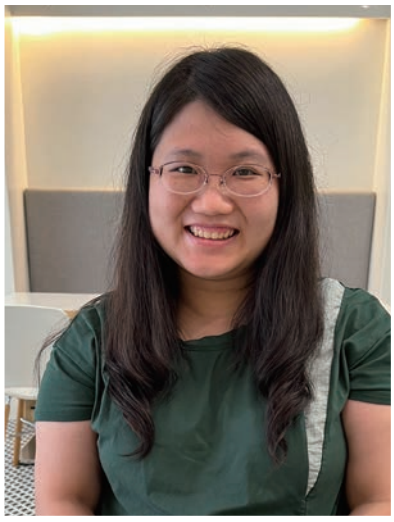
小編的話

小編 賴珮翎 醫師



小編 陳奉儀 醫師

炎炎夏熱將盡，緊接著秋高氣爽的日子來臨。在逐漸進入冬眠的日子裡，來本會訊，看個病例討論，回顧前牙植牙文獻，欣賞蕭 P 畫作與精采人生，複習 IADR 與夏季的西班牙，相信是個不錯的選擇，希望大家收穫滿滿。

小編 賴珮翎
陳奉儀

病例討論一

Integration of Digital Technology into the Workflow for a Palatal Augmentation Prosthesis with Customized Palatal Vaults

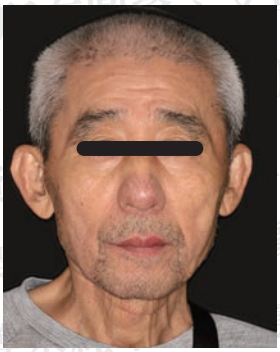
KMUH Prostho department

Presenter: 詹雅筑 醫師

Key words:
palatal augmentation, digital assisted, tongue cancer

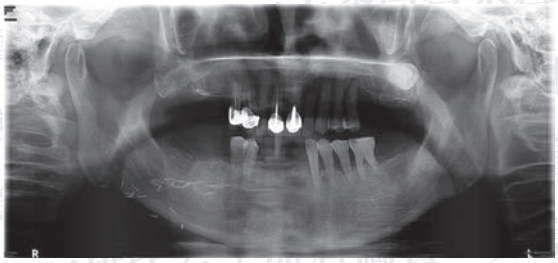
版權所有！所有圖資、文章等未經本會同意不得轉載、重製或引用。

General Data



- Name： 張 x 璋
- Gender : M ale
- Age： 66 y/o
- Motivation： good
- Attitude： cooperative
- Occupation： retired
- First visit： 112/8/19

Chief complaint



I wanted to restore my chewing ability and appearance.

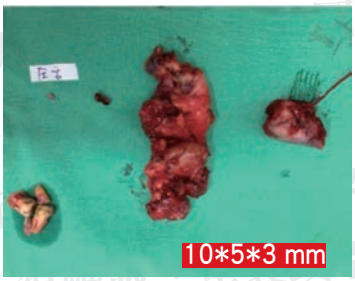
Chief complaint

- 20 years ago left tongue ulcer was noted
  → chemo therapy in KMUH
- 2021/9/10 tongue ulcer noted for 1 month
  → right lateral to floor, 2~3mm, pain(+), bleeding(+), medication no improve
  → ENT in KMUH

Right tongue cancer

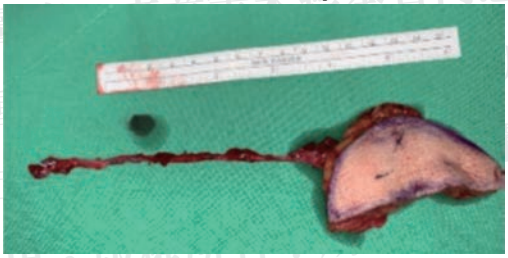
Cancer wide excision

Specimen



Post OP

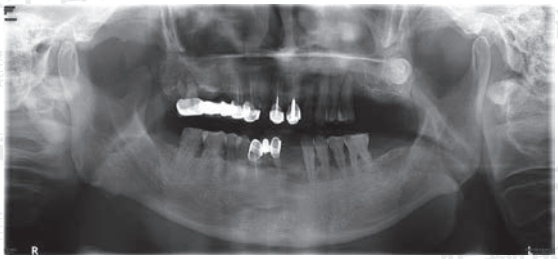
Left ALT flap



2021/09

MALIGNANCY
高雄醫學大學附設中和紀念醫院病理部 病理組織檢查報告
病理編號： KMU-21-19329 病歷號碼： 0755815-2
病人姓名： 張 x 璋 出生日期： 1957/06/25 年齡： 64 歲 性別： 男
送檢單位/分機： 耳鼻喉科 1 診/6571 送檢醫師： 王緒佳

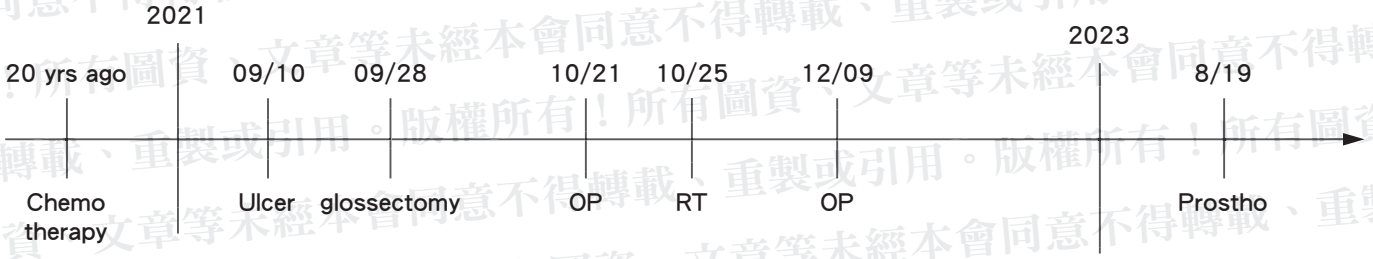
採檢日： 9/10'21 收到日： 9/13'21 09:49 建檔日： 9/20'21 09:12
組織名稱： Tongue, NOS
臨床診斷： Benign neoplasm of tongue
診斷代碼： (M-8070/3)
Pathologic Diagnosis:
Oral cavity, tongue, right, biopsy, squamous cell carcinoma, grade 1.
Gross Examination:
The specimen consists of two tissue fragments measuring up to 0.1 x 0.1 x 0.1 cm in size with grayish white cut surfaces. Entire specimen is embedded.
Microscopic Examination:
Section shows grade 1 keratinizing squamous cell carcinoma composed of tumor cells with distinct nucleoli. There are several irregular nests invade the stroma with desmoplasia.
◆ The malignancy nature has been concurred by peer slide review.



病 歷 號：07558152　　姓　名：張×璋　　生 日：1957/06/25（64歲）男
手術日期：2021/9/28 08:45 - 2021/9/28 12:40　　手術醫師：王緒佳　　助 手：劉禹宏

【Operation Procedure】
1. Under the general anesthesia, the patient was put in supine position.
2. Right modified radical neck dissection level I-IV was done. (right submandibular gland excision with facial artery preserved was done, no artery ligation, IJV preserved)
3. Excision of right tongue tumor, excised medial boarder for margin. Frozen: both anterior and medial margin free
4. Teeth extraction (41, 43, 46, 47) and NG insertion.
5. Hemostasis
6. Tracheotomy was done.

- 2021/10/21 Oral Pathology and Oral Maxillofacial Radiology
- 2021/10/28 Radiation therapy
- 2021/12/9 Oral Pathology and Oral Maxillofacial Radiology
  → F tray + FMS
- 2023/8/19 Prosthodontics department for prosthesis evaluation



Past Medical History

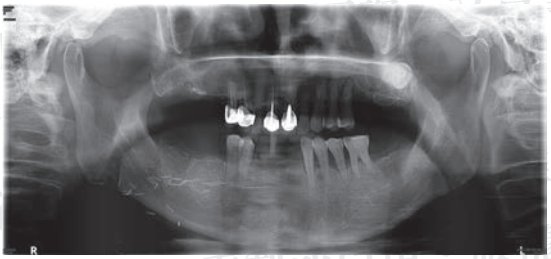
- Systemic disease : tongue cancer, HTN
- Drug or food Allergy : denied
- Current medicine : nil

Personal Habit

- Alcohol : (-)
- Betel nut : (-)
- Cigarette : (-), quit for 20 years
- Drug abuse ( )
- Oral hygiene care : fair~poor
- Diet : soft to normal
- Bruxism/clenching : denied

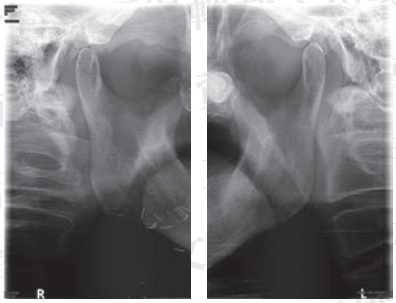
Past Dental History

- Full mouth scaling
- Tooth extraction
- Endo
- Prosthesis fabrication
- Partial glossectomy
- Fluoride application



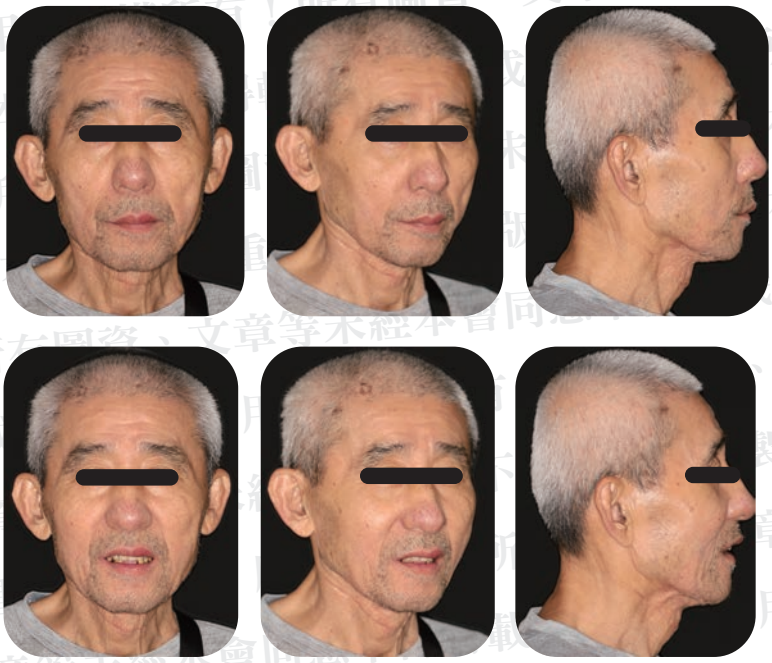
Personal Habit

- MMO: 39 mm
- TMJ clicking sound: (-)
- TMJ tenderness : (-)
- Muscle tenderness: (-)
- Mouth opening deviation: (-)

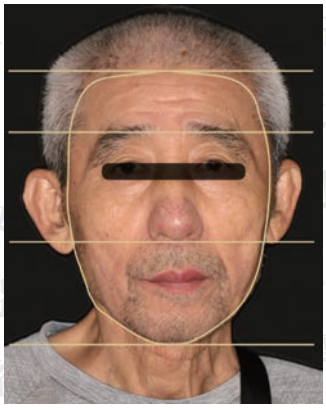


Clinical Examination

Extraoral Examination



Frontal view



- Outline form : Ovoid
- Facial asymmetry : (-)
- Lip incompetence : (-)
- Facial proportion

  1 : 1.83 : 1.7

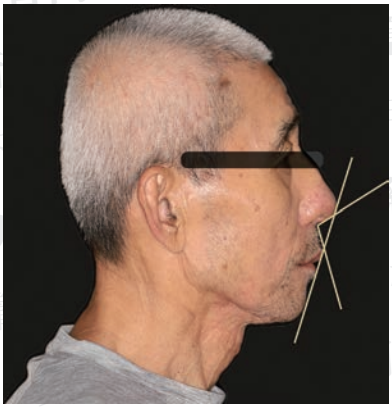
Smile view

- Smile line: average
- Dental midline:

  Upper midline: on

  Lower midline: N/A

Lateral view



- Profile: convex
- Lip to E-line

  Upper lip: on

  Lower lip: on

- Nasal-Labial angle: 105

Intraoral Examination

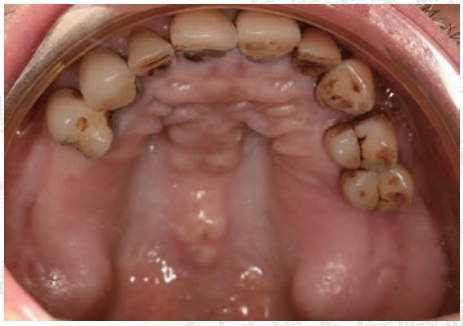
Overbite : N/A

Overjet : N/A

Saliva : insufficient, mucus

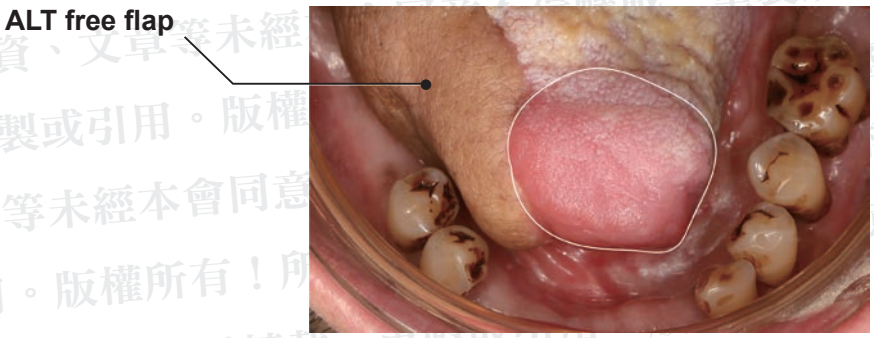
4 3 2 1	1 2 3 4 5
5 4	3 4 5 6

- Molar relationship:
  Right: N/A
  Left: N/A
- Canine relationship:
  Right: N/A
  Left: Class I

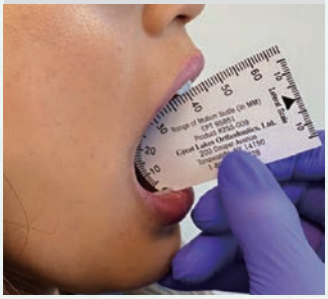
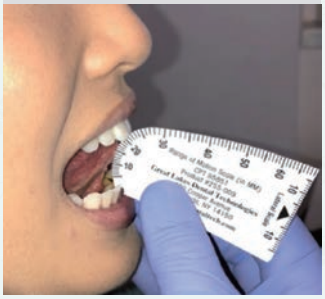


- Ovoid to square arch form
- Posterior tuberosity
- Hard palate
  → U shape, with torus
- Ridge classification (Cawood and Howell)
  → Class I & Class III
- 11, 13, 14, 21 PFM crown
- Wear facet was noted

- Ovoid arch form
- Tongue position: Class III (Wright's)
- Tongue size: Class II (House's)
- Ridge classification (Cawood and Howell)
  → Class I and Class IV



Tongue range of motion ratio (TRMR)

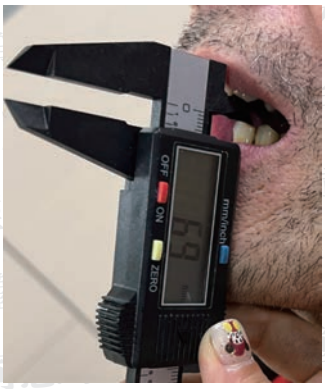
Comfortable Mouth Opening (CMO)	Tongue tip up to Incisive Papilla (TIP)	Tongue in lingual Palatal Suction (TLS)
		

Calculate TMTR (%)

TIP / CMO = TMTR - TIP
TLS / CMO = YMYR - TLS

Zaghi, S., Shamtoob, S. (2021). Assessment of posterior tongue mobility using lingual palatal suction: Progress towards a functional definition of ankyloglossia. Journal of Oral Rehabilitation, 48(6), 692–700.

CMO=39.5mm



TIP=6.9mm

LPS=2mm

TIP / CMO= TMTR - TIP= 17.4%

TLS / CMO= YMYR - TLS= 5%

Grade	Description	Anterior tongue mobility TRMR-TIP	Posterior tongue mobility TRMR-LPS
1	Highly above average[a]	>80%	>60%
2	Normal range [a](Mild to average)	50%-80%	30%-60%
3	Moderately restricted	<50%	<30%
4	Severely restricted	<25%	<5% or unable to do

R't side: Working

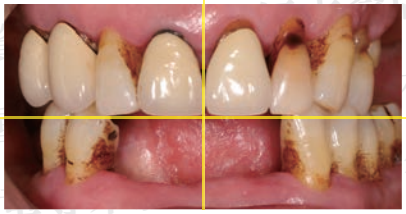
Partial group function: 13, 14 → 43, 44

L't side: Non-working

No interference

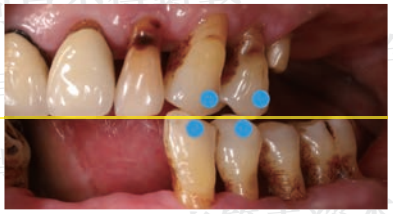
R't side: Working

No interference



L't side: Non-working

Canine guidance: 23, 24 → 33, 34



Protrusive: anterior guidance

22 → 33

No interference

No interference

Eichner Classification	
A: 4 occluding pairs	A1 : intact dentition
	A2: one jaw tooth loss
	A3 : two jaw tooth loss
B:3，2，1，0 occluding pairs	B1: 3 pairs
	B2: 2 pairs
	B3: 1 pair
	B4: 0 pair but with anterior tooth support
C: 0 occluding pair	C1 : teeth remaining over 2 jaw
	C2 : one edentulous jaw
	C3: two edentulous jaw

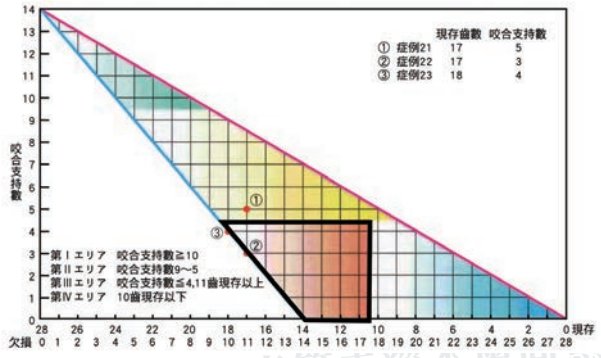
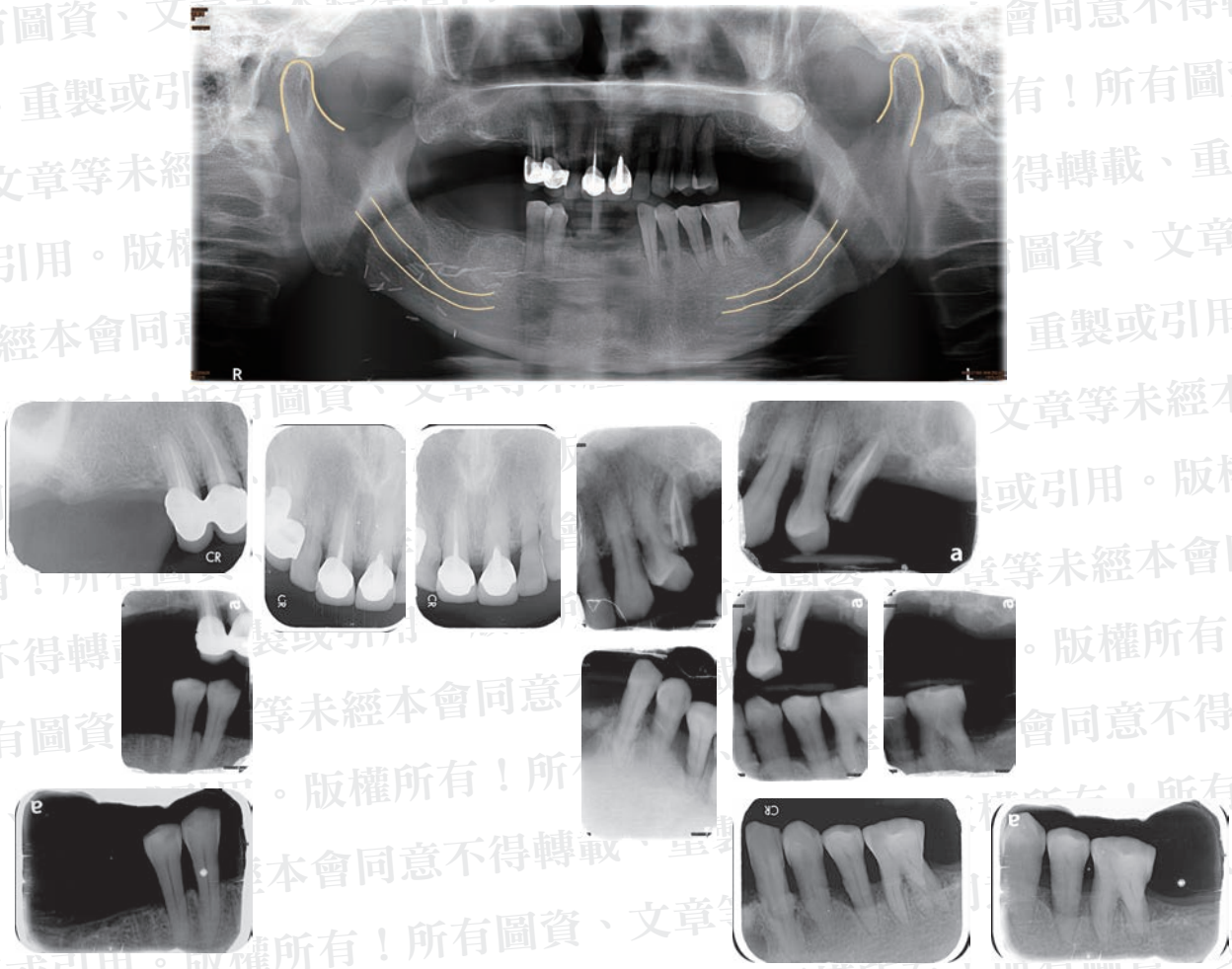
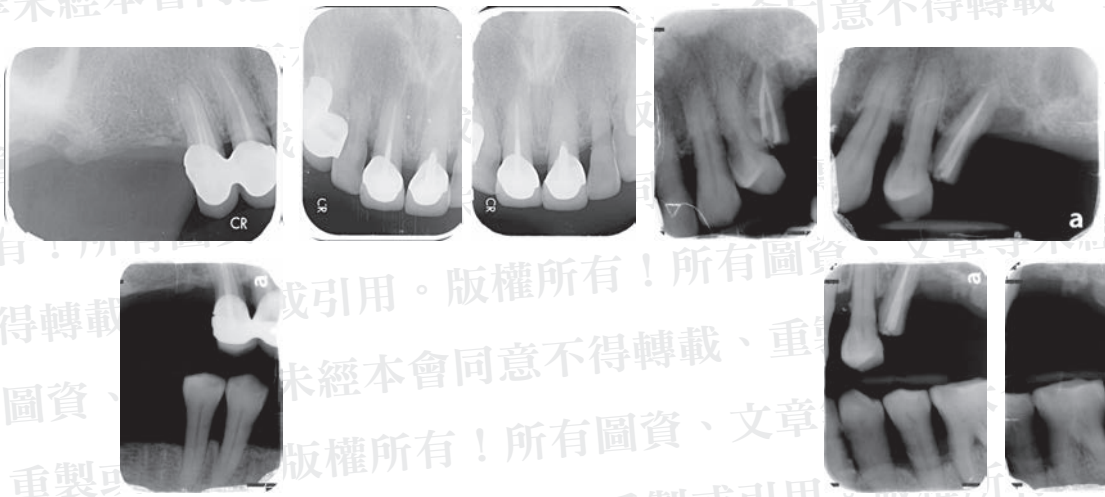


Image Examination

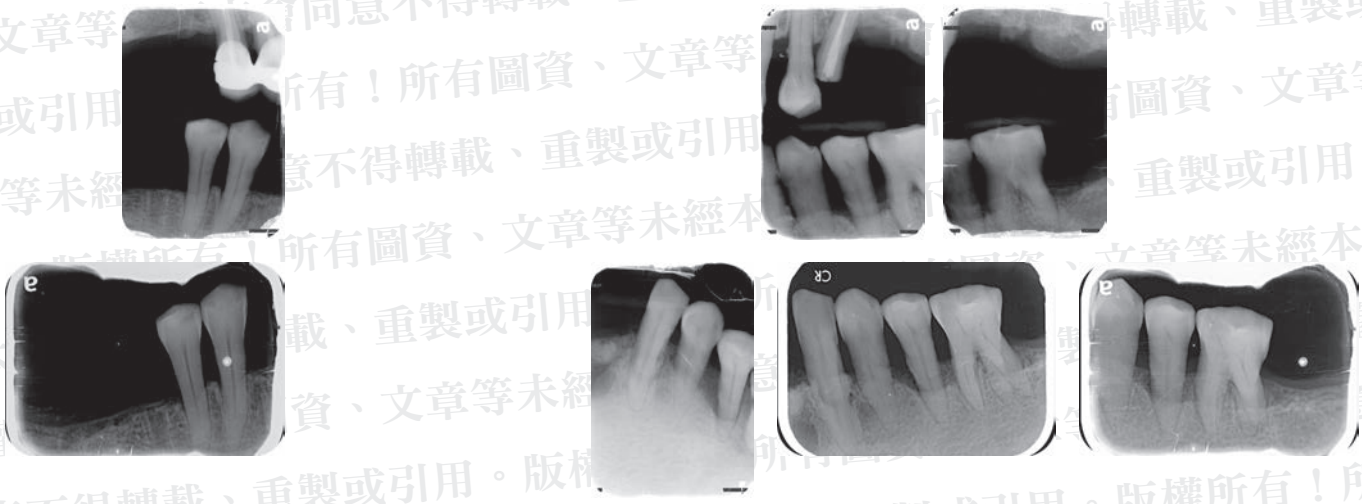


Periodontal Examination



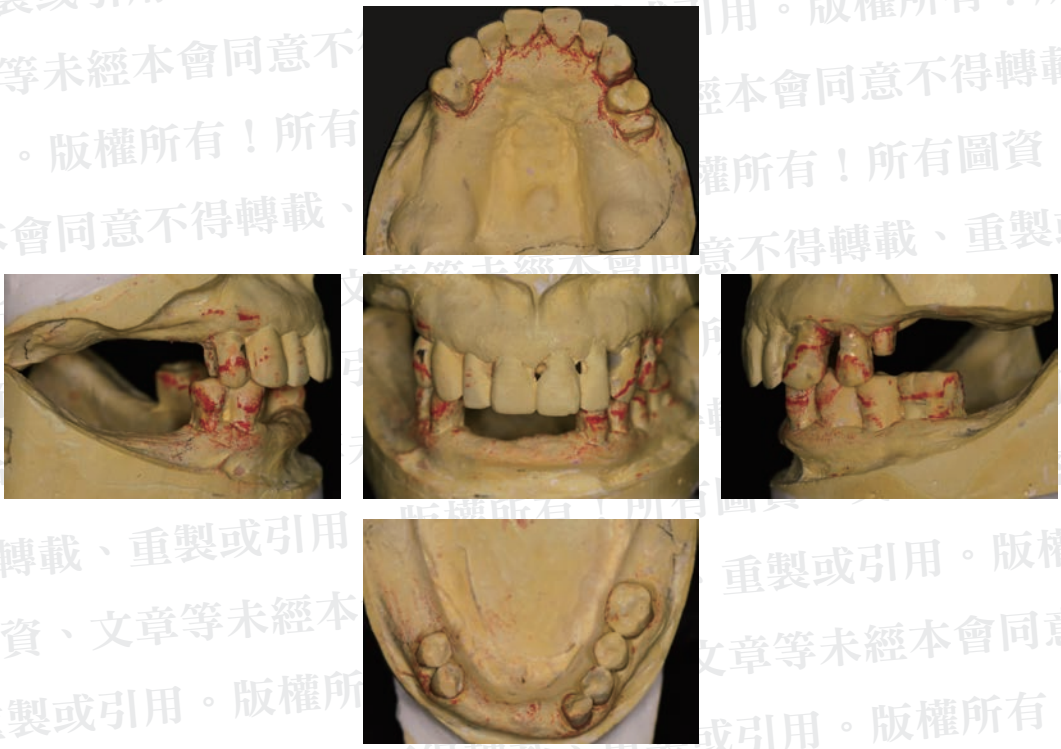
Attachment level					446	644	555	443	475	774	776	765	445				Buccal
Probing depth					445	544	444	433	445	543	545	534	445				
	18	**17**	**16**	**15**	**14**	**13**	**12**	**11**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	
Probing depth					445	544	444	433	445	543	545	534	445				Palatal
Attachment level					446	644	555	443	475	774	776	765	445				
Mobility													II				
FI																	

Attachment level				666	666						757	454	777	676			Buccal
Probing depth				444	444						545	232	555	454			
	48	**47**	**46**	**45**	**44**	**43**	**42**	**41**	**31**	**32**	**33**	**34**	**35**	**36**	**37**	**38**	
Probing depth				444	444						545	232	555	454			Palatal
Attachment level				666	666						757	454	777	676			
Mobility													I				
FI														I			



Study Cast Analysis

Jaw relation



Diagnosis

Problem List

- Partial edentulism
- Decay: 12, 21, 22, 23, 24, 25
- Wear facet: 23, 24, 33, 34, 35, 36, 44, 45
- Spacing: 23-24
- Mesial tilting: 25

- Generalized plaque deposition and gingiva swelling
- PD(≥5mm): 13, 14, 21, 22, 23, 24, 33, 35, 36
- BOP: 11, 13, 14, 21, 23, 24, 34, 35, 36
- Gingiva recession: 11, 12, 14, 21, 22, 23, 24, 25, 33, 34, 35, 36, 44, 45
- Generalized horizontal bony defect
- Furcation involvement grade I: 36(L)
- Mobility GI: 35
- Mobility GII: 25

Esthetic problem
→ Discoloration
→ Root surface exposure
→ Unfavorable appearance

Functional problem
→ Impairment of mastication
→ Swallowing disorders
→ Speech difficulties

- Right tongue cancer, cT3N0M0 s/p
- Missing: 15, 16, 17, 18, 26, 27, 31, 32, 37, 38, 41, 42, 43, 46, 47, 48
- Cervical abrasion: 12, 21, 22, 23, 24, 25
- Generalized attrition
- Tooth 11 , 13, 14: normal apical tissue, previously treated
- Tooth 21: normal apical tissue, previously initiated therapy
- Generalized periodontitis stage IV grade A (AAP2018)

	Periodontitis	Stage I	Stage II	Stage III	Stage IV
Severity	**Interdental CAL** (at site of greatest loss)	1-2 mm	3-4 mm	≥5 mm	≥5 mm
	RBL	Coronal third (<15%)	Coronal third (15% - 33%)	Extending to middle third of root and beyond	Extending to middle third of root and beyond
	Tooth loss (due to periodontitis)	No tooth loss		≤4 teeth	≥5 teeth
Complexity	**Local**	• Max. probing depth ≤4 mm • Mostly horizontal bone loss	• Max. probing depth <5 mm • Mostly horizontal bone loss	In addition to Stage II complexity: • Probing depths ≥6 mm • Vertical bone loss ≥3 mm • Furcation involvement Class II or III • Moderate ridge defects	In addition to Stage III complexity: • Need for complex rehabilitation due to: - Masticatory dysfunction - Secondary occlusal trauma (tooth mobility degree ≥2) - Severe ridge defects - Bite collapse, drifting, flaring - < 20 remaining teeth (10 opposing pairs)
Extent and distribution	**Add to stage as descriptor**	For each stage, describe extent as: • Localized (<30% of teeth involved); • Generalized; or • Molar/incisor pattern			

	Progression		Grade A: Slow rate	Grade B: Moderate rate	Grade C: Rapid rate
Primary criteria Whenever available. direct evidence should be used.	Direct evidence of progression	Radiographic bone loss or CAL	No loss over 5 years	<2 mm over 5 years	≥2 mm over 5 years
	Indirect evidence of progression	% bone loss / age	<0.25	0.25 to 1.0	>1.0
		Case phenotype	Heavy biofilm deposits with low levels of destruction	Destruction commensurate with biofilm deposits	Destruction exceeds expectations given biofilm deposits; specific clinical patterns suggestive of periods of rapid progression and/or early onset disease
Grade modifiers	Risk factors	Smoking	Non-smoker	<10 cigarettes/day	≥10 cigarettes/day
		Diabetes	Normoglycemic/no diagnosis of diabetes	HbA1c <7.0% in patients with diabetes	HbA1c≥7.0% in patients with diabetes

Prosthodontic Diagnostic

Index Classification: Class IV

PI Partially Edentulous Worksheet

	Class I	Class II	Class III	Class IV
Location and Extent of Edentulous Areas				
1 arch, MX ≤ 2 incisors, MD ≤ 4 incisors,≤2 pre-molars, ≤ one pre-molar and a molar				
Both arches and otherwise same as above, or 1/both arches and missing canine(s)				
1/both arches, posterior area > 3 teeth or two molars, antero-post area ≥ 3 teeth				
Requiring high degree of patient compliance; guarded prognosis				
Congenital or acquired maxillofacial defect				
Abutment condition				
Localized adjunctive treatment (perio, endo, ortho)				
None				
1-2 sextants				
3 sextants				
≥ 4 sextants				
Insufficient tooth structure				
None				
1-2 sextants				
3 sextants				
≥ 4 sextants				
Occlusion				
No pre-prosthetic therapy				
Localized adiunctive therapy				
Re-establish entire occlusion, no change in OVD				
Re-establish entire occlusion, with change in OVD				
Residual ridge				
Class I edentulous				
Class II edentulous				
Class III edentulous				
Class IV edentulous				
Conditions creating a guarded prognosis				
Severe oral manifestations of systemic disease				
Maxillomandibular dyskinesia and/or ataxia				
Refractory patient				
ICD-9-CM diagnostic code	525.51	525.52	525.53	525.54

Tentative Treatment Plan

- Referred to perio department for perio treatment
- Ill-fitting prosthesis removal
- Decay management
- M aintain esthetic aspect
- Prosthesis fabrication

Functions

Mastication
Swallowing
Speech

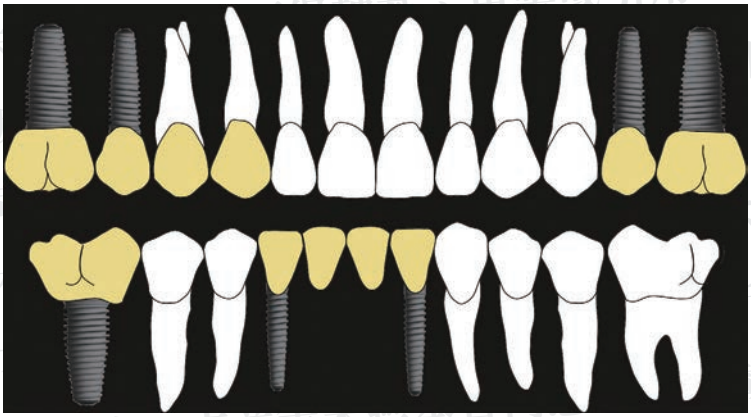
Normal people

Patients with dysphagia and dysarthria

Palatal augmentation prosthesis

Tentative Prosthodontics Treatment Option

Option I Fixed



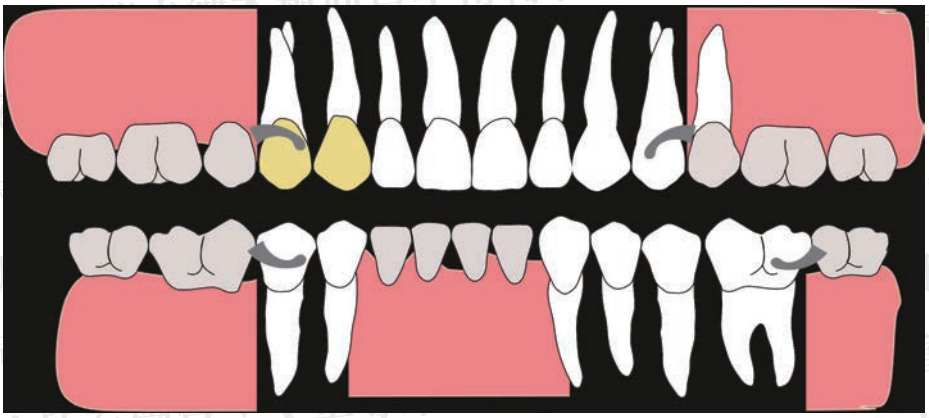
Maxilla:

- 15, 16, 25, 26 implant
- 13, 14crown
- Palatal augmentation prosthesis

Mandible:

- 32, 42, 46 implant

Option II Removable



Maxilla:

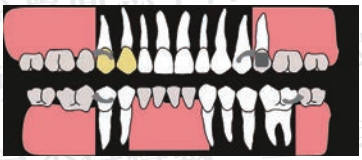
- conventional RPD
  + 13, 14, 23, 24 survey crown

Mandible:

- conventional RPD

Comparison

	Option 1	Option 2
Function	Excellent	Good
Comfort	Excellent	Fair
Esthetics	Good	Fair
Prognosis	Good	Good
Cost	$$$	$
Time	Long	Medium



Etiology

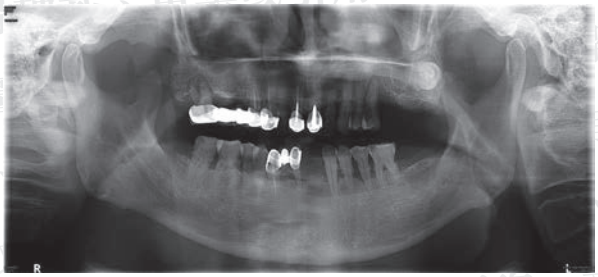
Poor oral hygiene + Tongue lesion

→ **Poor periodontal condition + Operation**

└ **Missing teeth + post-OP complication**

└ **Failure to seek treatment promptly**

└ **Deficiency of masticatory, verbal and swallowing function & Esthetic disfiguration**



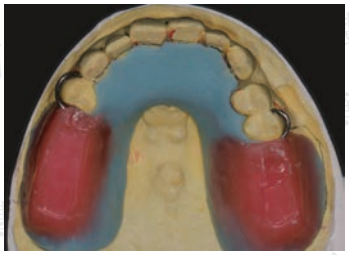
Treatment Goal

- Elimination of cause-related factor
- Re-establishment of stable posterior support
- Improving tongue functions such as swallowing and speaking
- Increase the patient 's self-confidence and life quality
- Keep patient's cooperation

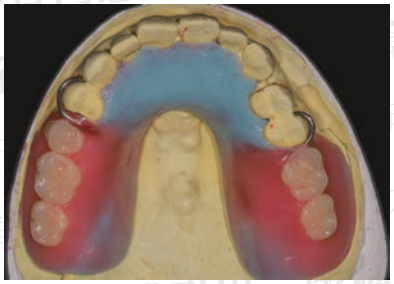
Treatment Course

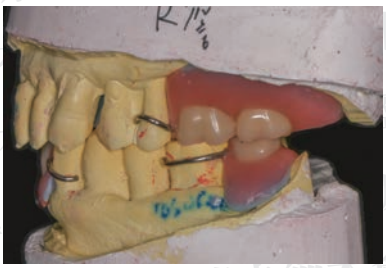
Facebow transfer

Wax rim



Wax denture





Interim deliver

R't side: Working

Partial group function: 13, 14 → 43, 44

L't side: Non-working

No interference

R't side: Working

No interference

L't side: Non-working

Partial group function: 23, 24 → 33, 34

Protrusive: anterior guidance

Anterior group function

No interference

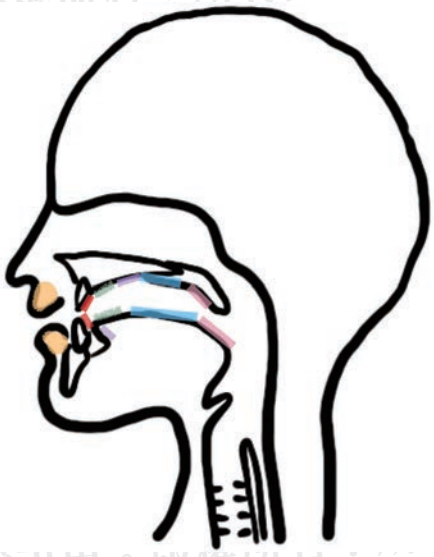
No interference

Interim

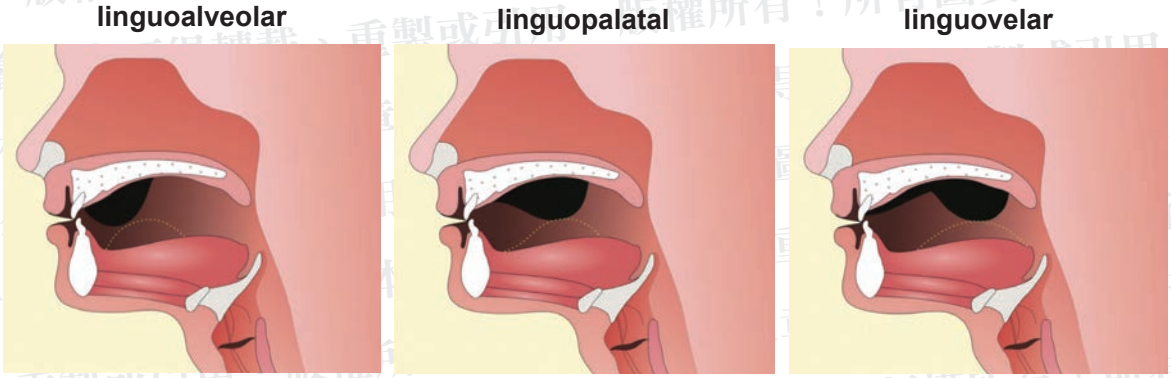
- Posterior palatal tracing
  → linguovelar sounds
  → /k/, /kh/, /g/, and /gh/
- Anterior palatal tracing
  → linguoalveolar sounds
  → /t/ and /d/
- Fricative and affricative (hard)
  → linguopalatal sounds
  → s/, /sh/, /z/, / zh/, /ch/, and /jh/

發音發法 / 發音部位	塞音 (stoping)	塞擦音 (affricate)	鼻音 (nasal)	邊音 (lateral)	擦音 (fricative)
雙唇音 bilabial (上、下唇)	ㄅ ㄆ		ㄇ		
唇齒音 labiodental (上齒、下唇)					ㄈ
舌尖前音 blade-alveolar (舌尖、齒背)		ㄗ ㄘ			ㄙ
舌尖音 apical (舌尖、上齒)	ㄉ ㄊ		ㄋ	ㄌ	
舌尖後音 retroflex (舌尖後、硬顎)		ㄓ ㄔ			ㄕ ㄖ
舌面前音 front palatal (舌面前、硬顎)		ㄐ ㄑ			ㄒ
舌根音 velar (舌面後、軟顎)	ㄍ ㄎ				ㄏ

Ya-Ching Li Palatal Augmentation Prosthesis Improves Swallowing and Pronunciation in Patients with Tongue Cancer《The Changhua Journal of Medicine》 15 卷 4 期 (2017/12) Pp. 224-227



ㄅㄆㄇ 雙唇
ㄈ 唇齒
ㄗㄘㄙ 舌尖前
ㄉㄊㄋㄌ 舌尖
ㄓㄔㄕㄖ 舌尖後
ㄐㄑㄒ 舌面
ㄍㄎㄏ 舌根

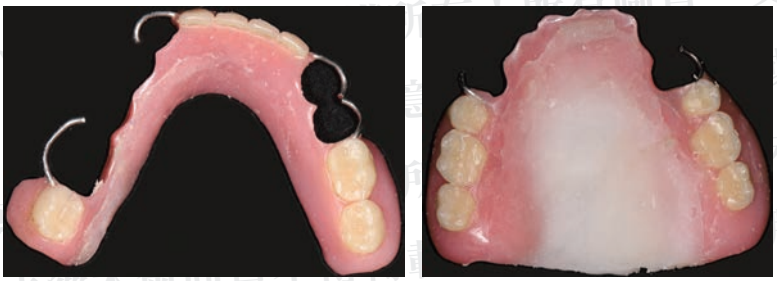


Payal Rajender Kumar Rehabilitation of a partial glossectomy patient: Palatal augmentation prosthesis J Indian Prosthodont Soc. 2019 Apr-Jun; 19(2): 190–196

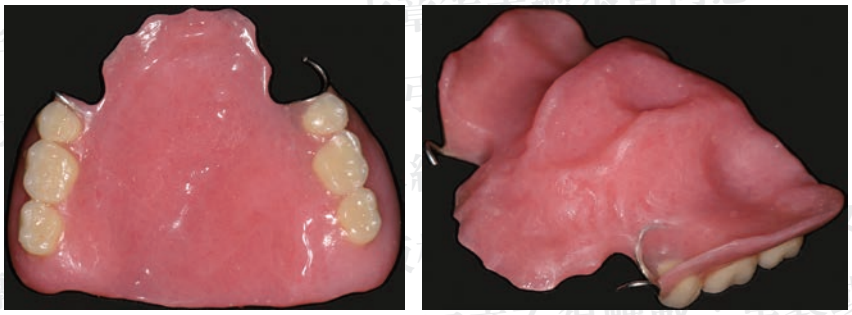
Reline for PAP

Dental GC Soft Liner

- temporary relining acrylic dentures & tissue conditioner



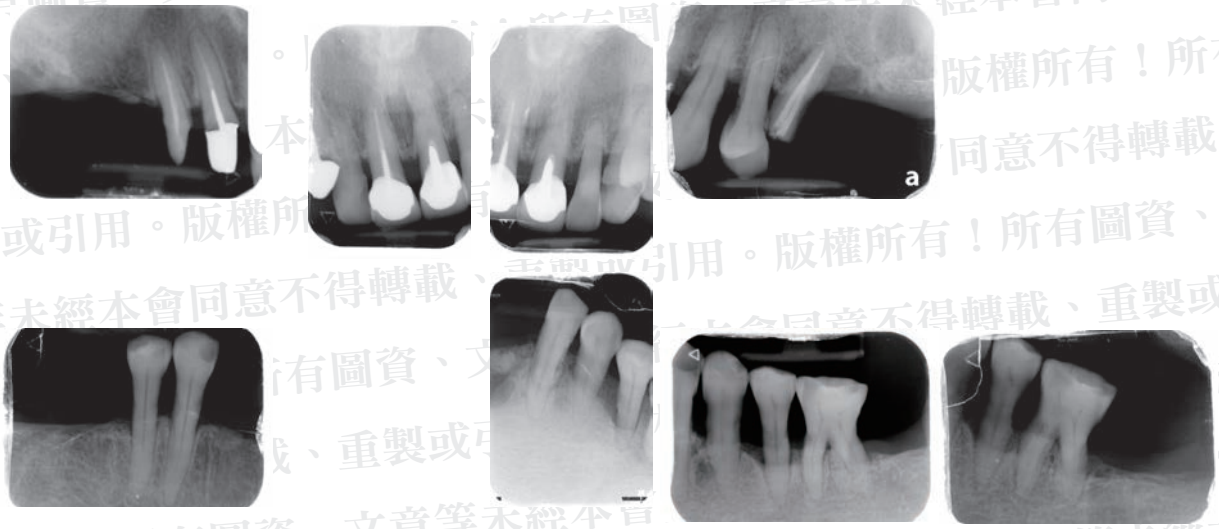
Interim with PAP



Treatment Course

Re-evaluation

Probing depth					312	222	313	333	323	312	212	412	112				Buccal
	18	**17**	**16**	**15**	**14**	**13**	**12**	**11**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	
Probing depth					333	222	332	242	222	444	444	442	224				Palatal



Probing depth				212	213						222	332	411	343			Buccal
	48	**47**	**46**	**45**	**44**	**43**	**42**	**41**	**31**	**32**	**33**	**34**	**35**	**36**	**37**	**38**	
Probing depth				321	211						242	221	221	343			Palatal

Chewing ability

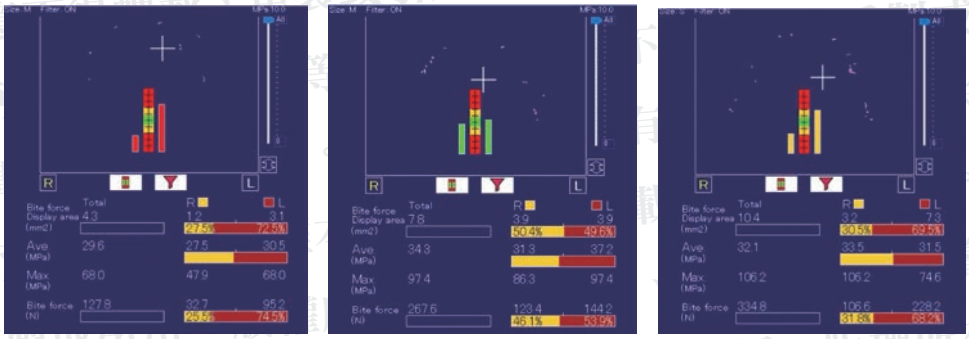
(咀嚼能カ測定グミ)

Initial **Interim** **Interim with PAP**

Biting force

Dental Prescale II (DPS II, GC Corp., Tokyo, Japan)

Initial **InitInterim 6M ial** **Interim 1 Yr**

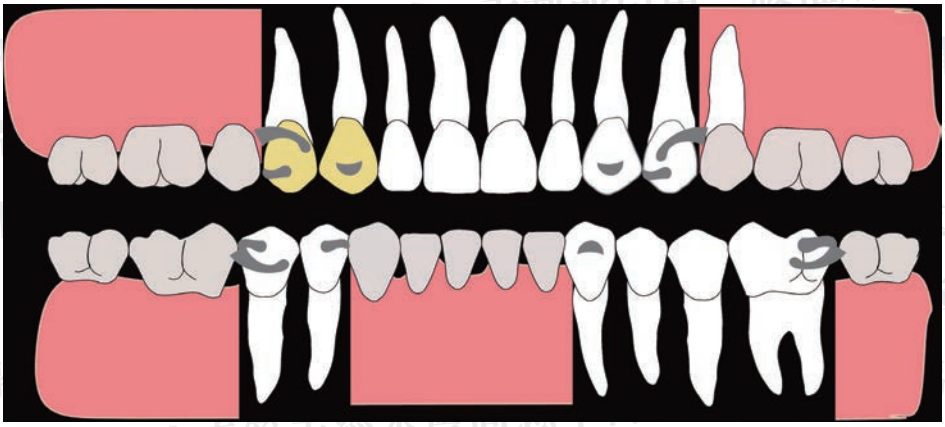


Ave(Mpa):	29.6	34.3	32.1
Bite force(N):	127.8	267.6	334.8

Temporary prosthesis
Periodontal condition
Occlusion
Endo treatment
TMJ condition
Tongue function

Definitive prosthodontics treatment plan

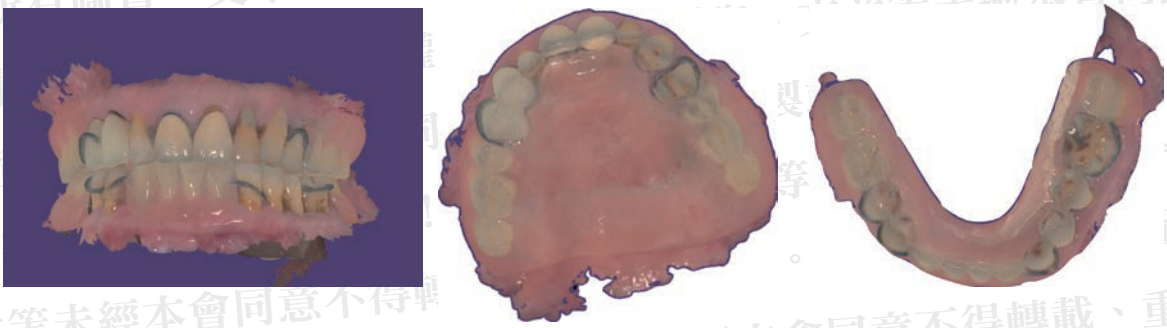
Option II Removable



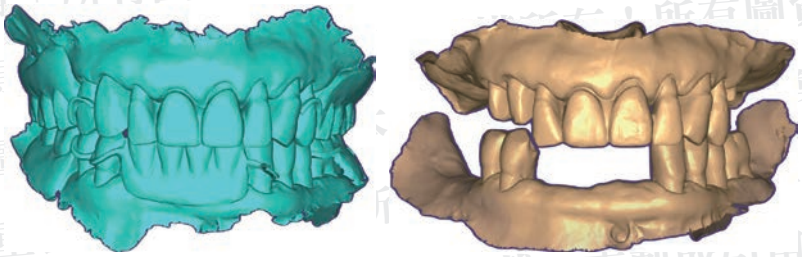
Treatment Course

Gingival Retraction &Digital scanning

Digital scanning for tentative prosthesis



CR bite and VD registration



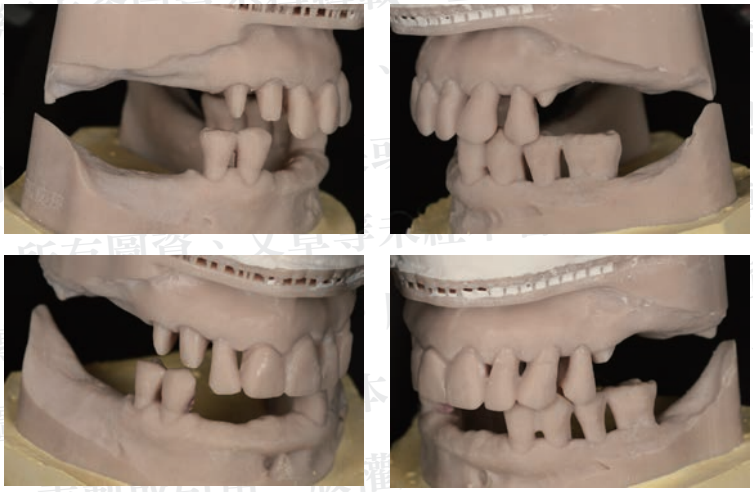
Upper: try-in denture

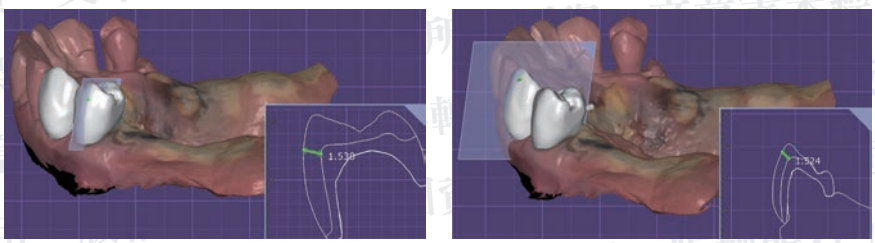
Lower: wax rim

Facebow transfer+bite registration

Mounting

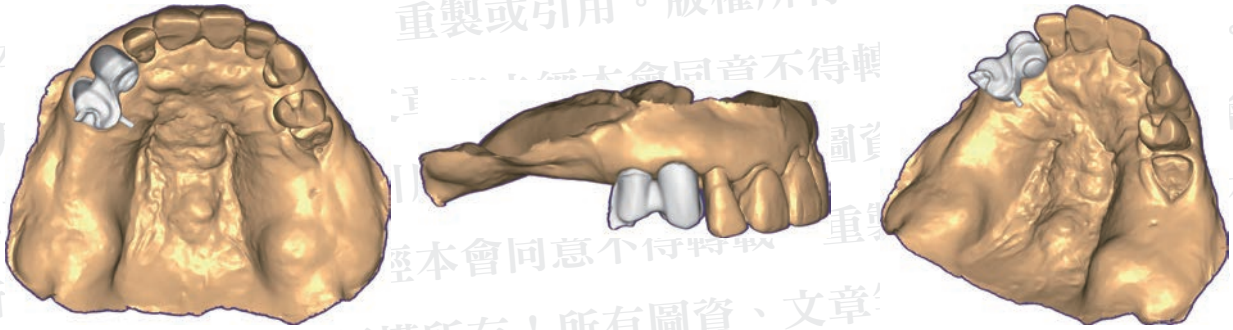
Jaw relationship



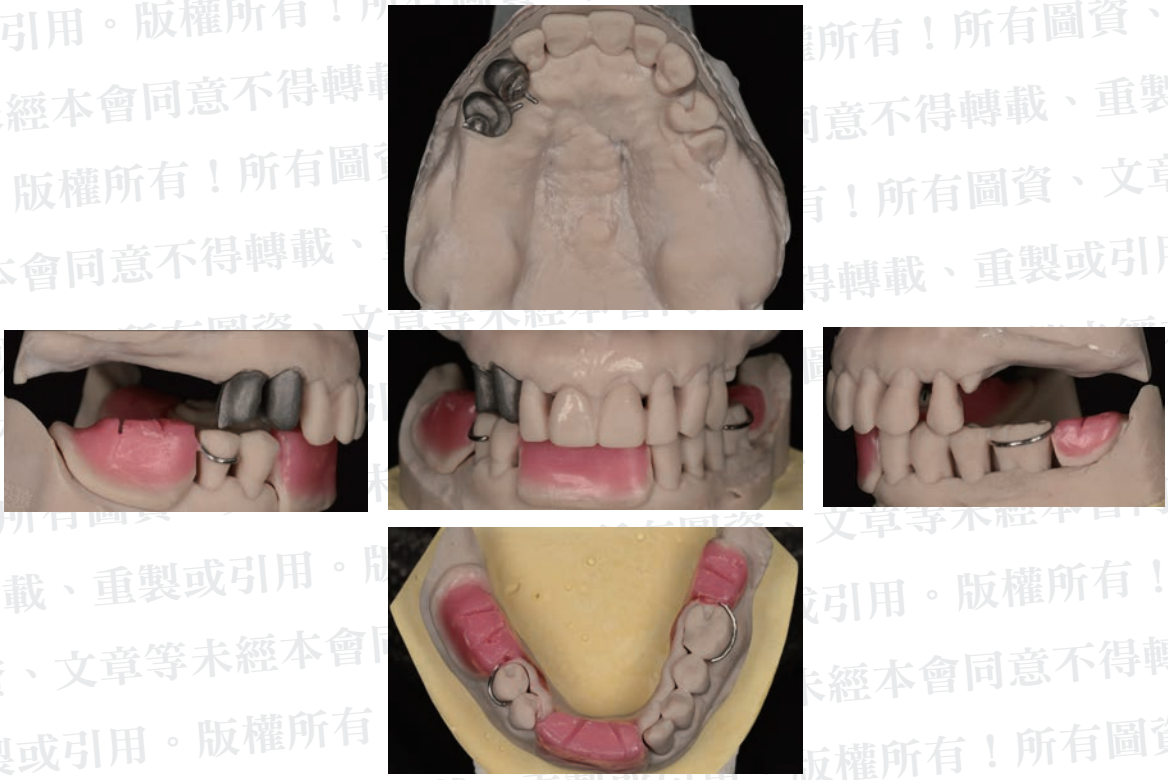


Tooth 14　　Tooth 13

Survey crown design



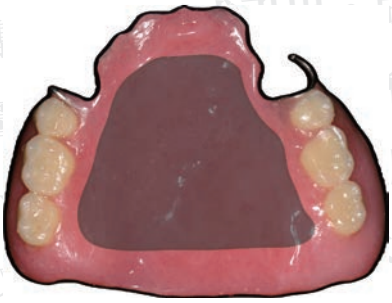
13-14 metal framework

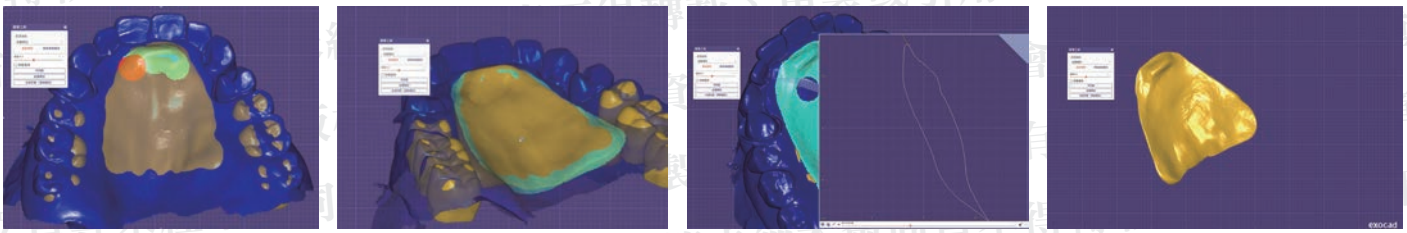


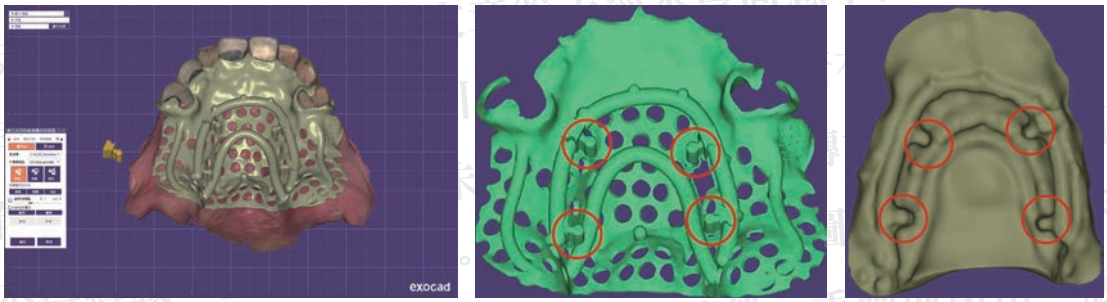
13-14 metal framework try-in

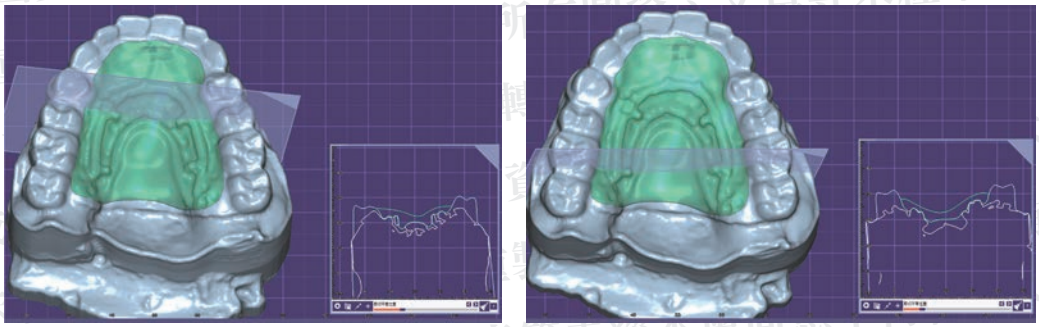
13-14 survey crown

Design concept

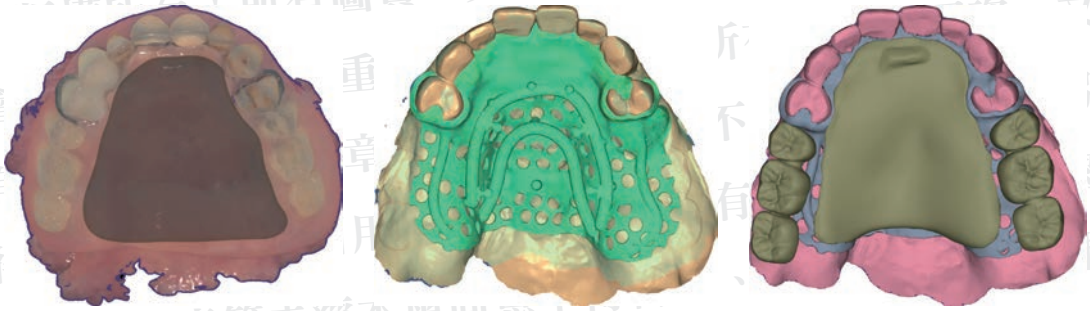


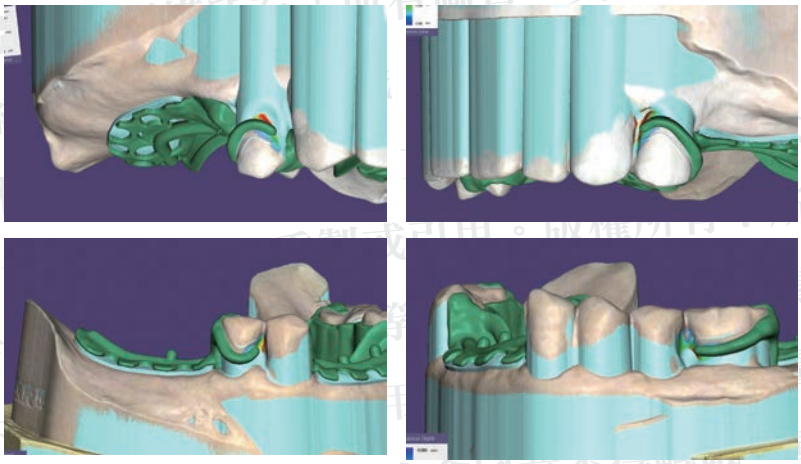




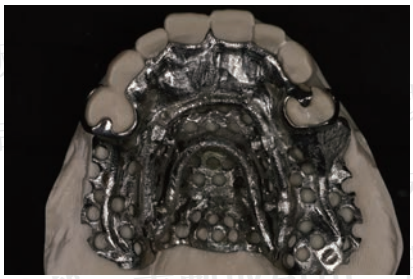


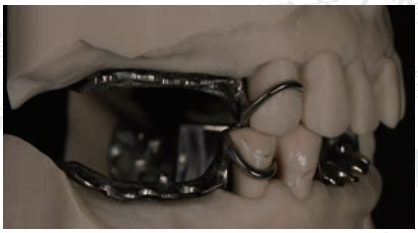
PAP design





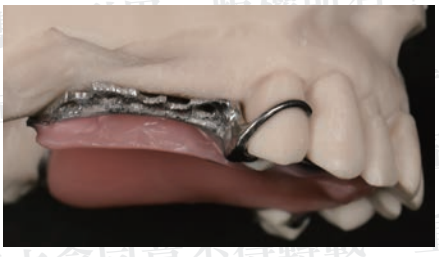
Framework



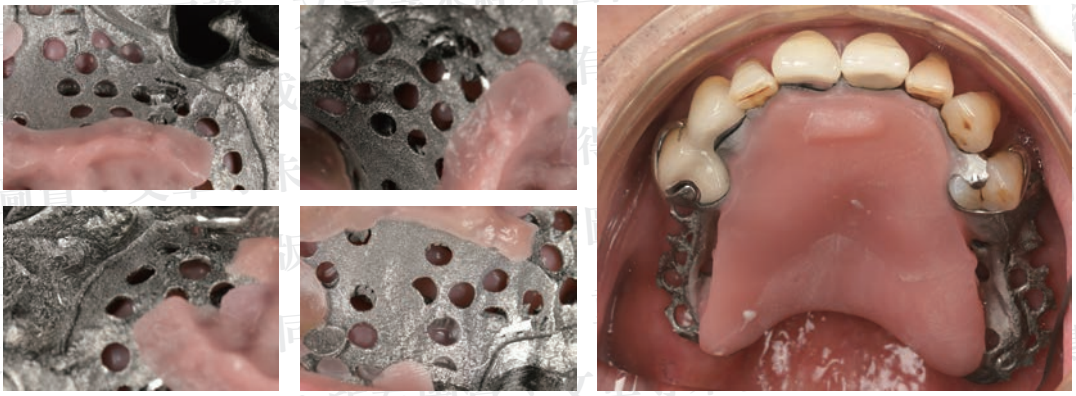


Framework try-in

Framework with PAP



Framework with PAP try-in



Bite registration

Definitive prosthesis

R't side: Working

Partial group function: 13, 14 → 43, 44

L't side: Non-working

No interference

R't side: Working

No interference

L't side: Non-working

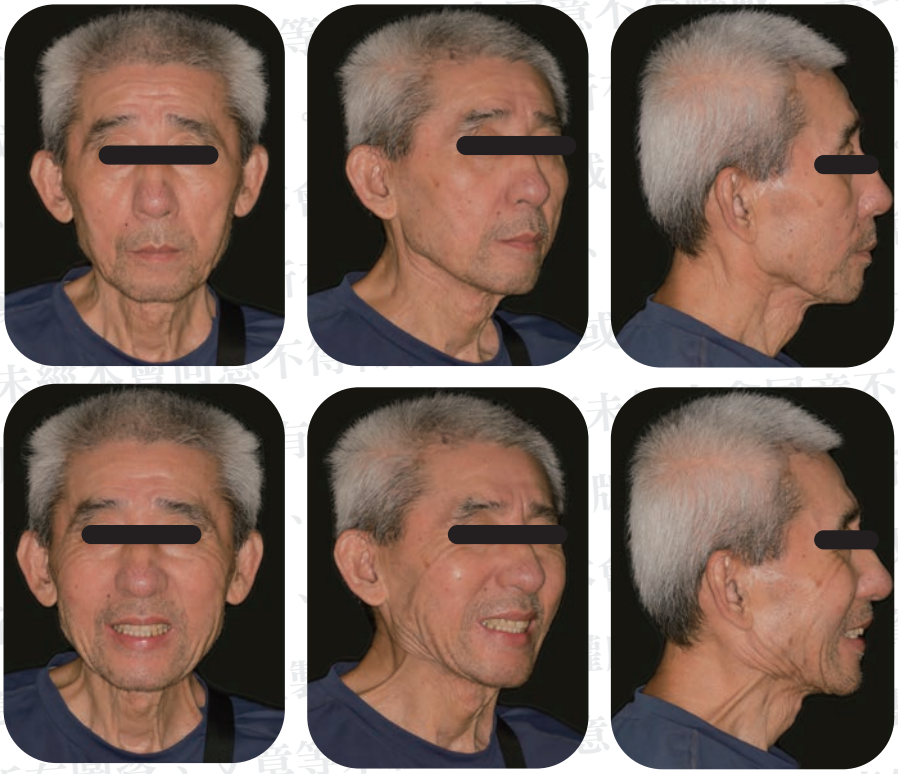
Partial group function: 23, 24 → 33, 34

Protrusive: anterior guidance

Anterior group function

No interference

No interference



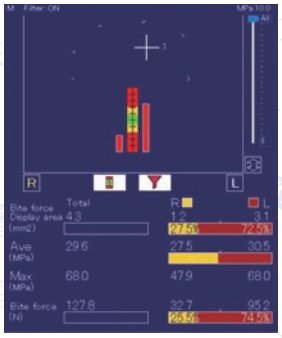
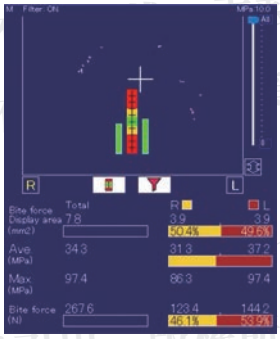
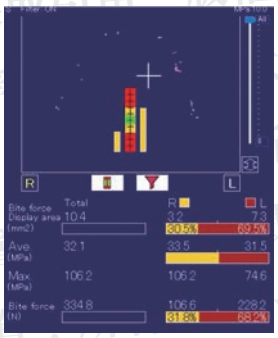
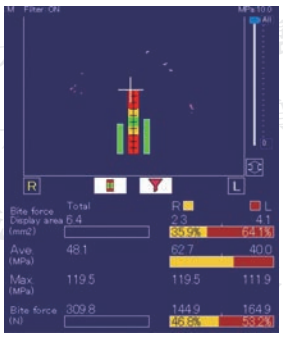
Chewing ability

(咀嚼能カ測定グミ)

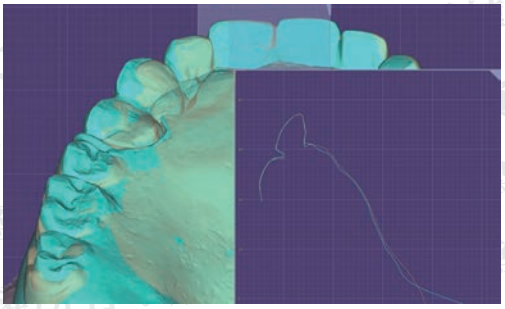
Initial　Interim 6M　Interim 1 Yr　Final

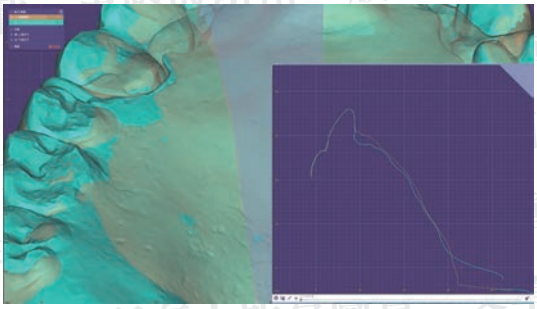
Biting force

Dental Prescale II (DPS II, GC Corp., Tokyo, Japan)

	Initial	Initial	Interim 1 Yr	Final
				
Ave(Mpa):	29.6	34.3	32.1	48.1
Bite force(N):	127.8	267.6	334.8	309.8

Align two intraoral scan files





Before

After

心得

詹雅筑

我此次報告的案例為一名因舌頭活動受限導致語音與吞嚥功能下降的患者，我利用口內掃描合併運用 CAD/CAM 技術製作精細且符合患者解剖需求的上顎增厚型腭部贋復體。整合傳統與數位技術的流程不僅提升了製作效率，也大幅改善傳統技術在細節精準度上的侷限性，讓患者在功能與舒適度上皆得到明顯改善。

作為報告者，除了整理自身臨床經驗並將數位技術應用於特殊功能性贋復體製作中，我也在訓練自己可以多角度的臨床分析思維，讓我更加重視跨領域評估與預後規劃的重要性。除此之外，活用數位技術於贋復治療中的多元應用，結合數位技術於傳統流程之中，使整體治療流程更加順暢。最後就是會後各位醫師的評論與討論時間讓我從其他專家的角度重新檢視自己的規劃流程與技術選擇，也對我未來處理類似患者的策略有了具體的反思與提升空間。

詹雅筑 醫師

- 高雄醫學大學牙醫系學士
- 專科執照與學會
- 中華民國贋復牙科學會會員
- 高醫岡山醫院主治醫師
- 高醫附設醫院贋復補綴科主治醫師
- 高雄醫學大學附設醫院贋復補綴專科完訓
- 高醫大附設醫院補綴科總醫師
- 高醫大附設醫院牙科部總醫師

病例討論二

The Posterior Puzzle: Solving Bilateral Breakdown with Strategic Prosthodontics

報告者：賴韞竹 醫師

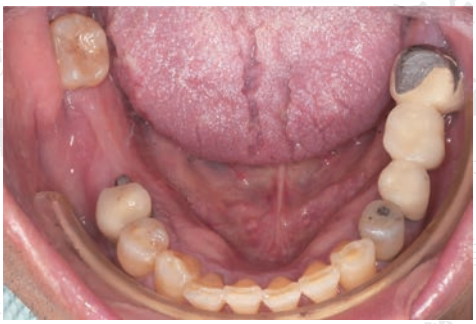
Key words:
Strategic Prosthodontics, Bilateral Posterior Prosthodontic Rehabilitation, Rehabilitation for Posterior Bite Collapse

General Data

- Name: 陳O哲
- Gender: M ale
- Age: 64y/o
- Occupation: retired
- First visit: 112/04/17
- Attitude toward dental treatment: Class I philosophical
  (House classification 1937)

Chief Complaint

我右下有多顆缺牙，右下牙齒有動搖度假牙戴不住，想評估缺牙重建



Present Illness

This 63 y/o male patient felt mobility over tooth 45. Then he had gone to perio dept. on 2023/03/31 for further examination and treatment.

After full mouth charting and radiography examination, he was referred to our dept. for edentulous area rehabilitation evaluation.

Past Medical History

- Systemic disease:
  - CAD s/p 1 stent in 2016 at 高榮
  - Sigmoid cancer s/p operation and OPD f/u
  - Autoimmune disease under medication control
- Food or drug allergy: 磺胺類
- Current medication: Predinsolone, 降血壓、降血脂、降膽固醇

Past Dental History

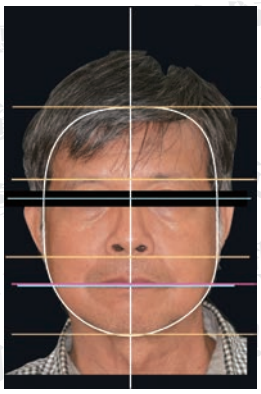
- Operative dentistry
- Endodontic treatment
- Prosthesis
- Extraction

Personal Habits

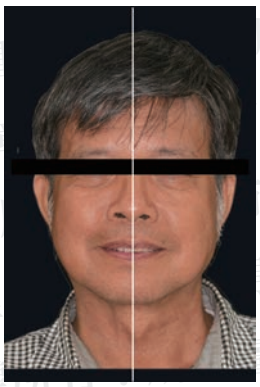
- Alcohol drinking : denied
- Betel nuts chewing : denied
- Cigarette smoking : 1PPD, quitted for 20 yrs
- Parafunction habit: nil
- Bruxism: denied
- Hard food eating
- Oral hygiene care : poor
- Brushing teeth : twice a day
- Dental floss (-), interdental brush (-)

Extraoral Examination

Frontal view

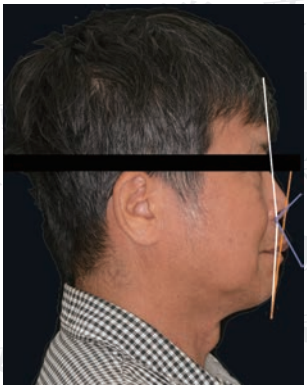


- Facial midline : on
- Facial asymmetry : (-)
- Commissure line parallel to interpupillary line
- Face form: squared
- Lip incompetence : (-)
- Mentalis muscle strain : (-)
- Facial proportion 1:1.02:1.02
- Lower 1/3 proportion : 1:1.85



- Smile line: low
- (Tjan AH et al. 1984)
- Smile line follow lower lip : +
- Dental to facial midline :
  upper: +
  lower: shift to r't 0.5mm

Lateral view



- Facial profile : convex
- Lip to E line:
  Upper : protruded
  Lower lip: protruded
- Nasolabial angle : 83.7

TMJ-Related Examination

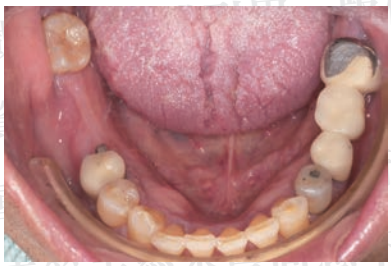
- Maximum mouth opening : >40 mm
- Muscle palpation pain (-)
- Joint palpation pain (-)
- Clicking sounds (-)
- Jaw deviation when opening mouth (-)
- No history of condylar traumatic injury

Intraoral Examination

- Overbite: 4.5mm (11-41)
- Overjet:4mm (11-41)
- Occlusal plane: even

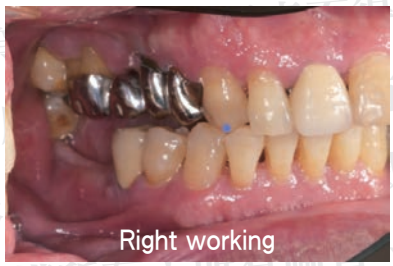
- Maxilla:
  - Ovoid arch form
  - Missing:16
  - Ill-fitting prosthesis:14-15x17
  - Palatal torus
  - Dark triangle: 12-11-21-22-23
  - Old restoration: 27
  - Plaque deposition
  - Gingiva recession

- Canine relationship:
  - R't:Cl II
  - L't:Cl II
- Molar relationship:
  - R't: x
  - L't: Cl II

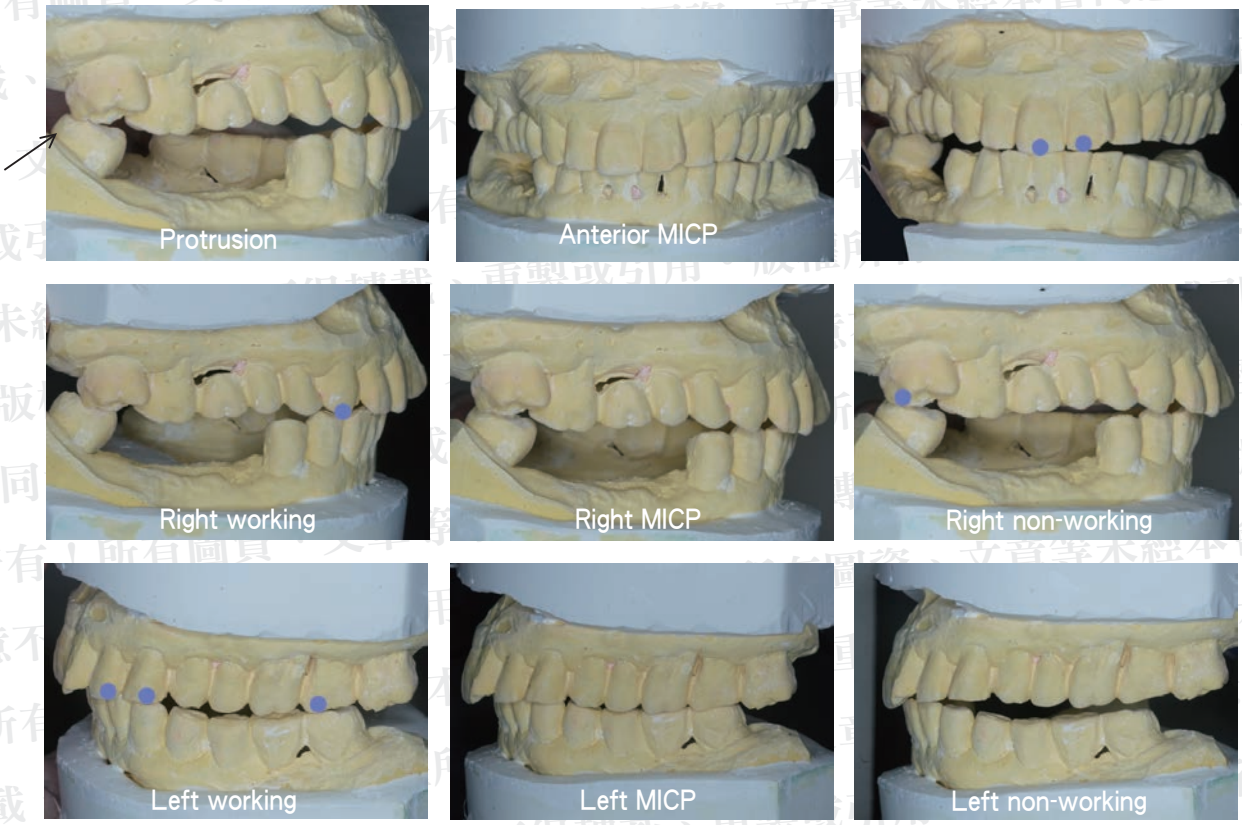


- Mandible:
  - Ovoid arch form
  - Missing:36.38
  - Ill-fitting prosthesis:45, 35x37
  - Lingual torus
  - Dark triangle: 32-31-41-42
  - Discoloration: 34
  - Plaque deposition
  - Gingiva recession
  - Porcelain fracture: 37

Intraoral Examination

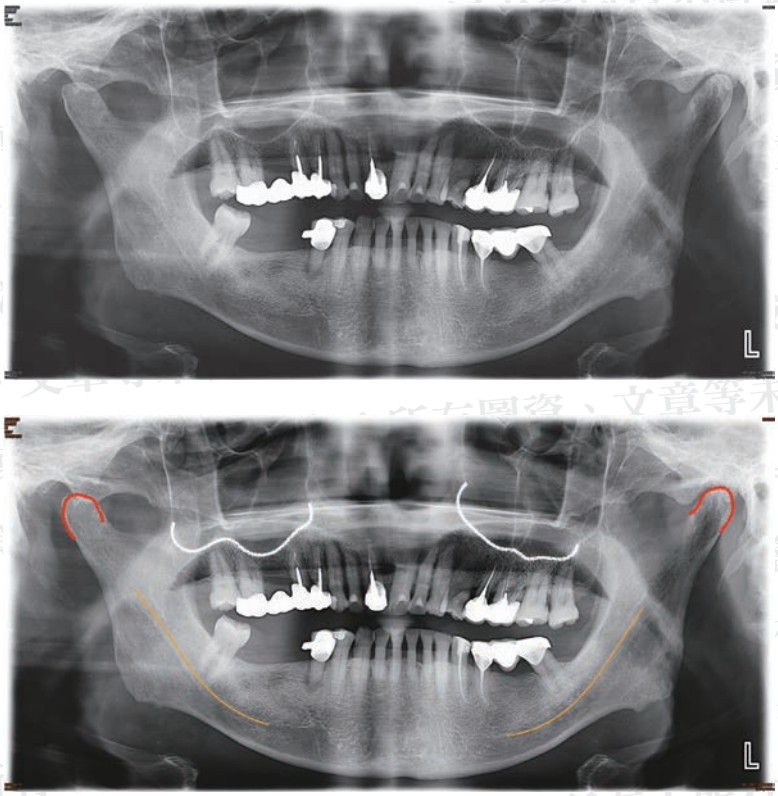


MICP and eccentric movement

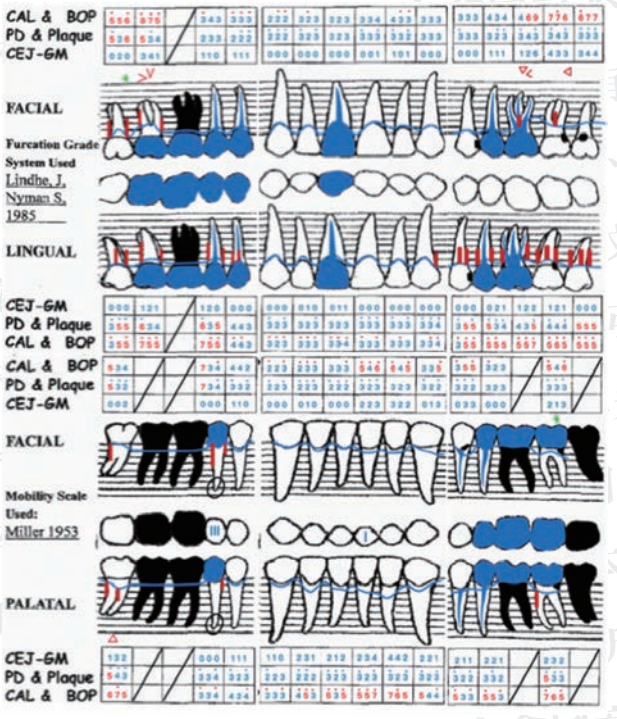


Radiographic Examination

Panoramic film



Periodontal Examination



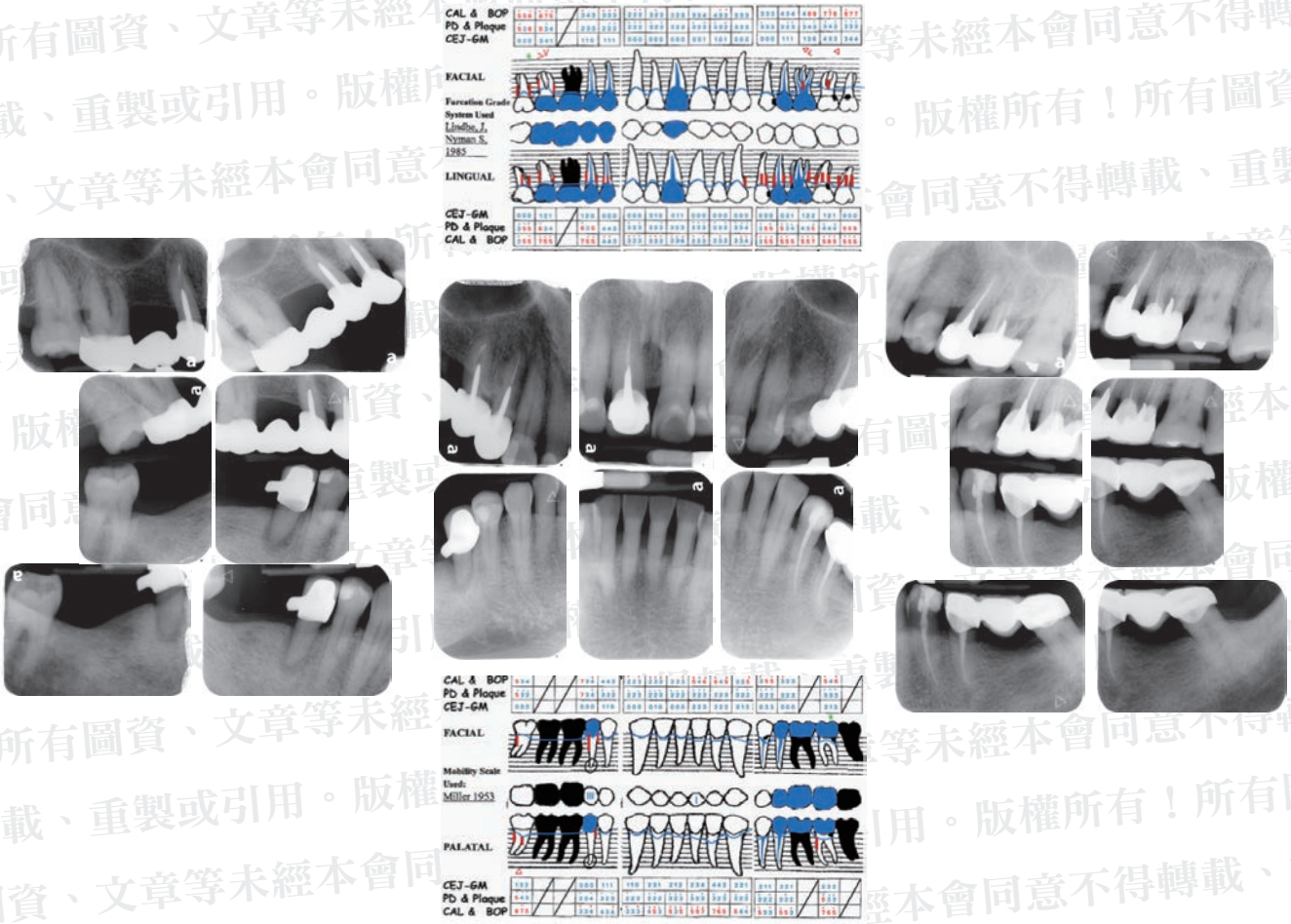
Plaque index (O'Leary) = 59.9%

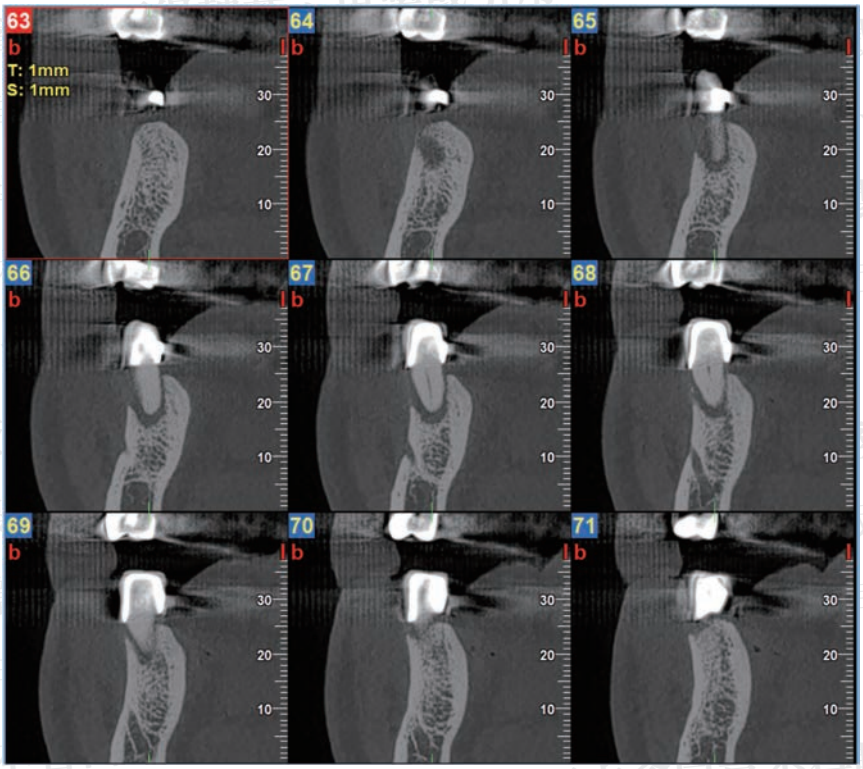
BOP (Ainamo & Bay)

- Site= 58.0%
- Teeth= 100%

PD> 5mm:

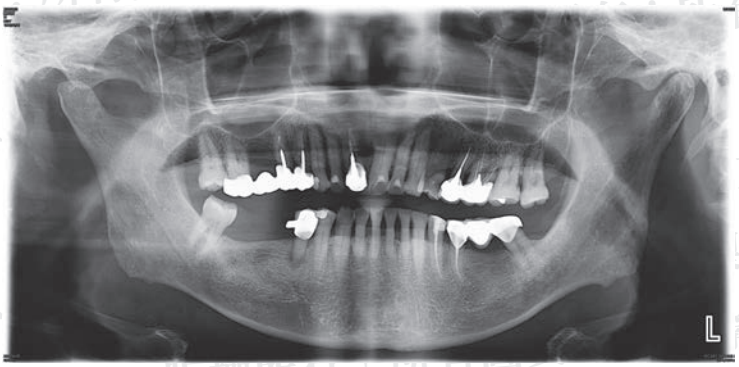
- Site= 11.7%
- Teeth= 37.0%


CAL & BOP
PD & Plaque
CEJ-GM
FACIAL
Furcation Grade
System Used
Lindhe, J.
Nyman S.
1985
LINGUAL
CEJ-GM
PD & Plaque
CAL & BOP
CAL & BOP
PD & Plaque
CEJ-GM
FACIAL
Mobility Scale
Used:
Miller 1953
PALATAL
CEJ-GM
PD & Plaque
CAL & BOP


63
T: 1mm
S: 1mm
64
65
66
67
68
69
70
71

Good	Fair	Poor	Questionable	Hopeless
Control of the etiologic factors and adequate periodontal support as measured clinically and radiographically to ensure the tooth would be relatively easy to maintain by the patient and clinician assuming proper maintenance.	Approximately 25% attachment loss as measured clinically and radiographically and/or Class I furcation involvement. The location and depth of the furcation would allow proper maintenance with good patient compliance.	50% attachment loss and Class II furcations. The location and depth of the furcations would allow proper maintenance, but with difficulty.	>50% attachment loss resulting in a poor crown/root ratio. Poor root form. Class II furcations not easily accessible to maintenance care, or Class III furcations.≥2+mobility. Significant root proximity.	Inadequate attachment to maintain the tooth in health, comfort, and function. Extraction was performed or suggested.

18	17	16	15	14	13	12	11	21	22	23	24	25	26	27	28
H	Q		P	G	G	G	G	G	G	G	F	F	Q	P	H
H			H	G	G	F	F	P	P	F	F	F		P	
48	47	46	45	44	43	42	41	31	32	33	34	35	36	37	38



Problem List

Prosthetic and occlusion

- Missing: 16.36.38.46.47
- Occlusal interference: 18-48
- Ill-fitting prosthesis:14-15x17, 45, 35x37

Preservative

- Decay: 24,27,28,34,37

Periodontal

- PD ≧ 5mm: 15,17,18,24,25,26,28,37,45,48
- Mobility
  - Grade I: 31
  - Grade III: 45
- Generalized gingival recession
- Furcation involvement Gr I: 17BD,26D
  Gr II: 26B,27D,48L
- Generalized plaque deposition and gingival inflammation
- Keratinized gingival < 2 mm: 18MB,37DB
- Angular bony defect: 26D
- Tooth 45 buccal bone loss

Diagnosis

- Generalized periodontitis, stage III Grade B (2018 AAP)

	Periodontitis	Stage I	Stage II	Stage III	Stage IV
Severity	**Interdental CAL** (at site of greatest loss)	1-2 mm	3-4 mm	≥5 mm	≥5 mm
	RBL	Coronal third (<15%)	Coronal third (15% - 33%)	Extending to middle third of root and beyond	Extending to middle third of root and beyond
	Tooth loss (due to periodontitis)	No tooth loss		≤4 teeth	≥5 teeth
Complexity	**Local**	• Max. probing depth ≤4 mm • Mostly horizontal bone loss	• Max. probing depth <5 mm • Mostly horizontal bone loss	In addition to Stage II complexity: • Probing depths ≥6 mm • Vertical bone loss ≥3 mm • Furcation involvement Class II or III • Moderate ridge defects	In addition to Stage III complexity: • Need for complex rehabilitation due to: - Masticatory dysfunction - Secondary occlusal trauma (tooth mobility degree ≥2) - Severe ridge defects - Bite collapse, drifting, flaring - < 20 remaining teeth (10 opposing pairs)
Extent and distribution	**Add to stage as descriptor**	For each stage, describe extent as: • Localized (<30% of teeth involved); • Generalized; or • Molar/incisor pattern			

	Progression		Grade A: Slow rate	Grade B: Moderate rate	Grade C: Rapid rate
Primary criteria Whenever available. direct evidence should be used.	Direct evidence of progression	Radiographic bone loss or CAL	No loss over 5 years	<2 mm over 5 years	≥2 mm over 5 years
	Indirect evidence of progression	% bone loss / age	<0.25	0.25 to 1.0	>1.0
		Case phenotype	Heavy biofilm deposits with low levels of destruction	Destruction commensurate with biofilm deposits	Destruction exceeds expectations given biofilm deposits; specific clinical patterns suggestive of periods of rapid progression and/or early onset disease
Grade modifiers	Risk factors	Smoking	Non-smoker	<10 cigarettes/day	≥10 cigarettes/day
		Diabetes	Normoglycemic/no diagnosis of diabetes	HbA1c <7.0% in patients with diabetes	HbA1c≥7.0% in patients with diabetes

PERIODONTITIS: STAGING

Staging intends to classify the severity and extent of a patient's disease based on the measurable amount of destroyed and/or damaged tissue as a result of periodontitis and to assess the specific factors that may attribute to the complexity of long-term case management.

Initial stage should be determined using clinical attachment loss (CAL). If CAL is not available, radiographic bone loss (RBL) should be used. Tooth loss due to periodontitis may modify stage definition. One or more complexity factors may shift the stage to a higher level. See **perio.org/2017wwdc** for additional information.

	Periodontitis	Stage I	Stage II	Stage III	Stage IV
Severity	Interdental CAL *(at site of greatest loss)*	1 - 2 mm	3 - 4 mm	≥5 mm	≥5 mm
	RBL	Coronal third (<15%)	Coronal third (15% - 33%)	Extending to middle third of root and beyond	Extending to middle third of root and beyond
	Tooth loss *(due to periodontitis)*	No tooth loss		≤4 teeth	≥5 teeth
Complexity	Local	• Max. probing depth ≤4 mm • Mostly horizontal bone loss	• Max. probing depth ≤5 mm • Mostly horizontal bone loss	In addition to Stage II complexity: • Probing depths ≥6 mm • Vertical bone loss ≥3 mm • Furcation involvement Class II or III • Moderate ridge defects	In addition to Stage III complexity: • Need for complex rehabilitation due to: – Masticatory dysfunction – Secondary occlusal trauma (tooth mobility degree ≥2) – Severe ridge defects – Bite collapse, drifting, flaring – < 20 remaining teeth (10 opposing pairs)

PERIODONTITIS: GRADING

Grading aims to indicate the rate of periodontitis progression, responsiveness to standard therapy, and potential impact on systemic health.

Clinicians should initially assume grade B disease and seek specific evidence to shift to grade A or C.
See **perio.org/2017wwdc** for additional information.

	Progression		Grade A: Slow rate	Grade B: Moderate rate	Grade C: Rapid rate
Primary criteria	Direct evidence of progression	Radiographic bone loss or CAL	No loss over 5 years	<2 mm over 5 years	≥2 mm over 5 years
Whenever available, direct evidence should be used.	Indirect evidence of progression	% bone loss / age	<0.25	0.25 to 1.0	>1.0
		Case phenotype	Heavy biofilm deposits with low levels of destruction	Destruction commensurate with biofilm deposits	Destruction exceeds expectations given biofilm deposits; specific clinical patterns suggestive of periods of rapid progression and/or early onset disease
Grade modifiers	Risk factors	Smoking	Non-smoker	<10 cigarettes/day	≥10 cigarettes/day
		Diabetes	Normoglycemic/no diagnosis of diabetes	HbA1c <7.0% in patients with diabetes	HbA1c ≥7.0% in patients with diabetes

- Maxillary partial edentulous ridge
- Mandibular partial edentulous ridge
- PDI class IV
- Caries: 24,27,28,34 ,37

TABLE 2. Worksheet Used to Determine Classification

	Class I	*Class II*	*Class III*	*Class IV*
Location & Extent of Edentulous Areas				
Ideal or minimally compromised—single arch	✓			
Moderately compromised—both arches		✓		
Substantially compromised—>3 teeth			✓	
Severely compromised—guarded prognosis				✓
Congenital or acquired maxillofacial defect				
Abutment Condition				
Ideal or minimally compromised	✓			
Moderately compromised—1-2 sextants		✓		
Substantially compromised—3 sextants			✓	
Severely compromised—4 or more sextants				✓
Occlusion				
Ideal or minimally compromised	✓			
Moderately compromised—local adjunctive tx		✓		
Substantially compromised—occlusal scheme			✓	
Severely compromised—change in OVD				✓
Residual Ridge				
Class I Edentulous	✓			
Class II Edentulous		✓		
Class III Edentulous			✓	
Class IV Edentulous				✓
Conditions Creating a Guarded Prognosis				
Severe oral manifestations of systemic disease				✓
Maxillomandibular dyskinesia and/or ataxia				✓
Refractory patient				✓

NOTE. Individual diagnostic criteria are evaluated and the appropriate box is checked. The most advanced finding determines the final classification.

Guidelines for use of the worksheet

1. Any single criterion of a more complex class places the patient into the more complex class.
2. Consideration of future treatment procedures must not influence the diagnostic level.
3. Initial preprosthetic treatment and/or adjunctive therapy can change the initial classification level.
4. If there is an esthetic concern/challenge, the classification is increased in complexity by one level in Class I and II patients.
5. In the presence of TMD symptoms, the classification is increased in complexity by one or more levels in Class I and II patients.

Etiology

Poor oral hygiene
Ill-fitting prosthesis

↓

Periodontitis

↓ ↑

Teeth loss

↓

Poor masticatory function

Prosthodontic treatment option

Option 1-1 implant + FPD

Upper: 18. (26). 28 ext
14.15.17.25 crown, i16. i26

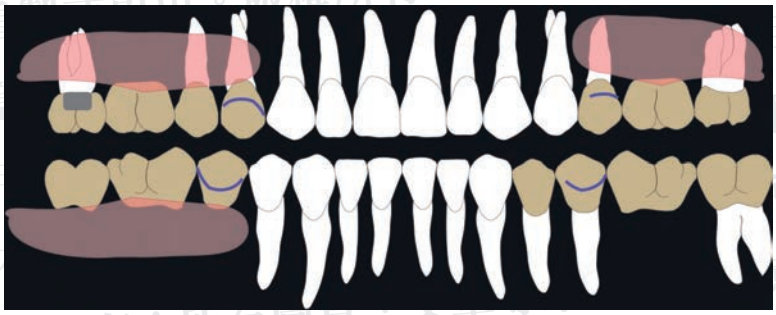
Lower: 45. 48 ext
34.35.37 crown,
i36. i45 x i47 bridge

Option 1-2 implant + FPD

Upper: 18. (26). 28 ext
14.15.17 crown,
25 x 27 bridge, i16

Lower: 45. 48 ext
34.35.37 crown,
35 x 37 bridge, i45 x i47 bridge

Option 2 FPD + RPD



Upper: 14-15.25.27 crown,
17 copping + RPD
18, 26, 28 ext

Lower: 34. 35. 37 crown + RPD
45, 48 ext

	Option1-1	Option1-2	Option2
Cost	★★★	★★	★
Comfort	★★★	★★★	★
Esthetics	★★★	★★★	★★
Chewing efficiency	★★★	★★★	★
Time	★★★	★★	★

Treatment course

Strategic treatment sequence

1.45 extraction

2. Remove prosthesis

3. 26.28 ext + ARP

4. I45. I47 fixture placement

5. I16 fixture placement

6. I45xI47 implant temp bridge deliver

7. 18.48 extraction

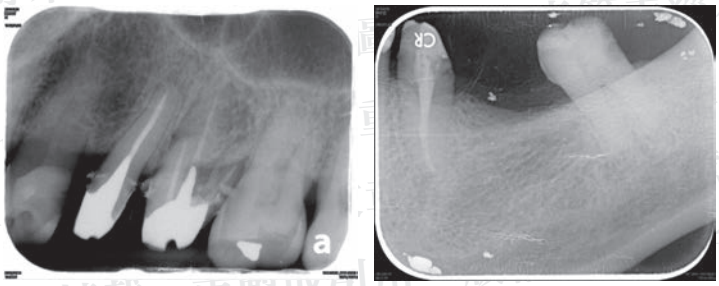
8. I16 implant temp deliver

9. Final prosthesis

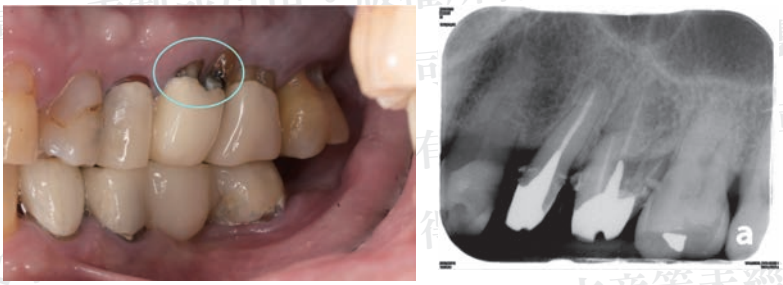
45 ARP + 46 GBR

Remove previous prothesis

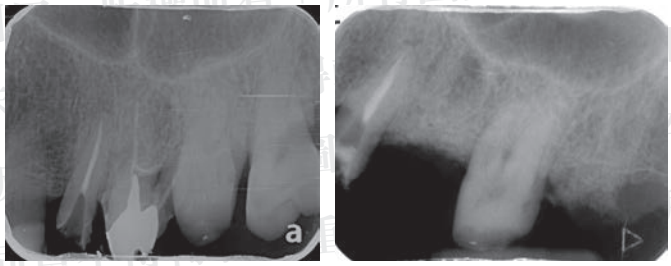
Refer to OD dept. for tooth 24,27,34,37OD



Tooth 26

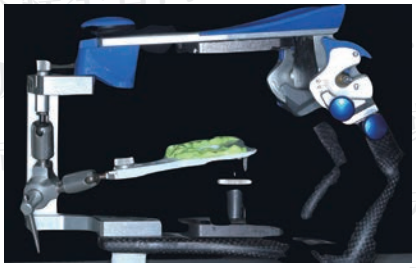


Tooth 26. 28 ARP



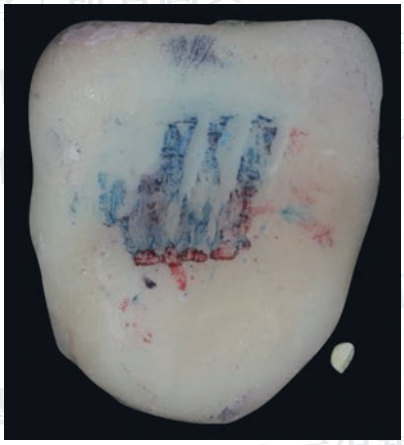
Facebow transfer

Study cast mounting

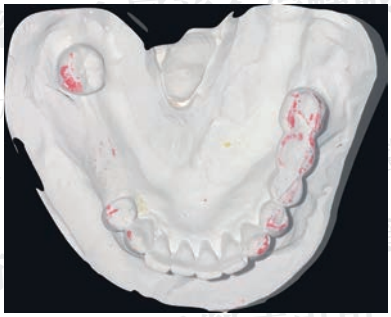


Check for occlusion interference CR~CO

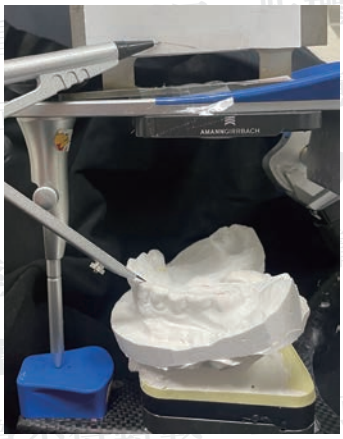
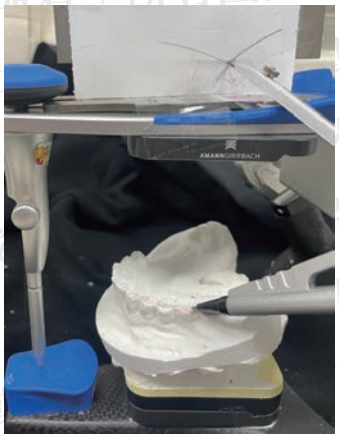
① Lucia jig



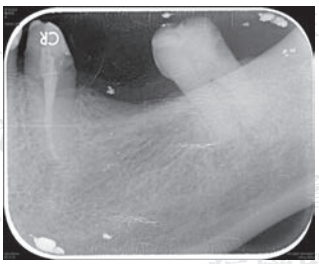
② Mounting



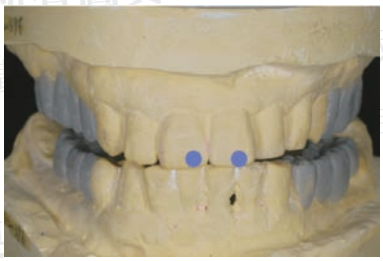
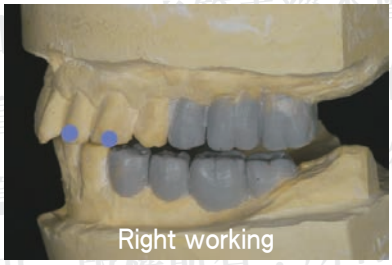
Determine occlusal plane:
Broadrick's flag occlusal plane analyzer

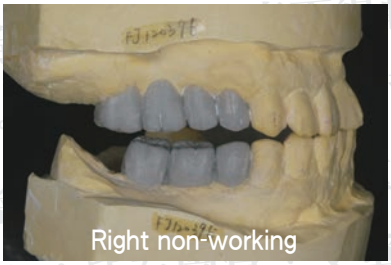



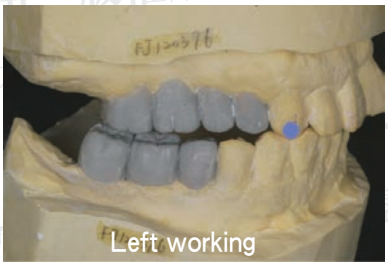
Survey abutments

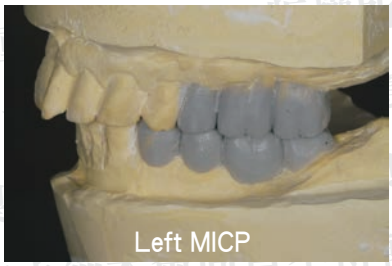


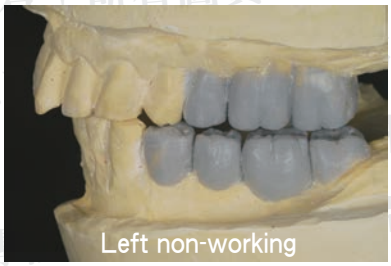
Wax up

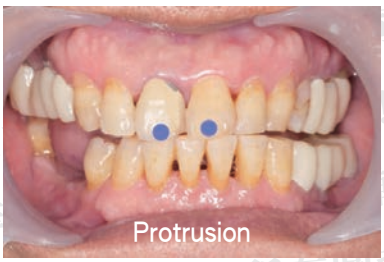






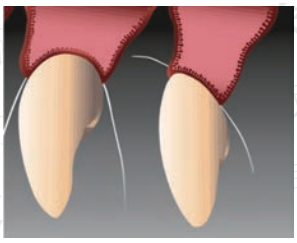


New temp



pontic design 25x27

pontic design 35x37



JERD Journal of Esthetic and Restorative Dentistry

Use of a Modified Ovate Pontic in Areas of Ridge Defects: A Report of Two Cases

30 October 2006

CHUN-LIN STEVEN LIU, DDS, DMD*

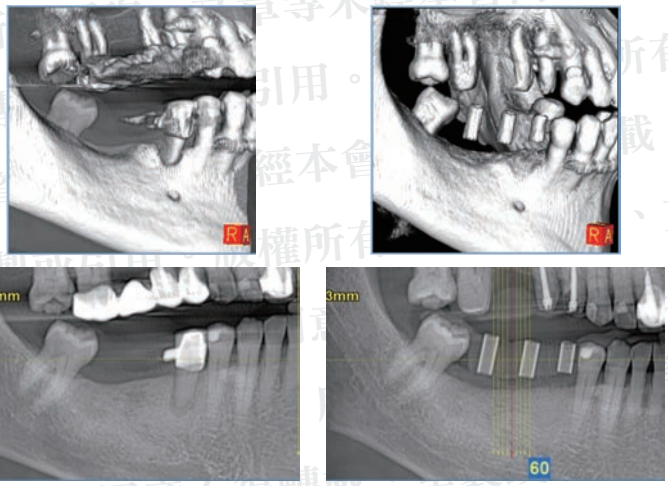
Modified Ovate Pontic

pontic design

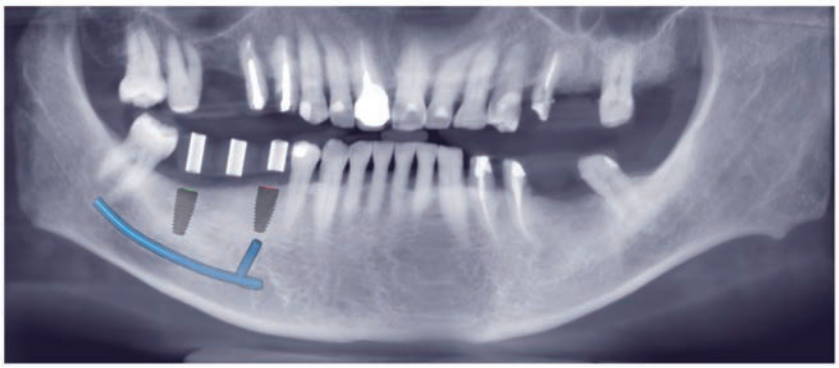
tooth 11 porcelain fracture

Implant 45. 47

Pre-operation

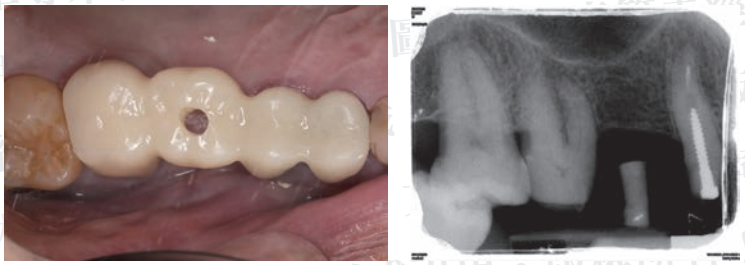


Straumann
Implant 45: BLT 4.1 mm * 10 mm
Implant 47: BLT 4.8 mm * 10 mm



Surgical stent try in

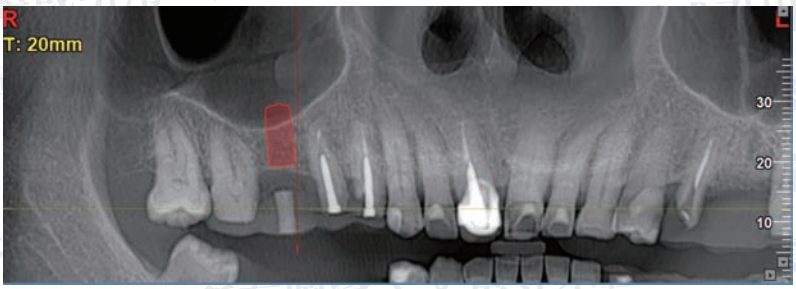
Implant 16

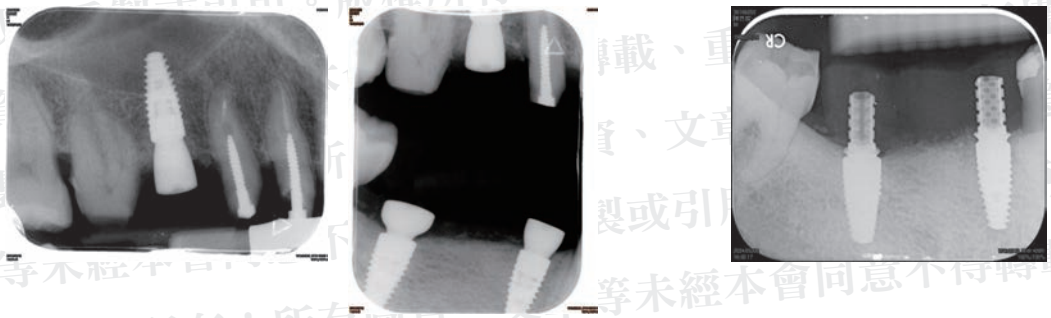


Pre-operation

Straumann

Tooth 16: BLT 4.1 mm * 10 mm

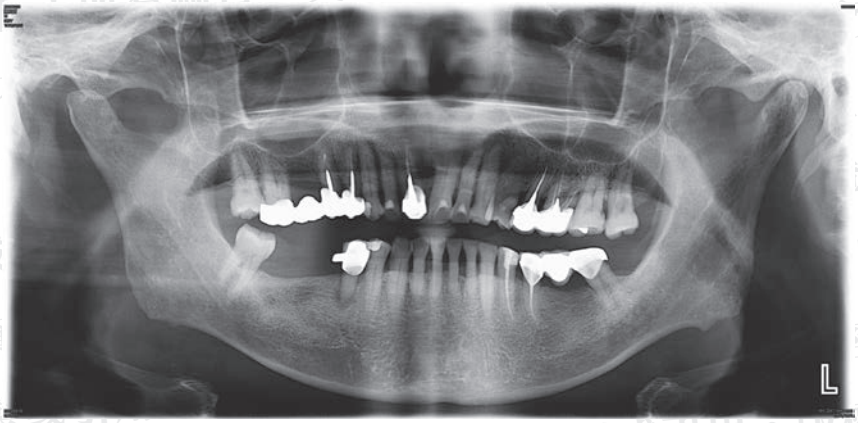




i45x i47 temp delivery

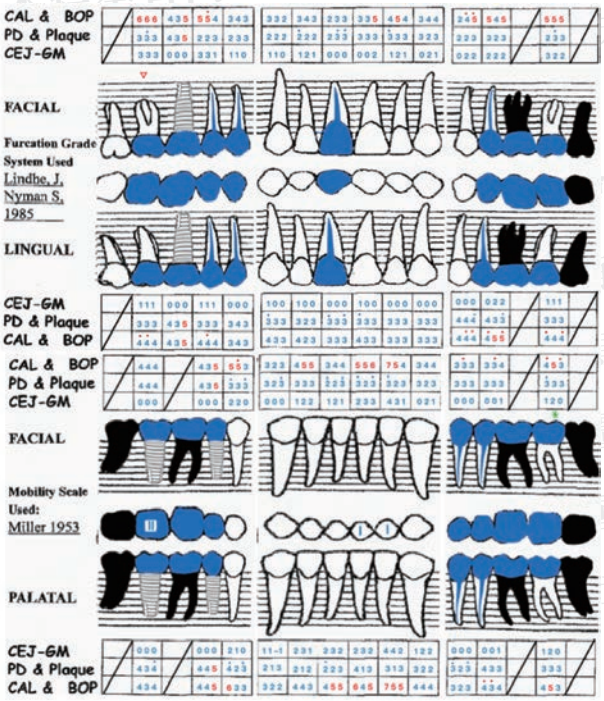
Ovate pontic

Refer to OS for 18.48 extraction



i16 temp delivery

Re-evaluation -Perio



Plaque index (O'Leary) = 18.0%

BOP (Ainamo & Bay)

- Site=12.7%
- Teeth= 36 %

PD> 5mm:

- Site= 2.7%
- Teeth= 8.0%

Before

Plaque index (O'Leary) = 59.9%

BOP (Ainamo & Bay)

- Site= 58.0%
- Teeth= 100%

PD> 5mm:

- Site= 11.7%
- Teeth= 37.0%

After

Plaque index (O'Leary) = 18.0%

BOP (Ainamo & Bay)

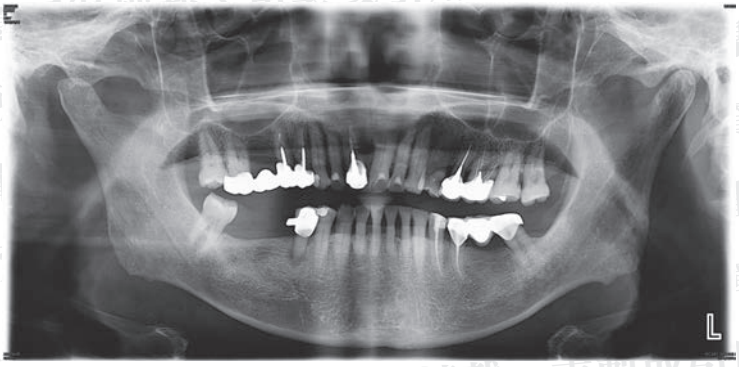
- Site=12.7%
- Teeth= 36 %

PD> 5mm:

- Site= 2.7%
- Teeth= 8.0%

Prognosis (1996 McGuire MK.)

18	17	16	15	14	13	12	11	21	22	23	24	25	26	27	28
	P		F	G	G	G	G	G	G	G	F	F		F	
				G	G	F	F	P	P	F	F	F		F	
48	47	46	45	44	43	42	41	31	32	33	34	35	36	37	38



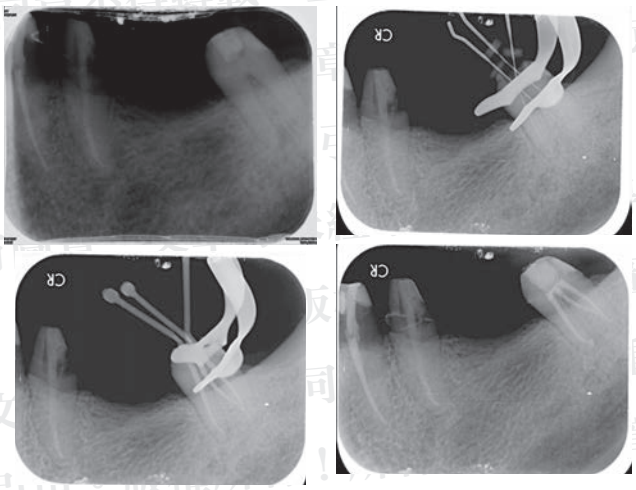
Good	Fair	Poor	Questionable	Hopeless
Control of the etiologic factors and adequate periodontal support as measured clinically and radiographically to ensure the tooth would be relatively easy to maintain by the patient and clinician assuming proper maintenance.	Approximately 25% attachment loss as measured clinically and radiographically and/or Class I furcation involvement. The location and depth of the furcation would allow proper maintenance with good patient compliance.	50% attachment loss and Class II furcations. The location and depth of the furcations would allow proper maintenance, but with difficulty.	>50% attachment loss resulting in a poor crown/root ratio. Poor root form. Class II furcations not easily accessible to maintenance care, or Class III furcations.≥2+mobility. Significant root proximity.	Inadequate attachment to maintain the tooth in health, comfort, and function. Extraction was performed or suggested.

Re-evaluation -Presevative

Refer to endo dept. for 37 root canal treatment

Pulp: necrosis

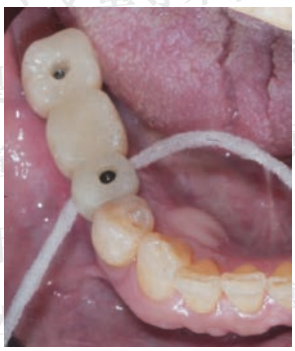
Periapical: symptomatic apical periodontitis



Re-evaluation -Prostho

Check OH

i45 x i47

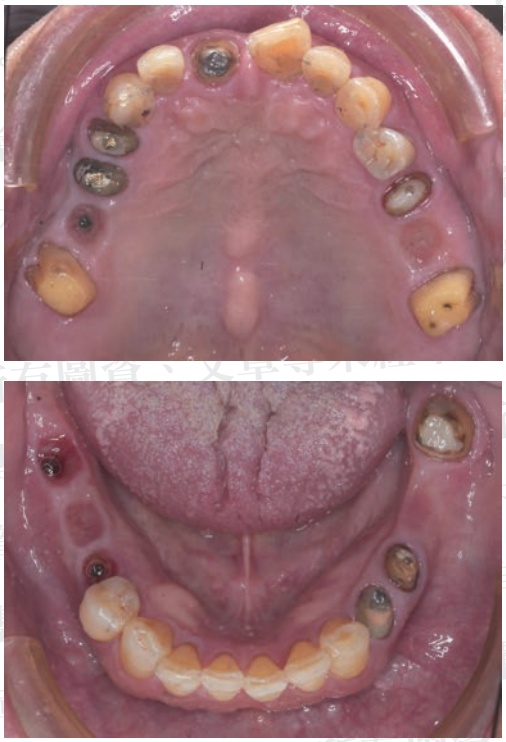


35 x 37

25 x 27

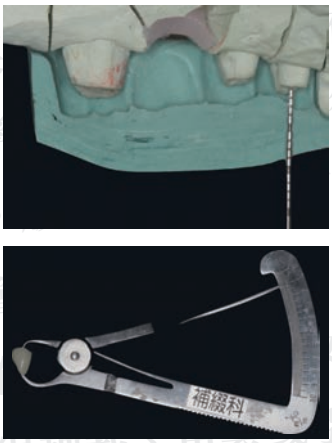
MICP and eccentric movement

Abutment



Check preparation space

14



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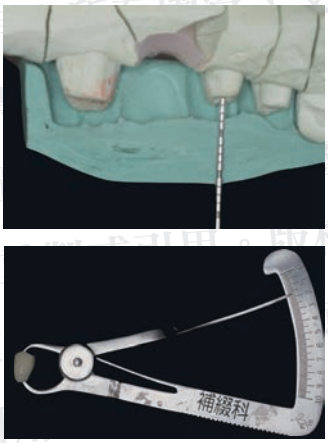

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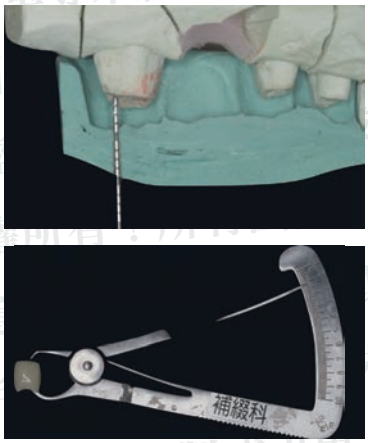

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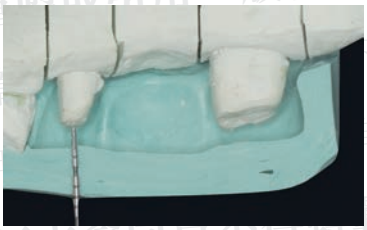

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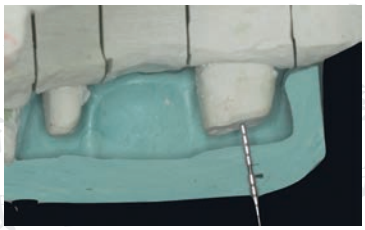

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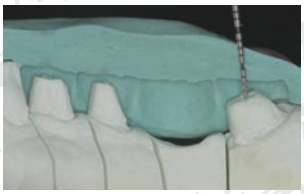
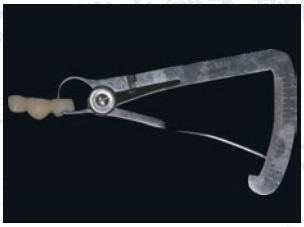
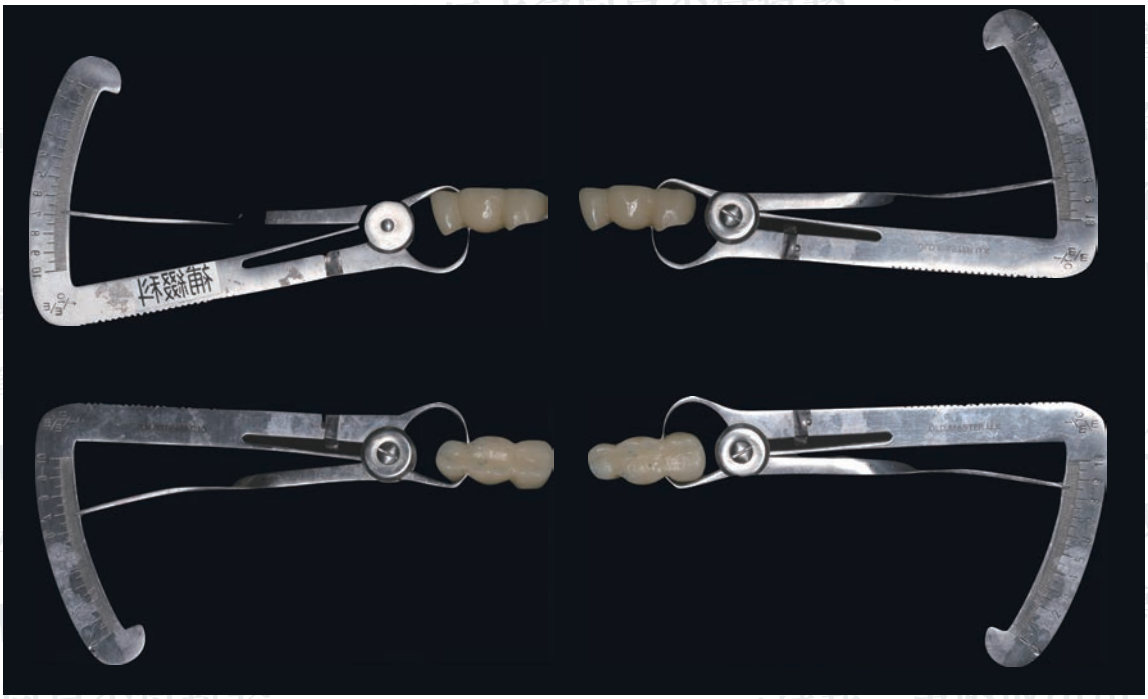
35

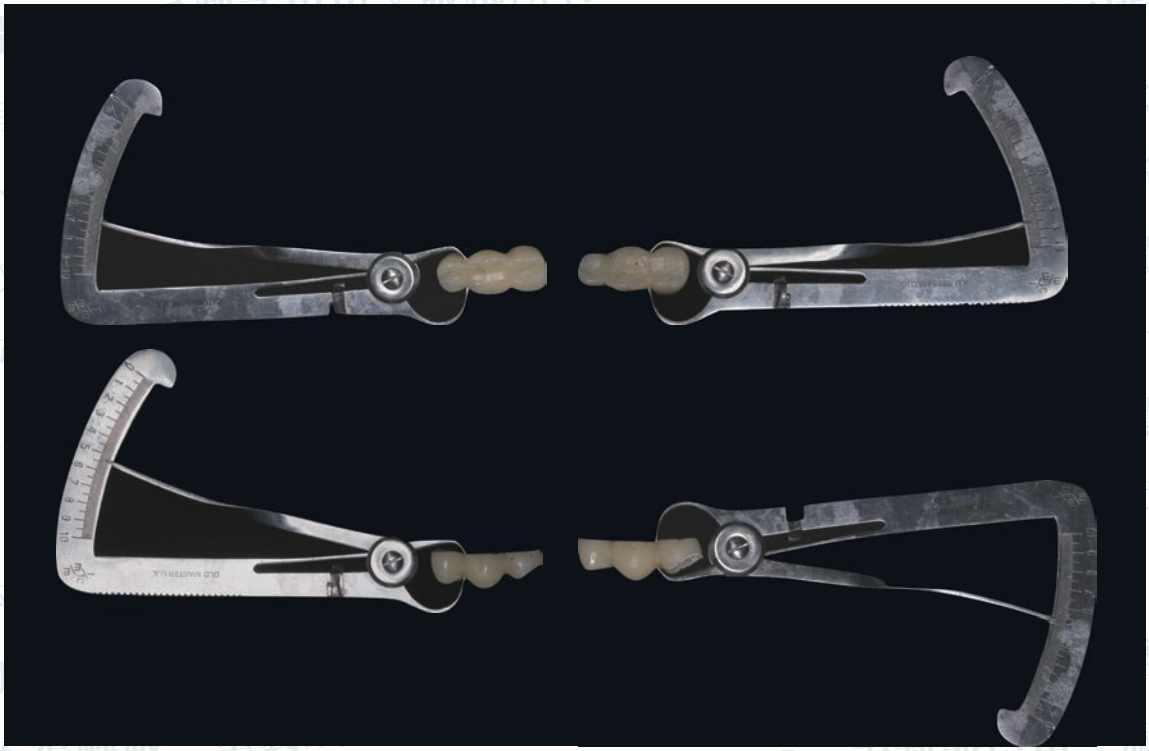
37







25x27



35x37

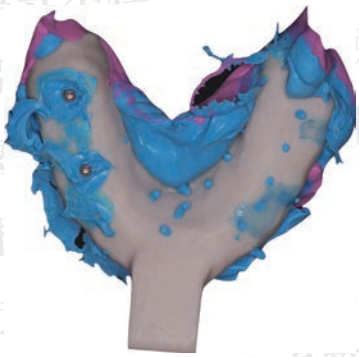
Definite treatment plan

Upper: 11.14.15.17 single crown,
25x27 bridge, i16

Lower: 34 single crown, 35x37 bridge,
45x47 implant bridge

Final prosthesis

Final impression



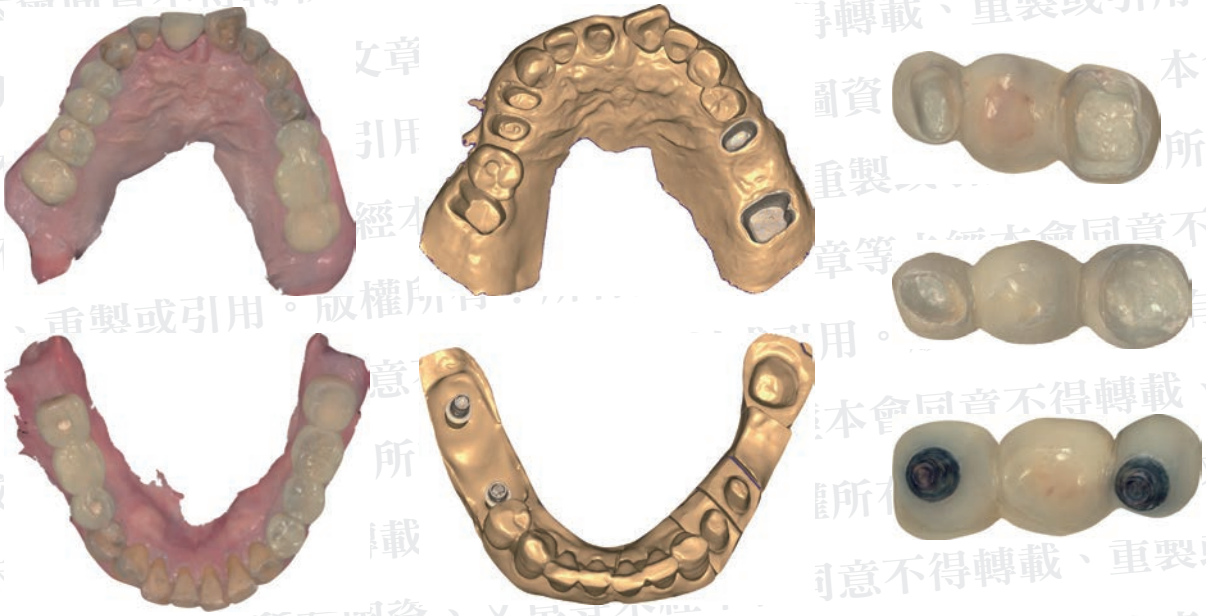
Pontic transfer

25x27

i45xi47

35x37

3 oral scans



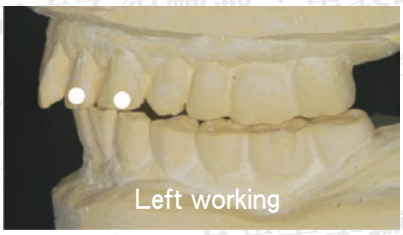
Cross mounting

Anterior MICP

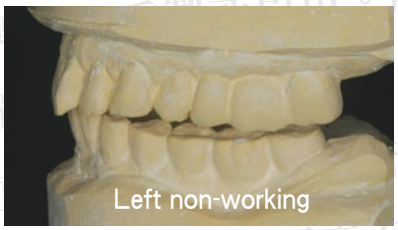
Right working

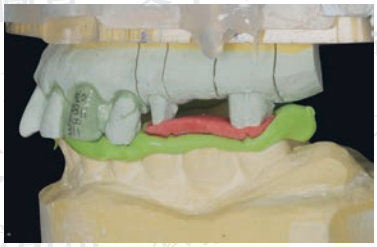
Right MICP

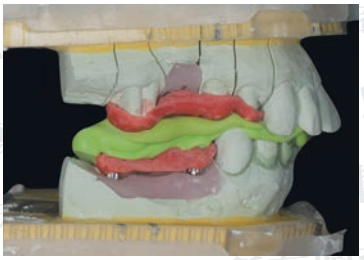
Right non-working

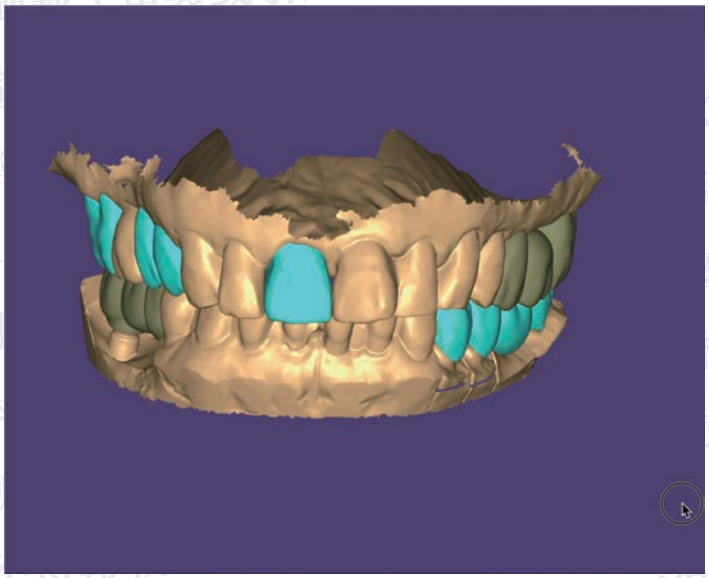

Left working

Left MICP


Left non-working

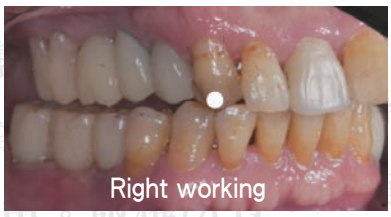






PMMA try-in

Anterior MICP


Right working

Right MICP

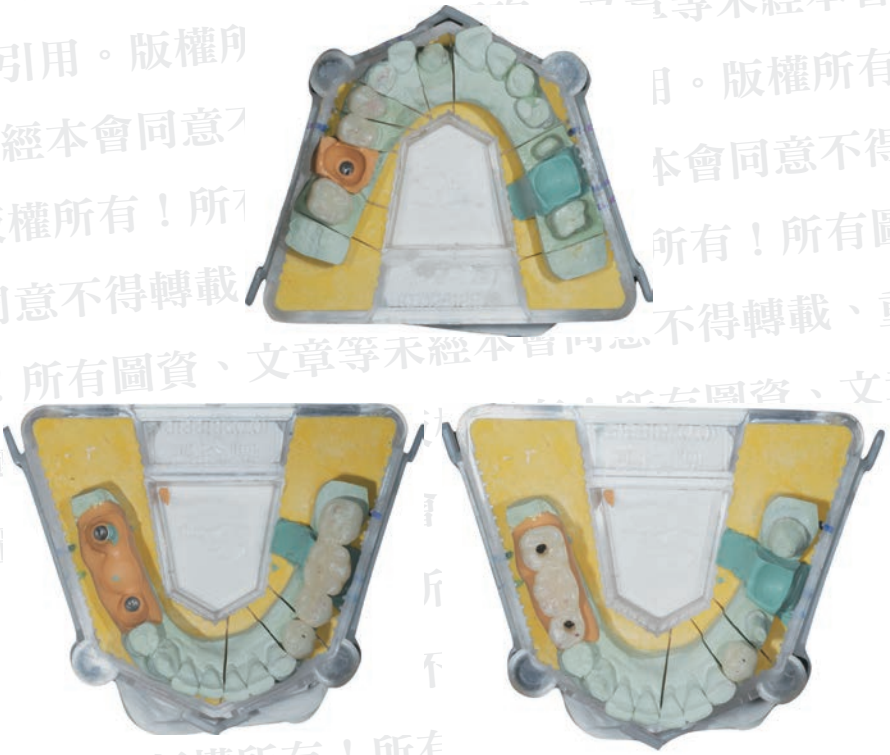
Right non-working

Left working

Left MICP

Left non-working

Pontic transfer



Shade selection

PMMA try-in

Check margin

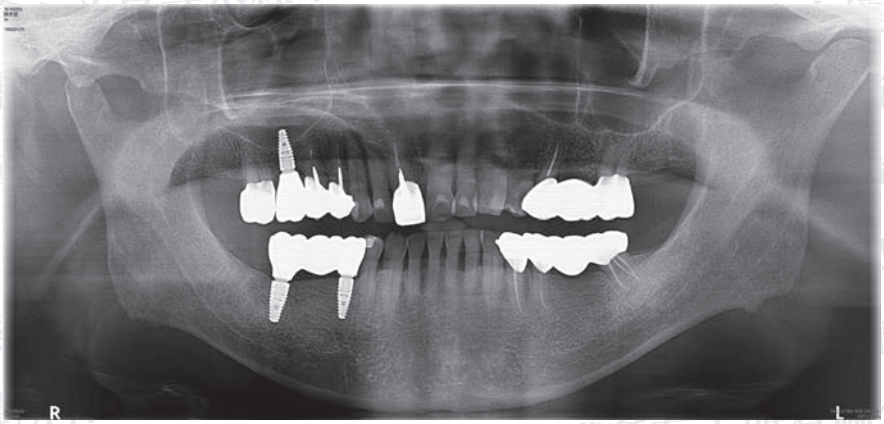
Pontic

Temp

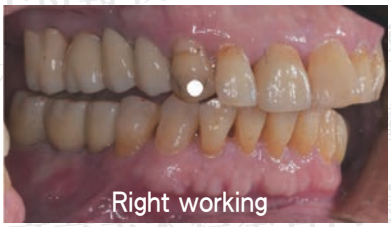
Zirconia

Final prosthesis

Panorex flim



Final prosthesis



Final prosthesis occlusion

OHI

Soft splint delivery

心得

賴韞竹

從專訓第一年接到這個病例直到治療完成，這段歷程讓我收穫良多，也學習到臨床處置上許多寶貴的經驗。非常感謝指導醫師劉致德醫師，以及科內其他老師們在每個步驟都耐心指導、細心討論，並給予我許多專業且具啟發性的建議。也感謝牙周病科林語蓁醫師與陳宗恩醫師的密切合作，在治療過程中不斷討論與修正，才能一起完成這個挑戰。此外，也謝謝院內技師周雨靚技師與福家牙體技術所的協助，讓技術層面得以順利執行。最重要的是，感謝這位病人全程的耐心配合與信任，讓治療過程順利圓滿。

這個案例讓我深刻體會到每一個細節都是關鍵，從治療規劃、步驟執行到後續檢討，每一環都需要清楚的邏輯與縝密的思考。唯有不斷地回頭檢視、反覆討論，才能發現盲點並持續成長。透過這次的病例討論會，也讓我接觸到更多不同的觀點與提問，有助於拓展臨床思維、反思不足之處，是一次非常寶貴的學習與成長機會。

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病例討論三

Precision-Driven Full Mouth Rehabilitation: Integrating Telescope Dentures with Natural Teeth and Implants

報告者：高醫贋復補綴牙科 吳岱凌醫師

Key words:
Digital assisted, Precision driven, Attachment, Implant nature tooth overdenture

版權所有！所有圖資、文章等未經本會同意不得轉載、重製或引用。

General data

現況（**with old denture**）

陳 O 雀

- 基本資料：58 歲 , 女性 , 配戴活動假牙經驗 >10 年
- 主訴:2 年前下排牙齒被拔除後，醫生給我一副新的臨時活動假牙，之後開始吃東西都會痛。
- 醫生建議我來高醫做「植牙搭配活動假牙」。

Upper

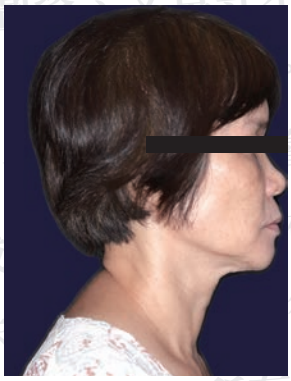
- 已經使用 10 年
- Rest 已斷裂
- 修改痕跡

Lower

- 2 年前拔牙後新 interim
- 後牙區一直會痛
- Soft liner 痕跡

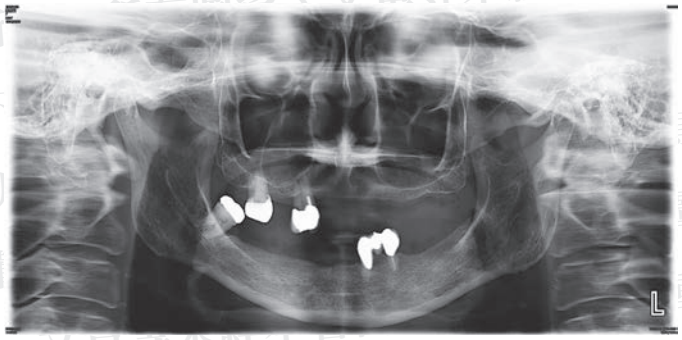
Clinical examination

- Square-shaped face
- Facial symmetry
- Facial proportion = 1 : 1.2 : 1.1
- Lip line: average
- Dental midline：shift to left 2 mm
- Occlusal plane inclinations = 1.5˚



- Profile: straight (3˚)
- Lip to E line :
  - Upper lip : protrude 1 mm
  - Lower lip : protrude 2 mm
- Nasolabial angle: 86˚

Radiographic Examination



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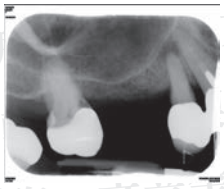
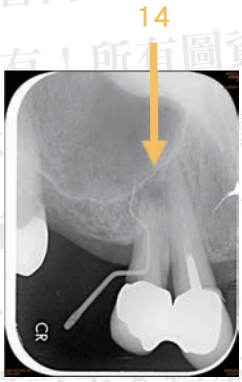


14 13

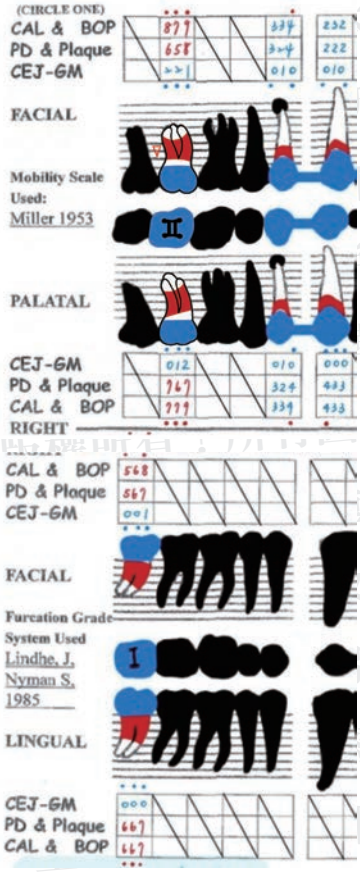
48

33x35



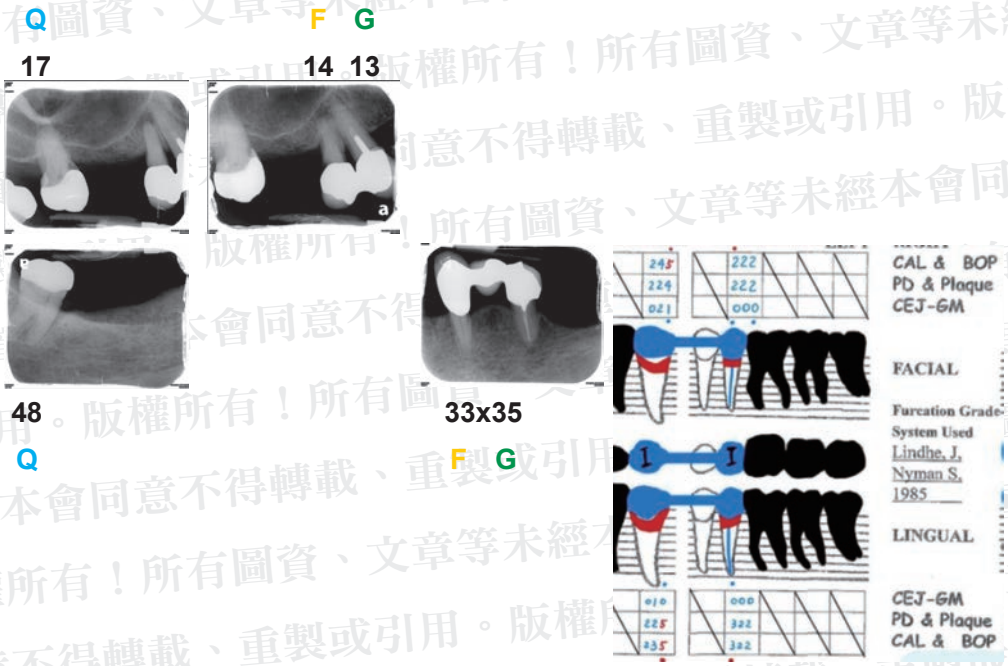
Sinus tract
Point to tooth 14 apical

Periodontal Charting



Provisional prognosis (1991 McGuire MK.)

Overall prognosis：**Fair**



良好 Good	尚可 Fair	差 Poor	可疑 Questionable	放棄 Hopeless
• Adequate remaining bone • Possibilities to control etiologic factors • Maintainable dentition • Patient cooperation	• Less than adequate remaining bone support • Some tooth mobility • Degree I furcation-involvement • Adequate maintenance possible • Patient cooperation	• Moderate to advanced bone loss • Tooth mobility • Degree I~II furcation-involvement • Difficult to maintain areas • Doubtful patient compliance	• Advanced bone loss • Degree II~III furcation-involvement • Tooth mobilitv • Inaccessible area	• Advanced bone loss • Nonmaintainable area • Extraction indicated

Cast analysis & Occlusal analysis

- Eichner Classification C1
- 宮地建夫咬合三角：IV 區

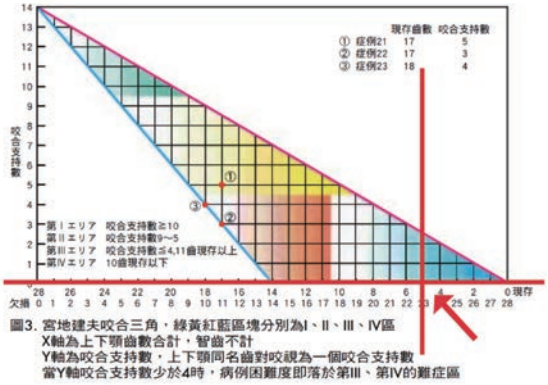
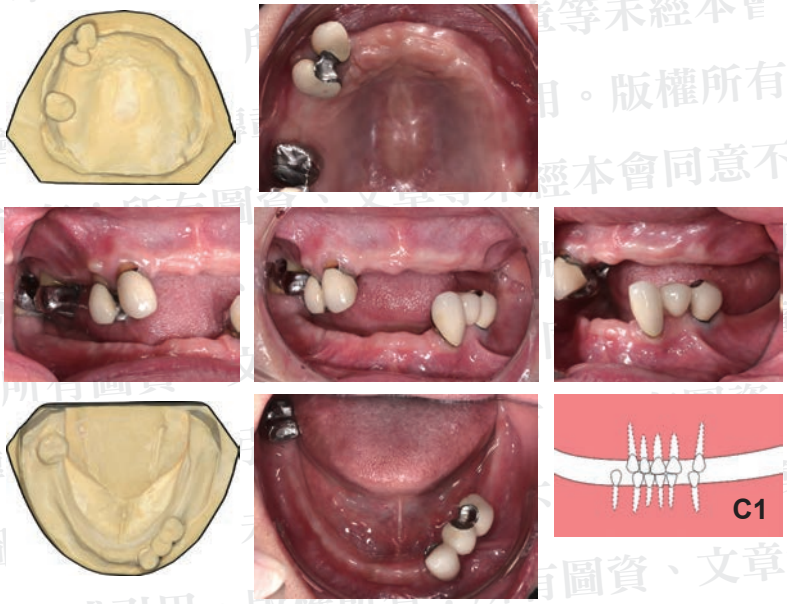
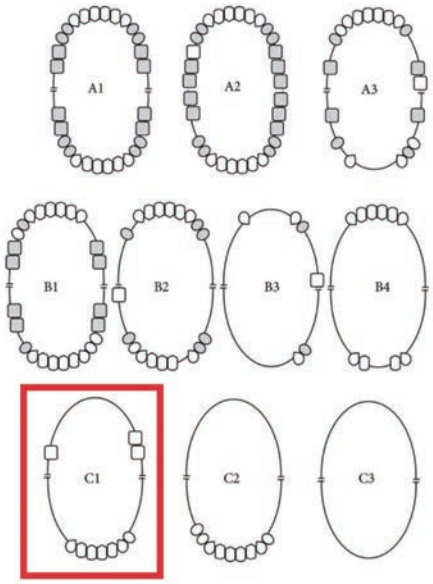
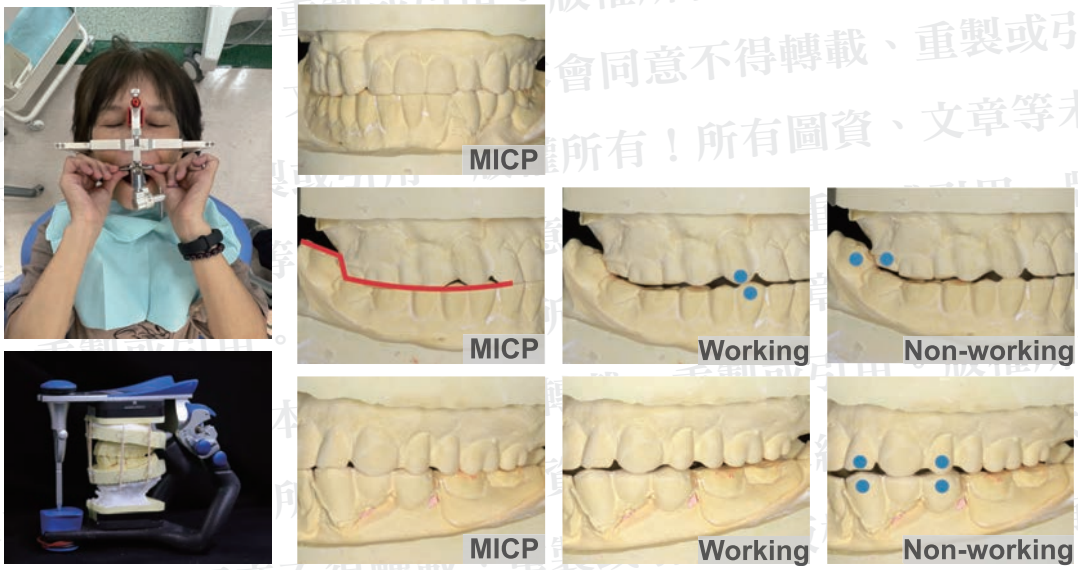


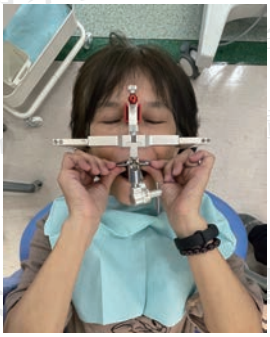
圖3. 宮地建夫咬合三角，綠黃紅藍區塊分別為Ⅰ、Ⅱ、Ⅲ、Ⅳ區
X軸為上下顎齒數合計，智齒不計
Y軸為咬合支持數，上下顎同名齒對咬視為一個咬合支持數
當Y軸咬合支持數少於4時，病例困難度即落於第Ⅲ、第Ⅳ的難症區

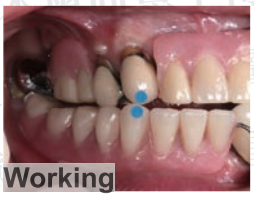


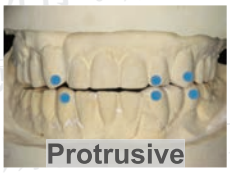


Study cast analysis









Problem list

Insufficient posterior support

造成上下顎關係不穩定

下顎後牙區活動假牙下沉造成疼痛

Abutment tooth mobility

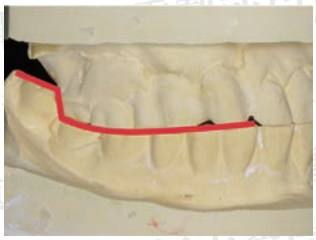
自然牙作為主要 guidence

搖動度持續增加

Occlusal Plane Uneven and Canting

前突、側方運動受到干擾

美觀受影響



- Occlusal plane inclinations = 1.5°

咬合平面傾斜

Diagnosis

- Generalized periodontitis, stage IV Grade B (2018 AAP)
- Upper and lower partially edentulous ridge
- PDI Class IV (American college of prosthodontists, ACP)
- Missing: $\frac{8\ \ 6\,5\quad\ 2\,1}{\ \ 7\,6\,5\,4\,3\,2\,1} \mid \frac{1\,2\,3\,4\,5\,6\,7\,8}{1\,2\ \ 4\ \ 6\,7\,8}$
- Tooth 14 pulp necrosis, chronic apical abscess
- Tooth 17 dental caries
- Previously endodontic treated: 13 35

PDI Partially Edentulous Worksheet

	Class I	Class II	Class III	Class IV
Location and Extent of Edentulous Areas				
1 arch, MX ≤ 2 incisors, MD ≤ 4 incisors,≤ 2 pre-molars, ≤ one pre-molar and a molar				
Both arches and otherwise same as above, or 1/both arches and missing canine(s)				
1/both arches, posterior area > 3 teeth or two molars, antero-post area ≥ 3 teeth				
Requiring high degree of patient compliance; guarded prognosis				
Congenital or acquired maxillofacial defect				
Abutment condition				
Localized adjunctive treatment (perio, endo, ortho)				
None				
1-2 sextants				
3 sextants				
≥ 4 sextants				
Insufficient tooth structure				
None				
1-2 sextants				
3 sextants				
≥ 4 sextants				
Occlusion				
No pre-prosthetic therapy				
Localized adjunctive therapy				
Re-establish entire occlusion, no change in OVD				
Re-establish entire occlusion, with change in OVD				
Residual ridge				
Class I edentulous				
Class II edentulous				
Class III edentulous				
Class IV edentulous				
Conditions creating a guarded prognosis				
Severe oral manifestations of systemic disease				
Maxillomandibular dyskinesia and/or ataxia				
Refractory patient				
ICD-9-CM diagnostic code	525.51	525.52	525.53	525.54

TABLE 4 Periodontitis grade – Please see text and appendix A (in online *Journal of Periodontology*) for explanation

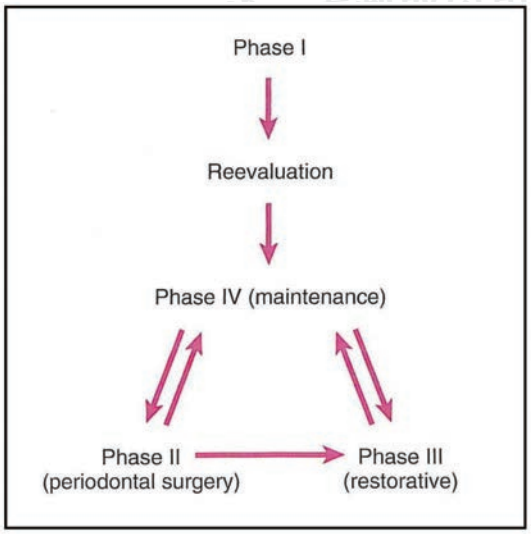
Periodontitis grade			Grade A: Slow rate of progression	Grade B: Moderate rate of progression	Grade C: Rapid rate of progression
Primary criteria	Direct evidence of progression	Longitudinal data (radiographic bone loss or CAL)	Evidence of no loss over 5 years	<2 mm over 5 years	≥2 mm over 5 years
	Indirect evidence of progression	% bone loss/age	<0.25	0.25 to 1.0	>1.0
		Case phenotype	Heavy biofilm deposits with low levels of destruction	Destruction commensurate with biofilm deposits	Destruction exceeds expectation given biofilm deposits; specific clinical patterns suggestive of periods of rapid progression and/or early onset disease (e.g., molar/incisor pattern; lack of expected response to standard bacterial control therapies)
Grade modifiers	Risk factors	Smoking	Non-smoker	Smoker <10 cigarettes/day	Smoker ≥10 cigarettes/day
		Diabetes	Normoglycemic/ no diagnosis of diabetes	HbA1c <7.0% in patients with diabetes	HbA1c ≥7.0% in patients with diabetes
Risk of systemic impact of periodontitis[a]	Inflammatory burden	High sensitivity CRP (hsCRP)	<1 mg/L	1 to 3 mg/L	>3 mg/L
Biomarkers	Indicators of CAL/bone loss	Saliva, gingival crevicular fluid, serum	?	?	?

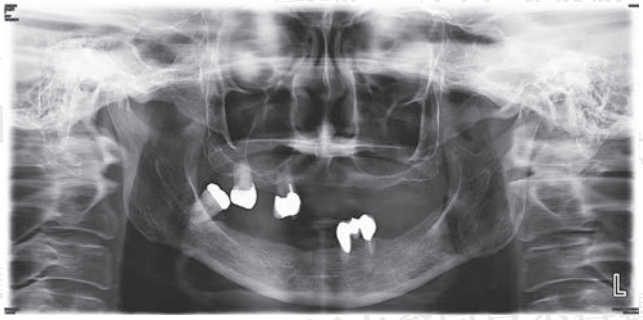
TABLE 3 Periodontitis stage – Please see text and appendix A (in online *Journal of Periodontology*) for explanation

Periodontitis stage		Stage I	Stage II	Stage III	Stage IV
Severity	Interdental CAL at site of greatest loss	1 to 2 mm	3 to 4 mm	≥5 mm	≥5 mm
	Radiographic bone loss	Coronal third (<15%)	Coronal third (15% to 33%)	Extending to mid-third of root and beyond	Extending to mid-third of root and beyond
	Tooth loss	No tooth loss due to periodontitis		Tooth loss due to periodontitis of ≤4 teeth	Tooth loss due to periodontitis of ≥5 teeth
Complexity	Local	Maximum probing depth ≤4 mm Mostly horizontal bone loss	Maximum probing depth ≤5 mm Mostly horizontal bone loss	In addition to stage II complexity: Probing depth ≥6 mm Vertical bone loss ≥3 mm Furcation involvement Class II or III Moderate ridge defect	In addition to stage III complexity: Need for complex rehabilitation due to: Masticatory dysfunction Secondary occlusal trauma (tooth mobility degree ≥2) Severe ridge defect Bite collapse, drifting, flaring Less than 20 remaining teeth (10 opposing pairs)
Extent and distribution	Add to stage as descriptor	For each stage, describe extent as localized (<30% of teeth involved), generalized, or molar/incisor pattern			

Treatment plan

在這之前，先擬定各科初步治療計畫提供 3 個選項

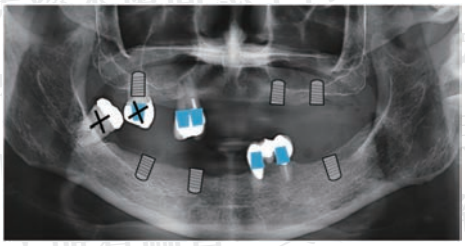




Newman, Takei, Klokkevold, Carranza. CarranzaNewman, Takei, Klokkevold, Carranza. Carranza's Clinical Periodontology.'s Clinical Periodontology.

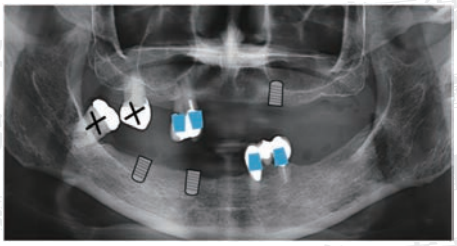
3 個選項：皆為 Overdenture

Option 1



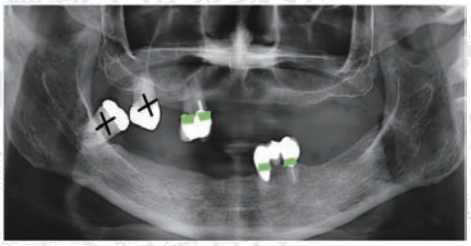
上顎植牙 **3** 顆 (i16, i23, i26)
下顎植牙 **3** 顆 (i36, i43, i46)

Option 2



上顎植牙 **1** 顆 (i23)
下顎植牙 **2** 顆 (i43, i46)

Option 3



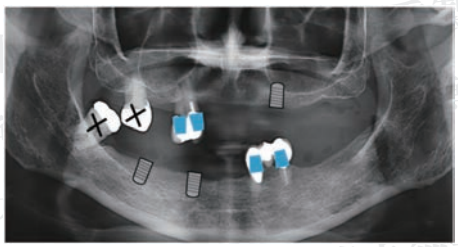
所有自然牙作為 coping

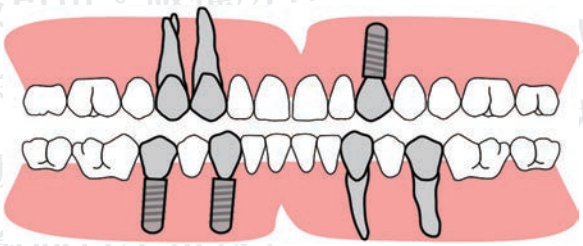
1. 下顎臨時活動假牙兩側後面吃東西會痛
2. 可以植牙！

治療計畫達到共識 開始執行！

Treatment option	Option 1	Option 2	Option 3
	Implant	Implant	Overdenture
Function	Good	Fair	Fair
Esthetic	Good	Good	Good
Comfort	Good	Good	Fair
Cost	$$$$$	$$$$	$
Treatment time	Long	Long	Middle
Prognosis	Good	Good	Fair

Option 2



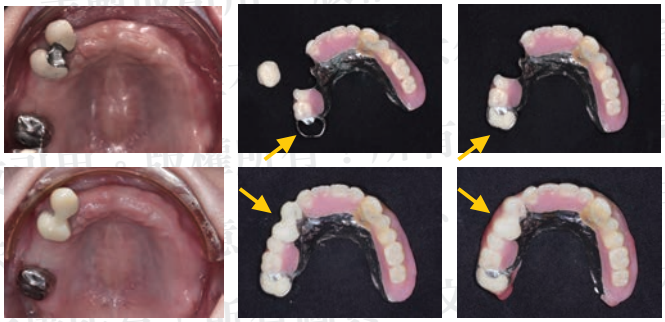


上顎植牙 **1** 顆 (i23)，自然牙 13 14
下顎植牙 **2** 顆 (i43, i46)，自然牙 33 35

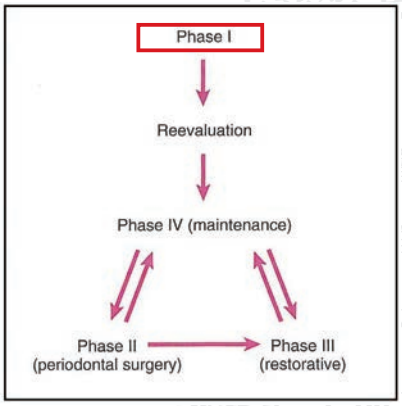
Treatment course

Phase I

- Old crown and bridge remove
- Old denture adjustment
- Interim fabrication
  →驗證 Diagnostic wax up ！（用來手術規劃）
- 14 Endodontic treatment
- Caries evaluation
- 17 48 extraction
- Scaling and root planing
- Plaque control and oral hygiene instruction



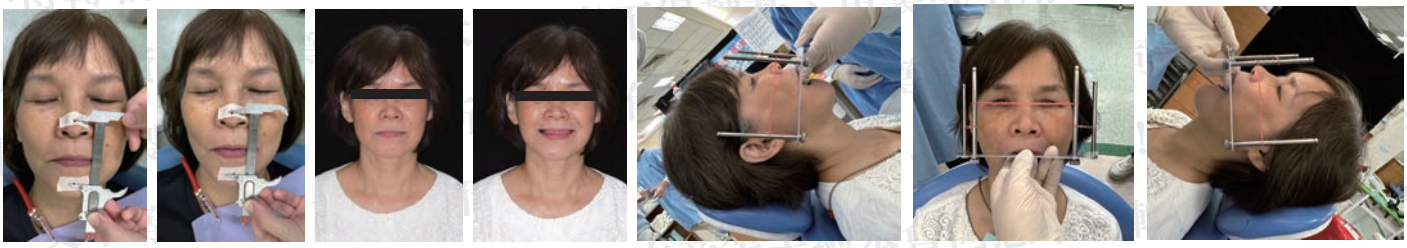
修改舊假牙 維持咀嚼功能



Interim fabrication

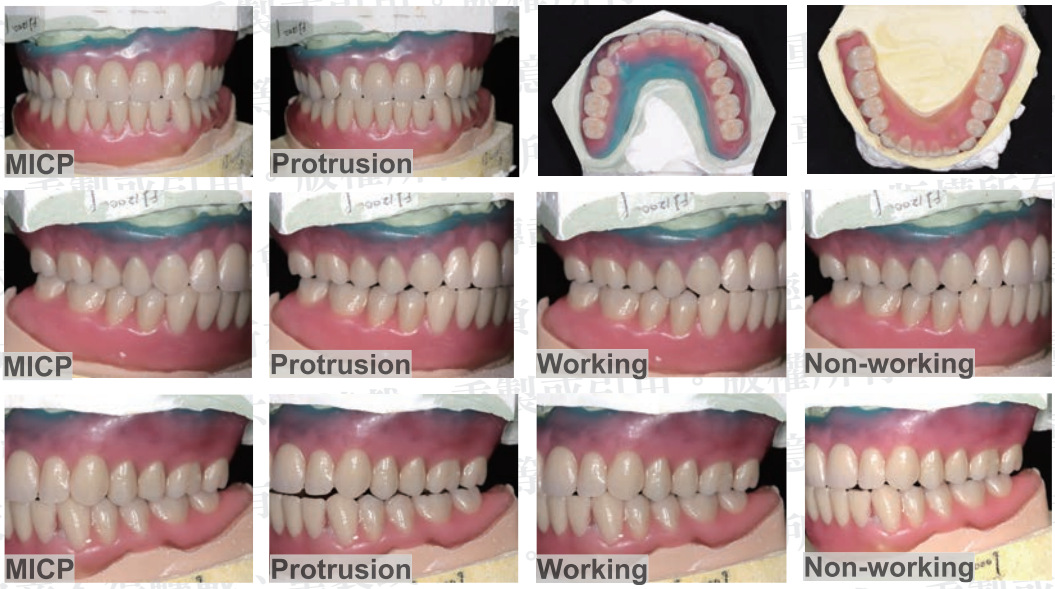
Gothic arch

Wax rim try in
Vertical dimension registration
- increase 2mm



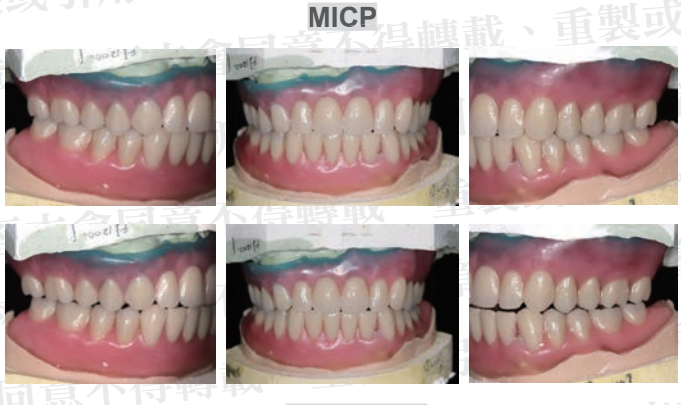
Diagnostic wax up

Bilateral balance occlusion

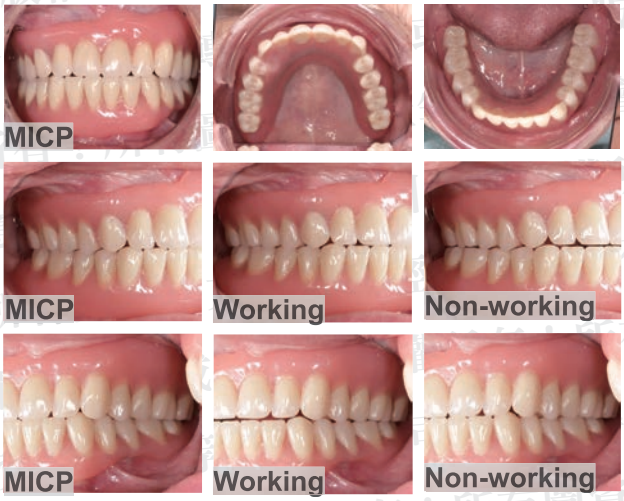


Interim fabrication

Wax denture try in



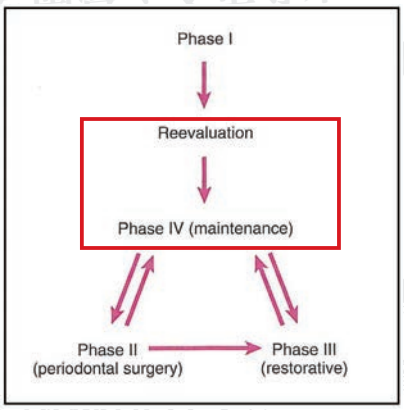
Interim deliver

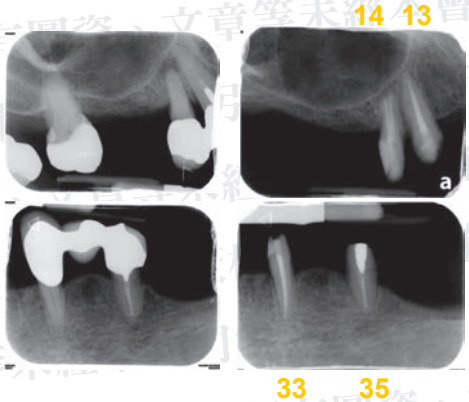


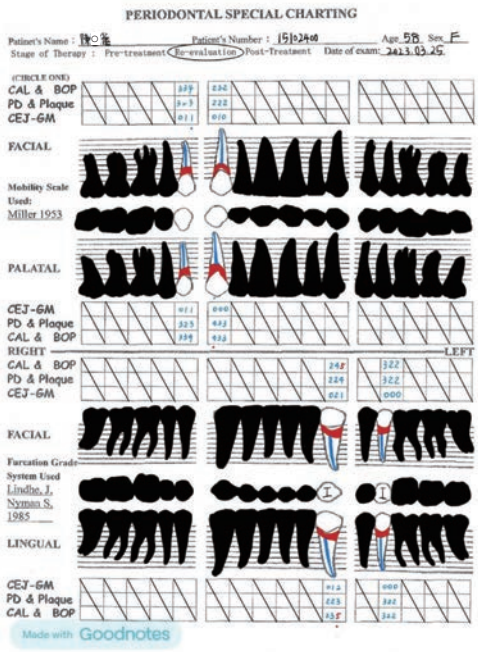
Re-evaluation

牙齒狀況 及 prosthesis 再評估

- Evaluation of response to phase I therapy
- Oral hygiene re-evaluation
- Reinforcement if plaque and calculus present
- Periodontal condition re-evaluation (PD and CAL / BOP and plaque / Tooth mobility)

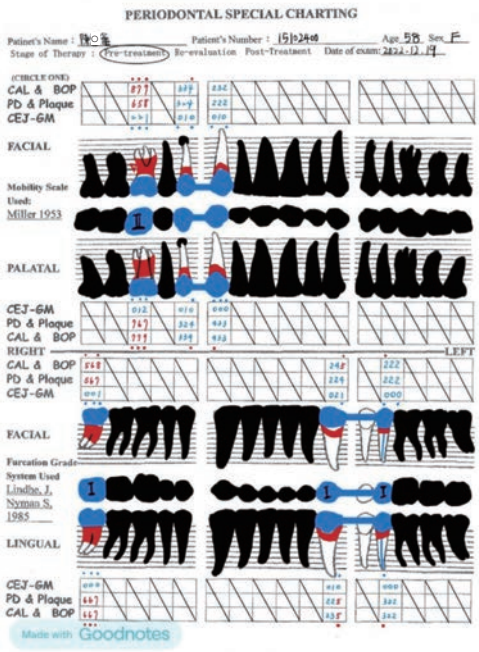






Plaque index (O'Leary) = 69.4%

- BOP (Ainamo & Bay)
  - Site= 50%
  - Teeth= 100%
- PD> 5mm:
  - Site= 36.1%
  - Teeth= 50%



Plaque index (O'Leary) = 8%

- BOP (Ainamo & Bay)
  - Site= 8%
  - Teeth= 50%
- PD> 5mm:
  - Site= 0%
  - Teeth= 0%

Before

Old denture

- Profile: straight (3˚)
- Lip to E line :
  - Upper: protrude 1 mm
  - Lower: protrude 2 mm
- Nasolabial angle: 86˚

Facial proportion = 1 : 1.2 : 1.1

After

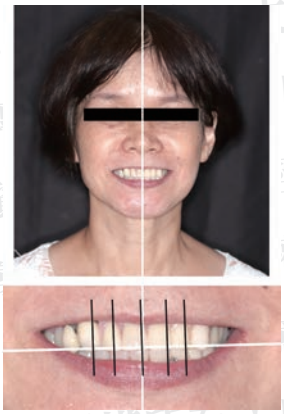
Old denture

- Profile: straight (8˚)
- Lip to E line :
  - Upper : retrude 1 mm
  - Lower : on
- Nasolabial angle: 96˚

Facial proportion = 1 : 1.2 : 1.2

Before

Old denture



- Dental midline
  - Upper: shift to left 2 mm
  - Lower: shift to left 2 mm
- Occlusal plane inclinations = 1.5˚

After

Old denture

- Dental midline
  - Upper: on
  - Lower: on
- Occlusal plane inclinations = 0˚

Before

Old denture

After

Old denture

Insufficient posterior support

造成上下顎關係不穩定

下顎後牙區活動假牙下沉造成疼痛

✓ **Abutment tooth mobility**

自然牙作為主要 guidence

搖動度持續增加

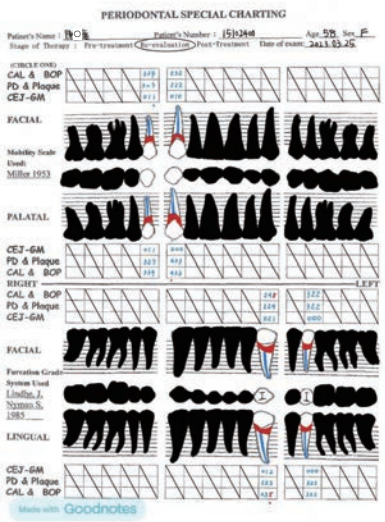
✓ **Occlusal Plane Uneven and Canting**

前突、側方運動受到干擾

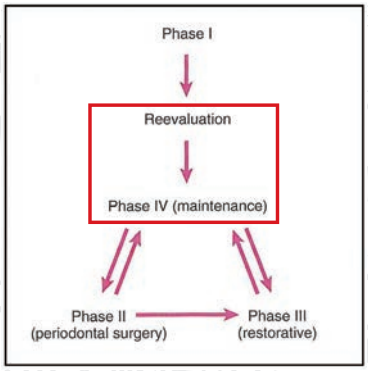
美觀受影響

- Occlusal plane inclinations = 1.5˚

咬合平面傾斜



Treatment course



Re-evaluation

- 完成牙齒狀況 及 prosthesis 再評估

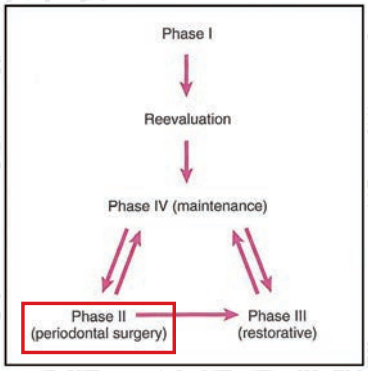
↓

Phase IV (Maintenance)

↓

Phase II (Surgical phase)

Phase II (Surgical phase)



Implant！

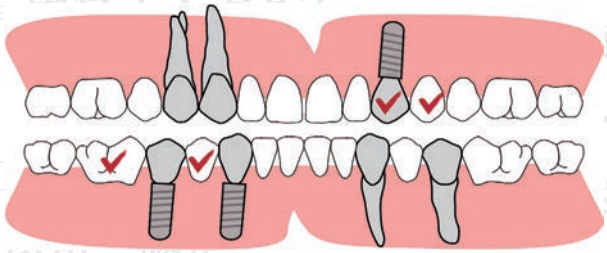
→進行手術規劃

手術規劃：相對關係！

Interim

（驗證 diagnostic wax up）

治療計畫



上顎：Magnet telescope overdenture

植牙 i23，自然牙 13 14

下顎：Konus overdenture

植牙 i43, i46，自然牙 33 35

Diagnostic wax up

（排牙、軟組織、硬組織）

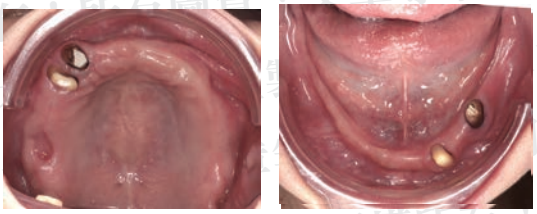
Interim

（驗證 diagnostic wax up）

桌掃 **interim**
製作出

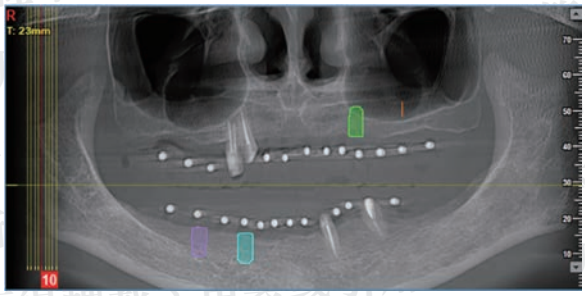
Copy denture + Zr ball

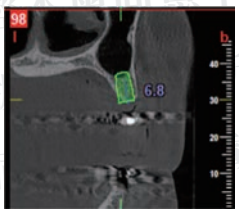
（CBCT 定位導板）



戴回口內拍攝
CBCT

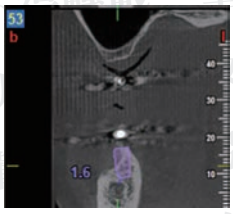
CBCT With copy denture

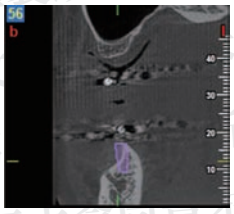




Ridge height: 6.8mm

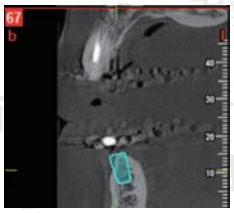
Implant: MIS 4.2X8.0mm + Osteotome





i46

i44



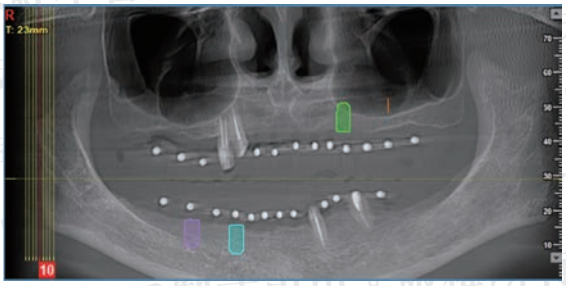
Implant: MIS 4.2X8.0mm

Distance from IAN: 1.6mm

Opening of mental nerve: around i46

植牙位置確認

上顎植牙 i24（自然牙 13 14）
下顎植牙 i44, i46（自然牙 33 35）



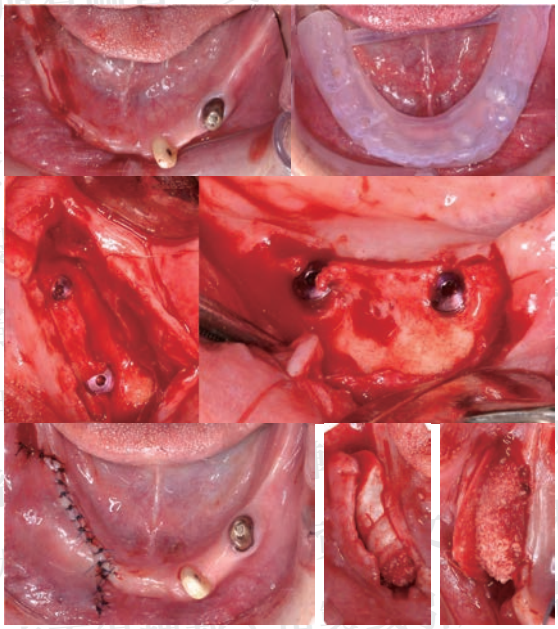
CBCT

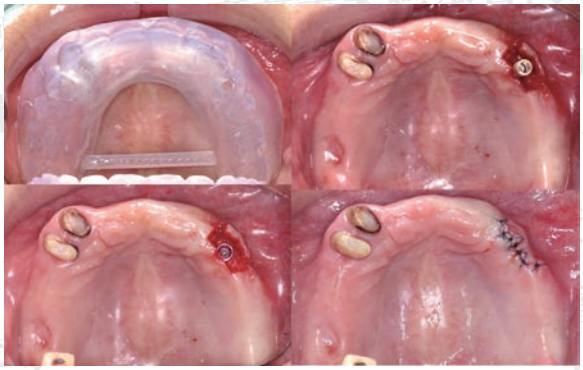
預計植體位置
和鋯銖的相對關係

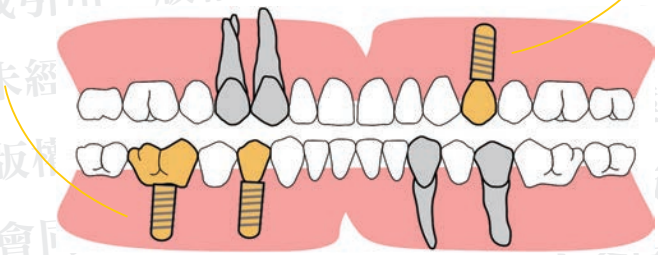
同一份數位檔輸出

Surgical stent

Treatment course



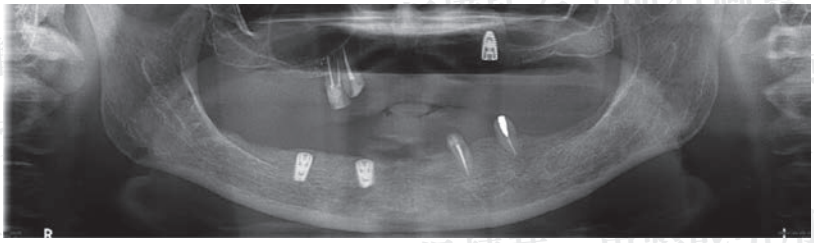




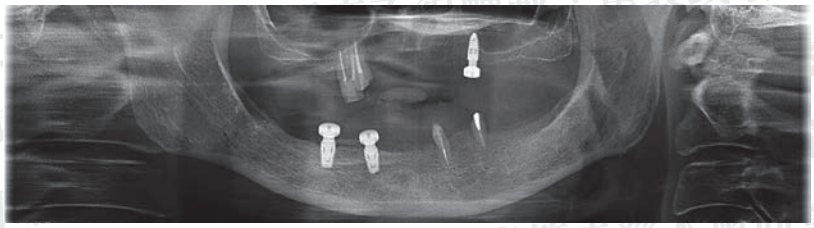
Lower right simultaneous implant and
GBR with periosteal suture

Before
Initial

After
手術當天

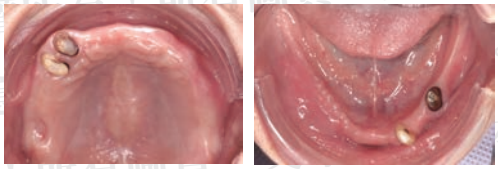


After
手術後 6M
（完成 2nd surgery）



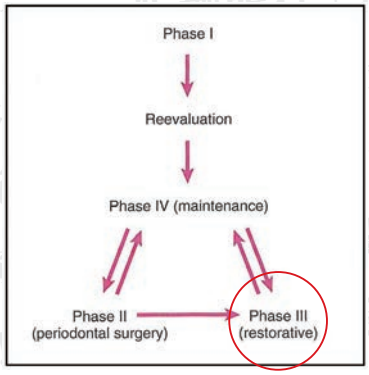
Before
Initial

After
手術後 1M



手術後 3M

手術後 6M
（完成 2nd surgery）



Phase IV
(Maintenance)

Phase II
(Surgical phase)

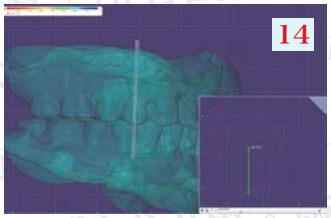
Phase III
(Restorative)

Temporary follow before final prosthesis

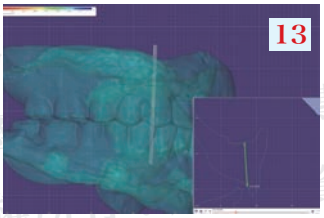
桌掃 interim 製作出

口掃 interim 的

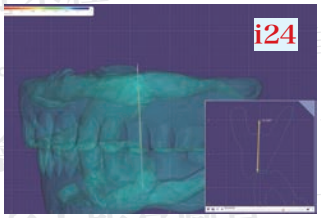
咬合紀錄



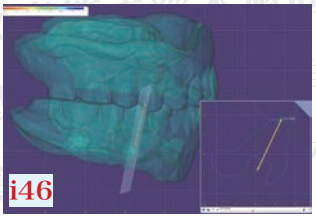
12.9 mm



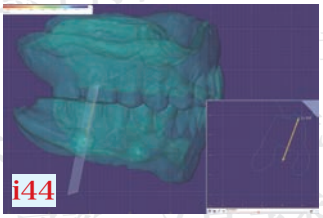
12.3 mm



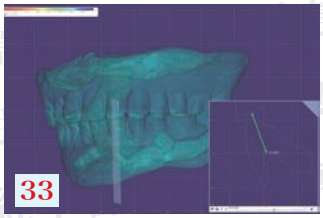
15.1 mm
（從 soft tissue 算起）



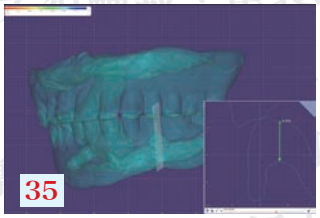
14.5 mm
（從 soft tissue 算起）



11.5 mm
（從 soft tissue 算起）



12.3 mm

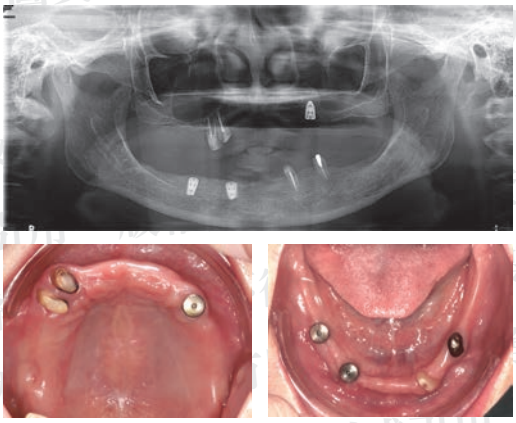


9.5 mm

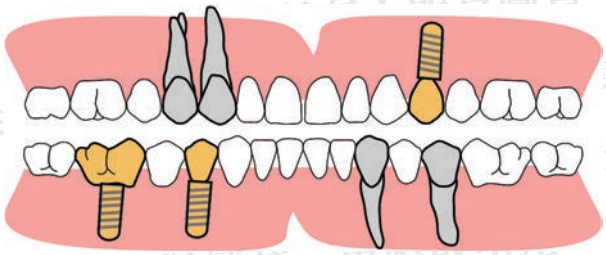
確認贋復空間足夠！ → 進入正式假牙製作！

治療計畫

Phase III (Restorative)



進入正式假牙製作！



上顎：**Magnet telescope overdenture**

植牙 i24，自然牙 13 14

下顎：**Konus overdenture**

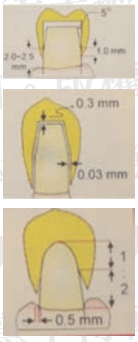
植牙 i44, i46，自然牙 33 35

① 以「自然牙＋ implant 」做成 overdenture 是可行的。

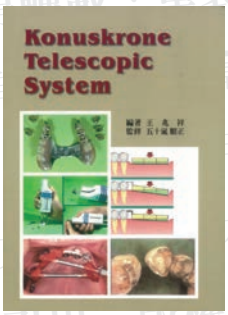
② Attachment 選 telescope 最適合。

telescope 是混合型 overdenture 的 indication

Telescope



- **Flexible support**
  - **Telescopkronen**
  - **Die teleskopierende totalprothese**
  - **CSC**(Crown and sleeve-Coping)
- **Rigid support**
  - **CylinCone type**
    - **C.S.P**(Channel Shoulder Pin)
    - **Telescope Crown System**
    - **I.R.V**(Interdentalraum Verschlu β)
  - **Cone type** — **Konuskrone**



Konuskrone 優點

① Rigid support

② Secondary splinting

③ Easy to maintain oral hygiene

Konus 製作流程

Konuskrone Telescopic System

Chapter IV Clinic&Lab procedure

1 精細印模（製作內冠用）

2 內冠試戴
裝上 pick-up impression coping
精細印模（製作外冠及假牙用）

3 咬合關係紀錄

4 外冠＋ framework 試戴

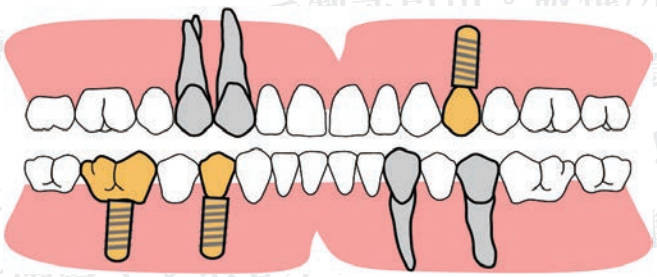
內冠最後才 del.

5 Wax rim 決定咬合平面

6 排牙試戴

7 內冠＋ denture deliver

治療計畫



上顎：

Magnet telescope overdenture

Male attachment 先黏

下顎：

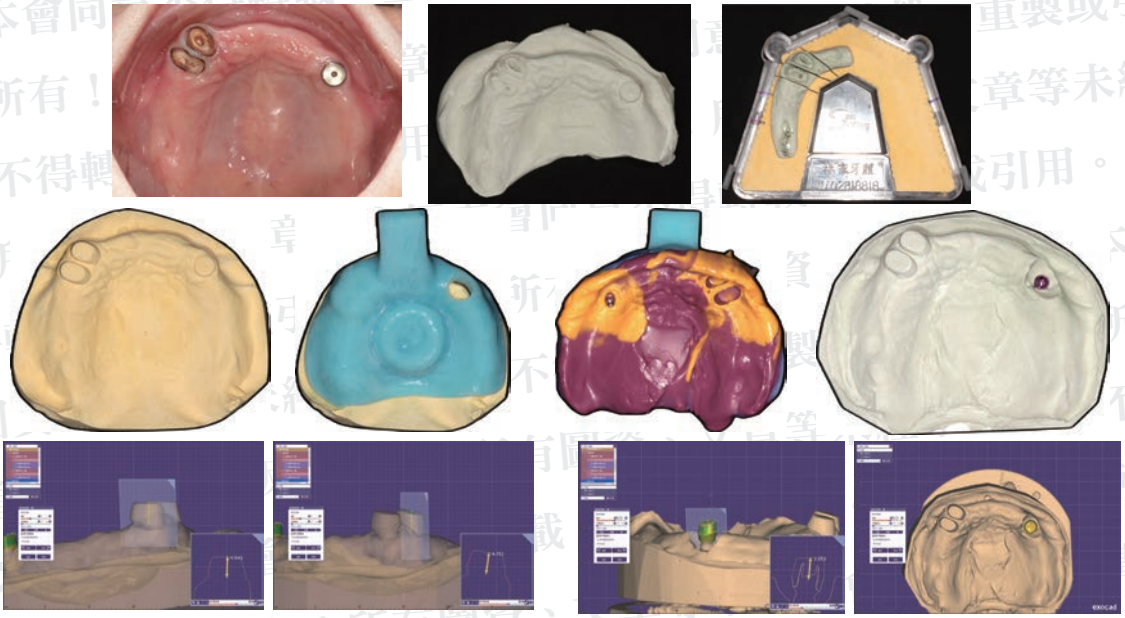
Konus overdenture

所有零件跟 denture 一起 deliver

上顎
Magnet telescope overdenture

1 精細印模（製作內冠用）

Upper Attachment : magnet telescope
Inner crown impression 13 14 → i24

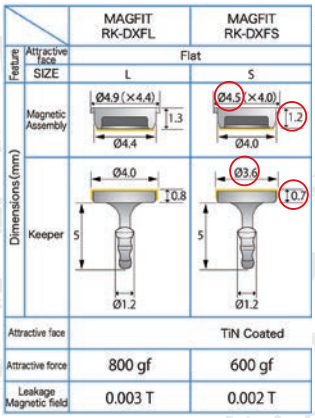


內冠高度（自然牙）：4.7mm

內冠高度（植體）：3.5mm

Upper Attachment : magnet telescope

Product		For Cast Coping					
		MAGFIT DX				MAGFIT EX	
		1000	800	600	400	600	400
Features				• Shortest height • Suitable for Molars • Round contact face • Ellipsoidal outer lip		• Small sectional diameter • Suitable for anterior teeth • Ellipsoidal shape	
Compatibility Teeth	Front teeth						●
	Canine			●	●	●	
	Molar	●	●	●			

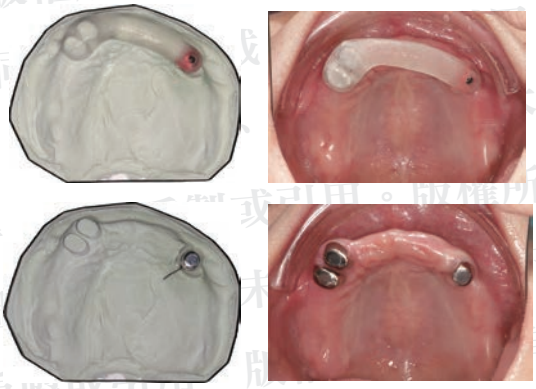


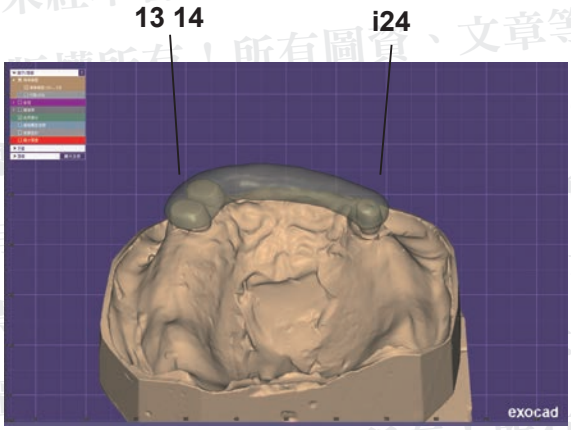
- Denture 內所需空間
- 黏著空間
- Attachment 上空間

2 內冠 Delivery Soft tissue impression

2 內冠試戴 Pick-up impression（製作外冠及假牙用）

Upper Implant attachment delivery





Delivery guide

Upper Soft tissue impression
→ wax rim 取 CR 位置

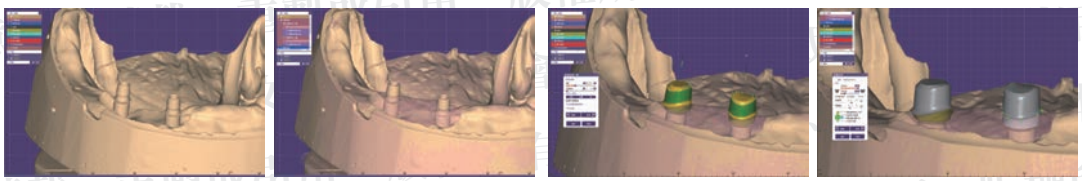
Master cast 完成！

下顎
Konus overdenture

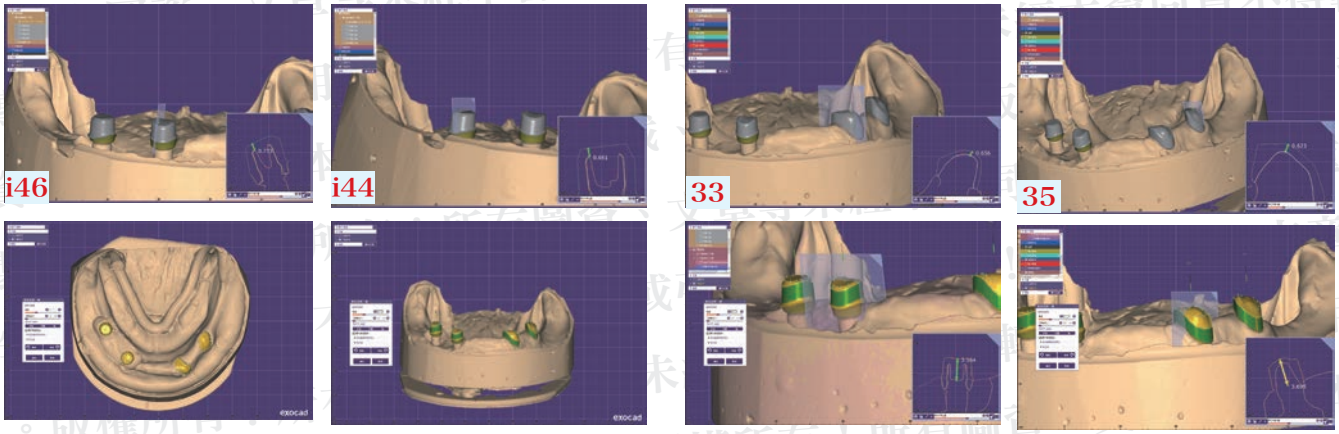
1 精細印模（製作內冠用）

Lower Attachment : konus
Inner crown impression 33 35 i44 i46

i44 i46 Implant inner crown design



Lower 內冠 design



2
內冠 Delivery Soft tissue impression

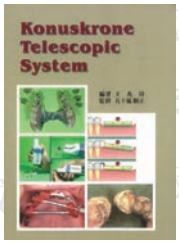
2
內冠試戴 Pick-up impression（製作外冠及假牙用）

Lower

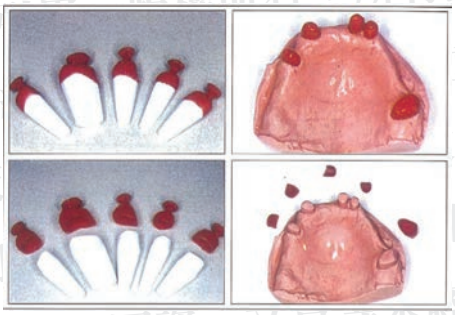
Attachment : konus
Inner crown try in
Pick up impression (soft tissue)

duralay 小紅帽
（resin coping）

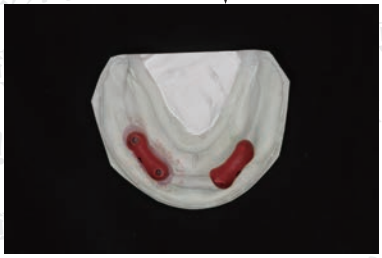
內冠 splinting for pick up impression



（課本示意圖）

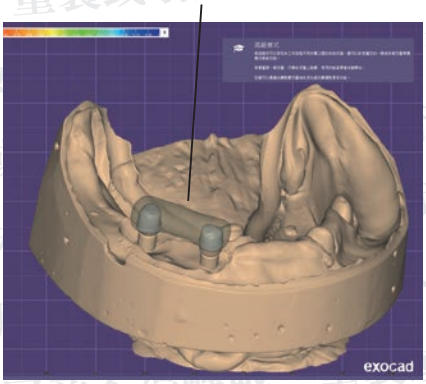


內冠 pick up impression (soft tissue)



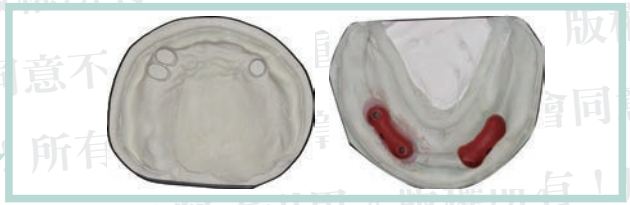
Master cast 完成！

i46 i44 delivery guide

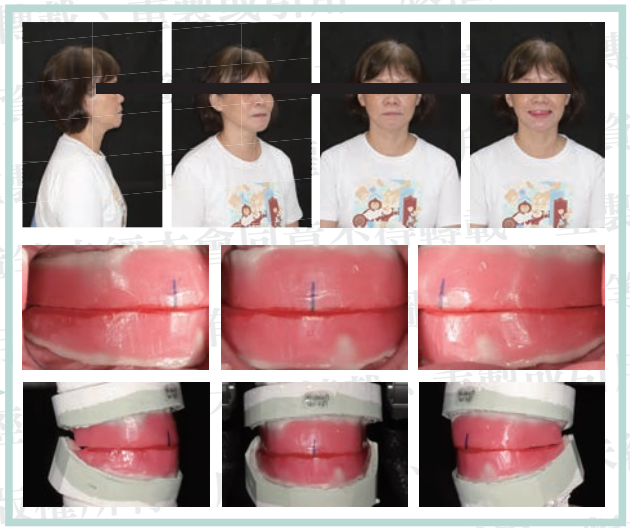


上顎： Magnet telescope overdenture
下顎：Konus overdenture

1 精細印模（製作內冠用）



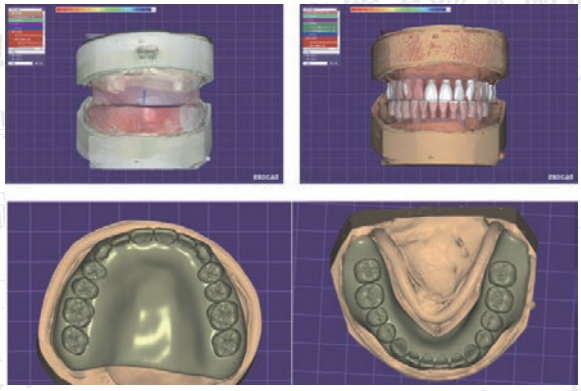
2 內冠試戴 **Master cast 完成！**
裝上 pick-up impression coping
精細印模（製作外冠及假牙用）



3 咬合關係紀錄 **Wax rim**

4 外冠＋ framework 試戴

數位輔助
改變流程



數位排牙

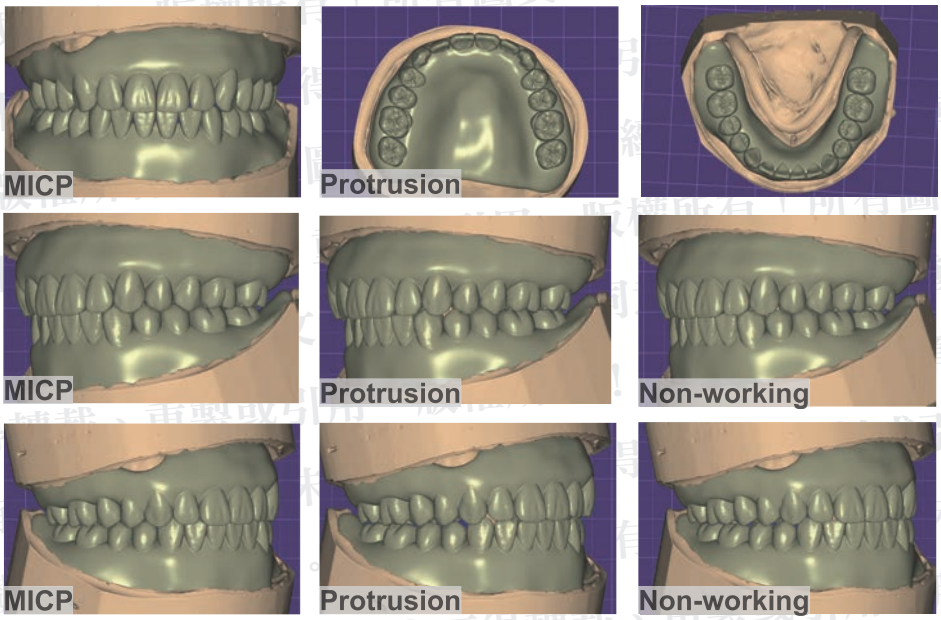
5 Wax rim 決定咬合平面

6 排牙試戴 **Try in denture**
（優先做）

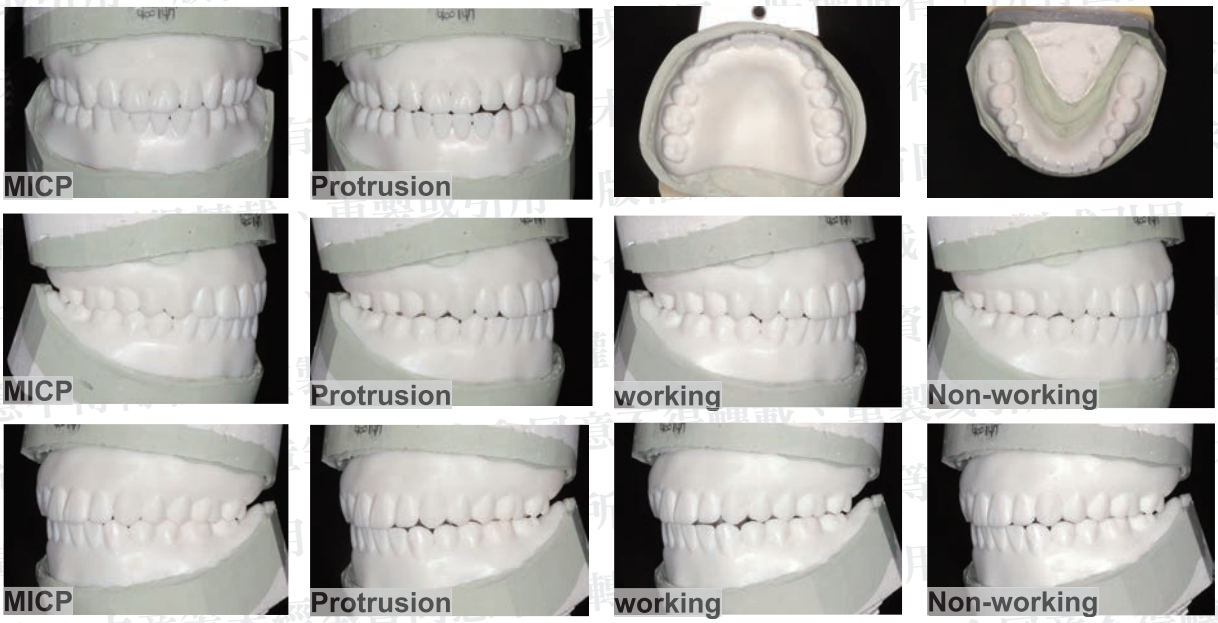
Try in denture
（假牙外型確定）

7 內冠＋ denture deliver

Diagnostic wax up



Try in denture



1 精細印模（製作內冠用）

2 內冠試戴　Master cast 完成！
裝上 pick-up impression coping
精細印模（製作外冠及假牙用）

3 咬合關係紀錄　Wax rim

4 外冠＋ framework 試戴

5 Wax rim 決定咬合平面

6 排牙試戴　Try in denture
（優先做）

7 內冠＋ denture deliver

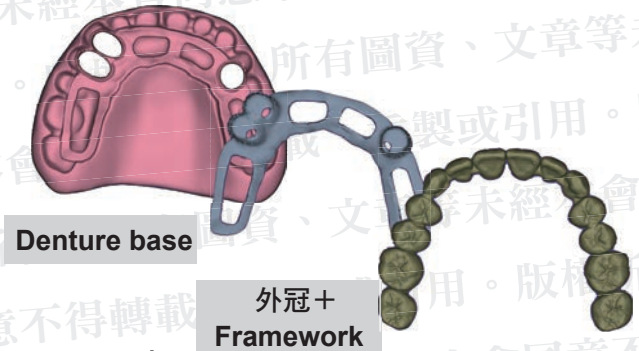
空間分配

（決定各個零件厚度及位置）

Try in denture

數位輔助
改變流程

零件生產



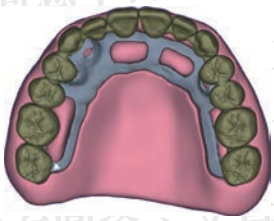
Denture base

外冠＋
Framework

人工牙

零件依序組裝

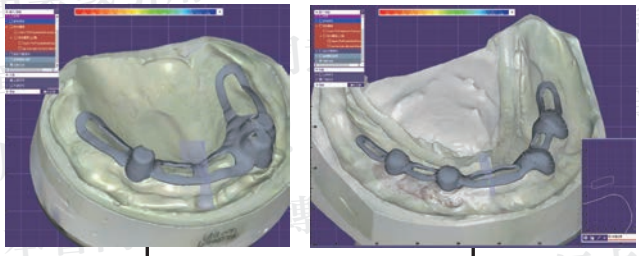
（framework/ 排牙）



完成！

Framework

SLM 3D 列印牙科鈦金屬

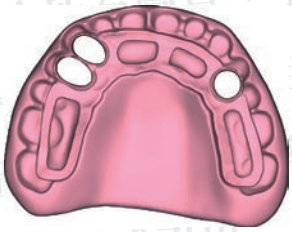


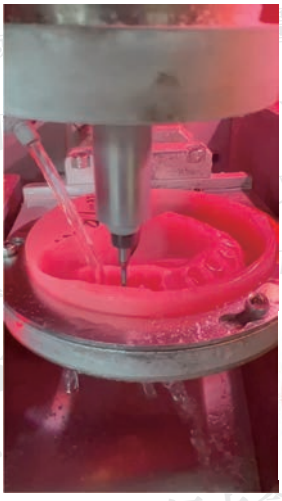
Upper

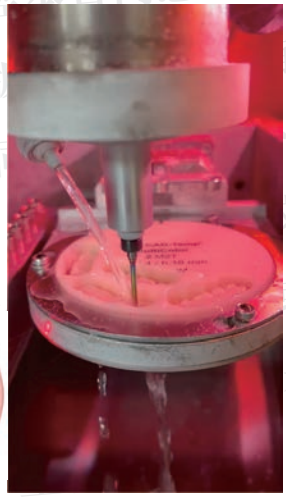
Lower

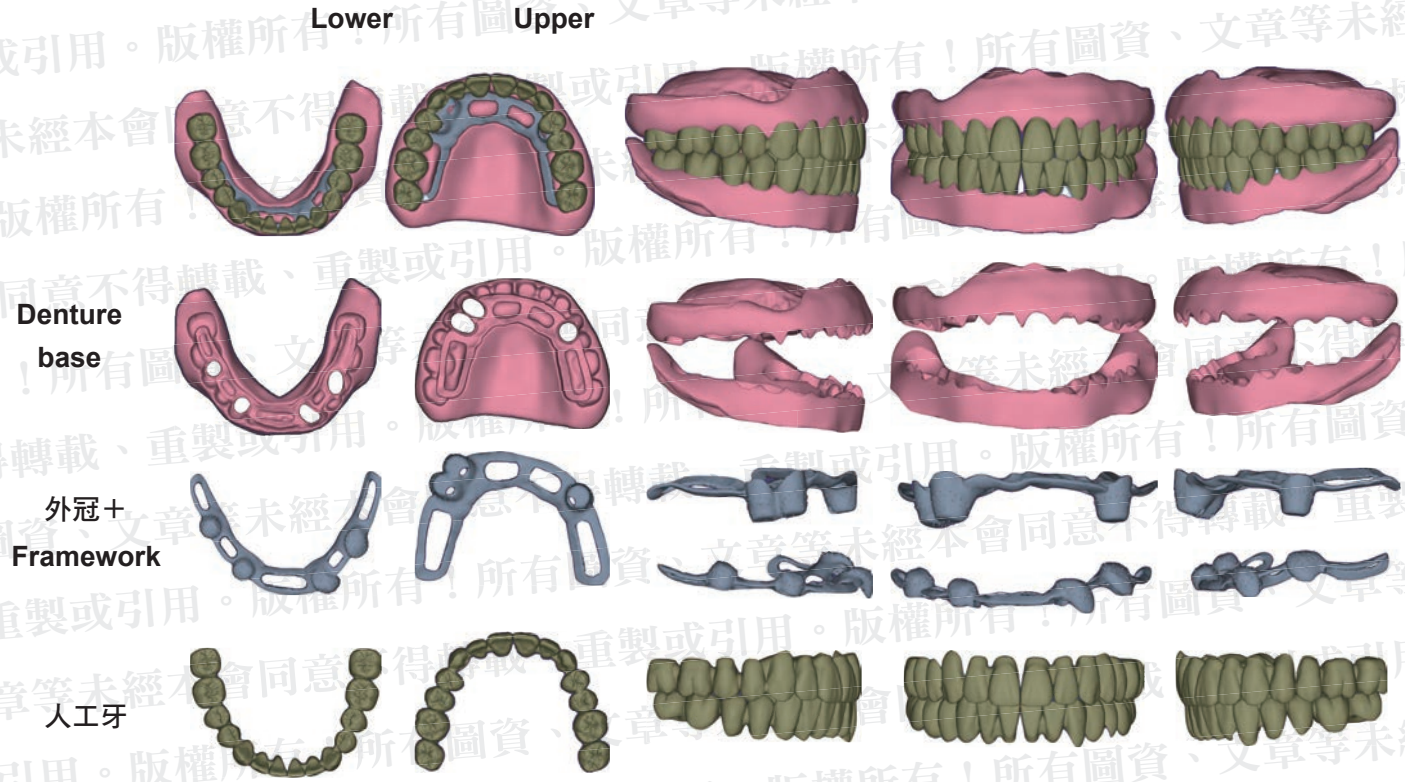
Base and Teeth

3D Milling Resin Base and Teeth









空間分配（決定各個零件厚度及位置）

上顎： Magnet telescope overdenture
下顎：Konus overdenture

Upper
- 有牙區
  - Magnet
  - 外冠
  - 人工牙
- 無牙區
  - Base
  - Framework
  - 人工牙

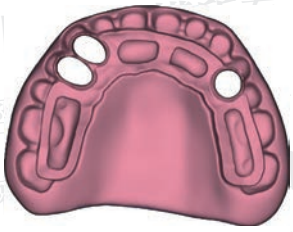
Lower
- 有牙區
  - 內外冠 space
  - 外冠
  - 人工牙
- 無牙區
  - Base
  - Framework
  - 人工牙

Upper

- 有牙區
  - Magnet
  - 外冠
  - 人工牙
- 無牙區
  - Base
  - Framework
  - 人工牙

Lower

- 有牙區
  - 內外冠 space
  - 外冠
  - 人工牙
- 無牙區
  - Base
  - Framework
  - 人工牙



Upper

- 有牙區
  - Magnet
  - 外冠
  - 人工牙
- 無牙區
  - Base
  - Framework
  - 人工牙

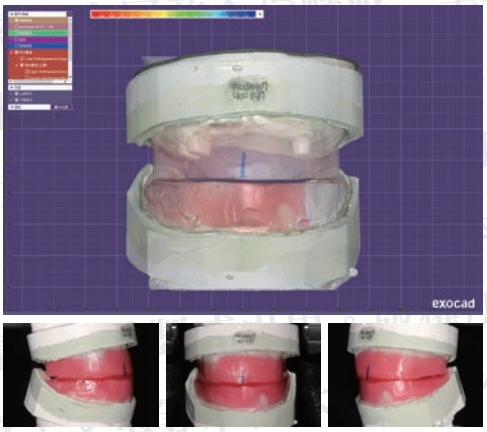
Lower

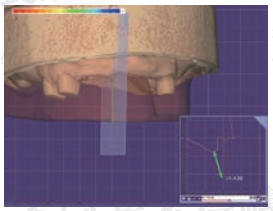
- 有牙區
  - 內外冠 space
  - 外冠
  - 人工牙
- 無牙區
  - Base
  - Framework
  - 人工牙

組成相同

Upper 空間分析

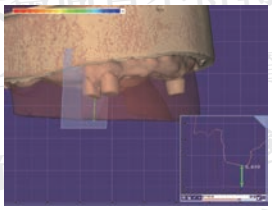
(Attachment 設計：Magnet telescope)

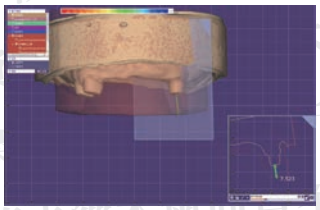




無牙區：12~15 mm

Base
Framework
人工牙
最少需要 3.5 mm



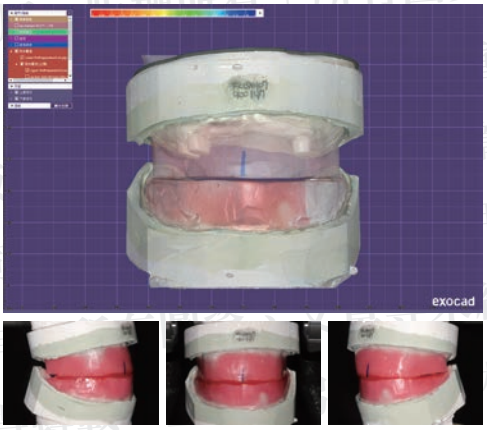


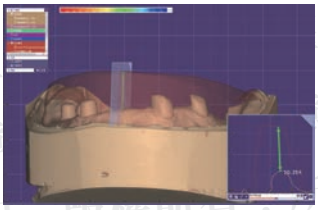
有牙區：6.5~8 mm

Magnet
外冠
人工牙
最少需要 3.4~3.9 mm

Lower 空間分析

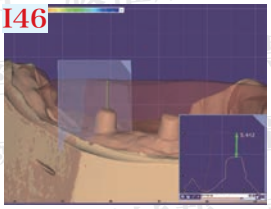
(Attachment 設計：konus)

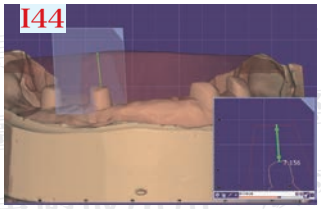


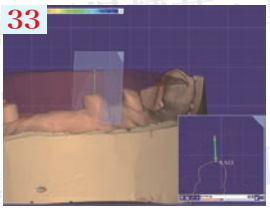


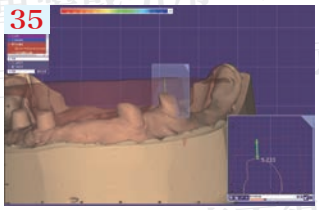
無牙區：8~12 mm

Base
Framework
人工牙
最少需要 3.5 mm





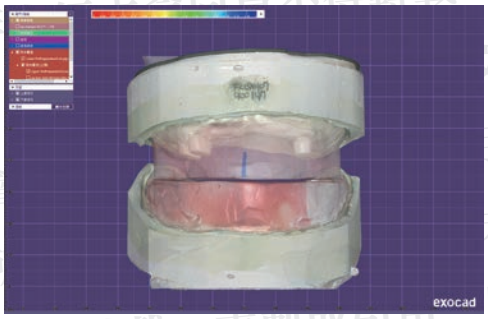


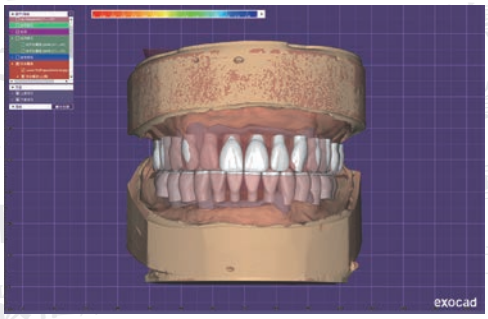


有牙區：3.5~7 mm

內外冠 space
外冠
人工牙
最少需要 2~2.5 mm

空間分析 - 水平空間

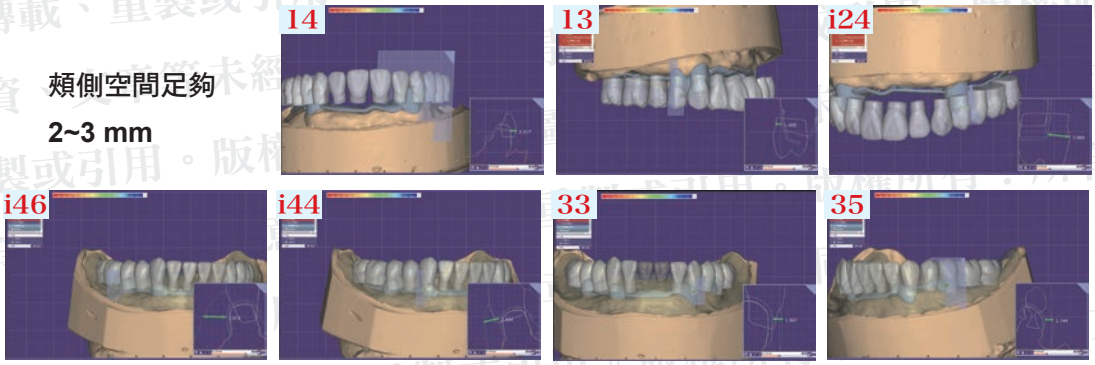




外冠
人工牙

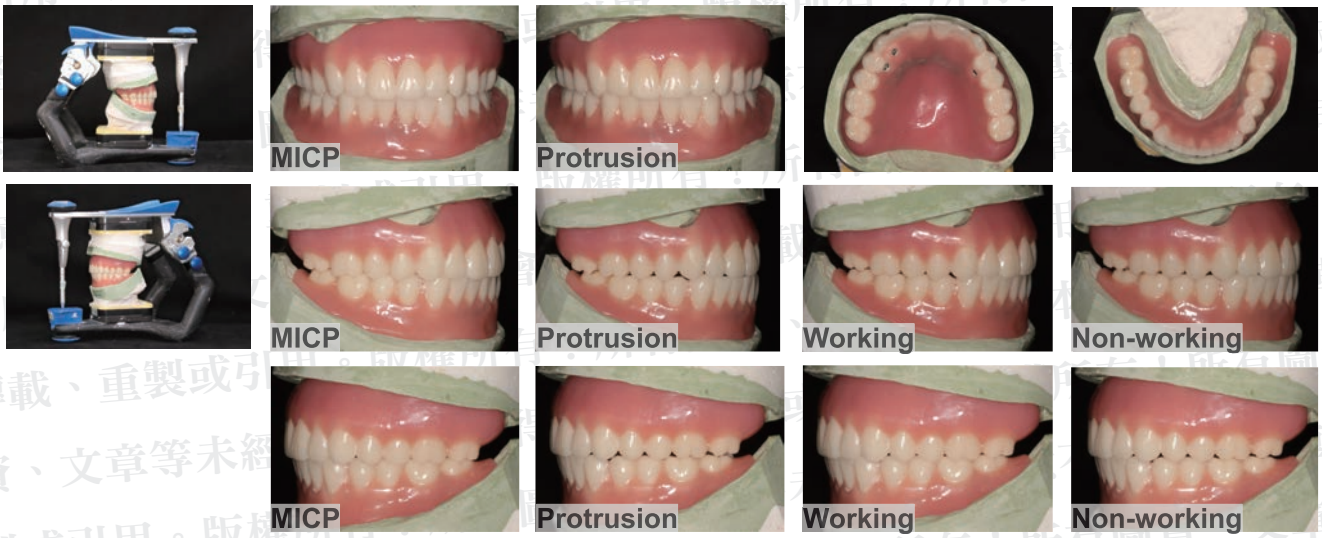
頰側空間足夠

2~3 mm



Wax denture

Delivery


MICP
Protrusion
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Protrusion
Working
Non-working
MICP
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Non-working

MICP
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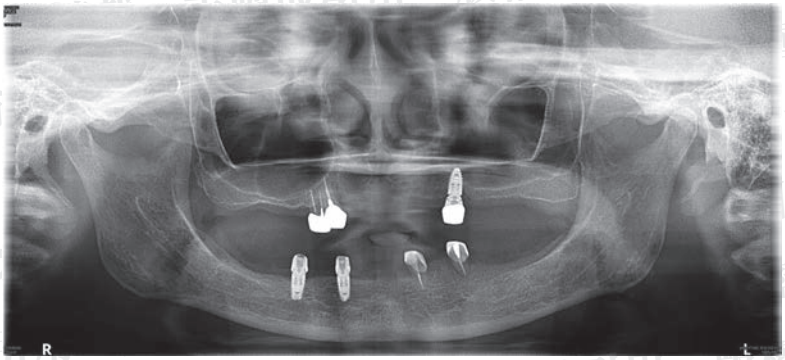
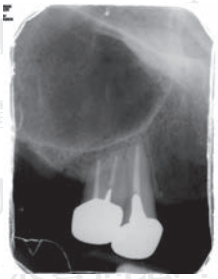
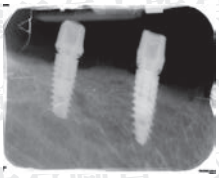


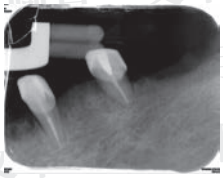


14 13

i24



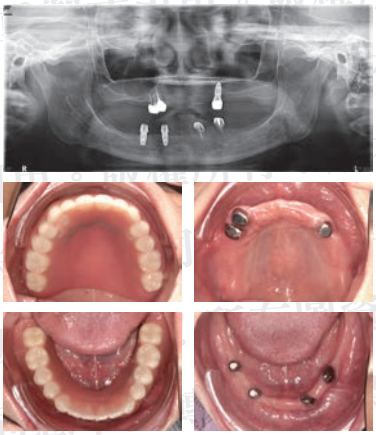
i46 i44



33 35

Re-evaluation

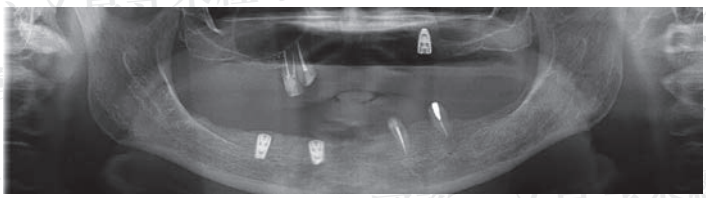
牙齒狀況 及 prosthesis 再評估（interim）



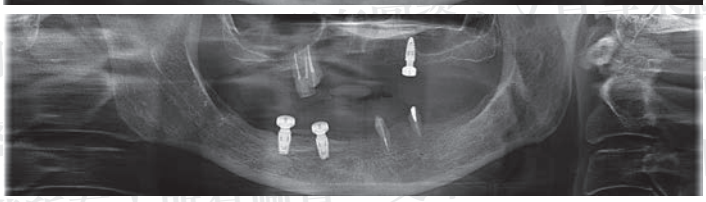
- **Insufficient posterior support**
  - 造成上下顎關係不穩定
  - 下顎後牙區活動假牙下沉造成疼痛
- **Abutment tooth mobility**
  - 自然牙作為主要 guidence
  - 搖動度持續增加
- **Occlusal Plane Uneven and Canting**
  - 前突、側方運動受到干擾
  - 美觀受影響

Initial

1st Surgery



2nd Surgery



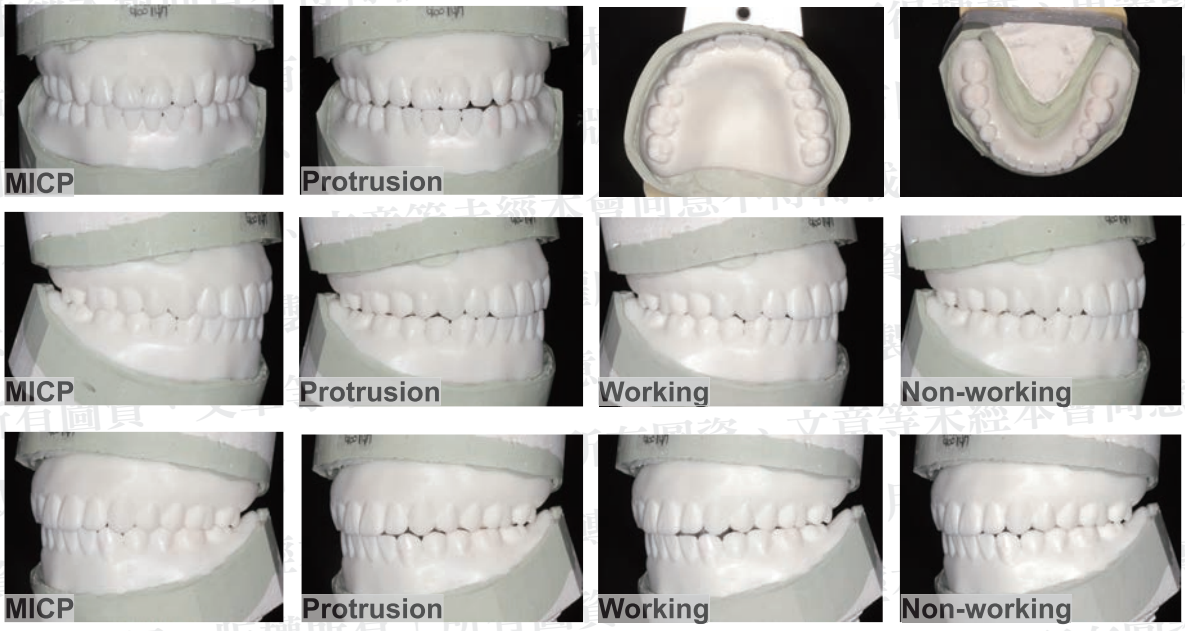
Final

Initial

Diagnostic wax up

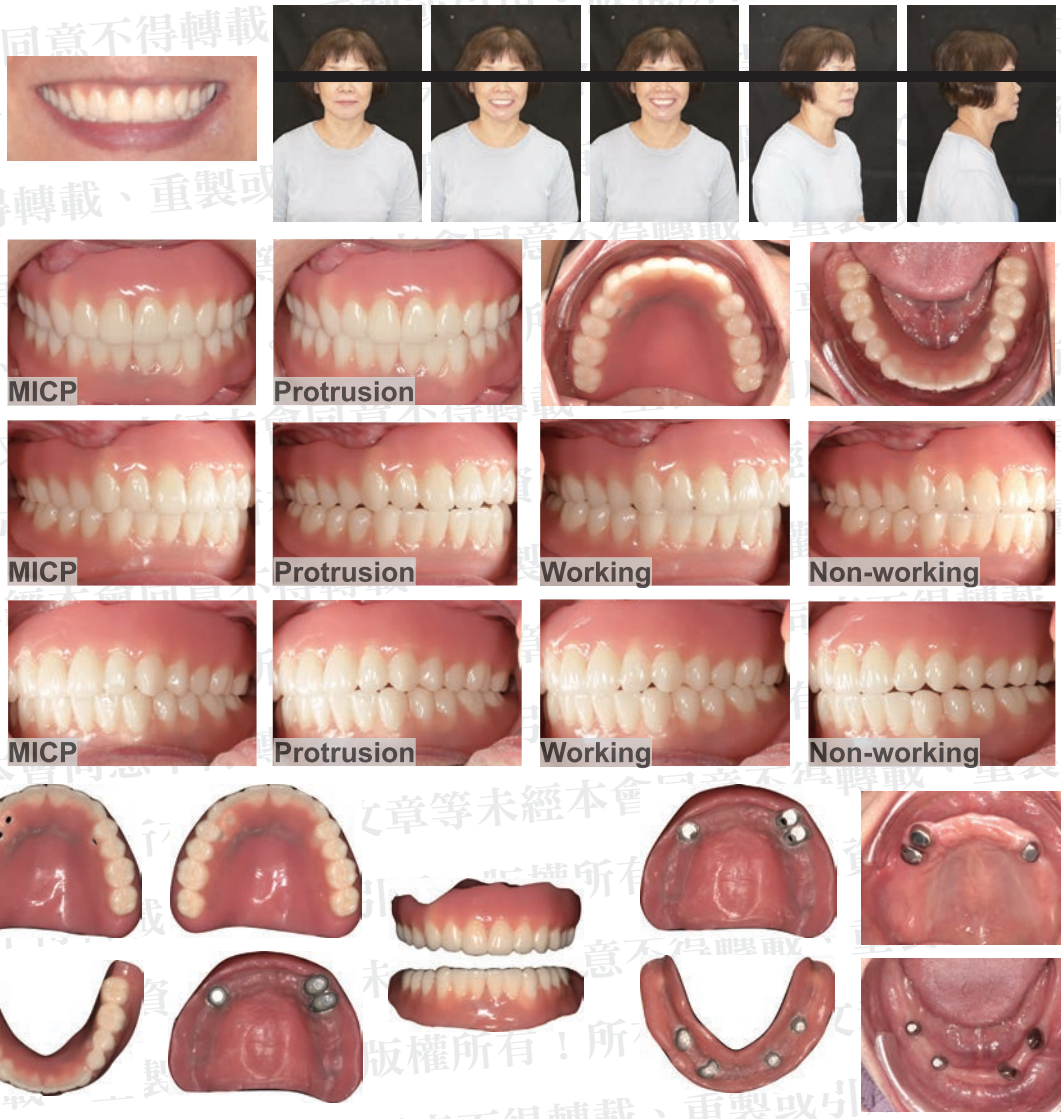
Interim

Try in denture



Wax denture

Delivery



利用 interim 預測最終排牙位置 及假牙型態
（患者咬合位置、美觀、咬合模式、能否適應）

Treatment plan

Diagnosis wax up

Interim

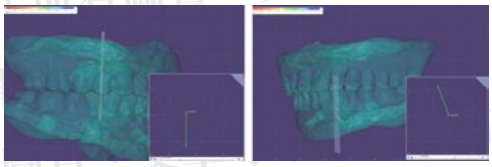
Surgery

優良的 interim 可以讓未來步驟更絲滑
① 規劃手術（手術導板源自於 inteirm）
② 確認贋復空間

Final Imp.

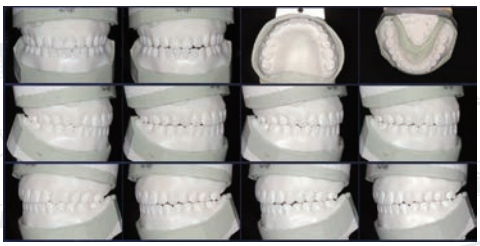
修改後的 Interim
① 利用 Interim 確認贋復空間
② Interim reline
③ 過程中優化 interim（ border ）

操作前要 精準計算空間，包括誤差空間
假牙細節 design



印完主模確認空間　只是驗證！！

Digital wax up
（確定最終補綴物型態）



Step by step 製作　驗證！！

Final Prosthesis

中心思想：永遠先想到最後一步

Q & A

Q：下顎為何不拔除剩餘牙齒，改成植在 43 33 的 2 顆 implant 的設計？

A： 2 顆 implant 的 overdenture 是 tissue 和 implant 共同承壓的活動假牙，但如果像這個 case，相似的預算和手術範圍能夠得到 4 支 abutment，活動假牙的設計就可以偏向 ridge support，對病患來說穩定度更高，base 的覆蓋面積可以更小更舒適，留下可利用牙齒的治療方案也讓患者接受度增加。

Q： Implant 及自然牙的 attachment 設計考量？

A： 上顎部分是設計為 magnet，考考量到剩餘 abutment 分布位置以及數量，不足以獨立承受咬力，因此選擇 tissue support 概念的活動假牙，有完整延伸的 border，而 attachment 僅作為增加 stability。下顎部分有四個 abutment 可利用，分佈良好數量也夠，而 telescope 恰恰是自然牙及植體混合型活動假牙的適應症，內外冠間會隨時間改變的 space 可以補償自然牙及植體沉降量不同的問題。而 telescope 的 retention 也可以藉由內外冠的角度及形態來決定，至於要各別給哪個 abutment 多少力量取決於牙齒本身條件例如牙周。整體原則是一個 arch 設定在 2~3kg，而單顆牙齒不超過 900g。

心得

吳岱凌

很感謝高醫的老師跟學長姐們一路上的協助與鼓勵，讓我在這個病例的處理過程中不斷進步。每次的討論都讓我更了解臨床上需要注意的細節，也幫助我釐清不少原本不太確定的部分。謝謝一起合作的跨科醫師與技師們，能跟大家一起一起完成這個案例非常幸運，讓我有機會從不同角度思考問題。

這次能站上台分享這個病例，是個很特別的經驗。準備的過程中我重新檢視了自己的治療計畫，也試著把複雜的想法整理清楚，讓別人更容易理解我的思路。當天也聽到很多醫師的提問和建議，讓我發現還有很多可以再加強的地方。整體來說，這次的發表對我來說不只是一次報告，更是一個很棒的學習歷程，讓我未來在面對類似的情況時會更有信心。

吳岱凌 醫師

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- 高雄醫學大學附設中和紀念醫院贋復補綴牙科代訓醫師
- 中華民國贋復牙科學會專科訓練

專題討論

美觀區植牙的牙周補綴考量

鄭凱駿　醫師

- 衛福部 贋復專科醫師
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- 南台灣牙醫植體醫學會 副秘書長
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- 高雄醫學大學牙醫系畢業

在前牙美觀區進行植牙重建的贋復治療，臨床上除了重視植體骨整合成功，牙齦及周邊骨頭組織健康，並且保有長期穩定性等等，更期待在美觀上可以有高度仿真以及協調的牙齒牙肉型態。讓植牙能夠「以假亂真」的恢復患者笑容。然而要達到此目的，對醫師而言勢必充滿挑戰性，需要透過充分的治療計劃擬定，以及對手術規劃、假牙設計、軟硬組織協調性等等的熟練運用，才能有好的成果。

了解植牙贋復物的分類

Misch 學者首先在 1989 年發表的文獻中，依據齒槽骨吸收程度以及贋復物空間多寡，將植牙的贋復物分成五種類型[1]，分別為：

FP1- 植牙贋復物外型就好像健康的真牙的牙冠，牙齒與牙周組織非常協調，假牙可做到高度仿真。

FP2- 植牙仍然是恢復牙齒的牙冠，但因原先齒槽骨吸收，因此贋復物稍長且同時需模擬出部分的牙根，用在有輕微 bone and soft tissue recession 的情形。

FP3- 植牙必須同時恢復牙齒的牙冠以及部分牙齦型態，通常用在牙周組織吸收較嚴重的情況，需要重建的垂直空間很大，因此需要以 pink porcelain 方式恢復牙齒及牙齦，以免牙齒看起來非常的長。

RP4- 因需要重建的垂直空間更大，建議以植牙搭配活動假牙方式重建。此分類中的 implant supported overdenture，通常搭配較為 rigid attachment，因此 denture 主要仍由植牙來提供支撐力。

RP5- 同樣為 implant supported overdenture 形式，但因為骨缺損更多，因此需搭配較為 flexible attachment，由植體以及周邊無牙脊共同承擔咀嚼功能。

當我們了解到植牙贋復物的分類後，便可知道 FP1 補綴物形式能夠恢復患者解剖型態的牙冠（anatomical crowns）[圖 1]，尤其在上顎前牙區的牙齒缺失，更力求軟硬組織的互相搭配[2]。而為了達到該理想的效果，對於牙周組織的處理、以及植牙贋復物的設計等等，就必須有詳盡的考量。

圖1： FP1 分類的植牙贋復物外型就好像健康的真牙的牙冠，軟硬組織之間協調而美觀，假牙可做到高度仿真。

牙周組織及植牙時機的考量

若在拔除前牙後，未對拔牙窩做任何處理，在統計上較薄的 labial bone lying 容易在術後兩年內吸收多達 40% [圖 2]，並造成後續要再補骨及植牙的困難度大幅增加。而即使在拔牙的初期即介入植牙手術，也未必能保證齒槽骨不再吸收。文獻指出，上顎前牙區域即使在植體置入後，平均仍有 1.32 ± 0.86 (0.08 - 2.47) mm 的吸收量，而統計下來 residual labial bone 的厚度平均為 1.91 ± 0.45 (1.27 - 2.66) mm [3]，因此該文獻結論為：當植牙後 fixture 的頰側若能長期保有 1.91mm 以上的齒槽骨厚度，較能減緩骨頭吸收程度，並達成 FP1 贋復物的長期穩定性。

因此總的來說，植牙後 fixture 的位置，若能確保在頰側有 2mm 以上的 alveolar bone，以及 3mm 以上的垂直軟組織厚度（vertical soft tissue thickness），並且軟組織表面能保有 2mm 以上的健康角化牙齦（keratinized gingiva），則可達到較佳的牙齦美觀及長期穩定性 [4]。

圖 2：前牙缺失後，頰側骨頭流失嚴重，造成植牙空間不足，連帶影響預後及美觀。

在許多文獻中指出，在適當條件下，拔牙並立即植牙給予臨時性植牙贋復物 (immediate implant placement)，可達到較少的骨頭及牙齦流失 [4]。此臨床流程通常包含了 [圖 3]：step1- 在盡量不傷害牙周組織的情況下，進行 atraumatic extraction 減少周圍齒槽骨 fracture，並最大化保留周邊組織。Step2- 選擇適當尺寸植體，並以原牙根位置稍往腭側方向植入 fixture，同時將剩餘空間填妥 bone graft。 Step3- 將預先製作好的 temporary crown 修磨及調正後小心鎖入 fixture 上（文獻建議選擇 screw type，以降低殘餘黏著劑對於術後傷口的影響）。Step4- 確認臨時牙冠外型能比鄰牙稍短，並在初期兩個月內，在各種下顎運動中與對咬牙幾乎無咬合接觸點 [5]。

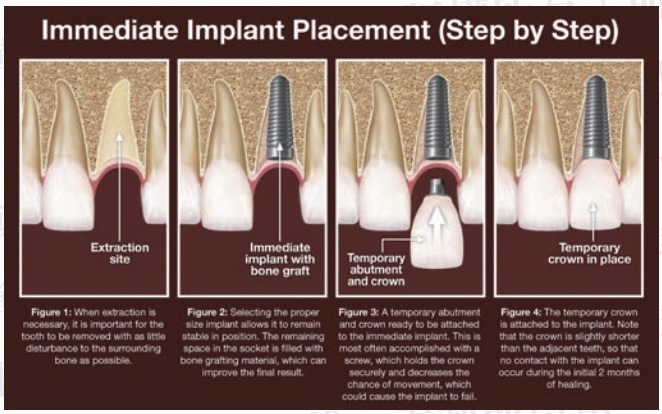


圖 3： 拔牙並立即植牙給予臨時性植牙贋復物 (immediate implant placement) 的臨床操作流程。

而為了更接近幾乎 atraumatic 的拔牙效果，甚至在適合的情況下，能對頰側齒槽骨達到最大程度的保留，「即拔即種並搭配 Socket Shield Technique」的方法能提高植體預後及更加美觀的效果 [6]。在該拔牙的技術中，術者需巧妙的保留原始自然牙根的頰側的薄片，並確保其薄片頰側 PDL 組織健康並與 buccal bone 完整附著，同時也要盡量確保 buccal bone 沒有損傷。接下來的植牙補骨及安裝臨時牙冠的步驟，則與上述 immediate implant placement 相同 [圖 4]。該文獻指出，此方法有利於保留較完整的頰側骨板，提供骨整合階段較完整血液供應，且留置在 fixture 頰側的牙根組織對於後續植體骨整合階段並無不良影響，其 survival rate 可達到 97% [7]。唯該植牙方法需具備較熟練的手術技巧，以及對牙齒及周邊組織結構更深入的了解。

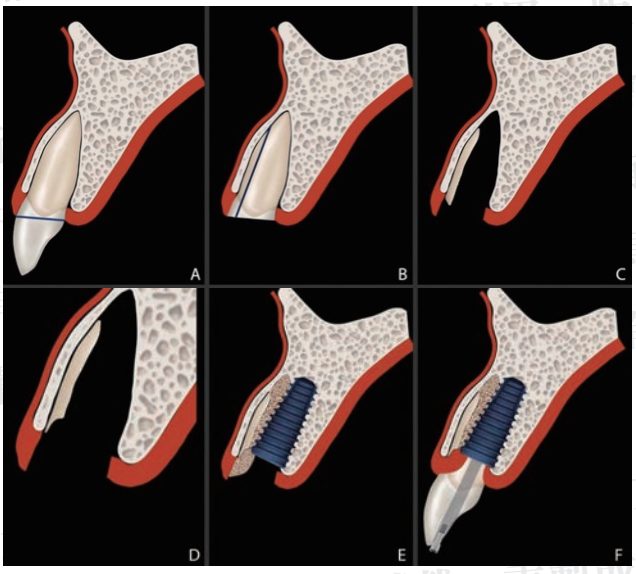


圖 4： 「即拔即種並搭配Socket Shield Technique」的臨床流程圖

植牙贋復物 Emergence Profile 的設計考量

Davarpanah M. 等學者規劃出三階段的治療策略來確保植牙贋復物有良好的萌出型態，1.implant stage：藉由電腦斷層及術前規劃，詳細討論植體種類、尺寸、長度、植入深度及角度，確保植體周圍有足夠健康的牙周組織。2. immediate abutment stage：利用臨時假牙或是客製化 healing abutment 對軟組織塑形，創造出適當的萌出型態。3.definitive crown stage： 透過精確的印模或是轉移步驟，將臨時階段的萌出型態複製到正式假牙，並維持長期穩定性[8]。

在自然牙的型態裡，牙根和牙冠銜接處的輪廓，即為牙齒穿過軟組織並朝著「臨接面的接觸區域，和頰舌側的高隆突線」的連續有弧度的型態。而在植牙的設計中，植體 platform 穿透植牙周邊的軟組織 (peri-implant tissue) 銜接到牙齦的 gingival margin 或是支台齒 - 牙冠複合體 (implant abutment/ crown complex) 的這段空間則稱為萌出型態 emergence profile [圖 5]。這段區域又可細分為 1mm 寬度的 critical contour，以及更往深處的 subcritical contour[9]。

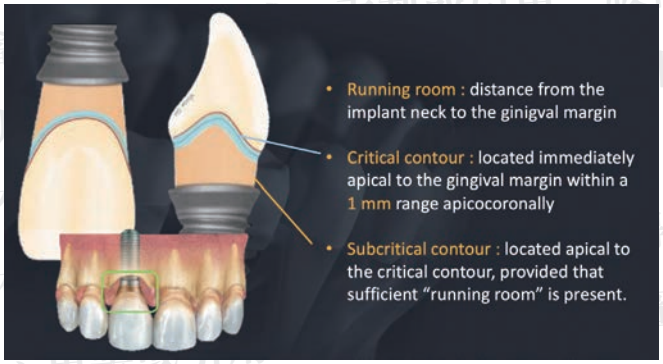


圖 5： 萌出型態emergence profile又可分為 1mm寬度的 critical contour，以及更往深處的subcritical contour

萌出型態中的 subcritical contour 又可因應植牙位置、軸向、或是對牙齦組織調理的需求，細分成 convex、straight 、concave 三種型態 [圖 6]。當植體植入位置較偏舌側，這時 emergence profile 可設計成稍微 convex，通常是為了增加贋復物對牙齦的 support，將軟組織往唇側推擠，有機會改善牙齦的輪廓。當植入位置較偏頰側但仍在理想骨頭範圍內，則 emergence profile 應設計成 concave 以增加頰側軟組織厚度，同時也減少施加過多壓力於牙齦上，而造成萎縮的風險。而當植體位於骨頭唇舌徑的較中央位置（常用的依據為：植體平台唇側面距離「以相鄰牙冠最突出的唇側所連接假想線」的腭側 2mm 處），則此時應設計成 straight 並且輕微 concave，此外型可同時維持軟組織厚度，又不會施加過多壓力在牙齦邊緣[10][11] [圖 7]。

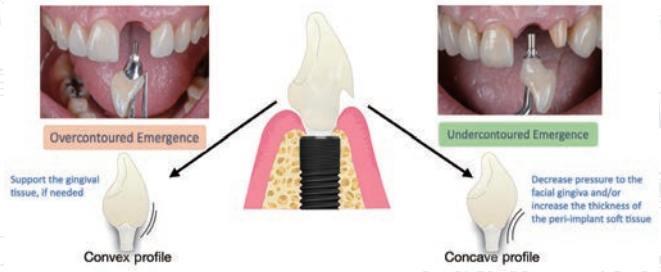


圖 6： 萌出型態中的subcritical contour細分成convex、straight 、concave 三種型態

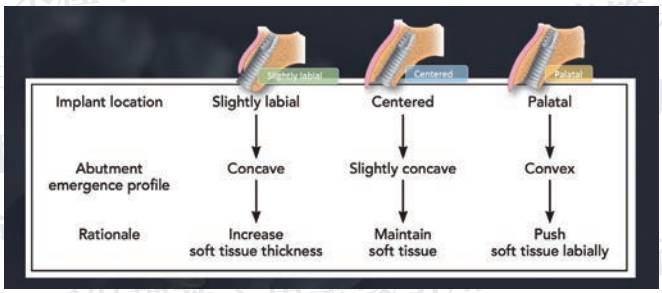
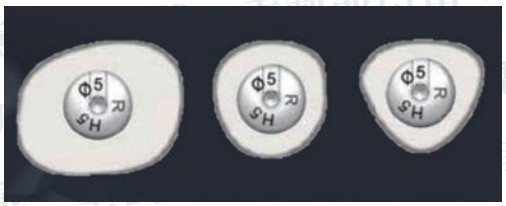


圖 7： 根據不同植牙位置，要對應到合適的 emergence profile

以客製化癒合帽來塑形植牙贋復物的 Emergence Profile

通常各植體廠牌會搭配 standard healing abutment，可依據植牙深度、尺寸、以及牙齦厚度等，選擇相對應的癒合帽。然而無一例外的是，這些標準的癒合帽皆為圓形的橫截面，而自然牙的齒頸部在橫截面的解剖構造上，前牙大約為三角形、小臼齒大約為腎型或盾型、大臼齒則類似圓角平行四邊形，因此若要達到牙齦理想型態，可利用客製化癒合帽來塑形植牙贋復物的 Emergence Profile[圖 8]。在剛拔牙的區域同時植牙，並在手術後立即安裝客製化癒合帽有以下優點：1. 手術區域在術後可提供更好的軟組織組織 sealing 效果。2. 保護血塊，支撐住自然牙原有 emergence profile. 3. 增加 socket volume 的維持性使軟組織更不容易塌陷。4. 在未來給予 implant prosthesis 自然和諧的解剖外型[12]。而臨床常用於客製化癒合帽



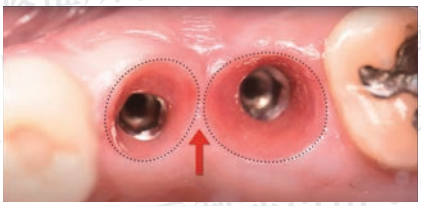


圖8：左圖，自然牙在齒頸部的剖面型態，對比常見標準化的癒合帽尺寸，可發現其牙齦區域外型輪廓之間的差距。右圖，利用客製化癒合帽塑形牙齦後，可得到更理想的萌出型態。

Properties	PEEK	PMMA	Zirconia	Titanium	Resin Composite
Tissue adhesion	Good	CAD/CAM; Good	Very good	Good	Good
Biocompatibility	Very good	Self-cured; Acceptable CAD/CAM; Good	Good	Good	Acceptable
Bacterial formation	Low	Self-cured; High CAD/CAM; Low	Low	Low	Moderate

圖 9：常見的客製化癒合帽材質，以及性質的比較

的材料包含了 PEEK、PMMA、Zirconia、Titanium、以及 composite resin [13]. 不同的材料特性在 tissue adhesion、biocompatibility、以及 bacteria formation 的程度，各有優劣，可依據臨床所需選擇適合的材質 [圖 9]。

結論

在美觀區域植牙本就是一項艱難挑戰，不只需要重建缺損骨頭、維持植體長期穩定性，更要注重牙齦與牙齒之間美觀協調性。為了達到此目的，在植牙重建的各個階段，包含：術前的贋復物規劃、骨頭型態的分析、拔牙與植牙的時機點、植體位置角度及深度的考量、臨時性植牙補綴物及客製化癒合帽的設計……等等。而進階的議題例如植體 abutment 考量、贋復物材質的選擇、前牙比色系統、陶瓷堆疊染色及燒製等等。唯有把步驟中的每一個細節都預先思考及規劃好，才能獲得醫師、技師、患者三方面都滿意的結果。

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我話我畫

人像畫

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在照相還沒普遍化的時代，要留下某人的形象，只有用畫的。我大一開始畫油畫，憧憬的是印象派時代的畫風，那種物體形象因外光之變化而變化的觀念，使我不敢畫人像。歐洲美術史上大畫家常常畫大人物的肖像畫，倫敦的國家肖像美術館 (National Portrait Gallery) 更是英國歷史上君王、妃后、王子、公主、貴族與英雄人物的肖像畫陳列中心。能上得了畫布的，大概都是有頭有臉的人物，例如神話或英雄人物，就常是畫家畫作裡的對象，後人看到的都是美美的，或英姿煥發的，不美的，或不重要的人物，應該不是肖像畫的主角。因此，我雖然愛畫畫，卻不敢畫人像畫，一則是還沒找到值得畫的人，更重要的是怕自己功力不足，畫不像。

Picasso 畫女人

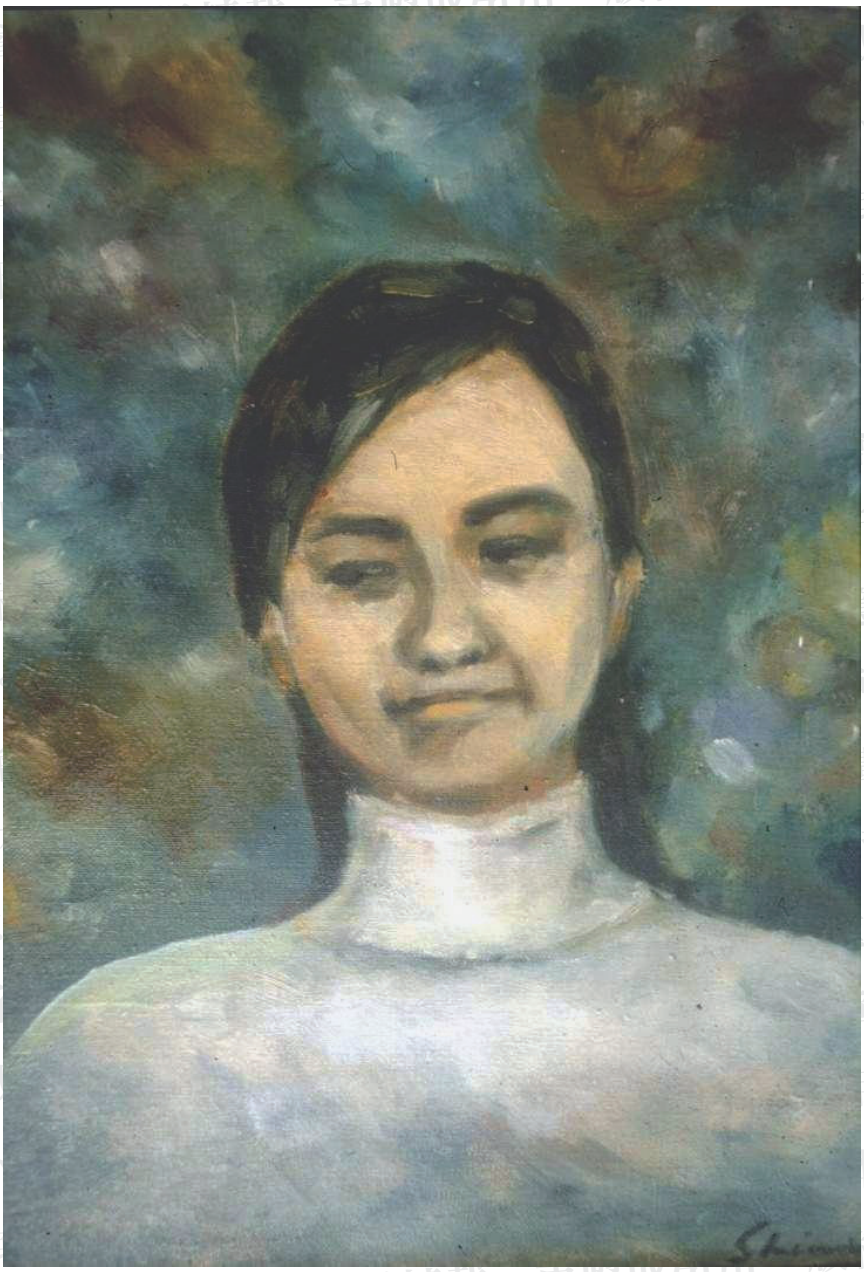
畫風景，畫靜物，不能，也不必畫太像，又不是在攝影，大可揮灑自己的創意。但畫人，就不一樣了。畫人物第一要像，第二還是要像。被畫的人要覺得是在畫自己。如果畫中人美美的，或是英武俊拔，但看起來不像自己，再好看，也不會覺得是畫自己，則是拍馬屁拍到馬腿上，得不償失。更有甚者，如果畫者想要表現些自己的意念或畫風，那畫中人的樣子，多半會讓被畫者感覺得不舒服，除非畫者是像畢卡索那樣已功成名就的大畫家，被畫者雖然看了不爽，也只能對著歪七扭八的，看不出是人是鬼的立體派人像畫，高興地說，那畫中人是我！

大學畢業前後，我有了固定女友，這女友，當然是我自認為是能看到的女性中最美的，自詡為畫家的我，自然想過要為心目中的海倫作畫。但基於前述的心理障礙，我遲遲沒敢畫她的肖像畫，怕畫出來自己不滿意，更怕女友不認帳，弄巧成拙。因此，只做了幾幅人在風景中的意境畫，畫中的人物不是最重要的角色，沒有臉部細節，只能大約看起來像她。

直到結婚前不久，才認真動筆做她的肖像畫。

我選了幾張我照她的照片做底稿，也不時請她以一個固定角度靜坐，讓我修改及彌補形與光的不足。好在我只畫頭像，不太在意她的衣著，否則我要像宮廷畫師一般，請人代穿華服，擺姿勢畫衣著的細節，然後畫家只要畫頭臉，表現畫中人的臉形，膚色，神韻與氣質。我想表現的是她即將由少女變成少婦的羞澀與柔美；畫裏的她有披肩的長髮，濃眉與長睫毛是她的特色，輕垂眼瞼，而似有所思的微笑模樣，似乎有滿懷幸福的預期，則是我要表達的重點。懷著戒慎恐懼的心情，一改再改，畫了兩個月，等到我自認畫好了，拿給她看時，她只是淡淡地說，有像我嗎？

這畫，我以“花樣年華”為名，展出過兩次，現掛在家中樓梯間的牆壁上，每天上下樓時，都會看她一眼。兩年前，老伴過世，我也想過再為她畫老年時的畫像，但都無法下筆，就是不想畫她的老態或病容，這五、六十年歲月形成的差異，就我最清楚，但我無法下筆。中年及晚年的她，我只想在手機裡的照片檔中回憶。



花樣年華 oil on canvas,43x37,1968

我做的第二張人像畫，是畫我的祖母，是她九十高齡過世後一年畫的。

我祖母的身材依女性而言，算高挑，她健朗而鮮少生病，獨居在汐止鄉下。常常一個人帶著她鏟下的綠竹筍或自己做的莿殼粿（鼠殼粿，草仔粿）到台北給她兒、孫吃。她不駝，不胖，雙膝直挺，眼神炯炯，僅稍稍耳背。她經常穿著黑色唐裝與長褲，獨自從汐止搭公路局車在中崙站下車，然後走路到西門町看我們。這位清朝時代的女性，本該和同時代的台灣少女一樣纏腳，她卻成功地逃跑，免受酷刑，得以留下健康的天足。這健康、朗爽，能走、能負重而獨立的形象，就是我的汐止阿嬤。

要做她的畫像，只能取材她有限的大頭照與生活照，加上自己對她的印象。

我以古銅色做為畫像的基本色調，突顯古與老，她寬廣的額頭和高高的顴骨，表現了她的個性。高挺的鼻樑，遺傳給我老爸，卻沒遺傳給我。我畫她的時候，她是不是有義齒，是我這當牙醫的孫子當年沒注意到的事，這不能怪我，她過世時，我還沒出道呢。畫像裡稍顯塌陷的嘴與唇上的皺紋，顯

祖母 , oil on canvas, 53x45cm,1972

示應該有缺牙，但是否戴義齒，則無可考。她在世時，曾教我如何鏟竹筍，如何自井裡打水，如何採九層塔，如何做草粿，而我卻不曾注意到她是否戴假牙，唉，這個牙醫孫子！

畫完後我父親看了看，卻沒表示意見，只說裝框後要掛在那裡的指示。這畫後來就掛在我家餐廳裡大水族箱的上方，與我父母的遺照遙遙相對。

我也曾畫過自己的兒女，在此就不提了。那，我畫過別的女人嗎？

這是敏感話題，如果像我這類業餘畫家，畫了太太以外的女人，又沒收費，這不是難以解釋的事嗎？ 即使不是畫裸體畫，像是戈耶 (Francisco Goya) 的瑪雅夫人，或是鐵達尼電影中的情節，也難以對老婆解釋“為什麼要畫她？”。我曾為兩位紅粉知己做人像畫，畫完後做為贈品，雖沒拿酬勞，卻已不再屬於我。當時沒照相留念，也沒留圖檔，即使有，也不會在此顯示。因此，只要畫中人不講，就不會有人知道畫家是誰。

此外，畫古人肖像，除了畫我祖母之外，則是畫過兩位醫界與牙醫界的偉人。

第一幅是畫台灣醫學界的泰斗，當過台大醫學院院長，及教育部醫教會主委多年的魏火曜教授。我曾幫過他在教育部醫教會收集與整理牙醫界的資料，做過幾年無給無名的義工，建立了良好的師生與朋友關係。他的小兒子也是我建中高中部的不同班同學。他八十歲時，我做了一幅

肖像畫裝好了框，送他當生日禮物，表達我的敬意。他笑笑地接受，卻不置可否，只說“你覺得我長這樣嗎？”

畫這畫時，我當然是抱著皇帝的畫師畫皇帝的心情做畫，畫得讓皇帝不滿意，是會殺頭的。作畫時也完全沒有請他當 model 的機會，只靠搜尋的照片加上自己的揣摩畫成的。他小小的嘴和大大的招風耳，應是特點，眼鏡後面的雙眼，不是炯炯有神，英氣逼人，而是溫柔而有些迷糊。畫人像時，畫中人若戴眼鏡，隔著鏡片看眼睛，也只能模糊。我自認最神來之筆的是額頭上的淡淡刷白。這刷白畫下去有些膽戰心驚，怕會顯得臉色不紅潤，不吉祥，但這片白正好顯示他光可鑑人的禿頭。好在後來沒聽到有我擔心的批評。至於像不像，如今也只有他的家族後人，和曾經見過他的人可以品評了。

距離 1988 約 37 年後，我才又畫肖像畫。

為了充實籌建中的台大牙醫學院文物館的內容，我畫過創系之時的牙醫系館。後來覺得還需要創系主任的畫像，於是我又著手繪製郭水教授的肖像。我以郭教授的一些檔案照片為基礎，加上我曾受教於他以及服務於牙醫學系時的相處，做成油畫一幅。完成之前也曾請教我們這輩同仁、少數學長以及曾經上過他課的資深校友或同仁的意見，大抵都認為“很像”。這樣，我的目的就達到了，我能加入的，也只有強調他平常不苟言笑的表情與年長者皮膚與頭髮的質與量而已。我沒細細地點上他的老人斑和皺紋，膚色也稍紅潤些，有些怕把他畫老了的顧忌，這種顧忌居然比三十幾年前更嚴重，畫與自己相距不太遠的歷史人物，固然是比較放不開，但畫家心態的老，顧忌東，顧忌西，恐怕才是真正理由，我應該封筆了，要不就學 Picasso 或洪通（生於 1920 年的台灣的素人畫家），老頑童般地亂畫一通。

魏火曜教授，oil on canvas, 53x45, 1988

郭水教授 oil on canvas, 53x45, 2024

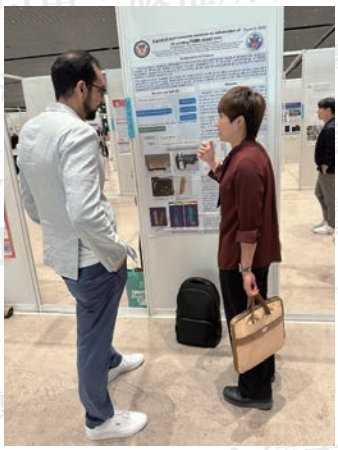
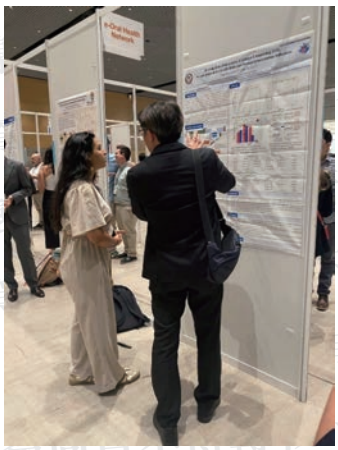
IADR~學術與遊樂兼顧之旅

賴珮翎 醫師

◆ 高醫附設醫院牙科部補綴科主治醫師

今年的 IADR 來到了西班牙巴塞隆納。西班牙是美食也是擁有豐富歷史文化的國家，當然不只有巴塞隆納可以走逛，所以這次旅行決定在開會前先到馬德里走走。身為愛吃鬼歐巴桑，當天一到馬德里直衝聖米格爾市場，生蠔、蝦子、火腿、Tapas 琳琅滿目，只可惜人山人海加上時差作祟，體力耗盡只能望美食興嘆。沒關係，還有另一個令人嚮往的目的地 -- 塞哥維亞。塞哥維亞被聯合國文化組織列為世界遺產，塞哥維亞這名稱來自於凱爾特伊比利語，意思是「勝利之城」。從羅馬帝國時期這城市已開始建造發展，因此城裡羅列著許多羅馬遺跡，其中又以規模龐大的水道橋最引人注目。水道橋建於西元一世紀，最高達 27.5 公尺，由 167 個拱門所組成。其水源來自 17 公里外的冷水河（Fuente Fría），水流在途中會過濾掉一些泥沙，通往老城中心的城堡（Segovia Alcázar）、阿索格霍廣場（Plaza Azoguejo），至今仍能運作喔。遙想在機械工具遠不如現在的二千年前，可以建造如此巨大

塞哥維亞小鎮風情

巴塞隆納 IADR 一嵎

的建築，真的很令人敬佩。來到塞哥維亞還要吃當地名產 Cochinillo Asado 烤乳豬啊！眾多餐廳中又以 Mesón De Cándido 百年餐廳歷史最為悠久，因為保留許多古典建築元素與壁畫而被列為城市藝術文化遺產，在裡面吃飯彷彿進入時光隧道，也因此餐廳是許多政商名流與皇室造訪之處。脆皮烤乳豬鮮嫩多汁，吮指回味，有機會來到塞哥維亞不要錯過喔！

玩歸玩，此趟最重要的行程乃是參加巴塞隆納 IADR，開工開工。 遊玩之餘與世界頂尖研究人員互相交換目前牙科研究發展與趨勢乃是樂事之一。牙科治療數位化，人工智慧，預防保健與數位化教育是現今與未來的潮流，而今年高醫補綴科派出七人與會，研究內容涵蓋臉掃精準度，樹脂 3D 強度，bonding agent 開發，擴增實境牙科教育，數位掃描精準度相關研究等等，研究內容廣泛而多元。大家在各自研究領域與世界級研究人員互相交流，相信都是收穫滿滿。特別一提，多位醫師都是第一次參加這世界級盛會，但是與各地傑出研究者討論起來頭頭是道，有模有樣表現出色，著實令人驚豔，台灣的學術研究能力真的不在話下。

參加完會議，來到巴塞隆納不可錯過另一世界級景點—聖家堂，唯一還沒建造完成就已被列入世界文化遺產。聖家堂是建築大師最具代表作之一，也是最後嘔心瀝血的創作。「我的客戶並不著急」西班牙建築大師高第（Antoni Gaudi）如此形容出自他手中的巨作－聖家堂（La Sagrada Familia Basilica）。從外觀望過去即使是不懂建築的人相信都可以強烈感受到跟以往認知的教堂很不一樣，教堂外觀分為誕生面，受難面與榮耀面，這三面充滿各式各樣的圖案，而圖案都各自帶有故事。看似雜亂無章但又有規則可循，儼然將一本聖經刻畫於其上。進到教堂內部，利用樹幹理

上帝的傑作聖家堂

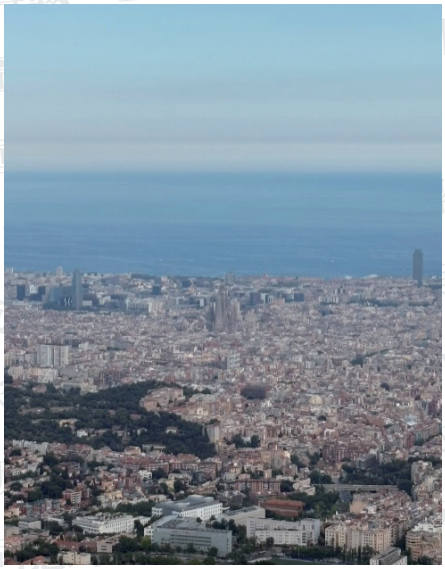
美食之旅

念作為支撐柱子，既然是樹幹當然會有分叉會有樹瘤啊，抬頭一望天花板以樹葉概念而成，這是高第師法於自然現象落實於建築物設計。內側兩邊窗戶藍綠色是早晨陽光的照射面，藍綠色代表清晨，而另外一面紅橙色則是代表黃昏，也就是下午陽光照進建築物的角度，利用不同的玻璃顏色讓教堂內部呈現不同光影與色彩。參觀完聖家堂，真的佩服高第將許多自然現象與景色融入教堂設計，完成此一偉大設計。

西班牙是美食國家，巴塞隆納靠海，海鮮當然是必吃的啊！東港有華僑市場，巴塞隆納則有 Mercat de la Boqueria，觀光客真的不要錯過了。除了生蠔外，還有跟華僑市場一樣的鐵甲蝦ㄟ，在異鄉吃到鐵甲蝦真是療癒味蕾啊！另外另外，海鮮燉飯怎能錯過呢？搭配 Sangria 水果調酒，好喝到幾乎每晚來上一杯，減肥都是明天的事了。

啥米，秒到里約？並沒有，這是蒂比達博聖心聖殿。蒂比達博山（Tibidabo）海拔約 512 米高，是巴塞隆納最高的山峰，可以飽覽整個城市的壯麗景色。山上有座宏偉的聖心聖殿，張開雙臂的基督像矗立在教堂頂部，居高臨下地擁抱整個城市。教堂以同樣位於巴黎蒙馬特山上的聖心堂為藍本，因此命名蒂比達博蒂聖心聖殿。教堂頂部則與里約熱內盧的救世基督像如出一轍，是整座教堂的焦點所在。沒辦法去到里約，看到蒂比達博聖心聖殿的基督像聊表安慰，幻想自己已到過里約，哈哈。辛苦的爬層層階梯，由頂端往下望，整個城市，聖家堂、蒙特惠旗山等都進入眼簾，登高望遠整個身心都舒暢了起來。

巴塞隆納還有很多值得造訪之處，像蒙塞拉特修道院，高第建築巴特略之家，奎爾宮與奎爾公園，巴塞隆納主教堂，畢卡索美術館，多處羅馬遺跡等，想逛街購物則有感謝大道與四處可見的特色小店，真是得逛上一個月才能滿足購物魂啊！



蒂比達博聖心聖殿

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