The Wisdom of Managing Wisdom Teeth: Part II. Lower 2nd Molars Extraction to Prevent Painful and Risky Extraction of Horizontally Impacted 3rd Molars
Dr. John Lin

Correction of Crowding and Protrusion Complicated by Impacted Molars Bilaterally
Dr. W. Eugene Roberts

IJOI

International Journal of Orthodontics & Implantology

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Drs. Eugene Roberts and Chris Chang in front of a collection of antique orthodontic rare books in the study room of Dr. Chang's. On the desk lay two human skulls with impacted teeth & Angle's busts made of bronze and colored glaze.

News and Trends in Orthodontics has been renamed as *International Journal of Orthodontics and Implantology*. You can read more about this change in this issue of letter from the publisher.

2011 熱愛學矯正

張慧男 博士

新竹貝多芬齒顎矯正中心負責人
中華民國齒顎矯正專科醫師
美國齒顎矯正專科醫師學院院士（ABO）
美國印地安那普渡大學齒顎矯正研究所博士

學會開始做矯正需多久?

39小時讓您入門矯正。本課程採高效學習法及高效矯正簡報法 - Keynote，在舒適、輕鬆的環境下，學會簡單有效的矯正方法，教室與診間結合，讓您現學現用，立即熟悉各種習得的技巧，而不需太多課後複習。全程以 In-Office Training 方式，用病例帶動分析、診斷，治療計畫與療程技巧，每一步驟皆以圖片及影片教學，讓您很難錯失任何環節，更沒有聽不清楚或無法理解的可能。為提高課後自我學習及臨床印證之效率，另備有教學電子檔，供學員家中研習。我們的終極目標是：用最短時間、最輕鬆的方式，讓每位學員 - *熱愛矯正學、熱愛學矯正。*

Damon矯正課程

【課程】9:00 - 12:00
【實習】另外安排

使用最新一代矯正器 Damon Q 進行課程，歡迎舊生報名參加。

	台北 (二)	台中 (四)	LECTURE	LAB
1	10/4	9/29	理想入門病例 + Damon Q 黏著	Bonding (Damon Q) + BT
2	10/11	10/6	快速矯正療程四部曲	Ceph + Photo
3	11/1	10/20	簡捷有效的錨定系統	Damon + OrthoBoneScrew I
4	11/22	10/27	不拔牙與拔牙分析	Damon + OrthoBoneScrew II
5	12/13	11/24	Damon 診斷流程及微調	Finish Bending
6	1/3/12'	12/1	完工檢測及報告示範	Fixed Retainer (FR)
7	1/17	12/15	維持及復發：病例示範	Presentation Demo
8	2/7	12/29	矯正力學及診斷分析 (1)	DDX + Case Reports I
9	2/8	1/5/12'	軟硬組織及診斷分析 (2)	DDX + Case Reports II
10	3/6	2/9	兒童矯正及診斷分析 (3)	DDX + Case Reports III
11	3/20	3/8	成人矯正及診斷分析 (4)	DDX + Case Reports IV

矯正植體課程

【課程】 9:00 - 12:00
【實習】13:30 - 20:00

矯正植體的操作時機、植法與實習、個案討論、臨床跟診及實作示範。

新竹(五) 9/16 (含午、晚餐)

International workshop

Keynote & managment
OrthoBoneScrew & Damon

A班 5/10~12
B 班 8/9~11
C班 11/15~17

矯正進階課程

【課程】9:00 - 12:00

以病例討論為主軸，培養學員如何正確診斷及快速排除臨床疑點，課程中亦訓練每位學員善用 Keynote。

	新竹 (二)	Paper Reviews	Topics & Case Demo
1	9/27	Bracket Placement	Crowding: Ext. vs. Non-ext.
2	10/25	Impacted Canines	Upper Impacted Teeth
3	11/15	Canine Substitution	Lower Impacted Teeth
4	12/6	Missing 2nd Premolar	Missing: Ant. vs. Post.
5	12/27	DI Workshop	Crossbite: Ant. vs. Post.
6	1/10/12'	CRE Workshop	Open Bite High Angle
7	3/27	Excellence in Finishing (occlusion)	Deep Bite Low Angle
8	4/3	Excellence in Finishing (esthetics & perio)	Gummy Smile & Canting
9	4/10	Ortho-Perio-Restore Connection	Esthetic Finishing (Transposition)
10	4/17	Adjunct to Perio	Implant-Ortho (1)
11	5/1	Unhappy Patient	Implant-Ortho (2)

助理訓練課程

【課程】10:00 - 14:30
【實習】15:00 - 20:00

每梯次共兩堂課程與技術操作，內含照相技術、Morph 與公關衛教之電腦資料處理；另安排一次診所見習。

新竹(五) 10/7、14 (含午、晚餐)

矯正精修課程

【課程】9:00 - 12:00

協助每位學員了解由古典到現代之文獻，進而應用於實際病例；並藉由DI及CRE讓精緻完工 (Excellent Finishing) 變成易達到的目標。

新竹 (二) 精修III 4/19 5/17 6/14 7/12 8/16 9/20 10/18 11/29 12/20 2/14/12' 3/13

課 程 資 訊

上課地點

【台北】
恒毅資訊中心 畢卡索廳
/ 台北市復興北路99號12F
（捷運南京東路站旁）

【新竹】
金牛頓藝術科技公司
/ 新竹市建中一路25號2F

【台中】
中國文化大學台中教育中心
/ 台中市西屯區中港路二段128之2號3樓

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＊每次上課請依最新一期NTO公告為主

Join the iAOI, the future of dentistry!

20 years ago I had the opportunity to witness the pioneer work of using implants in orthodontics by Dr. Eugene Roberts. 20 years later I am fortunate enough to study implant therapy from three great teachers, Drs. Kwang Bum Park, Homayoun Zadeh and Fernando Rojas-Vizcaya.

For long there has been little collaboration between orthodontic treatment and implant therapy not only in my own practice, but also in academia or international formal dental associations. In order to fill such gap in knowledge, since last year our journal has opened a new section dedicated specifically to implant or implant/ortho combined treatment. Since then, our journal has received enormous responses. I am convinced the future of dentistry is in interdisciplinary treatment and the most exciting and yet neglected area of development is the collaboration between orthodontics and implantology. As such, with the encouragement of my four great teachers, I, together with several distinguished colleagues, have decided to establish a new association, International Association of Orthodontists and Implantologists (*iAOI*), to promote the cross-fertilization of these two areas. Our journal will also be re-named to International Journal of Orthodontics and Implantology.

Certified members of the Association are expected to complete the following three stages of requirements.

1. Member

Doctors can go to *http://www.orthobonescrew.com/* to apply for membership to join iAOI. Registered members will have the right to purchase a workbook in preparation for the entry exam.

2. Board eligible

All registered members can take the entry exam. The examinees are expected to answer 100 randomly selected questions out of the 400 ones from the iAOI workbook. Those who score 70 points or above can become board eligible. The exam is one hour and the first session will be held on October 23, 2011.

3. Diplomate

Board eligible members are required to present three written case reports, one of which has to be deliberated verbally. Members successfully passing both written and verbal examination will then be certified as Diplomate of iAOI.

Ambassador

Diplomates will have the opportunity to be invited to present six ortho-implant combined cases in the iAOI annual meeting. Afterwards, they become Ambassador of iAOI and will be awarded with a special golden plaque as the highest level of recognition in appreciation for their special contribution.

I encourage all of our readers to join iAOI and better prepare ourselves to serve our patients in this new era of interdisciplinary treatment in dentistry. Through these attainable goals, you can reach a whole new level of development. Don't wait for the future. Come be a part of it!

Chris HN Chang, DDS, PhD, Publisher


Examiner
Dr. W. Eugene Roberts


Examiner
Dr. Kwang Bum Park


Examiner
Dr. Homa Zadeh


Examiner
Dr. Fernando Rojas-Vizcaya


Chief Consultant
Dr. John J. J. Lin


Consultant
Dr. Tom Pitts


Consultant
Dr. Larry White


Consultant
Dr. Mark Y. K. Ou


Consultant
Dr. Frederick J. Regennitter


Guest Editor
Dr. Rungsi Thavarungkul

The Wisdom of Managing Wisdom Teeth

Part II. Lower 2nd Molars Extraction to Prevent Painful and Risky Extraction of Horizontally Impacted 3rd Molars

(A) Introduction

It is almost a routine practice to remove malposed impacted lower 3rd molars for the following reasons: pericoronitis, proximal caries or periodontal pocket formation due to difficulty in cleaning space between lower 2nd and 3rd molars. Some may also argue they could cause post orthodontic treatment crowding.

There are many disadvantages of removing the horizontally impacted 3rd molars: numbness of the lower lip due to damage to the mandibular nerve, pocket formation on the distal side of lower 2nd molar, difficult to fill the distal caries of lower 2nd molar, challenging extraction and related post extraction pain and swelling.

In traditional edgewise treatment, it's quite difficult to correct severe Class III malocclusion without extraction of lower premolar or molars, unless using the MEAW technique, well known in Asia to be a powerful multiloop system to correct Class III without premolar or molar extraction (*except 3rd molars*).

Recently due to advanced development of passive self-ligating brackets (*ie, the Damon system*) and TADs (*Temporary Anchorage Devices*), most of the difficult Class III cases, with acceptable profiles (*not too prognathic and patient can accept*), can be treated without using MEAW or extraction of premolars or molars.

In traditional orthodontics, horizontally impacted lower 3rd molars are almost routinely removed for comprehensive orthodontic treatment. In one of my cases the oral surgeon refused to remove the horizontally impacted lower 3rd molars due to the root proximity to the mandibular canal. As such, the author had to reluctantly remove the lower 2nd molar, instead of the impacted 3rd molar. Despite initial concerns over uprighting the horizontally impacted lower 3rd molars, the author successfully uprighted the 3rd molars. The key is to provide enough space by extracting the 2nd molar.

In this article, extraction of the lower 2nd molar to solve horizontally impacted lower 3rd molars will be presented. it can be a very good clinical option to avoid painful and difficult extraction of impacted lower 3rd molars.

Dr. John Jin-Jong Lin
MS, Marquette University
Chief Consultant of IJOI
President of TAO (2000~2002)
Author of *Creative Orthodontics*

(B) Cases Study

Case A:

Extraction of lower 2nd molars to prevent difficult and painful extraction of the horizontally lower 3rd molars

Diagnosis:

This is a severe Class III subdivision case. Right buccal occlusion Class III and left buccal occlusion Class I. The lower dental midline deviates to the left side for about 5 mm and the lower left lateral incisor presents anterior cross bite. In addition, the chin deviates to the left while the straight lateral profile is acceptable.

Treatment Plan:

Removal of two lower horizontally impacted 3rd molars was indicated in the original treatment plan. Unfortunately the oral surgeon refused to remove the lower 3rd molars because their apex was too close to the mandibular canal. So the treatment plan was changed to remove the lower 2nd molars, and upright the horizontally impacted lower 3rd molars later.

Treatment Progress:

18y7m: The two lower 2nd molars were removed.

18y9m: D3MX Damon brackets were placed. Four upper anterior standard torque brackets were placed upside down to turn them into super low torque (12°, 8° to -12°, -8°) for preventing flaring of upper incisors while later use of Class III elastics. Four lower anterior low torque brackets were placed upside down to make them high torque (-6° to 6°) for preventing lower incisors dumping lingually. Watch the horizontally impacted 3rd molar crowns were visible behind the lower 2nd molar extraction socket.

19y5m: About 10 months after removal of the lower 2nd molars, the horizontally impacted 3rd molars not only moved forward but also self-uprighted partially. A buccal tube was purposely placed to allow the mesial part of the tube to be more gingivally than the distal part to get more mesial movement of the root of the 3rd molars.

19y9m: After 4 months of leveling, the 3rd molars already uprighted into normal position. Two months later the patient broke his leg in a motorcycle accident and didn't schedule appointments for about 6 months.

20y4m: The patient came back with his lower midline further deviating to the left than he was at 19y11m, perhaps due to natural growth. The lower 3rd molars were quite upright. Besides the deviated midline, the occlusion was acceptable with a good profile.

What can we learn from this case?

(1) There are many disadvantages to extract the horizontally impacted 3rd molars, such as damage of the mandibular nerve, deep pocket formation over the distal side of the lower 2nd molar, surgically challenging and often associated pain and swelling, dry socket...etc. This case proves the above disadvantages can be easily avoided by much easier removal of the lower 2nd molar.

(2) One should make good torque bracket selection at the beginning of treatment, particularly with good torque control over anterior teeth. In addition, maintain upright upper incisors and avoid lingual dumping of the lower incisors while correcting Class III relationship.

(3) After removal of the lower 2nd molars,the impacted 3rd molars were able to not only moved forward but also self uprighted with the increased space. It may be difficult to self-upright completely but orthodontic treatment can help the molars move to a good position.

(4) This kind of lower 2nd molar extraction is very helpful for correcting Class III patients with impacted lower 3rd molars.

Case B:

Extraction of lower 2nd molars to prevent difficult and painful extraction of the horizontally impacted lower 3rd molars

Disgnosis:

This is a Class II subdivision case with right buccal occlusion Class II and left buccal occlusion Class I. The lower dental midline was off to the right. The overjet was about 6 mm. Lateral profile showed upper lip protrusion. The panorex showed two horizontally impacted lower 3rd molars.

Treatment Plan:

The patient refused to extract two upper 1st premolars and prefers nonextraction therapy in the anterior segment. To avoid painful and difficult removal of the horizontally impacted lower 3rd molars, the two lower 2nd molars were plan to be removed to create space for the 3rd molars to erupt. Full cooperation of using Class II elastics was emphasized.

If the patient cannot wear Class II elastics with sufficient time, the use of upper infrazygomatic mini-screws

to distalize the whole upper dentition is indicated. If the mini-screws also fail, then extraction of two upper 1st premolars should be indicated.

Treatment progress:

20y1m: lateral profile showed upper lip protrusion, with Class II subdivision malocclusion and overjet about 6 mm.

20y3m: Two upper 3rd molars and two lower 2nd molars were removed. Four upper anterior high torque Damon Q brackets were used to prevent dumping of upper incisors by wearing Class II elastics. Lower low torque brackets were placed over 6 anterior teeth to prevent flaring of lower incisors by using Class II elastics.

20y7m: After four months of follow up, the lower impacted 3rd molars not only moved forward but also self-erupted slightly. It made bonding of buccal tube possible.

21y5m: After 10 months of leveling and using Class II elastics, the horizontally impacted lower 3rd molars were all uprighted. The big 6 mm overjet was corrected to be almost 2 mm and the upper lip position is much more acceptable now. It still takes time for midline correction

What can we learn from this case?

(1) It's possible to extract lower 2nd molars and then upright the horizontally impacted 3rd molars to avoid difficult and painful extraction of the impacted lower 3rd molars. This kind of treatment option should be considered whenever dealing with difficult impacted 3rd molars. Orthodontists can offer this special kind of treatment to avoid difficult 3rd molar removal.

(2) Only lower 2nd molar extraction treatment should be carefully planned. For a Class III situation, it's very helpful to correct the Class III. In Class II cases it tends to worsen Class II unless with patients' full cooperation on wearing Class II elastics.

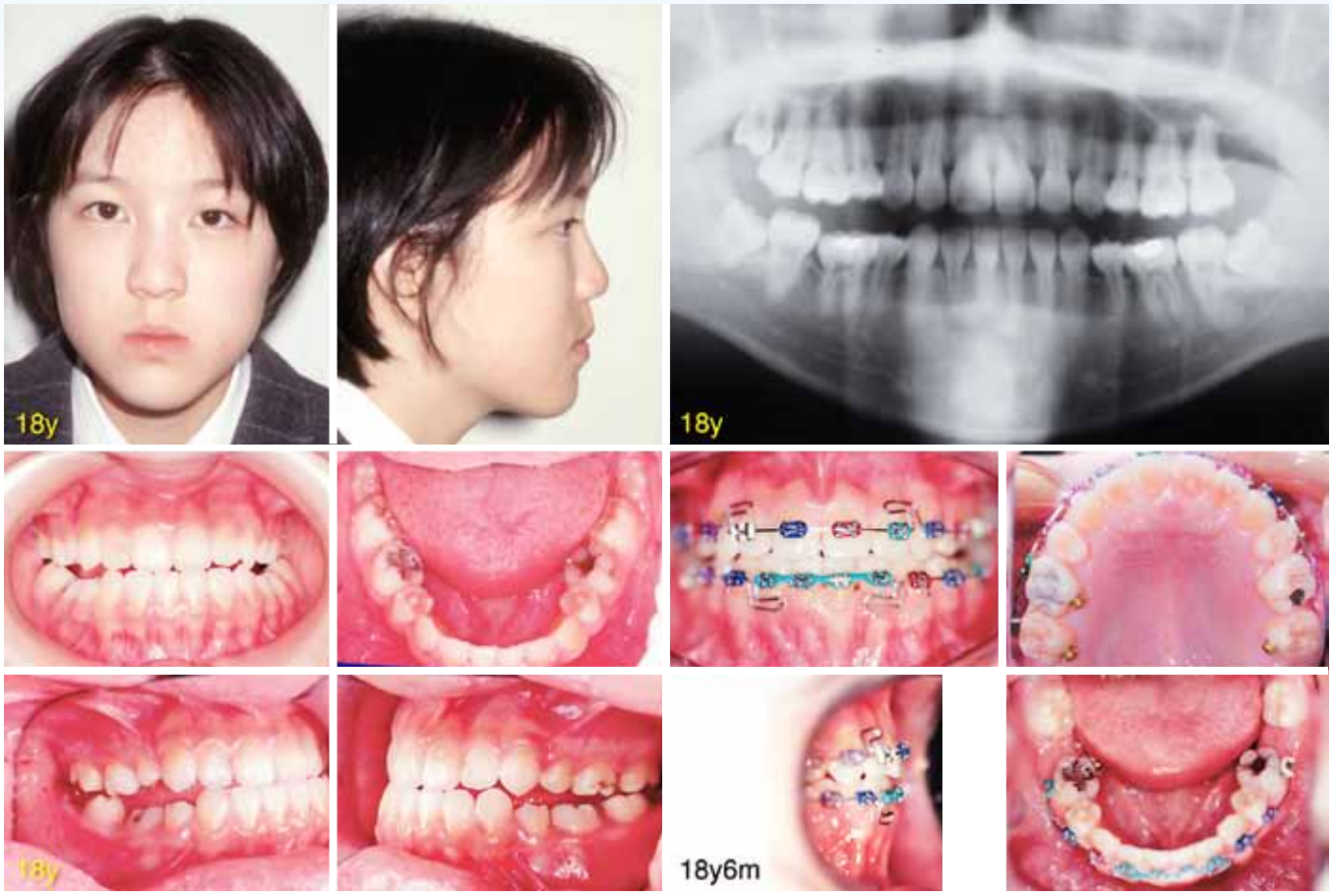
(3) This case is quite lucky because the patient is very cooperative on wearing Class II elastics.

(4) If the patient's cooperation is insufficient, then upper mini-screws should be planned to distalize the whole upper dentition. If the mini-screws fail, then extraction of two upper 1st premolars should be planned. All the treatment options should be presented to the patient at the beginning of treatment.

Case C (Courtesy of Dr. Susan BR Wu):

Extraction of lower 2nd molars to treat Class III

Diagnosis:



A 18 years old Class III female patient presents Class III lateral open bite malocclusion, as a result of a relapse from the previous orthodontic treatment.

Treatment plan:

Extraction of two lower 2nd molars.

Treatment progress:

18y: Class III lateral openbite. She has an orthognathic profile. Two lower 2nd molars were removed. Traditional edgewise appliances were used.

18y6m: After removal of two lower 2nd molars, the bite closed down in only 6 months.

20y: Two years later, the two 3rd molars erupted with more crown in the oral cavity.

21y: Bonding of the buccal tubes on the 3rd molars. Watch the tubes were bonded with mesial part much more gingivally for uprighting of the forward tilting crown.

22y: The lower 3rd molars were uprighted and moved forward. The treatment is finished

What can we learn from this case?

(1) By extraction of the lower 2nd molar, can avoid difficult extraction of the impacted lower 3rd molar.

(2) In this case the lower 3rd molars were mesially angulated impacted, not as difficult as last two horizontally impacted 3rd molars cases. If we can correct this case by extracting the 3rd molars, then we don't have to spend a lot of time waiting for the 3rd molars eruption to finish the treatment.

(3) For traditional edgewise systems, combining MEAW technic to correct the Class III is needed.

(4) If this case has the two lower 3rd molars removal instead of the lower 2nd molars, she could be treated with the Damon system. Its MEAW effect can significantly shorten the treatment time. In addition, there was no need to wait for the eruption of the lower 3rd molars.

Case D:

Extraction of lower 3rd molars for correcting severe Class III

Disgnosis:

A severe Class III asymmetry case with chin deviating to the right, and an orthognathic lateral profile.

Treatment plan:

The mesially angulated right lower 3rd molar and normal position left lower 3rd molar were removed and Damon Q brackets were bonded for orthodontic treatment.

Treatment progress:

19y5m: A severe Class III asymmetry case with lower dental midline off to the right side for about 5 mm. Although the frontal view clearly showed the chin deviating to the right side, the lateral profile was excellent. The two lower 3rd molars were removed before orthodontic treatment.

21y: After 19 months,the treatment completed as a result of the patient's excellent cooperation on wearing elastics. The patient has Class I occlusion with midline on and an acceptable profile

What can we learn from this case?

(1) Damon system can offer excellent MEAW effect for nonextraciton (with the extraction of 3rd molars) treatment.

(2) The treatment time is significantly shortened by relatively easy 3rd molar extraction and spending no time waiting for the lower 3rd molar eruption.

(3) At 12, the patient had rapid palatal expansion and face mask protraction treatment. However, the result was less than ideal and he did not complete the treatment. For difficult Class III cases, the use of the so called orthopedic correction was often tiresome and the result tends to relapse to Class III again.

(4) He had been suggested to receive surgical correction by many orthodontists, so he treasured a non surgical option combining the Damon system and excellent cooperation on wearing Class III elastics.

(5) If this case was treated with lower 2nd molars extraction, much more treatment time will be spent on uprighting the 3rd molar and closing the extraction space. In the traditional edgewise system, 2nd molar extraction was deemed unavoidable. In moder Damon system, extraction of the lower 3rd molars will make the treatment much simpler by extraction of the lower 3rd molars.

Case E (Courtesy of Dr. Susan BR Wu):

Extraction of lower 2nd molars to solve Class III tendency due to late mandibular growth

Disgnosis:

A mild Class II malocclusion with severe upper anterior crowding.

Treatment plan:

Two upper 1st premolar extraction at the beginning. Later due to difficulty on correction of the Class III malocclusion, two lower 2nd molars were removed.

Treatment progress:

9y5m: Two upper 1st premolars were removed.

12y: After 2.5 years of treatment, the occlusion became edge to edge, and difficult to be corrected by the Class III elastics.

12y2m: After extraction of lower 2nd molars, the original edge to edge occlusion turned into an easily corrected Class I anterior occlusion.

14y: The right lower 3rd molar already erupted into ideal occlusion, while the left lower 3rd molar had not fully erupted yet.

15y: The lower 3rd molars erupted into very good occlusion.

What can we learn from this case?

(1) When extracting only two upper 1st premolars in Class I or mild Class II cases, one should be careful about the late mandibular growth, which tends to make the case become more Class III.

(2) If this case were treated with the Damon system, I think the MEAW effect may be helpful to treat Class III occlusion to Class I without further extraction.

(3) By extraction of two lower 2nd molars, the ongoing Class III occlusion was successfully solved. Also later on the 3rd molar erupted beautifully into good occlusion. In Dr. Wu's experience this happens in most 2nd molar extraction cases. The author concerns, in many situations, after the lower 2nd molar extraction, the lower 3rd molar rarely self upright as well as in this case. One should always caution patients of the chance of unpredictable eruption of 3rd molars before treatment.

(C) Conclusion

1. With the advancement of passive self-ligating brackets (*Damon system*) and TADs, many difficult Class III cases can be treated without premolar or molar extractions (*with exception of lower 3rd molars*).

2. Most of the difficult Class III cases can be corrected with the MEAW effect of Damon system.

3. Most of the young difficult Class III malocclusion, although, can be treated with so called orthopedic face mask protraction combined with RPE, they tend to relapse. It is advised to wait until the growth period is completed at 20 for male and 18 for female, and then to begin treatment with Damon and/or TADs. Extraction of difficult horizontally impacted lower 3rd molars can be one of the good options in orthodontic treatment. For patients who are afraid of painful removal of the lower impacted 3rd molars, extraction of the 2nd molars can be a nice alternative.

Acknowledgement:

Thanks for Tzu Han's English editing. Thanks for Dr. Susan BR Wu's generous sharing of the two beautiful cases of lower 2nd molar extraction.



2011 Beethoven International Damon & OBS Workshop

OrthoBoneScrew and Damon workshop includes two half-day lectures, two half-day chair-side observation sessions, one model practice and one case discussion session.

The costs also covers local transportation, two days of food and two nights of shared accommodation(double occupancy). Airport pick up is available upon request with additional charges.

Cost: USD 1,400;

For May session, register before 9/15 discount $200 off; before 10/15 discount $100 off

Keynote Presentation workshop includes a total of 6.5-hours of lecture and hands-on practice, focusing on improving your professional communication skills. The workshop will use Macintosh computers and its presentation software, Keynote 09. The costs also covers one day of food and one night of shared accommodation (double occupancy).

Cost: USD 350

For May session, register before 9/15 discount $200 off; before 10/15 discount $100 off

Registration:

A 50% deposit is required to confirm registration. To make a payment by wire, please email thhuang@newtonsa.com.tw or call +886-3-5735676

LECTURER: Dr. John Lin

President of the Jin-Jong Lin Orthodontic Clinic. Dr. Lin received his MS. from Marquette University and is an internationally renowned lecturer. He's also the author of ***Creative Orthodontics*** and chief consultant to ***International Journal of Orthodontics & Implantology***.

Dear Chris:

I must say what I learnt these few days is possibly much more than what I learn in the past few years. You obviously had surpassed my expectation.

I learn how one could create a kingdom out of a little town; how one could manage an efficient patient flow in a shortest possible time frame with the biggest possible number; I further learn that how one should delegate the works effectively, empower the staff systematically and inspire them spontaneously to be contributory to the growth of the organization.

I also reckon that effective presentation does not depend on how flowery the language we use but on how we connect to the audience and engage their attention to our flow of thoughts. An effective presentation needs an effective tool to support the deed.

Dr. How Kim Chuan, Malaysia (middle)
President of the Malaysian Dental Association



2011 Workshop Dates: 5/10-12, 8/9-11, 11/15-17

LECTURER: Dr. Chris Chang

President of the Beethoven Orthodontic Center. He received his PhD in bone physiology and Certificate in Orthodontics from Indiana University in 1996. As publisher of International Journal of Orthodontics & Implantology, he has been actively involved in the design and application of bone screws.

Day 1

13:00—14:00 Welcome Lunch
14:00—14:40 Orientation
14:40—15:00 Introduction of Beethoven and Anderson Clinic
15:00—18:30 Chair-side observation

Day 2

9:00—10:30 Optimized Orthodontic Treatment I
Dr. Chris Chang
10:30—11:00 Break
11:00—12:30 Optimized Orthodontic Treatment II
Dr. Chris Chang
12:30—13:50 Lunch
14:00—15:00 Model Practice
15:00—18:30 Chair-side observation

Day 3

09:00—10:00 6 Essentials of the new Damon Q
10:00—10:10 Break
10:10—12:30 Damon + Screw Dr. John Lin
12:30—13:30 Lunch

Day 3

14:00—15:30 Introduction of Keynote: Organize your patient files for presentation
15:30—15:45 Break
15:45—17:00 Key Presentation Principles I

Day 4

09:00—10:00 Key Presentation Principles II
10:00—10:10 Break
10:10—11:30 Make it Visual
11:30—13:30 Lunch

ABO Case Report

Correction of Crowding and Protrusion Complicated by Impacted Molars Bilaterally

HISTORY AND ETIOLOGY

A 12 year 1 month old male presented for orthodontics consultation (*Figure 1*). His chief complaint was irregularity (*crowding*) of both upper and lower arches (*Figure 2 and 3*). There was no other contributing medical or dental history. The patient was treated to an excellent result as documented in Figures 4-10, as will be subsequently discussed

The panoramic radiograph (*Figure 9*) revealed bilateral impaction of the mandibular 2nd molars. The etiology of the malocclusion was deemed to be insufficient development of width in both arches.

Fig 1. Pretreatment facial photographs

Fig 2. Pretreatment intraoral photographs

Fig 3. Pretreatment study models

DIAGNOSIS

Skeletal:

- Skeletal Class I (*SNA 85°, SNB 80°, ANB 5°*)
- Mandibular plane angle (*SN-MP 33°, FMA 34°*)

Dental:

- Right Class I molar relationship, Class II canine
- Left end-on Class II molar relationship, Class I canine
- OJ 8.0 mm; OB 3.0 mm
- Lingual cross-bite maxillary left second premolar
- Mesially inclined and partially impacted mandibular

second molar

- Horizontal impaction mandibular second molar
- ABO Discrepancy Index 21, fitting the major malocclusion category (*DI>20*)

Dr. Eugene W. Roberts, Consultant, News and Trends in Orthodontics (left)
Dr. Chris HN Chang, Director, Beethoven Orthodontic Center (middle)
Dr. Yu Lin Hsu, Lecturer, Beethoven Orthodontic Course (right)

Facial:

- Convex profile
- Competent, severely protrusive lips
- Asymmetric auditory canals (*S-Na and Frankfurt Horizontal planes almost equal*)

SPECIFIC OBJECTIVES OF TREATMENT

Skeletal:

- Skeletal Class I (*SNA 85°, SNB 80°, ANB 5°*)
- Mandibular plane angle (*SN-MP 33°, FMA 34°*)

Dental:

- Right Class I molar relationship, Class II canine
- Left end-on Class II molar relationship, Class I canine
- OJ 8.0 mm; OB 3.0 mm
- Lingual cross-bite maxillary left second premolar
- Mesially inclined and partially impacted mandibular

second molar

- Horizontal impaction mandibular second molar
- ABO Discrepancy Index 21, fitting the major malocclusion category (*DI>20*)

Facial:

- Convex profile
- Competent, severely protrusive lips
- Asymmetric auditory canals (*S-Na and Frankfurt Horizontal planes almost equal*)

TREATMENT PLAN

The initial treatment plan was to use two miniscrews to retract the whole maxillary arch and extract both

Fig 4. Posttreatment facial photographs

Fig 5. Posttreatment intraoral photographs

Fig 6. Posttreatment study models

Fig. 7. Pretreatment pano and ceph radiographs

Fig. 8. Posttreatment pano and ceph radiographs

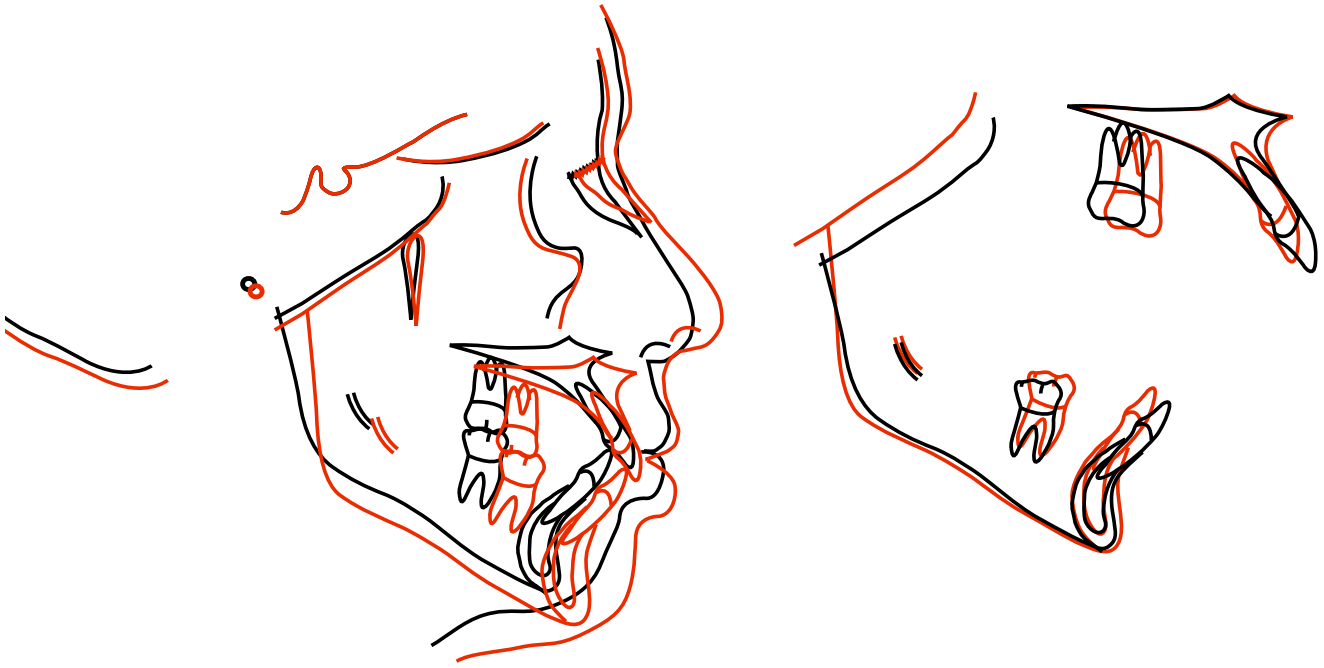


Fig 9. Superimposed tracings

mandibular second molars to relieve crowding and upright the mandibular 3rd molars. In the 20th month of progress, excessive protrusion of the maxillary dentition required extraction of maxillary second molars in order to retract the whole arch (*Figures 10*). In the 21st month, two OBS (*OrthoBoneScrew®*) were inserted in the bilateral infrazygomatic crest to serve as anchorage to retract the entire maxillary dentition.

After 8-month of maxillary retraction, the facial profile was excessively convex (*Figure 11*), and there was insufficient space for uprighting the mandibular 3rd molars (*Figure 12*). After consultation with the parents, both maxillary 1st premolars and mandibular 2nd premolars were extracted (*Figure 13*). In the 32nd month, the mandibular 3rd molars started to erupt into the oral cavity after the first molars moved mesially. Buccal molar tubes were bonded in the 35th month of treatment (*Figure 14*).

Class II elastics were used to resolve the residual sagittal discrepancy and detailing bends produced the final occlusion. Fixed appliances were removed and the corrected dentition was retained with anterior fixed retainers in both arches.

Fig. 10. Progress of the 18th month

Fig. 11. Lateral profile in the 29th

Fig. 12. The panograph in the 29th month showed no space for uprighting the 3rd molars.

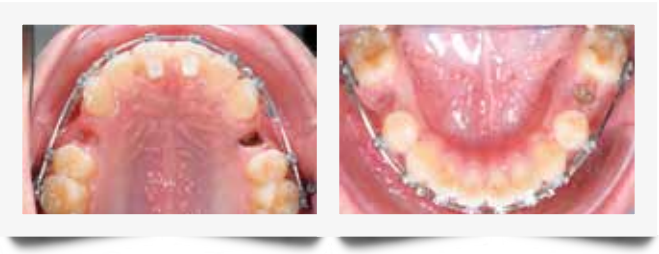


Fig. 13. Four premolars were extracted for protrusive lips and impacted 3rd molars in 30th month.

Fig. 14. Molar tubes were bonded on the 3rd molars in the 35th month.

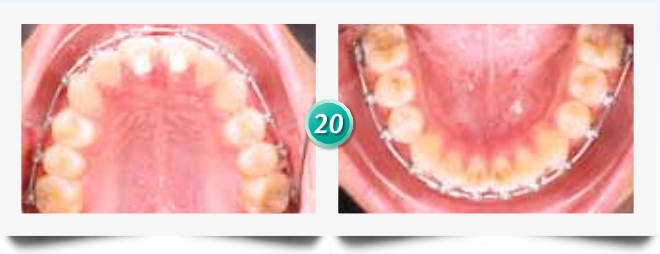


Fig. 15. Bite turbos were placed on the lingual surface of the central incisors to prevent bite from

APPLIANCES AND TREATMENT PROGRESS

The bracket system selected was 0.022" Damon D3MX (*Ormco*). Open coil springs were applied between the left maxillary 1st premolar and 1st molar to create space for alignment of the palatally displaced 2nd premolar. In the 2nd month, both mandibular second molars were extracted to relieve the crowding. Figure 15 at about 20 months of treatment shows the maxillary incisal bite turbos, and the archwire progress of the 014X.025 copper NiTi in both arches.

After 31-month of active treatment, the lower dentition was aligned and the 2nd molar extraction space was closed, but both mandibular 3rd molars were horizontally impacted and facial protrusion was excessive (*Figure 11*). Hence, extraction of upper 1st and lower 2nd premolars was necessary (*Figure 16*) for retraction of the anterior segments as well as for protraction of the mandibular 2nd molars. The mandibular 3rd molars erupted and 2nd molar tubes were bonded on the buccal (*Figure 14*). An uprighting force was created by inserting a section of open coil springs and bonding the tubes with a mesial-tilted angulation (*Figure 17*). It required 20 additional months of treatment to align the mandibular 3rd molars, and retract the maxillary

CEPHALOMETRIC			
SKELETAL ANALYSIS			
	PRE-TX	POST-TX	DIFF.
SNA°	85°	88°	3°
SNB°	80°	83°	3°
ANB°	5°	5°	0°
SN-MP°	33°	35°	2°
FMA°	34°	35°	1°
DENTAL ANALYSIS			
U1-NA mm	10.0mm	4.2mm	-5.8mm
U1-SN°	116°	111°	-5°
L1-NB mm	10.2mm	8.0mm	-2.2mm
L1-MP°	104°	100°	-4°
FACIAL ANALYSIS			
E-LINE(*U*)	3.0mm	-1.0mm	-4mm
E-LINE(*L*)	7.0mm	1.0mm	-6mm

Table. Cephalometric summary

Fig. 16. Extraction of our premolars could facilitate anterior segment retraction and #36,46 protraction.

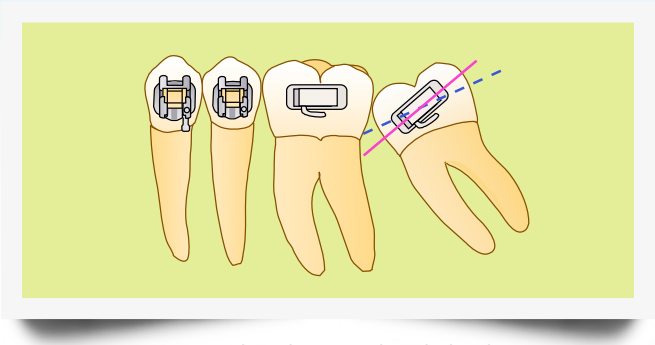


Fig. 17. Molar tubes were bonded with an angulation tilted more mesially.

arch (*Figure 18*). All appliances were removed after 52 month of active treatment. Figure 19 is the radiographic series documenting the alignment problems in the mandibular molar area.

RESULTS ACHIEVED

Maxilla (*all three planes*) :

- A - P : Optimal growth expression
- Vertical : Optimal growth expression
- Transverse : Maintained

Mandible (*all three planes*) :

- A - P : Optimal growth expression
- Vertical : Optimal growth expression
- Transverse : Maintained

Fig. 18. Space closed and alignment of both arches were done.

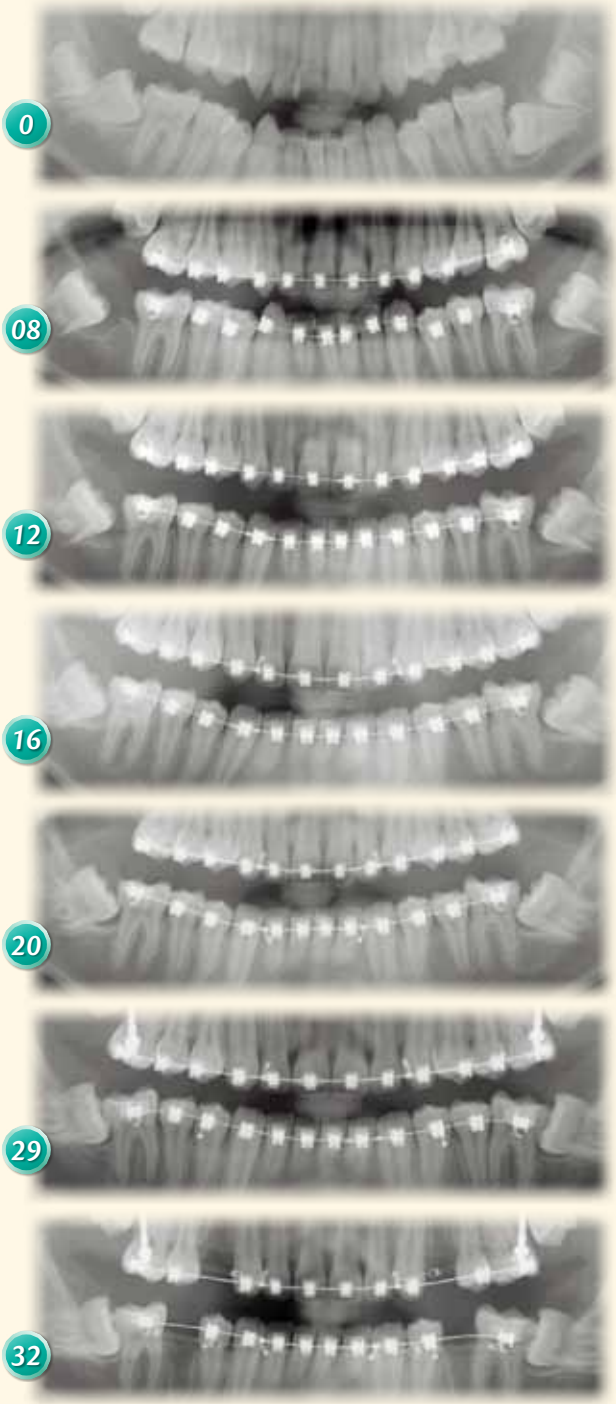


Fig. 19. X-ray films showed the space changing in the lower arch.

Maxillary Dentition

- A - P : Decreased axial inclination of the incisors
- Vertical: Intrusion of the incisors
- Inter-molar / Inter-canine Width: Maintained

Mandibular Dentition

- A - P: Incisors retracted
- Vertical: Extruded molars and incisors in response to growth
- Inter-molar/Inter-canine Width: Maintained

Facial Esthetics: A pleasing profile with competent lips was achieved.

RETENTION

The upper fixed retainer (2-2) and the lower fixed retainer (3-3) were bonded on every tooth. An upper clear overlay retainer was delivered. The patient was instructed to wear it full time for the first 6 months and nights only thereafter. The patient was instructed relative to proper home hygiene and maintenance of the retainers.

FINAL EVALUATION OF TREATMENT

The ABO Cast-Radiograph Evaluation was scored at 22 points. The major discrepancies were mal-alignment (*7 points*), uneven marginal ridges (*7 points*) and loss of contact over mandibular molars (*Figures 20, 21*).

The retraction of the anterior dentoalveolar process resulted in the E-line decreasing from -1/3mm to 1/7mm. As noted in Figures 4, 9 and 11, facial esthetics improved as the lips were retracted and the nasolabial angle was increased. Overall, the treatment results for this challenging case were pleasing to the patient and the clinician.

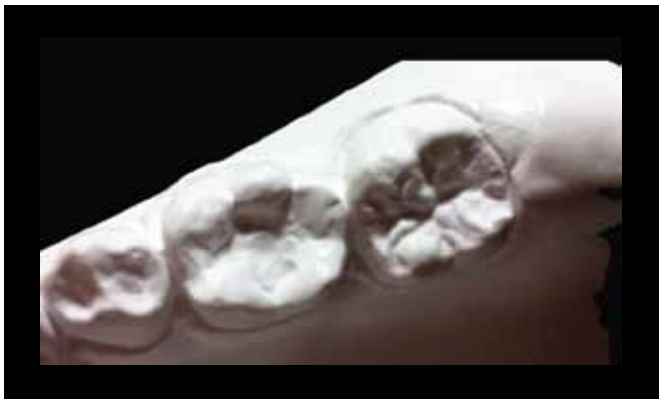


Fig 20. Buccal view of left posterior

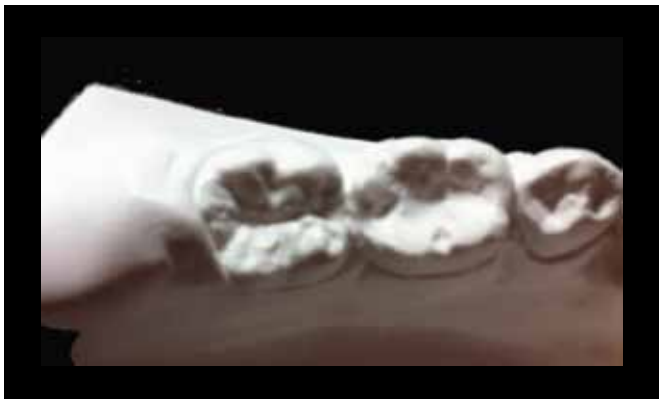


Fig 21. Palatal view of UL area.

DISCUSSION

The key The key issue for this case was determining how much extraction space was required for uprighting the impacted teeth, as well as for aligning and retracting both dentitions.[1-3] Initially the extraction of both mandibular second molars provided 12mm of space bilaterally in the posterior mandible. The space was adequate to relieve 10 mm of mandibular arch crowding, but it was insufficient for retracting the protrusive lips. The 3rd molars continued to tip mesially into the 2nd molar space until they were horizontally impacted. Figure 22 documents the angulation change of the 3rd molars. As the lower dentition was aligned, the 1st molars were retracted into the extraction site. Underestimating the space required and the importance of the position of the space resulted in a significantly prolonged treatment time. Recommendations for treating complex impaction and crowding cases include: 1. accurate estimation of extraction space needed, 2. securing space in an optimal location, 3. proper torque selection for brackets, 4. a simple design of uprighting force applied to mesially tipped molars.

For the present case, the lower arch presented a more complex situation. The extraction space requirement involves two considerations. One is to extract two premolars to relieve dental crowding, retract the incisors and correct the protrusive lips. The other is to extract the impacted 2nd molars and upright the 3rd molars. Another option was to extract the 3rd molars and upright the 2nd molars, but each approach has its pros and cons.[1-3] In retrospect, treatment time may have been less if the 3rd molars and 2nd premolars had been extracted early in treatment.

Treatment for the upper arch was straightforward: bilateral extraction of the 1st premolars to relieve crowding and improve lip protrusion. In retrospective, the extraction of the maxillary 2nd molars was unnecessary because it did not interfere with retraction of the whole arch. Even if the retraction caused 3rd molar impaction, they could be extracted after treatment.

In addition to planning extraction space, the clinician should pay particular attention to proper torque selection of brackets due to incisor flaring.[4-6] High torque brackets were selected for the upper incisors because of the class II malocclusion and necessity for anterior retraction. Low torque brackets were placed on the mandibular anterior segment to prevent inclination of incisors from increasing.[7]

The most critical element of uprighting impacted molars is to create sufficient space.[1-3] Once erupted, one can design an upright force by bonding tubes slightly tilted more mesially and inserting a section of open coil springs. Surgical uprighting is painful and usually is unnecessary.

The ABO Cast-Radiograph score was 22 points, which is within the acceptable range for a board case. The major alignment discrepancies were uneven marginal ridges (*7 points*) and failure to achieve intermaxillary occlusal contacts in the molar area (*7 points*) (*Figures 20, 21*). These problems could be prevented by collecting and scoring casts obtained about 6 months before the projected debond date.[8]

Regarding retention, no fixed retention was placed between the lower 1st and 3rd molar because further settling is expected.

CONCLUSION

This case report demonstrates that even a complex impaction and crowding case with protrusion can be treated effectively without surgical uprighting. The critical considerations include, 1. accurate estimation of extraction space needed, 2. proper bracket torque selection, 3. a simple force design for uprighting the mandibular 3rd molars. Failure to create sufficient space early in treatment significantly delayed the treatment progress and affected the final detailing.

ACKNOWLEDGMENT

Thanks to Ms. Tzu Han Huang for proofreading this article.

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DISCREPANCY INDEX WORKSHEET

CASE # _____ **PATIENT** G.Y. D

TOTAL D.I. SCORE 21

EXAM YEAR	2011
ID#	96113

OVERJET

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

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

Total = 2

OVERBITE

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

Total = 0

ANTERIOR OPEN BITE

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

Total = 0

LATERAL OPEN BITE

2 pts. per mm. per tooth

Total = 0

CROWDING (only one arch)

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

Total = 7

OCCLUSION

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

Total = 2

LINGUAL POSTERIOR X-BITE

1 pt. per tooth Total = 1

BUCCAL POSTERIOR X-BITE

2 pts. per tooth Total = 0

CEPHALOMETRICS (See Instructions)

ANB ≥ 6° or ≤ -2° = 4 pts.

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

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

SN-MP

≥ 38° = 2 pts.

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

≤ 26° = 1 pt.

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

1 to MP ≥ 99° = 1 pt.

Each degree > 99° 5 x 1 pt. = 5

Total = 5

OTHER (See Instructions)

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

Identify:

Total = 4

Exam Year	2011
ABO ID#	96112

Examiners will verify measurements in each parameter.

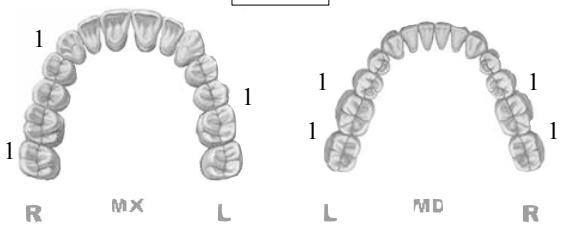
ABO Cast-Radiograph Evaluation (Rev.6-1-08)

Case # | **Patient** G.Y. D

Total Score: 22

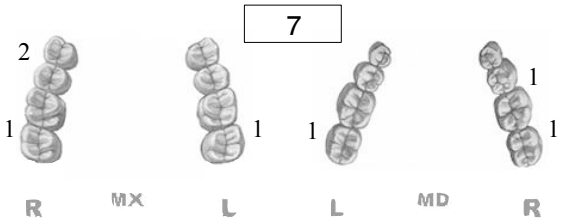
Alignment/Rotations

7



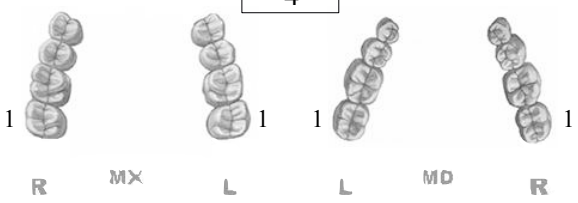
Marginal Ridges

7



Buccolingual Inclination

4



Overjet

2

Occlusal Contacts

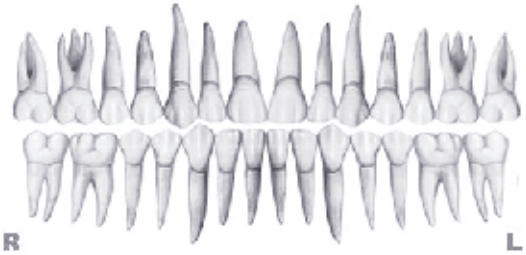
0

Occlusal Relationships

0

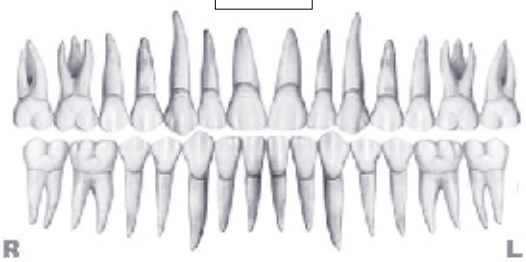
Interproximal Contacts

0



Root Angulation

2



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

2011 貝多芬矯正精修班 Part III

No.	日期 (W2)	精緻完工病例分析 09:00~09:50	精選文章分析 10:00 ~ 10:50	精緻完工技巧 11:00~11:50
23	*4/19*	Class I Case	Design Factors in Orthodontic Appliance (p.373 ~ 377)	Finishing Tip 1
24	*5/17*	Class II Case	Mechanical Aspects of Anchorage Control (p.377 ~ 383)	Finishing Tip 2
25	*6/14*	Class III Case	Determinate Versus Indeterminate Force Systems (p.383 ~ 393)	Finishing Tip 3
26	*7/12*	Complex Deep Bite	Conclusion of Force System	Finishing Tip 4
27	*8/16*	Complex Open Bite	Removable Appliance (p.395 ~ 407)	Finishing Tip 5
28	*9/20*	Tough High Angle	Fixed Appliance (I) (p.407 ~ 418)	Finishing Tip 6
29	*10/18*	Tough Buccal X-bite	Fixed Appliance (II) (p.418 ~ 430)	Finishing Tip 7
30	*11/29*	Tough Impacted Incisor	Non-skeletal Problem in Preadolescent Children - Special Considerations (p.433 ~ 449)	Finishing Tip 8
31	*12/20*	Root Resorption	Early Treatment - Occlusal, Eruption, Ectopic, Traumatic Problems (p.449 ~ 462)	Finishing Tip 9
32	*2/14/12"*	Adult Complex Case	Early Treatment - Space-related Problems (p.463 ~ 493)	Finishing Tip 10
33	*3/13/12"*	Implant-Ortho Case	Skeletal Problem in Children - Timing, Transverse Mx. Constriction (p.495 ~ 502)	Finishing Tip 11

課程目標：

協助每位學員了解古典到現代之文獻，進而應用於實際病例；並藉由 DI 及 CRE 讓精緻完工 (Excellent Finishing) 變成易達到的目標。

- ✦ 時　　間：2011 年每月中週二 早上 09:00-12:00
- ✦ 地　　點：金牛頓教育中心 新竹市建中路 25 號 2 樓
- ✦ 報名專線：02-2778-8315*122 湧傑 楊文君小姐

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DAMON SYSTEM
LECTURE IN TAICHUNG

Damon system 用在齒顎矯正治療已經流行一段時間，常常聽到很多醫師的大力推薦，也陸陸續續聽到同業醫師的小聲抱怨，這讓醫師甚至病患產生疑慮。難道是Damon system 技術門檻太高？或是我們其實不夠瞭解它？

假設一連串的問號曾經存在您心中，那麼，恭喜您，答案都在這裡！　張慧男醫師將為您介紹 Damon system 最新矯正器系列，讓這些矯正利器在您的治療中發光發熱！同時改變您心中「矯正與植牙對立」的想法，將對立變成合作，讓治療計畫從此更多元！黃瓊嬅醫師將明確闡釋 Damon system brackets 的"Torque selection"，如何" Begin with the End in Mind"，畢竟好的開始是成功的一半！而吳致賢醫師要介紹矯正治療 "Excellent finishing" 的關鍵—Vertical control！讓矯正治療能兼顧機能與美觀。

不論您是否為矯正專科醫師，只要您對 Damon System 的矯正治療有興趣，歡迎您來聽聽這幾位醫師的心得分享，也許您要的答案就在其中。

錯過這一天，您的「快樂矯正治療」新生活或許就要延期.....

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Speakers & Topics

8:30~9:00 …報到
9:00~10:45 …Paradigm shift in orthodontics | 張慧男 醫師
…Case report | 翁瓊雄 醫師
10:45~11:00 …Coffee Break
11:00~12:30 …More than a smile | 陳易駿 醫師
…Torque selection in Damon System | 黃瓊嬅 醫師
12:30~13:30 …Lunch Break
13:30~15:00 …Vertical control in Damon System | 吳致賢 醫師
…Damon System in general dental practice | 陳建興 醫師
15:00~15:30 …Coffee Break
15:30~17:15 …Case report | 陳信利 醫師
…Implant v.s. Ortho,~Friends or foes? | 張慧男 醫師
17:15~17:30 …Q and A | 張慧男 醫師

OrthoBoneScrew

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Yu-Lin Hsu, Chris HN Chang, W. Eugene Roberts

The 12 Applications of OBS on the Impacted teeth

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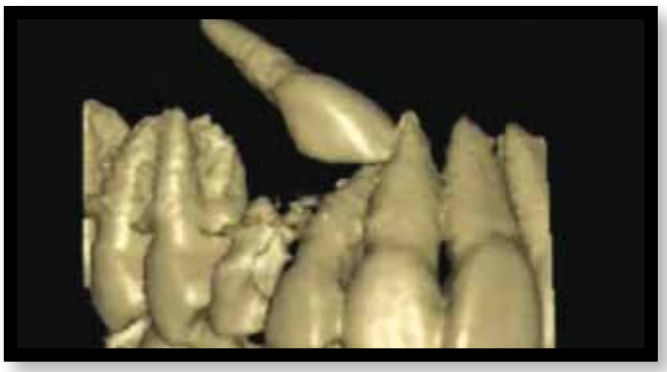
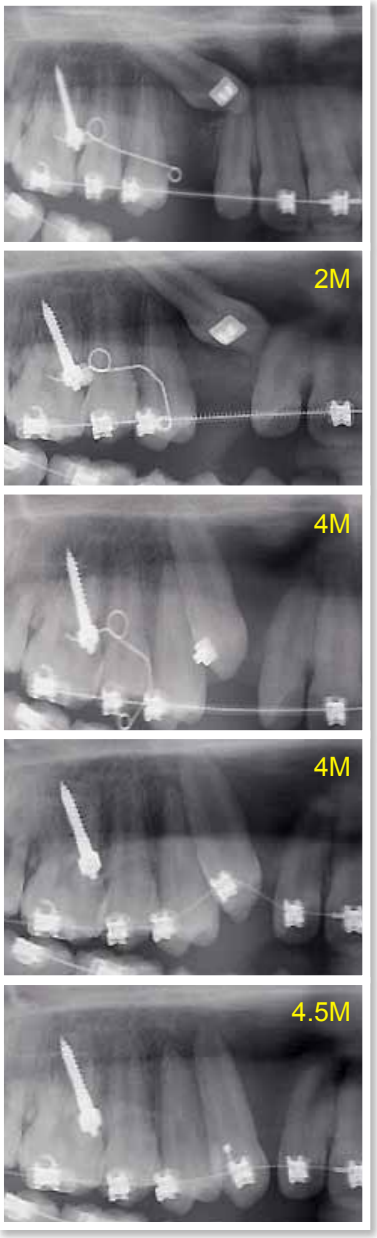
Upper labially impacted cuspids 1

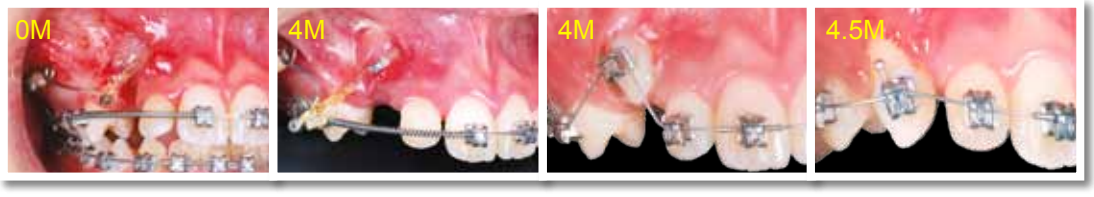
OrthoBoneScrew (OBS) has a double-crossed rectangular slot on its neck. This 0.019″ x 0.025″ rectangular slot provides a versatile use of orthodontic mechanics. A 0.018″ x 0.025″ wire can be secured in the slot firmly.

Mechanics design:

A 0.017 x 0.025-inch TMA lever arm was consisted of a helical coil on one end and helical attachment on the other end. When this lever arm was inserted in the square hole in the OrthoBoneScrew (*located at infrazygomatic crest*) and activated, it could build a force system which distalized the canine first, then moved buccally slightly, and finally downward to the reserved canine space. If the mechanics were designed to exert force directly from the main arch wire, it would have been detrimental to the roots of the lateral incisor. During the follow-up visits, the helix was adjusted without taking it out. After four months, the impacted canine was successfully moved away from the previously impacted site and was ready for bracket bonding.

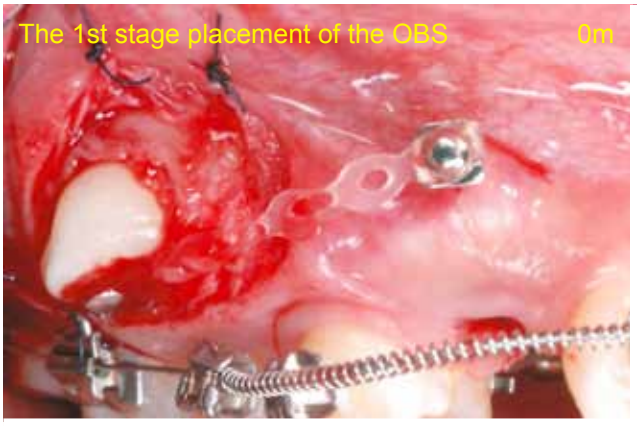


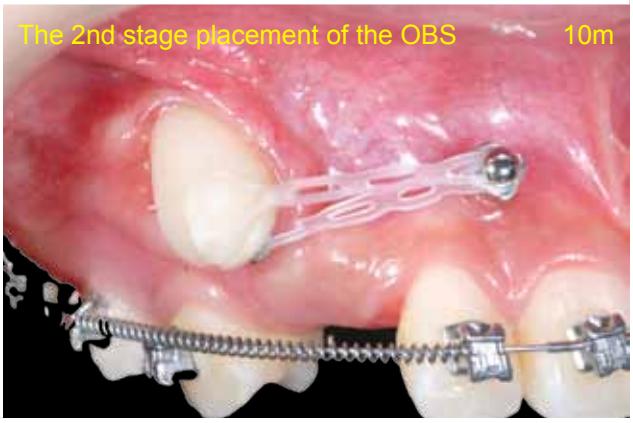




Upper labially impacted cuspids 2

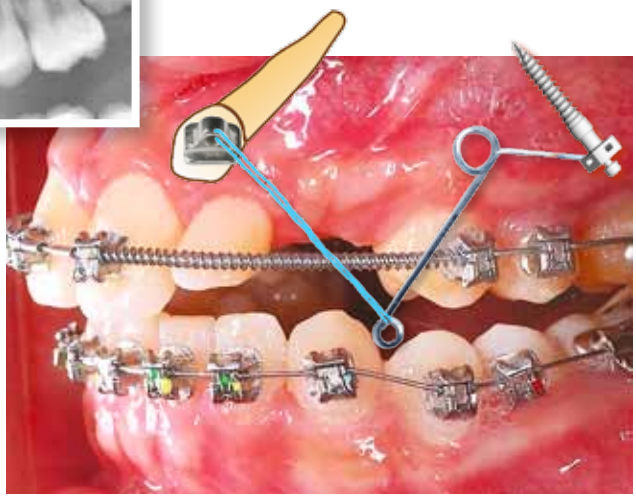
The transpositional cuspid has been exposed with a full-thickness apically positioned flap. After bonding a button, an 1.5x8 mm OrthoBoneScrew was inserted on the buccal side of canine space to protract the cuspid. Meanwhile, one should keep OBS as high as possible to make the switch easier. After 7.5 month-long treatment, this transpositional cuspid has been pulled mesially for 12 mm. The distance between the OBS and the cuspid has been shortened, as a result in the protraction, then the placement of the OBS was changed to the interdental space of the incisor and the lateral incisor. This two-stage placement of the OBS was to prevent the gingival impingement around the corner of the alveolar arch.

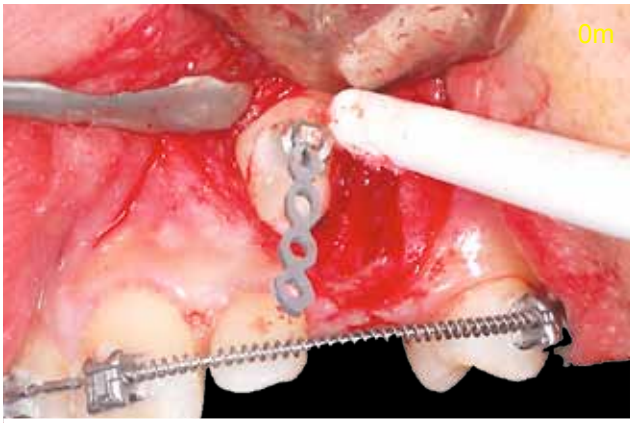




Upper labially impacted cuspids 3

Firstly the space was created by NiTi opening spring between #21 & #24 without engaging adjacent tooth during switching. Secondly a modified apically positioned flap was designed to expose the impacted canine. Then a 3D lever arm was inserted in the square hole of OBS, and attached to the impacted canine by an elastic chain. The force was applied consistently by adjustment of the 3D lever arm. Finally the crown of the impaction appeared in the oral cavity, and allowed for bracket bonding.

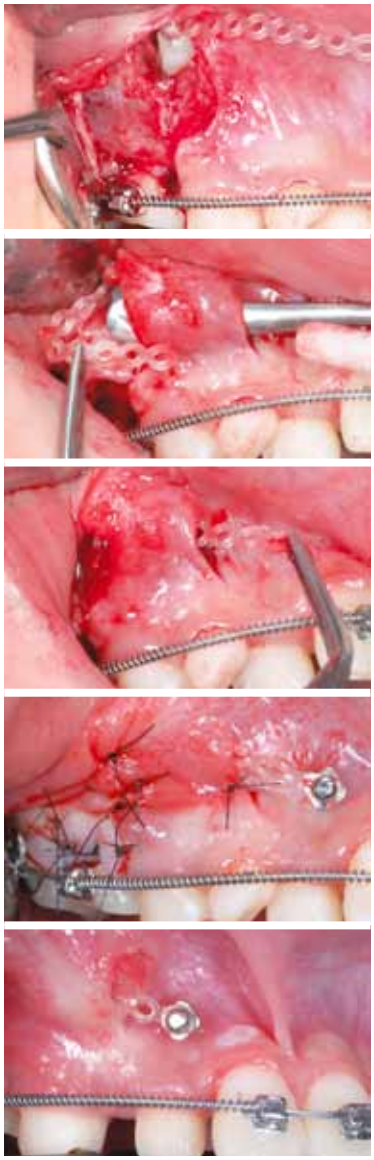


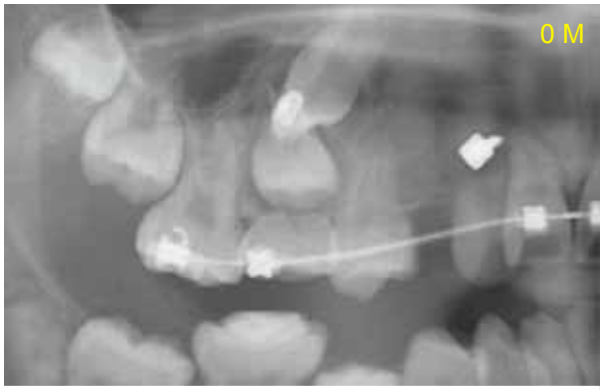


Upper labially impacted cuspids 4

A closed eruption technique
Modified from Vertical Incision Subperiosteal Tunnel Access
VISTA (*Dr. Homa Zadeh, USC*)

In this case, closed eruption technique was chosen for primary wound healing which is more comfortable than APF. The combination of VISTA technique not only avoid the 2-stage placement of OrthoBoneScrew but also offer a good connection between the OBS and the covered transpositional cuspid. Meanwhile, one should keep OBS as high as possible to make the switch easier. After 2 month-long treatment, this transpositional cuspid has been pulled mesially for 3~4 mm.





Upper labially impacted cuspids 5

A closed eruption technique
Modified from Vertical Incision Subperiosteal Tunnel Access
VISTA (*Dr. Homa Zadeh, USC*)

The difficulty of this case is the position of the impacted incisor. The incisal edge was right in the anterior nasal spine. The treatment plan was to use a closed eruption technique modified from VISTA (*vertical incision subperiosteal tunnel access*). The key to the traction is the removal of the covering hard tissue. This modified technique is minimally invasive and relatively comfortable for patients with high impaction.

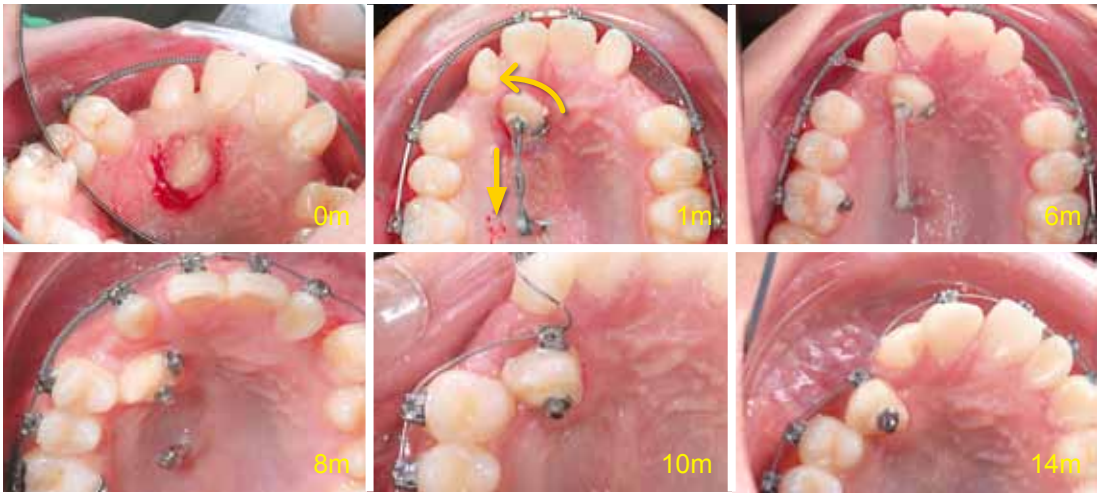
Upper labially impacted cuspids 6

A closed eruption technique
Modified from Vertical Incision Subperiosteal Tunnel Access
VISTA (*Dr. Homa Zadeh, USC*)

In this case, closed eruption technique was chosen for fast primary wound healing, more comfortable than APF. Unlike the traditional VISTA technique with only one vertical incision line, the double vertical incision lines could better expose the impacted tooth and create a clear field for removal of the bone on the traction route. This type of closed eruption technique, modified from VISTA, can not only avoid a 2-stage placement of OrthoBoneScrew but also allow power chains connecting the OBS and the covered impacted cuspid.

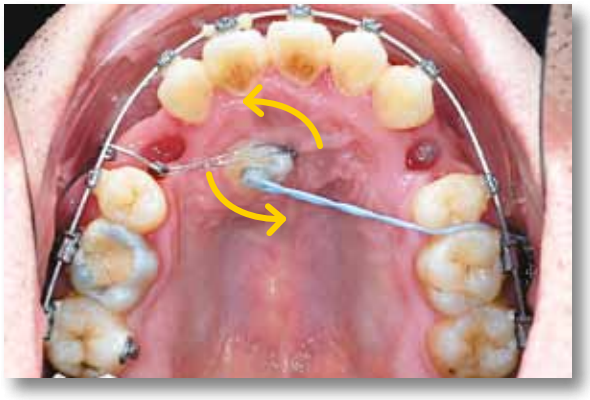
Upper palatally impacted cuspids 7

Firstly, the space was created by open coil spring. Secondly, the impacted canine was uncovered to allow auto-eruption. After the canine erupted, a rotating force system was created by a palatally inserted OBS, and an elastic chain connecting to the archwire. Once the impacted canine moved within the reach of a wire, a .014 CuNiTi was then placed for further alignment. Finally, the impacted canine was successfully moved into the arch .



Upper palatally impacted cuspids 8

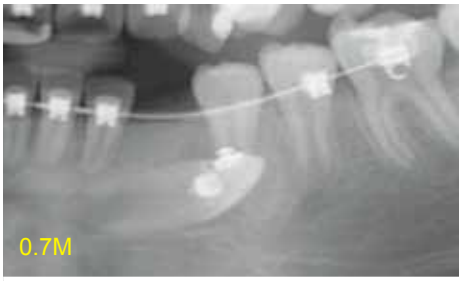
Firstly, the impacted canine was uncovered to allow auto-eruption. Secondly, the maxillary right 1st premolar was extracted. After the canine erupted, a rotating force system was created by a 3D lever arm stretching out from the right side of OBS, and an elastic chain connecting to the left side of OBS. Once the impacted canine moved within the reach of a wire, a .014 CuNiTi was then placed for further alignment. Finally, the impacted canine was successfully moved into the arch.



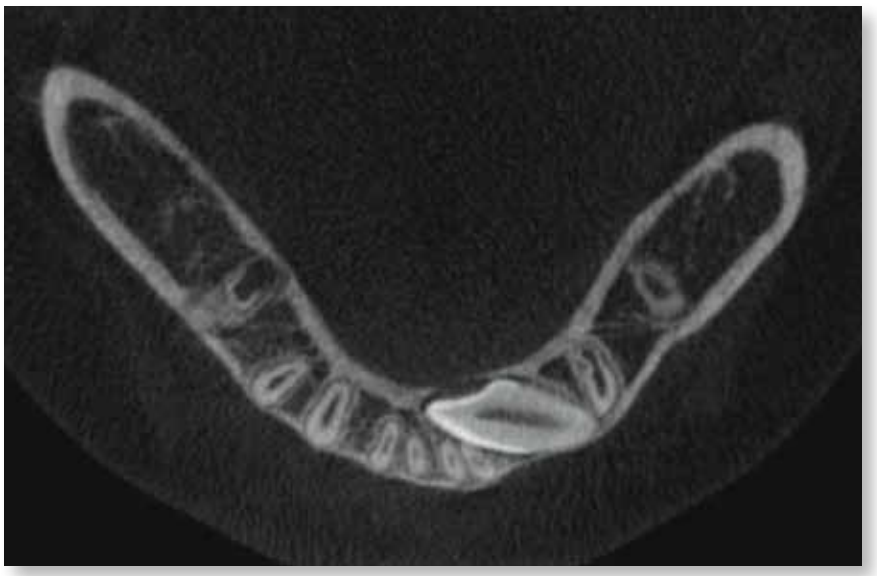
Lower horizontal impacted cuspids 9

Mechanics design:

A 0.017 x 0.025-inch TMA lever arm was consisted of a helical coil on one end and helical attachment on the other end. When this lever arm was inserted in the square hole in the OBS (*located at buccal shelf*) and activated, it could build a force system which protracted the tip of canine first, then moved buccally, and finally elevated to the reserved canine space. If the mechanics were designed to exert force directly from the main arch wire only, it would have been detrimental to the roots of first premolar. During the follow-up visits, the helix was adjusted without taking it out. After three months from operation, the impacted canine was successfully moved away from the previously impacted site and was ready for bracket bonding.

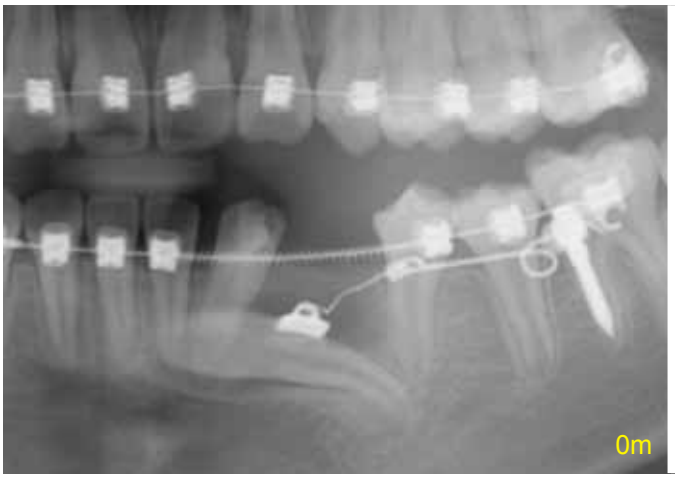


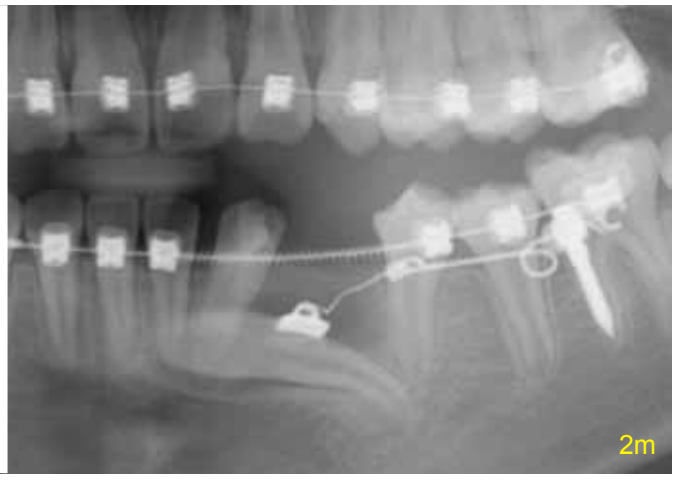
Sublingual trans-alveolar impacted cuspids 10



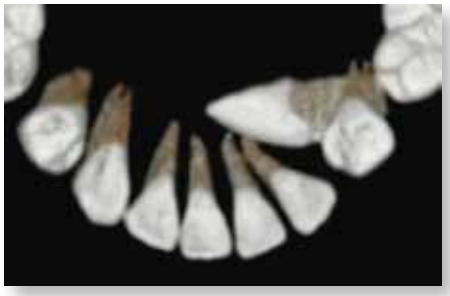
1st surgery

The force system was designed to deliver by a 0.019 x 0.025-inch SS lever arm and the OBS which was located at buccal shelf. When this lever arm was inserted in the square hole in the OBS and activated, it could upright the trans-alveolar canine first, then moved buccally, and finally elevated to the reserved canine space. During the exposure surgery, it was important to keep the operation field as superficial as possible on both



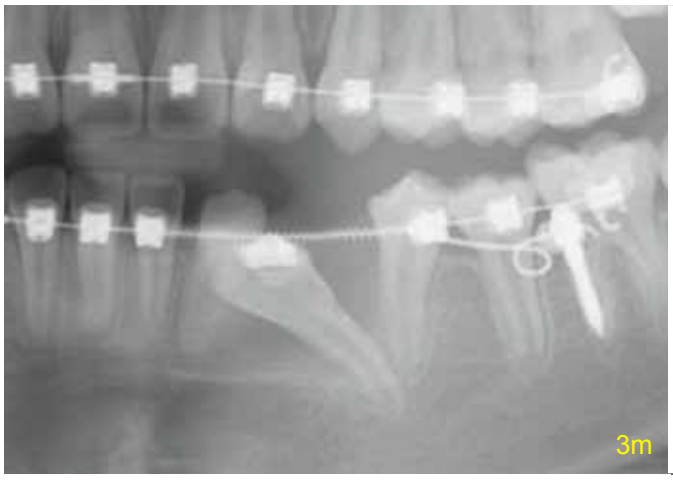


Sublingual trans-alveolar impacted cuspids 10

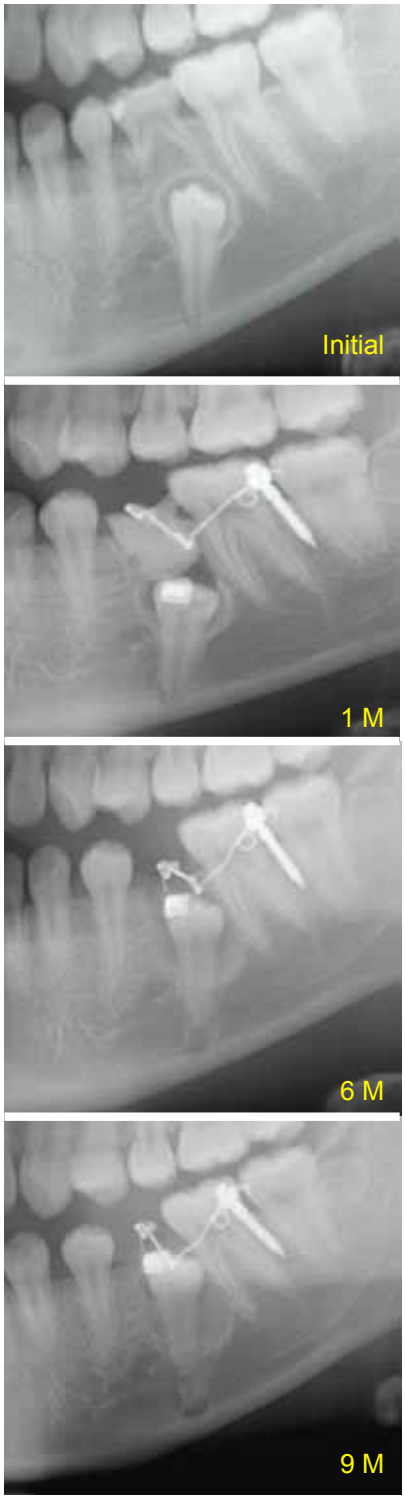


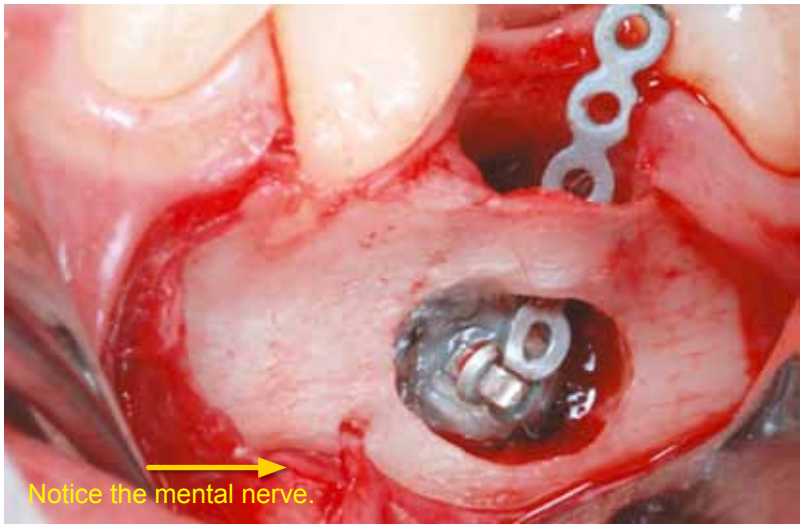
2nd surgery

labial and lingual side to avoid cutting the mental nerve and sublingual artery. This safety consideration led to a restricted bonding position of the eyelet on the surface of the root. After 2 months from operation, the horizontal impacted canine was upright successfully, and the 2nd exposure surgery was aimed to change the position of the eyelet to the crown. By adjusting the lever arm, the tip of the impacted canine was shown up in the oral cavity 2 months later.



Lower impacted premolar 11





A 13-year old female had a lower impacted 2nd premolar, approximately 10 mm deep on the left side. The treatment plan was to extract the 2nd primary molar and pull out the 2nd premolar. During the treatment, the 2nd primary molar was first extracted, followed by bonding an eyelet bracket on the surgically exposed 2nd premolar. Meanwhile, the bone surrounding the crown of the second premolar was reduced until reaching CEJ and a lateral window was made for bracket bonding. An eyelet bracket was bonded on the buccal surface of the deeply impacted second premolar. The OBS was inserted on the left buccal shelf area. A power-chain was attached between a 3D lever arm and the eyelet bracket to extrude the second premolar. This 0.017 x 0.025-inch TMA lever arm was consisted of 3 helical coils: one in the middle, two in both ends. When this lever arm was inserted in the square hole of the OBS and activated, it would form a force system which extruded the second premolar directly.

Lower impacted molar 12

A 19-year-and-10-month-old male had lower impacted second and third molars on the right side. The treatment plan was to extract the 3rd molar and upright the 2nd molar. During the treatment, the third molar was first extracted, followed by exposing the second molar surgically. Meanwhile, the bone surrounding the crown of the second molar was removed to CEJ and the second molar was surgically luxated by an elevator. A button was bonded on the distal surface of the second molar. The OBS was inserted on the right ramus of the mandible. An elastic chain was attached between the OBS and the button to upright the second molar. In 4 months, the second molar was uplifted successfully. Finally, a molar tube was bonded for advanced alignment and leveling. An open coil spring was inserted between 1st and 2nd molars to push and upright the 2nd molar.

More Applications of OBS

Molar intrusion 13

In this case the treatment plan was to use orthodontic treatment to intrude lower molars for subsequent implant therapy. However, it was very difficult to intrude the lower 1st molar in the absence of antagonist. Moreover, although a buccal miniscrew can provide an unilaterally intrusive force, it can also cause the 1st molar tipping buccally. Therefore, an OBS was placed in the upper missing area with its head covered by GIC. As such, an antagonist was created to provide an intrusive force when biting. In this way a lower molar intrusion was soon to be achieved.

More Applications of OBS

Molar intrusion 14

In this case the patient lost the upper right molars. The treatment plan indicated orthodontic treatment to level the lower molars followed by implant therapy. However, the absence of teeth over a long period of time had caused the upper sinus pneumatization. Furthermore, supraeruption of the mandibular molars had left little space for implant placement. Hence, intrusion of the mandibular molars was indicated. The primary concerns included 1. lack of antagonistic force 2. difficulty in simultaneous miniscrew placements on both buccal and lingual side. Considering the objectives of current orthodontic treatment and future implant therapy, a lateral window opening was performed for sinus lifting and bone graft placement. Five months later an OBS was placed with its head covered by GIC to intrude lower molars. OBS was chosen as a preferred alternative than a more permanent dental implant because the implant site couldn't be determined until the active orthodontic treatment was complete. In the event of loosening it is relatively easy to replace. Therefore. OBS provides an easy temporary solution to this type of ortho-implant combined cases.

貝多芬如何使用矯正植體

張慧男 醫師
貝多芬矯正中心負責人

在貝多芬筆者經常使用矯正螺絲 (OrthoBoneScrew) 來處理以往治療須拔牙或開刀的案例，其中以處理 Impacted cuspid 最具挑戰性，為筆者應用 OBS 時的最愛。處理的祕訣為一 從螺絲之方洞延伸出一條 18x25 SS 的方線，且用兩個 helix 來儲存能量及調整施力方向，稱之為 3D Lever Arm。此外，在 Lever Arm 的前端用 ligature wire 或 elastic chain 來連結阻生虎牙上之 Button 即可。之後每月回診時用 Three jaws 來調整 wire，以加力量及改變施力方向。

貝多芬常用的矯正螺絲 (OrthoBoneScrew) 共三種尺寸。分別為 2×12 mm 無方洞、2×12mm 有方洞 (方洞為 19×25) 及 1.5×8 mm 無方洞。以上皆為不銹鋼材質，其適應時機、尺寸選擇及植體部位如下表：

	Indication	使用頻率	Screw Type	Location
1	Maxillary Retraction	60%	2 × 12mm	IZC
2	Mandibular Retraction	10%	2 × 12mm	Buccal Shelf (BS)
3	Premaxilla Intrusion (Solving Gummy Smile)	10%	1.5 × 8mm	Between upper central & lateral's roots
4	Impacted Cuspid	5%	2 × 12mm w Hole	IZC, BS, Palate
5	Maxilla or Mandible protraction	5%	2 × 12mm	IZC / BS
6	Correcting lingual collapse	3%	2 × 12mm	BS
7	Molar Intrusion	2%	2 × 12mm	Middle of Ridge + GIC
8	Others	5%	2 × 12mm	IZC / BS

以上 OBS 應用的資訊，可參考 International Journal of Orthodontics & Implantology 或 YouTube 示範影片：http://www.youtube.com/user/newtonsa0301?feature=mhsn#g/u。

Clinical Applications of Orthodontic Bone Screws in Beethoven Orthodontic Center

Chris Chang, D.D.S., Ph.D
President, Beethoven Orthodontic Center

The author frequently uses orthodontic bone screws (OrthoBoneScrew®) to treat cases that traditionally require extraction and/or surgery. The most challenging type of cases that require screw anchorage is impacted cuspids. The treatment key is to insert a 18x25 stainless steel square wire through the square hole of a screw and bend it to create two helixes to store moment and adjust force directions, known as a 3D lever arm. In addition, a ligature wire or elastic chains can be applied to connect the button on the impacted cuspid. A three jaw can be used to adjust the wire to increase force or change its direction.

The commonly used OBS (OrthoBoneScrew®) are made by stainless steel and come in three sizes, including 2x12 mm without holes, 2x12 mm with holes (hole size:.19x25) and 1.5x8 mm without holes. The following table describes their application methods, size and site selection.

	Indication	Use of Frequency	Screw Type	Location
1	Maxillary Retraction	60%	2 × 12mm	IZC
2	Mandibular Retraction	10%	2 × 12mm	Buccal Shelf (BS)
3	Premaxilla Intrusion (Solving Gummy Smile)	10%	1.5 × 8mm	Between upper central & lateral's roots
4	Impacted Cuspid	5%	2 × 12mm w Hole	IZC, BS, Palate
5	Maxilla or Mandible protraction	5%	2 × 12mm	IZC / BS
6	Correcting lingual collapse	3%	2 × 12mm	BS
7	Molar Intrusion	2%	2 × 12mm	Middle of Ridge + GIC
8	Others	5%	2 × 12mm	IZC / BS

For more information on OBS applications, please refer to ***International Journal of Orthodontics and Implantology*** or visit youtube and type in ***newtonsa0301*** to find a series of demonstration videos. For direct link, go to **http://www.youtube.com/user/newtonsa0301?feature=mhsn#g/u.**

TAD-assisted Full Arch Maxillary Intrusion During Growth

Non Surgical Correction of Excessive Gingival Display

This 14 year old 4 month old female presents with a chief complaint of excessive gingival display. She has not yet experienced the onset of menstruation. She presents with no significant medical or dental history affecting treatment planning and no complicating factors associated with the periodontium or oral tissues.

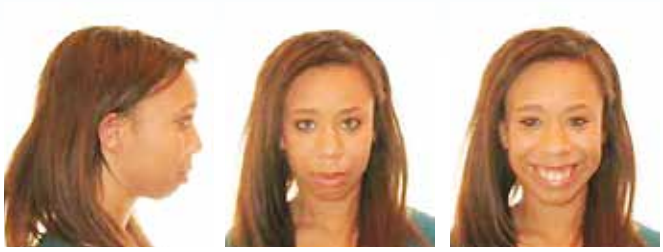


Fig 1. Pretreatment facial photographs

ETIOLOGY AND DIAGNOSIS

Pretreatment facial photographs (*Fig. 1*) show a convex profile bimaxillary protrusion. The patient displays 8 mm of gingiva upon smiling. The lip profile is protrusive relative to the E-line, but she is not lip incompetent. Pretreatment Intraoral photographs (*Fig. 2*) show class I molar and canine relationships with normal overbite and overjet, moderate crowding in the lower arch and mile crowding in the upper arch. Cephalometric analysis (*Fig. 3*) shows a class II skeletal relationship ANB =8, hypodivergent mandible SN-MP =44 and lower incisors that are inclined 102 degrees to Mn plane. The patient's chief complaint: "*Can you make it so that I don't look like a horse?*"

Fig 2. Pretreatment intraoral photographs

Fig 3. Posttreatment facial photographs

TREATMENT OBJECTIVES

The overall treatment objectives were to level, align and develop the arches. Maintain Class I dental relationships, ideal overbite, overjet and smile arc. Intrude the maxillary dentition and modify vertical growth of the maxilla in order to reduce gingival display such that the smile line is coincident with the gingival margin.

The specific treatment objectives were:

- Maintain the AP position of the maxilla
- Restrain vertical growth of the maxilla
- Correct high smile line and excessive gingival display
- Improve vermillion display of the upper lip

John Pobanz D.D.S., M.S.
Diplomate, American Board of Orthodontics

- Maintain class I molar/canine relationships, ideal overbite and overjet
- Encourage autorotation of the mandible
- Maintain lip competence
- Accept facial convexity and a protrusive lip profile

TREATMENT ALTERNATIVES

A surgical correction of the high smile line was discussed but rejected by the family due to cost and lack of medical insurance coverage. The alternative of extraction treatment to reduce the protrusive lip profile was explored. The family chose to maintain the existing lip profile and pursue a nonextraction treatment plan. Family ethnicity and lip competence despite bimaxillary dentoalveolar protrusion were the driving forces behind this decision. The following treatment plan was created to achieve treatment objectives and satisfy patient preferences:

(*1*) Level and align both arches nonextraction.

(*2*) Intrusion of the maxillary dentition and modification of vertical maxillary growth achieved with skeletal anchorage.

TREATMENT PROGRESS

Damon standard torque .022 appliances were placed in both arches. Routine leveling and alignment was achieved with a standard arch wire sequence to 19x25 ss requiring 6 months of treatment time. A soldered transpalatal arch was placed with 6 mm of clearance relative to the palatal tissue and an acrylic button to provide comfort for the tongue and encourage additional intrusive forces by the tongue upon the maxillary dentition. (*Fig. 4*) 6 mm vector tads were placed at the mucogingival junction in the buccal vestibule between the upper central and lateral incisor roots and 8 mm vector tads between the roots of the upper second bicuspids and molars.

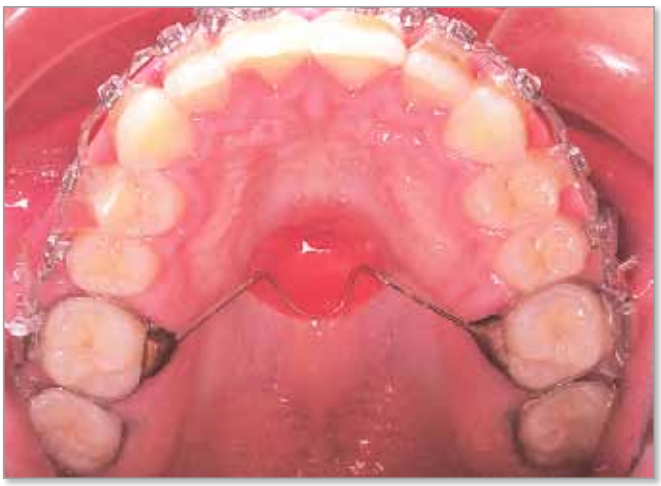


Fig 4. Occlusal Upper Progress 3.18.09

Intrusive forces were applied to the posterior segments with 250 gm Niti coil springs between between the upper first molars and second bicuspids. Smaller intrusive forces of 150 gms each were applied to the arch wire between the maxillary central and lateral incisors so as to maximize molar intrusion and autoration of the mandible while simultaneously reducing gingival display. The intrusive forces were applied for a total of 14 months. During the course of treatment the upper

right posterior TAD failed twice as well as the upper right anterior TAD once due to root collisions during intrusion. The TAD was then removed and final detailing of the posterior occlusion, anterior root torque, ideal overbite and overtjet relationships were achieved with 19x25 TMA and light interarch elastics for an overall treatment time of 24 months. Some gingival countouring was performed with a diode laser to maximize enamel display and establish pleasing gingival margin symmetry. Osseous crown lengthening was not necessary as reported by others[1]. Bonded wire retainers were placed and night time essix retainers were delivered.

TREATMENT RESULTS

The cephalometric analysis and superimposition of before and after treatment tracings show a significant dental-alveolar intrusion of the entire upper arch as well as a restraint of downward and forward growth of the maxilla coupled with a mandibular forward autorotation. (*Fig. 5*) A pleasing display of first and second bicuspids was achieved in the buccal corridors. Class I molar and canine and ideal overjet and smile arc relationships were maintained. Maxillary gingival display was reduced such that a pleasing smile line was achieved with the upper lip being just above the gingival margin of the maxillary incisors. Vermillion display of the upper lip was improved with remodeling of the anterior alveolus. Overbite is ideal and crowding is resolved while maintaining lip competence. (*Figs. 6,7*)The outcome was pleasing to the patient, patient's family and to the clinician. It was significant to note that this patient experienced the onset of menstruation at the 13 month mark of the overall 24 month treatment time. Significant growth modification of the maxilla was achieved with skeletal anchorage and accounted for approximately 40% of the correction of vertical maxillary excess. Facial convexity was accepted. However, the patient is considering advancement genioplasty. Failures of TADs occurred in this case

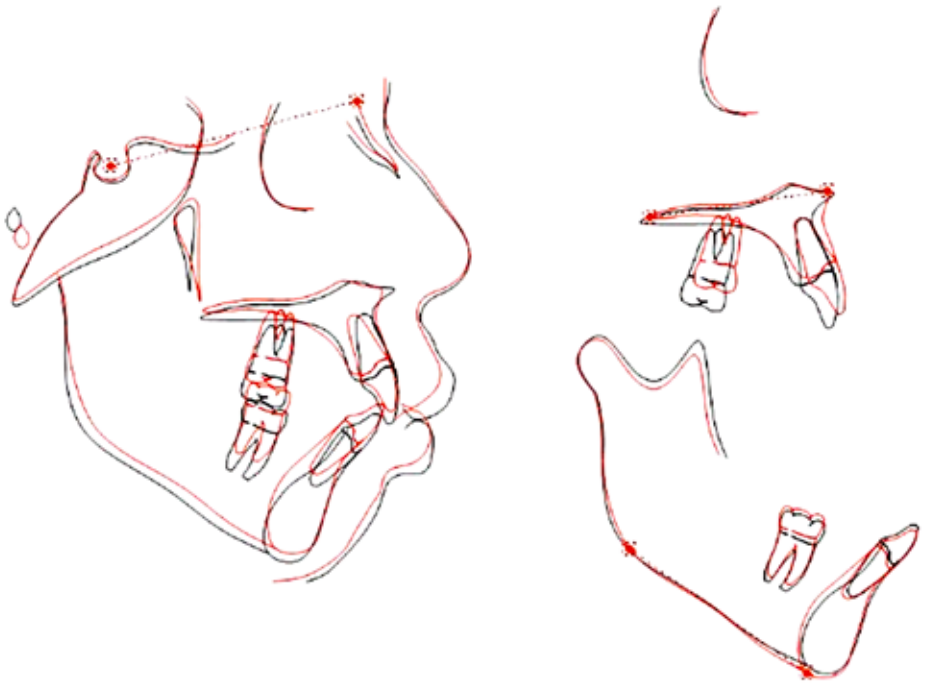


Fig 5. Superimposed tracings

due to root proximity during dental intrusion, especially in the posterior where limited inter-radicular space was present. An updated treatment protocol would include use of an alternative TAD placement site such as the midpalatal suture to reduce the chance of posterior TAD failure due to root proximity. Creating root divergence prior to TAD placement and intrusion could reduce the chance of anterior TAD failure. In conclusion, this case demonstrates the profound and exciting application of skeletal anchorage to modify growth of the maxilla in the vertical plane of space, reduce gingival display while maintaining ideal occlusal relationships.

Fig 6. Posttreatment intraoral photographs

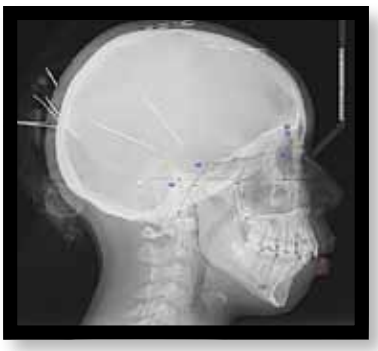


Fig 7. tracing with black values

REFERENCE

1. Bowman et al. Journal of Clinical Orthodontics, May 2009.

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Principles of Abutment Selection for the Single Implant (Part II)

Dr. Baldwin W Marchack

Dr. Baldwin W Marchack
Instructor,
USC Implant Training Program
in Taiwan

圖一是 Dr. Baldwin 在選擇 abutment 的流程圖，也是此次演講的精髓。

在前牙單顆缺牙情況下，支台齒 (abutment) 的選擇一樣有兩種：screw retained restoration 以及 cement retained restoration。

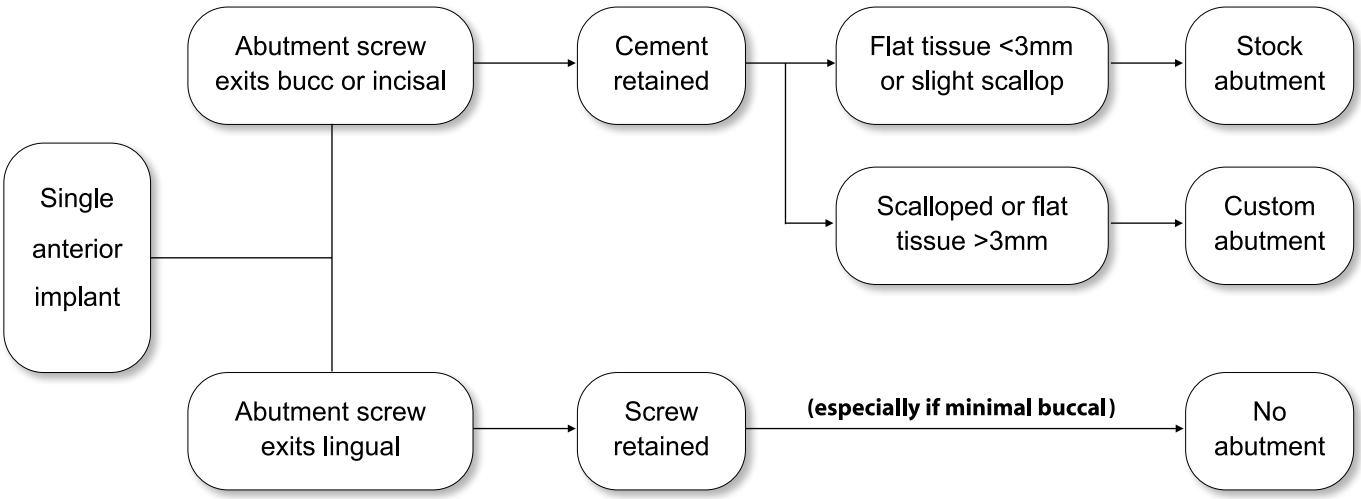
常用的 cement-retained restoration 也有兩種選擇：

一個是用 stock abutment (市售現成的)。

另一種是用 custom abutment。而最簡單也最常使用的 cement-retained restorations 成功的要件是：Access to the cement margins。也就是要能將 cement 清乾淨。

Astra 的 Atlantis (cad-cam abutment) 銷售經理 Mr. Fred Senne 曾說過：… ultimately all stock abutments are a compromise…default setting of 1mm on buccal, 0.75mm on mesial and distal, and 0.5mm on lingual。由於市售現

Anterior Abutment Decision Tree



■ 圖一

劉芳燕 醫師
美齊牙醫診所
貝多芬矯正課程暨植牙論壇講師

成的 abutment 的 margin 無法符合每顆牙齒的需求。因此各廠牌都有 custom abutment 可供選擇。

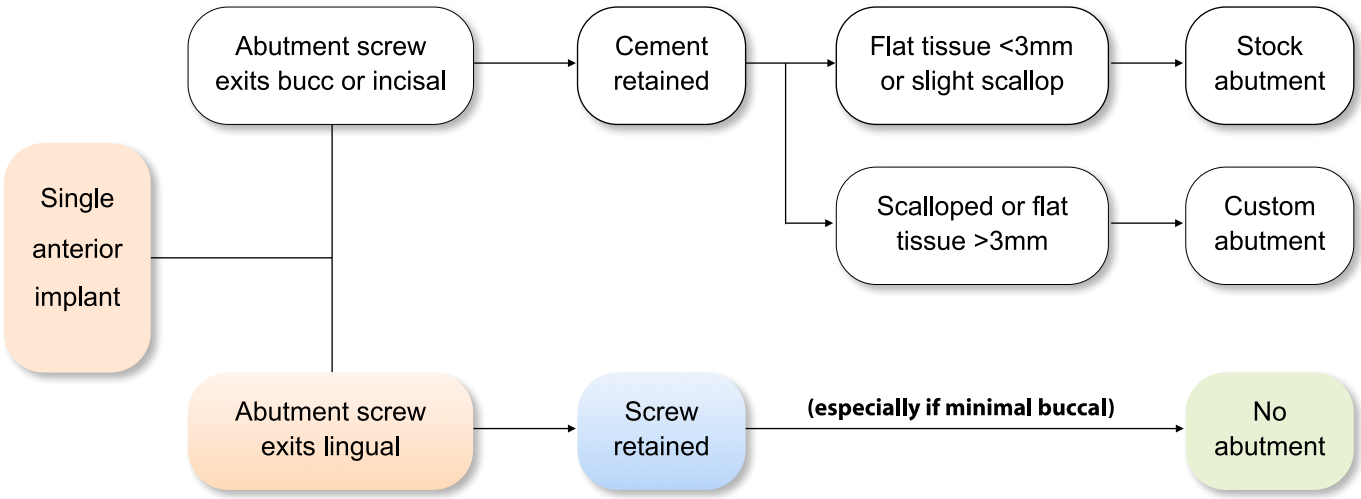
這種 computerized abutment 將 cement margin 設定在 gingival margin 以下：buccal side 1mm，mesial 和 distal 0.75mm，lingual side 0.5mm，這是他們認為 cement margin 的最佳位置，以利 cement 的清除。

所以前牙的植體補綴物有三種方式來贗復：

1. 將假牙黏在 stock abutment 上。
2. 將假牙黏在 custom abutment 上。
3. No-abutment 也就是 screw retained crown。

如圖二所示：前牙 abutment 選擇也像後牙一樣有個 decision tree。最大的不同也就是一開始時我們就要先看 access of screw hole 的位置。如果 screw hole 從 buccal side 或是 incisal edge 出來。就不能選擇 screw retained abutment，一定要選擇 cemented abutment。

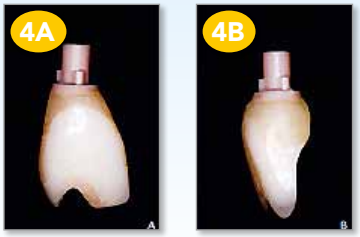
Anterior Abutment Decision Tree



■ 圖二

Temporary plastic abutment adjusted to required height and screwed in place using guide pin.

Provisional crown shell loaded with composite resin and placed interaorally.



A, Frontal and B, proximal views of natural emergence developed using light polymerized composite resin.

A. Crown and attached abutment removed for extraoral modifcation.
B. Composite resin added extraorally to create appropriate emergence profile.

Immediate provisional crown in place 1 week postoperatively.

■ 圖三之 1-5

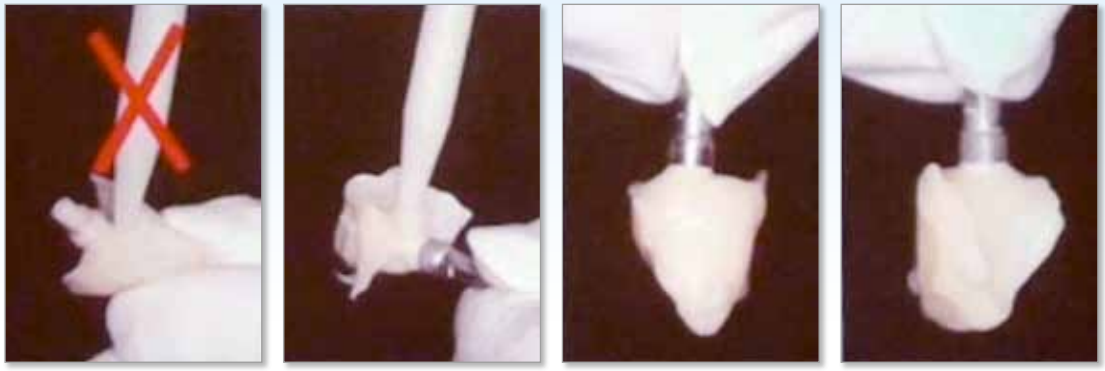
■ 圖四之 1-3

如果你想做成 screw retained abutment。就要先跟 surgeon 溝通好，讓 screw hole 從 palatal side 出來。這樣才有機會做成 screw retainted abutment。另外一種可能是，如果 patient 的 buccal tissue 很薄的話，選擇 screw retained restoration 可能會比較好。

一旦病人做 secondary stage 手術後，就可以用 provisional crown 來塑型軟組織[1]。尤其在前牙美觀區尤為重要。先用一個 plastic temporary abutment 鎖在 implant 上，再用 temporal shell crown 用 resin 來 reline temporary abutment (圖三之 1-5)。再將 screw 轉開取下 abutment。然後在 abutment 的齒頸部添加更多的 resin 以做出漂亮的外型。才能足以支撐漂亮的 papille。

另一個 case 是：surgeon 將一個剛做完 secondary stage，已鎖上 healing abutment 的病人轉給 Dr. Baldwin。

1. Preservation of soft tissue contours with immediate screw-retained provisional implant crown Saad A. Al-Harbi, BDS, MSci, and Wendell A. Edgin, DDS. The J of Prosthet Dent 2007; 98:329-332



■ 圖五

■ 圖六

■ 圖七

■ 圖八

因為一時無法有剛好的 shell crown 可用。因此，Dr. Baldwin 就在左右鄰牙用一點蜡將倒凹補上。再將 temporal abutment 鎖在 implant 上。然後再用做 provisional crown 的 resin 補在缺牙區，也就是 temporal abutment 上 (圖四之 1-3)。

等 resin 固化後將其取出並在齒頸部倒凹處補上 resin。Dr. Baldwin 特別提醒在補倒凹處的 resin 時，必須將 abutment 接上 analog，不能沒有保護接 implant 的 screw。不然 resin 會跑到 abutment 的 screw 上，就接不上 implant 了 (圖五)。

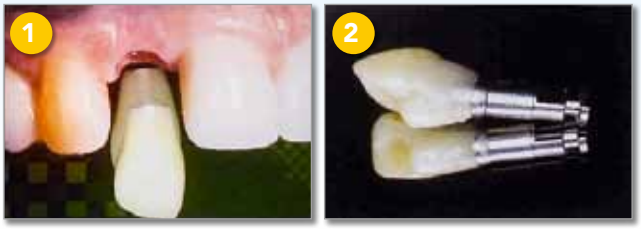
修好 provisional crown 的外型後，再 polish 或是塗上 surface coat 用 curing oven 來 curing 五分鐘，一樣可以獲得光滑的表面 (圖六)。之後就可以鎖上 temporary abutment 了。

三到四周之後軟組織已塑型完畢就可以取模了 (圖七)。但是要如何取出完整的軟組織模型讓 Lab 製作假牙呢 (圖八) ？[2]利用原先的 provisional crown 接上 analog (或是 replica) 後包埋在調好的印模材中露出一半的牙冠 (圖九之 1-2、圖十之 1-2)。等印模材固化後再將 provisional crown 轉出留下 analog。

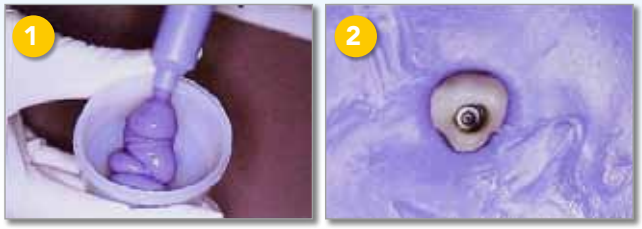
印模材上就會留有牙齦的形狀 (圖十一之 1-2)。 再接上印模用的 impression coping，再擠一些 resin 進去 impression coping 與印模材之間的空隙中固化後取出 (圖十二之 1-2)，就有一個和我們用來塑型軟組織的 temporary crown 一樣的 customized impression copping 了 (圖十三之 1-2、圖十四之 1-2)。

再將這個特製的 impression coping 放回病人的 implant 上，以一般的取模過程來取模 (圖十五 1-2)，就可以取出確實的軟組織外型。(圖十六) 在 Lab 裡就可以精確的做出符合塑型出的軟組織外型的假牙了 (圖十七) 在 Zirconia abutment 上直接燒結 porcelain 作 screw retained restoration。

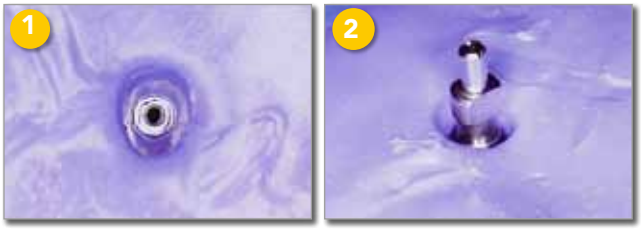
2. Custom impression coping for an exact registration of the healed tissue in the esthetic implant restoration Kenneth F. Hinds, DDS. Int J Periodont Rest Dent 1997;17:585-591



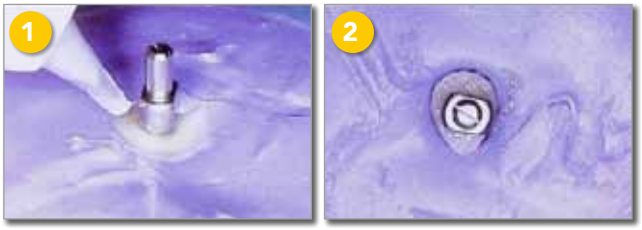
■ 圖九之 1-2



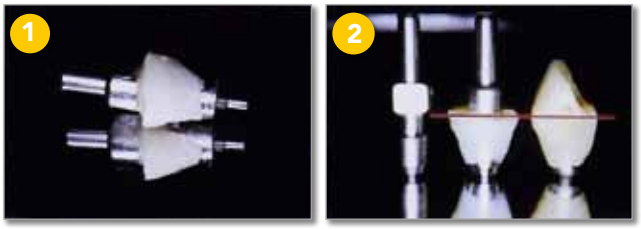
■ 圖十之 1-2



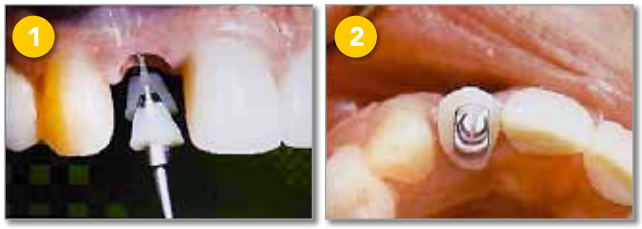
■ 圖十一之 1-2



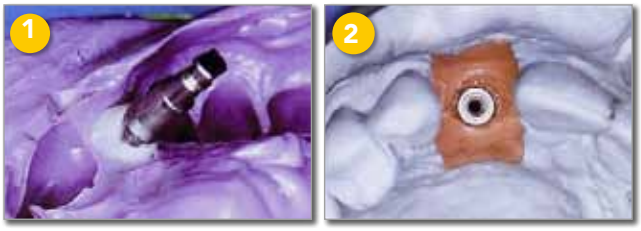
■ 圖十二之 1-2



■ 圖十三之 1-2



■ 圖十四之 1-2



■ 圖十五之 1-2

■ 圖十六

■ 圖十七

前牙單顆缺牙的 abutment 的選擇，當軟組織深度只有不到 1mm，而且 screw access 位在 lingual site，病人也沒有那麼在意 screw hole 的存在時，Dr. Baldwin 建議此時選用 no separate abutment。

這種 one piece, non-segmented screw-retained restorations 在 Nobel biocare 中有：

1. NobelProcera™ custom abutment (Zirconia)，
2. GoldAdapt™ abutment 可供選擇。

Astra 系統有：

1. Atlantis™ custom abutment (Zirconia)，
2. Castdesign™ abutment (gold)，
3. ZirAbutment™ 可選擇。

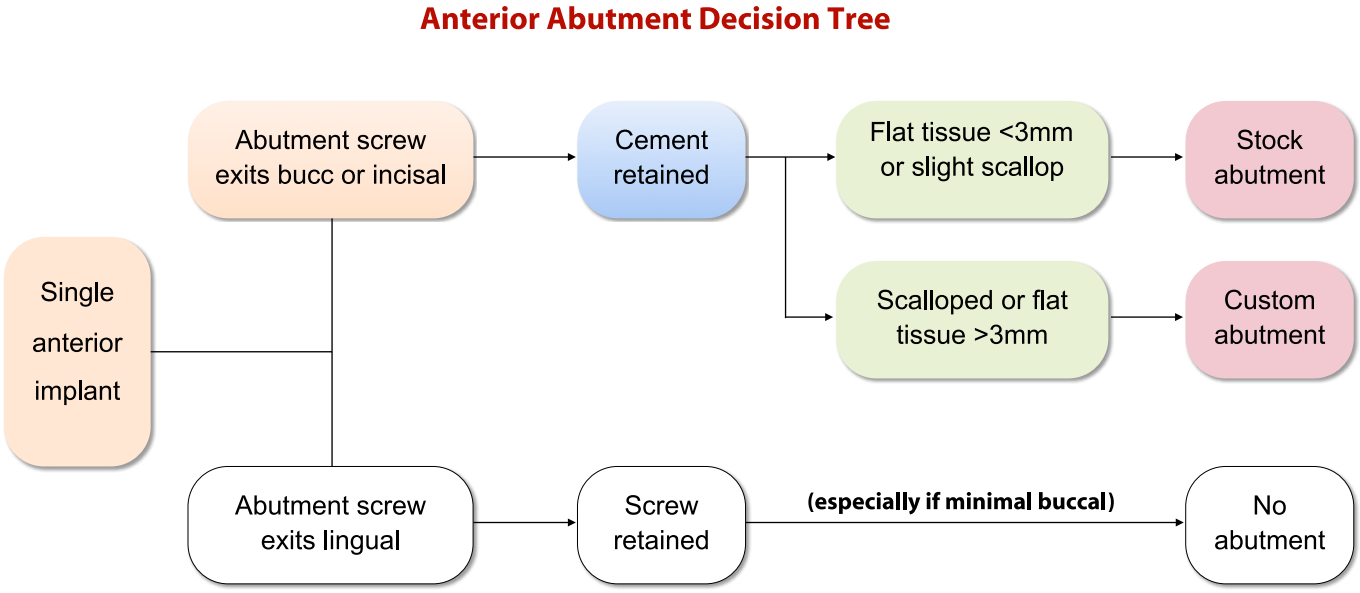
其中的 ZirAbutment 是用一塊很大的 Zirconia，讓醫師自己修出所要的 abutment 的形狀。好處是 coping 比較便宜，缺點是很硬很難修，是一種 semicustomized abutment。

以上是使用 screw retained restoration 的情形。但是，如果 screw hole 從 buccal side 或是 incisal edge 出來就不能選 擇 screw retained restoration 了。當然如果 screw 是從 palatal side 出來，一樣也可選擇使用 cement retained restoration。

在選用 cement retained abutment 時必須注意 Patient 的 soft tissue，是屬於比較平的還是比較弧形的（圖十八）。如果病人是屬於比較平的，選用一般市售的 abutment 即可。

例如：Nobel 的 esthetic abutment（圖十九1) 有不同的角度、collar 高度和材質 (Zirconia or titanium) 可供選擇。如果病人的牙齦很薄又透明，建議選用 Zirconia 比較不會透出金屬的顏色。如果患者的牙肉很厚就可以選擇 titanium。這種 esthtic abutment 就是直接鎖在 implant 上直接取模即可。

Nobel Biocare 有出一種 Procera abutment（圖二十）也是類似的做法，直接選好合適的 abutment 之後就可以做 crown 黏著上去。



■ 圖十八

如果病人的牙齦是比較平，厚的 biotype，可以選用 titanium esthetic abutment (圖十九2)，但是也要小心牙齦有可能透出灰灰的顏色。如何選擇合適的 esthetic abutment ？例如 Nobel Biocares 有出一種 Trial abutment，可用來選擇不同的 esthetic abutment (圖二十一)。

綜合以上所述：如果是前牙 screw access 從 facial or incisal side 出來、牙齦的外型是比較平的、且 head of implant to crest of tissue = <3mm，我們可以選用市售現成的 stock abutment，只不過仍需要 trial & error 去找合適的 abutment 來鎖上，再取模做牙冠 cementation。

Nobel Biocare 所出品的市售現成 single anterior stock abutment 有

1. Esthetic™ abutment (titanium or zirconia)，
2. Procera™ abutment (Titanium or Zirconia)。

Astra 系統所出的 single anterior stock abutment 有：

1. TiDesign™ abutment (Titanium)，
2. ZirDesign™ abutment (Zirconia)。

如果前牙的牙齦很像扇貝形 (scallop) (約佔病人的八、九成)。一般市售現成的 abutment 很難滿足牙齦不同的高度。所以大多使用 custom abutment。

■ 圖十九之 1-2：Nobel's Esthetic abutment

■ 圖二十：Nobel's Procera® esthetic abutment

■ 圖二十一：Trial abutment

案例一：Dr. Baldwin 以一個案例來說明製作的過程：此病患來求診時左上正中門牙的 temporary crown 明顯地比較大（圖二十二）。Dr. Baldwin 先做了矯正將空間重新分配（圖二十三）。

雖然近遠心的距離已經差不多了，但是軟組織的外型左右還是不對稱。所以 Dr. Baldwin 要用 temporary crown，修出合適的近遠心及齒頸部外型（圖二十四）、以 temporary crown 來塑出合適的軟組織形狀（圖二十五）[2,3]。

等軟組織穩定了，我們可以利用類似前面我們用 temporal shell，來複製 impression coping 的方法。Dr. Baldwin 用它來複製整個 provisional crown（圖二十六）。

在複製出來的 provisional crown 上去 prepare 出 abutment 的外型。然後用電腦掃描出來做成 abutment（圖二十七）。

用 abutment 去塑型軟組織。比起之前用 temporary crown 來推軟組織要來得好。將做好的 custom abutment 放在牙齒上後就可以選牙齒的顏色了。

在選牙齒的顏色時可以用不同的 shade guide 來選，最困難的是牙齒切端透明處的顏色。有一種已經停產的 Nobel Biocare 所出的 shade guide 可以特別選出這個地方的顏色（圖二十八、二十九）。

Casting 出來的 custom abutment 在齒頸部的地方不要 glazing（圖三十），這樣組織的 adaptation 會比較好。不管我們用的是什麼 implant 系統，要記得 Zirconia abutment 的 screw 與 titanium abutment screw 是不相同，也不相通用的（圖三十一），因為 titanium abutment 的 screw seat 由機械 milling 出來後整個底是平的，所以 titanium abutment 用的 screw 也會是平的。

而 Zirconia abutment 用的 screw 在頭部下方接觸 abutment 的平台要是圓滑的。如果用 Zirconia abutment screw 來鎖 Titanium abutment 的話，用了 35 牛頓的力量也鎖不緊；如果用了 Titanium abutment screw 來鎖 Zirconia abutment 的結果，是會將 Zirconia abutment 都鎖裂了。

所以在鎖 Zirconia abutment 之前，要反覆的檢查所使用的 screw 是否正確。

總結，如果 screw access 在 facial site，植體的位置深而且為 scalloped 的 tissue contour，建議使用 custom abutment。各家廠牌都有出 custom abutment 可供選擇，例如：Nobel Biocare 的 custom abutment 有：

1. NobelProcera custom abutment (Zirconia)，
2. GoldAdapt abutment。

■ 圖二十二

■ 圖二十三

3. Custom A simplified technique to fabricate a custom milled abutment Christopher B. Marchack, DDS, Frank M.A. Vidjak, DDS, MSEd, and Vivian Futatsuki, DT, J Prosthet Dent 2007;98:416-417

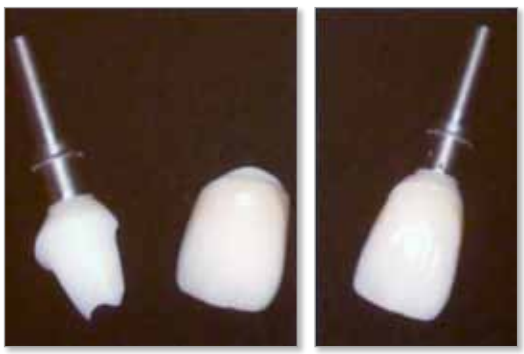
■ 圖二十四

■ 圖二十五

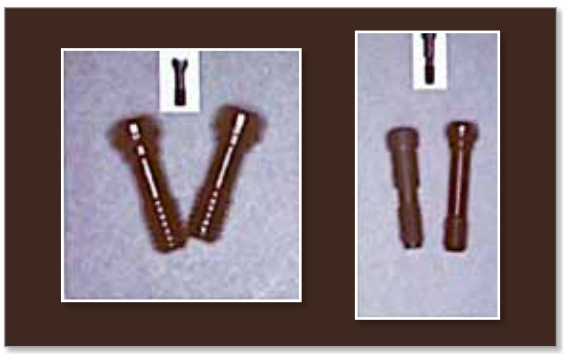
■ 圖二十七

■ 圖二十八

■ 圖二十九



■ 圖三十



■ 圖三十一

Astra 系統有：

1. Atlantis custom abutment (Zirconia)，
2. ZirAbutment，
3. Castdesign abutment。

案例二：一個病患不喜歡之前牙醫師所做的的左上正中門牙（圖三十二），尤其是軟組織的樣子。植體使用 Astra 系統，abutment 是 ZirDesign abutment（屬於 stock abutment）（圖三十三），X-ray 上可以看到 screw 的開口在 incisal edge。

於是 Dr. Baldwin 將 crown 的 screw 開口打開、找到 screw hole、將 abutment 和 crown 一起取下。在 stock abutment 和 crown margin 上，可以看到很多的 cement。也可以看到 crown margin 位在牙齦底下很深的位置（圖三十三），取出 abutment 後，可看到 deep implant positon & scallped tissue contour（圖三十四）。

第一件事是先做一個 wax-up（圖三十五）看如何將軟組織推回原有的位置。再利用 wax-up 出來的形狀在 temporary abutment 上，做一個 provisional crown（圖三十六）。

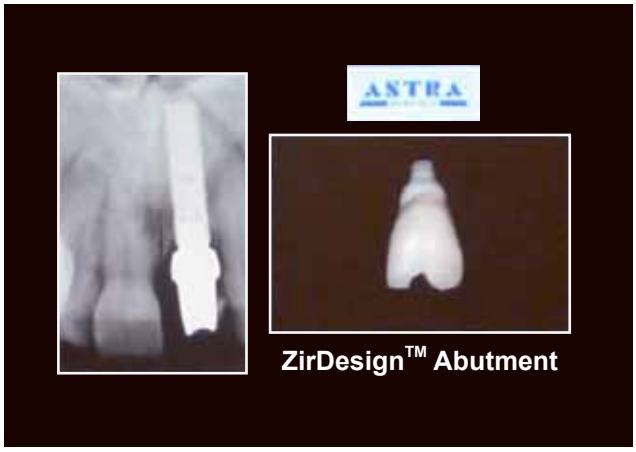
戴上 temporary abutment & provisional crown（圖三十七）後，病人與母親都已經滿意。等到組織已經塑型好一點，就可以做正式的 custom abutment；我們希望軟組織的支撐是由 abutment 來的。

之後再做上 final restoration（圖三十八、三十九）。在 X-ray 的左邊是 stock abutment（圖四十），右邊是 custom abutment。可以看出 crown margin 的高度明顯不同。右邊的 custom abutment 是用 Zirconia 做的，臨床上的組織相容性相當好。

在黏著 crown 的時候先排齦，在 crown 裡面塗上 cement 後，要先放在 abutment，拿上拿下確定所有的 cement 都均勻分布後，用手指的力量推上去，趁還沒有 setting 之前將 cement 清除乾淨，再將排齦線取出。再次確定沒有 cement 殘留，才算大功告成。

總結，上述的重點整理成下面的樹狀圖：先決定 screw hole 的位置，再考慮患者牙齦組織的形狀、厚薄，就可以決定要使用的 abutment 了（圖一）。

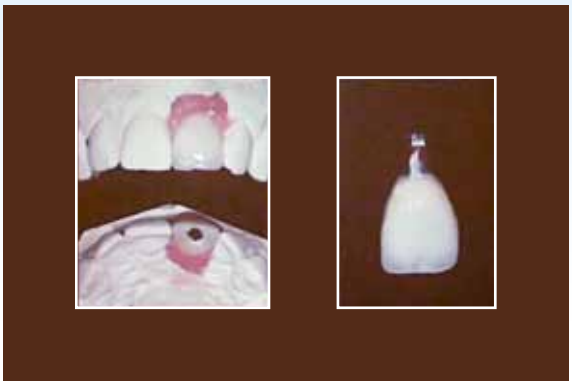
圖三十二：
P't was discomfort with her #21 implant prosthesis.



圖三十三：Crown remove

圖三十四：Soft tissue contour

■ 圖三十五：Wax up



■ 圖三十六：Provisional crown

■ 圖三十七：Provisional crown delivery

■ 圖三十八：Custom abutment delivery

■ 圖三十九：Post-tx. photo

■ 圖四十：Pre- and Post-tx. PA film

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10/02, 2011 ……(日 | 視訊教學)
11/20 - 11/21, 2011 ……(日、一 | 演講與實作 workshop)
12/11, 2011 ……(日 | 視訊教學)
01/25, 2012 ……(三 | 美國可選修的 cadaver workshop)
01/26, 2012 ……(四 | 美國可選修的 cadaver workshop)
01/27 - 01/28, 2012 ……(五、六 | 美國演講)
01/29, 2012 ……(日 | 美國可選修的 cadaver workshop)
01/30, 2012 ……(一 | 美國演講，畢業典禮)

地　點： 集思交通部國際會議中心。台北市中正區杭州南路一段二十四號。(2011 年 7 月到 12 月)
Wilshire Grand Hotel. 930 Wilshire Blvd., Los Angeles, CA 90017. (2012 年 1 月)

報名費 :

台北和美國課程 (包含 USC 牙醫學院發出的培訓證書)
- 6/1/11 前報名 : 美金 $8,500
- 6/1/11 後報名 : 美金 $9,000

台 北 課 程 (不含 USC 牙醫學院發出的培訓證書)
- 6/1/11 前報名 : 美金 $5,950
- 6/1/11 後報名 : 美金 $6,450

可選修的 CadaverWorkshops on Bone and Soft Tissue Grafting 課程 (不含 USC 牙醫學院發出的培訓證書)
- 9/1/11 前報名 : 美金 $1,115
- 11/1/11 前報名 : 每一堂課美金 $1,395
- 11/1/11 後報名 : 每一堂課美金 $1,595

南加大講員陣容

Homa Zadeh ⋆ Avishai Sadan ⋆ Baldwin Marchack ⋆ Casey Chen ⋆ Domenico Cascione
Ilan Rotstein ⋆ Yang Chai ⋆ Songtao Shi ⋆ Parish Sedghizadeh ⋆ Ramin Mahallati

演講嘉賓： *Stephen Wallace ⋆ Lyndon Cooper ⋆ Fernando Rojas-Vizcaya ⋆ Clark Stanford*

• 欲知詳情，請與以下單位聯絡 •

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E-mail : julie.chen@usc.edu　Web : www.uscdentalce.org
Tel : +1-213-821-5281　Fax : (07) 615-0913

金牛頓藝術科技　聯絡人 : 黃思涵
Email : thhuang@newtonsa.com.tw
Tel : (03) 573-5676

Principles of Abutment Selection for the Single Implant (Part III):

Diagnosis and Treatment Planning Exercises

Dr. Baldwin W Marchack

Dr. Baldwin W Marchack
Instructor,
USC Implant Training Program
in Taiwan

以下 Dr. Baldwin 利用幾個案例來讓我們做練習，如果是你，你會選用哪種 abutment?

Question 1：

Case 1：(圖一) 左下正中門牙。由於 surgeon 只用了 punch technique 而沒有 healing abutment (圖二)。Dr. Baldwin 需要馬上做一個 provisional crown 去塑型軟組織 (圖三)。鎖上了臨時假牙 (圖四) 後用 resin 填滿 screw hole。一個月後 (圖五) 回診將臨時假牙取出用牙周探針測量軟組織高度發現：近心面約有 7 mm。舌側約有 4.5 mm (圖六、七) 遠心面約有 7 mm。

■ 圖一

■ 圖二：punch tissue

■ 圖三

■ 圖四：provisional abutment

■ 圖五：1 month later f/u

劉芳燕 醫師
美齊牙醫診所
貝多芬矯正課程暨植牙論壇講師

■ 圖六

■ 圖七

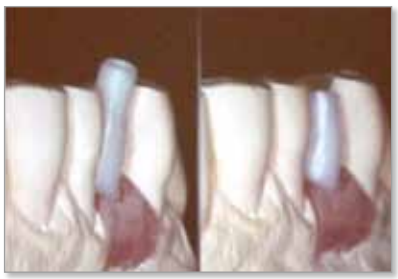
此時可選用何種 abutment ？（圖八）

1. stock abutment（標準支台）？
2. custom abutment（個性化支台）？
3. no abutment（沒有支台 - 螺絲固位）？

■ 圖八

■ 圖九

■ 圖十



■ 圖十一

■ 圖十二

■ 圖十三

Answer 1:

Custom abutment。

取模之後做了一個 custom abutment (圖九)、abutment tryin 發現軟組織太深了 (圖十左)，於是重新做了右邊的 abutment 將 margin 提高外，也將型態往外撐，增加軟組織的 contour (圖十右、十一)。最後用 35 牛頓的力量鎖上 abutment (圖十二)，再裝上 restoration (圖十三)。

Question 2：

Case 2 (圖十四)：其他診所轉診來的患者的左上犬齒需要 restoration。Dr. Baldwin 將原本的 temporary 取下發現 (圖十五)：

■ 圖十四

■ 圖十五：What kind of abutment should we use?

- tissue architecture = scalloped
- implant location = ideal
- screw access = lingual
- height of tissue < 1mm on buccal

此時可選用何種 abutment ？

1. stock abutment (標準支台) ？
2. custom abutment (個性化支台) ？
3. no abutment (沒有支台 - 螺絲固位) ？

■ 圖十六

■ 圖十七

■ 圖十八

■ 圖十九

■ 圖二十

Answer 2：

此時可選用何種 abutment ？ Screw retained abutment。

Dr. Baldwin 利用 provisional shell 做了一個 impression coping (圖十六)。利用 impression coping 來取模 (圖十七) 做出 Zirconia abutment。

放上 implant 後發現與鄰牙的空隙不足以放上 crown (圖十八)，所以就在 abutment 上直接燒瓷 (圖十九)，做成 screw retained restoration。

在 screw hole 裡放在一個小棉球，再放在 impression material，最後再放上 composite resin，頰側面外觀 (圖二十)。

Question 3：

Case 3：患者的右上正中門牙補綴物太寬 (圖二十一)。是一顆 immediate loading implant 的 provisional crown。但患者決定左上正中門牙要做 Veneer。

■ 圖二十一

■ 圖二十二：What kind of abutment should we use?

等骨整合後將 provisional restoration 取下。病患的軟組織外觀 (圖二十二)：

- Tissue architecture = scalloped
- Screw access = incisal
- Height of tissue: 2mm buccal, 4 palatal, 5mm distal, 7mm mesial.

■ 圖二十三

■ 圖二十四

■ 圖二十五

此時可選用何種 abutment ？

1. stock abutment (標準支台) ？

2. custom abutment (個性化支台) ？

3. no abutment (沒有支台 - 螺絲固位) ？

■ 圖二十六

Answer 3：

此時可選用何種 abutment ？ Custom abutment。

植體 #11 選擇 customized zirconium abutment，scan #21 的 veneer preparation 以及 #11 的 abutment (圖二十三)，最後製作出 #21 的 veneer 以及 #11 的 crown (圖二十四)，圖二十五為術後正面照。

Question 4：

患者的右上正中門牙的植體需要 restoration (Nobel active) (圖二十六)：

■ 圖二十七 a

■ 圖二十七 b

■ 圖二十七 c

■ 圖二十八

■ 圖二十九

- tissue architecture = scalloped
- implant location = ideal
- screw access = lingual
- height of tissue = Deep (圖二十七 a, b, c)
- Deep overbite (圖二十八)

此時可選用何種 abutment ？

1. stock abutment (標準支台) ？
2. custom abutment (個性化支台) ？
3. no abutment (沒有支台 - 螺絲固位) ？

Answer 4：

此時可選用何種 abutment ？ Screw retained abutment。

因為沒有太多的空間可以做 restoration，否則 abutment 會很薄、短。所以只能用 screw retained abutment (圖二十九、三十 a, b, c, d) 。

■ 圖三十 a

■ 圖三十 b

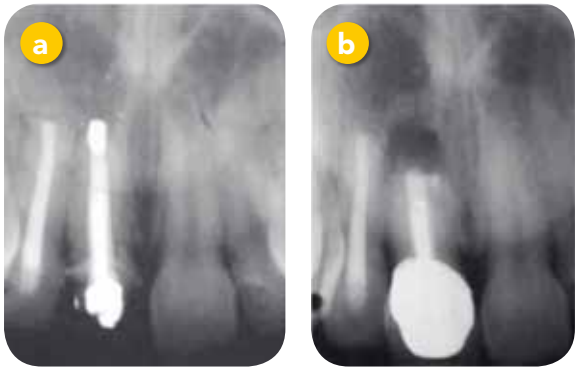
■ 圖三十 c

■ 圖三十 d

Question 5：

Case 5：患者的右上正中門牙因為幾次的 apical surgery 後再復發（圖三十一 a, b、圖三十二），最後決定拔除，使用植牙的方式作贋復。

植牙前先進行補骨手術（圖三十三、三十四），之後進行植牙第一階段手術（圖三十五 a) 以及術後的情形（圖三十五 b)。

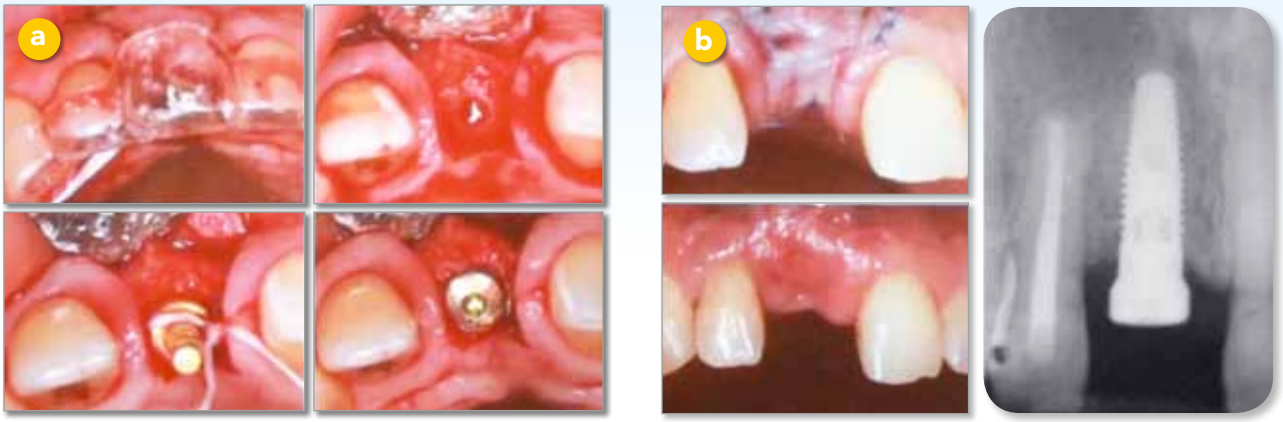


■ 圖三十一

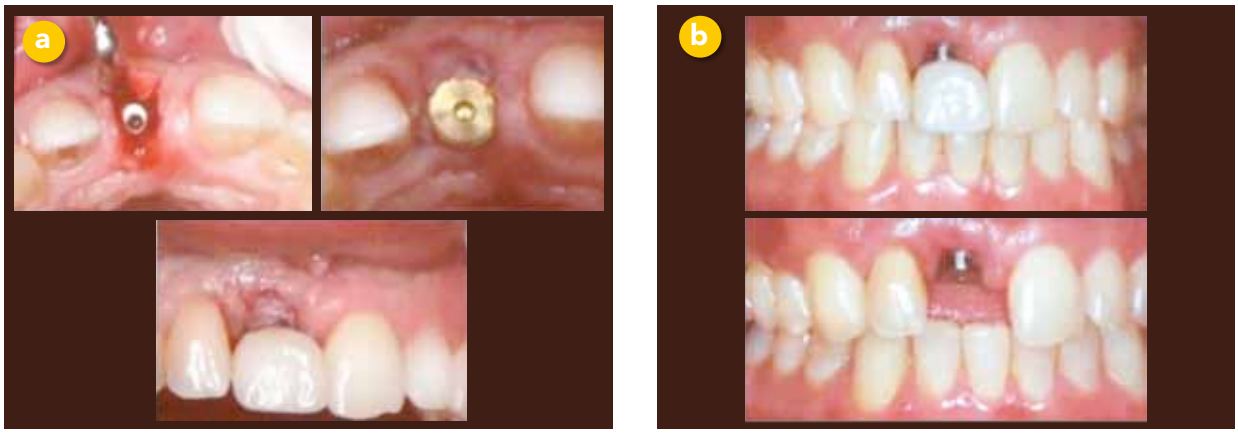
■ 圖三十二

■ 圖三十三

■ 圖三十四：GBR



■ 圖三十五：Implant placement



■ 圖三十六：2nd stage, healing abutment placement

■ 圖三十七

第二階段手術（圖三十六 a）及術後情形（圖三十六 b），等軟組織穩定之後轉回 Dr. Baldwin 進行後續的補綴，此時可選用何種 abutment ？

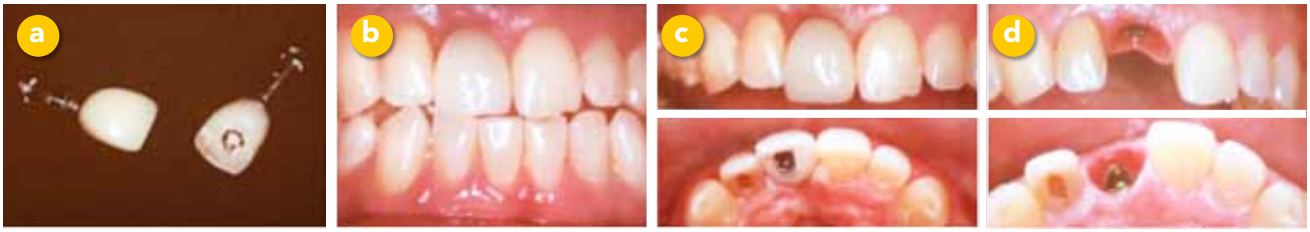
1. stock abutment（標準支台）？
2. custom abutment（個性化支台）？
3. no abutment（沒有支台 - 螺絲固位）？（圖三十七）

Answer 5：

此時可選用何種 abutment ？ Custom abutment or screw abutment。

大部分的人會選 custom abutment。但是因為這個病人對假牙在形態上和色澤上有非常多的要求，因此 Dr. Baldwin 選用了 screw abutment 將來方便拆卸修改以及修改後再 glazing 這個 restoration。

首先製作 provisional crown 並壓出想要的 soft tissue contour（圖三十八 a, b, c, d），等待組織穩定後，scan 製作出 screw retained abutment（圖三十九），然後在 core 外燒上瓷並試戴讓患者看看形態是否滿意（圖四十、四十一），經過了幾次來回的調整，等至滿意後再固定（圖四十二）。



■ 圖三十八：Provisional phase

■ 圖三十九：Screw retained abutment

■ 圖四十：燒瓷完成補綴物

■ 圖四十一：試戴

■ 圖四十二：治療後正面觀

2011 植有為你 競爭力升級

「南台灣牙醫植體醫學會/中華民國臨床植牙醫學會 聯合大會」

寶貴經驗現場分享，獨門心法當面傳授！

力邀MINEC-UCLA教育長Dr.Kwang Bum Park、南台灣牙醫植體醫學會理事長黃啟洲醫師、台灣臨床植牙首席講師歐亦焜醫師，以及齒顎矯正講師張慧男博士，一起大方分享臨床植牙的應用與特殊案例的研討，
2011年度推薦，機會難得，報名要快！

MINEC-UCLA教育長
Dr. Kwang Bum Park

南台灣牙醫植體醫學會
理事長 黃啟洲 醫師

台灣臨床植牙首席講師
歐亦焜 醫師

台灣齒顎矯正講師
張慧男 博士

時　　間：2011年10月23日08：00～17：30　地點：高雄蓮潭國際會館　會議中心（高雄市左營區崇德路801號）
主辦單位：南台灣牙醫植體醫學會、中華民國臨床植牙醫學會　學分：8學分(免學分費)
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醫師姓名：_____ 診所名稱：_____

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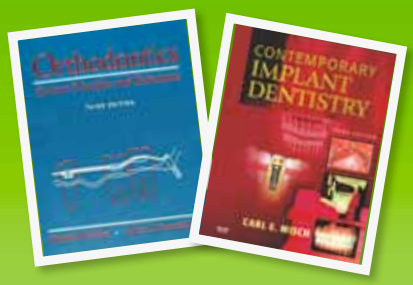
敬邀

當矯正遇上植牙



2011 Newton's A Implant

金牛頓植牙論壇

Implant Technique + DDx + Basic Knowledge

時間：2011年每月底週五 早上9:00-12:00

地點：金牛頓教育中心
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單次2,500元
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現在的牙科治療已經是各科統合彙整的時代，協同矯正、植體、牙周、補綴讓治 療成果臻於完美是我們追求的目標。

邀請您一起迎接「協同性整合」的新牙科時代，讓我們從植體與矯正的對話出 發，透過整合各科精華，締造集美觀、功能於一身的全方位治療。張醫師相信， 儘管課程內容可能相似，但是貝多芬對於資料的呈現方式不一樣！唯有自己消化 吸收後的整理，才是真正屬於自己的難能可貴的經驗，這就是貝多芬精神！

關於植牙論壇的定位與期許:

1. 將目前眾多植牙演講精華，重新整理過在自己的場合報告
2. 提供訓練平台供學員報告自己的case，從中相互學習。
3. 提升助教的演講技巧，培養新講師群。
4. 作為未來植牙專科醫師考試的考前訓練班。

2011 Newton's Implant

	日期 (W5)	09:00 ~ 10: 00		10:20 ~ 11:00		11:10 ~ 12:00
		Lecture Moderator: Chris Chang		Case Analysis (12+8)mins x2		Classic Article Review
1	2/25	實用植牙骨生理學	張慧男 醫師	Case 1	Case 2	ITP chap 10, Stable occlusal scheme
2	3/25	6 個植體補級的製作盲點	廖文堅 醫師	Case 3	Case 4	ITP chap 6, Diagnostic driven IDT planning
3	4/23	矯正與植牙 - 前牙美觀區	黃瓊嫻 醫師	Case 7	Case 8	ITP chap 2, Altering vertical dimension-The orthodontic possibilities
4	5/27	上顎竇增高術面面觀	方鍾鼎 醫師	Case 5	Case 6	ITP chap 8, Approaches to vertical dimension
5	6/24	特別演講 - 植體設計		主講人 林靜毅 醫師		
6	7/29	特別演講 - 前牙植體美學		主講人 溫世政 醫師		
7	8/26	常見植體的錯誤與修正	王肖龍 醫師	Case 9	Case 10	Immediate screw-retained provisional implant crown
8	9/30	特別演講 - 植體的 6 個膺復祕訣		主講人 張光漢 醫師		
9	10/28	特別演講 - 植體贋復中的魔鬼與細節		主講人 彭炯熾 醫師		
10	11/25	前牙美學 - 牙周觀	邱上珍 醫師	Case 11	Case 12	Immediate implants loading-The operative protocols
11	12/30	特別演講 - 全口重建		主講人 歐亦焜 醫師		

邱丕霞醫師

南下高雄開業，迄今已逾十五年時間，邱醫師最感受用的，是她在三十五歲開業之初學會矯 正，在四十六歲還沒得老花眼時學會了植牙。邱醫師坦言，在職進修必然造成壓力，它可能來自於 時間、金錢與家庭，畢竟一天只有二十四小時，但終身學習所創造的成就感與報酬，卻讓她覺得當牙醫「真是好玩」，而且將持續下去，謹此與讀者分享。本文摘錄自2010最新一期《台大牙友》

iAOI

Feedback from the Vista & Sinus Lift Workshop

對於這次的課程，內心著實受到深深地感動！

也就是：

為準備課程的用心及創新感動！

為學習操作的認真及效率感動！

為課後成果的探討及紀錄感動！

這是：

因為張醫師，高老師及蘇醫師用心地設計課程，讓學習的效率達到最高，分分秒秒都紮紮實實地運用。

因為貝多芬團隊一再地演練、探討及改進，讓操作時學員能順利認真地完成學習。

因為貝多芬助理訓練有素，精確地紀錄學員操作成果，並且立即製作成光碟，讓醫師課後可以立即針對當日的操作成果進行討論，同時日後更可作為複習的依據。

所以下次我還要參加，還要再感動一次！

蘇乙洋 醫師
新洋牙醫診所

藉由學長的推薦，參加張慧男醫師所創辦的 Workshop-VISTA & Sinus Lift，張醫師將百家學說化繁為簡並且去蕪存菁的系統性分析，讓我有更深一層體悟，以及花最短的時間內重新學習。

張醫師上午把理論跟臨床結合在一起，下午是有效率地實際操作，並非只是講堂裡形而上學，參加完後更加能活用在牙科治療中。張醫師毫無保留地教授，且期待我們能有效率地盡快學會全部的東西，謝謝張醫師及各位助教無私的指導，以及高老師，助理們和金牛頓團隊的協助。

陳昶愷 醫師
國軍左營總醫院

Hi Chris,

Thank you for the very nice editorial you wrote for NTO 22. I am sure that your kind words are much appreciated by all concerned! Indeed, I am very proud of your many accomplishments, and the excellent progress being demonstrated by your students. One of the most satisfying aspects of my career is watching my former students rise to international prominence. You are rapidly gaining an outstanding reputation and I am very proud!

I am looking forward to receiving the NTO 22 issue. The journal continues to improve with each issue. I am pleased that you chose to withhold publication of Case 2. It was not ready. The reputation of a journal is like a good wine; you must never serve a bad bottle!

I am pleased you are enjoying the Jawbone Wine. It is indeed a lesson in biomechanics to be enjoyed by orthodontists, as well as their family friends and colleagues.

Warm regards,

Gene Roberts

Faculty, Department of Orthodontics,
School of Dentistry Indiana University

Feedback from the International Damon Workshop

Hi, Chris,

Thank you so much for opening your home, your clinic and your heart to us :).

I speak on behalf of Dr. Ha as well, when I say that it really is inspirational talking to you and seeing you practice so effortlessly on difficult and complicated cases. You approach your hobbies the same way as you approach orthodontics- excel, excel excel.. it's true when they say the Master makes everything look easy -you definitely did.

Anyway, just want to say thank you- and I'll definitely be back in a few years time, hopefully bringing some colleagues along as well.

Kind Regards,

Louise

Kaiyi Dental Clinic, Guangzhou, China
Master in Orthodontics (Distinction), Hong Kong University
Bachelor of Dental Surgery (Distinction), London University

貝多芬六大視訊系列課程
Beethoven Orthodontic Podcast Encyclopedia

10 Damon Q. Damon 矯正有聲基礎視訊課程十一大系列： $14,300

Session 1: *Ideal Case and Bracket Boding for beginners*	Session 7: *Retention and Relapse : Secrets of Constant Light Force*
Session 2: *4 stages of Orthodontics*	Session 8: *Case Demo and Analysis (1)*
Session 3: *Fast and Precise Anchorage*	Session 9: *Case Demo and Analysis (2)*
Session 4: *Extraction vs. Non-extraction analysis*	Session 10: *Case Demo and Analysis (3)*
Session 5: *Damon Diagnosis and Fine Adjustment*	Session 11: *Case Demo and Analysis (4)*
Session 6: *Biomechanics and Finish Examination*	

10 A. 矯正有聲進階視訊課程系列： $14,300

Session 1: *Crowding: Ext. vs. Non-Ext.*	Session 7: *Low vs. High Angle & Gummy Smile*
Session 2: *(U) Impacted Teeth: Ant. vs. Post*	Session 8: *Root Resorption & Relapse*
Session 3: *(L) Impacted Teeth: Ant. vs. Post*	Session 9: *Ortho & Perio*
Session 4: *Missing: Ant. vs. Post.*	Session 10: *Implant - Ortho*
Session 5: *Crossbite: Ant. vs. Post*	Session 11: *IDT*
Session 6: *Deep Bite vs. Open Bite*	

10 OBS. 有聲植體視訊課程系列： $2,600

Eng. C 有聲助理視訊課程五大系列： $7,000

Session 1: *Understanding Damon Instruments & Photography*	Session 4: *Impression; Retainer*
Session 2: *Initial Consultation; Treatment Intro; X-Rays*	Session 5: *Miniscrew; Damon Morph; Keynote OHI*
Session 3: *Bonding; Recognizing Damon wire;*	

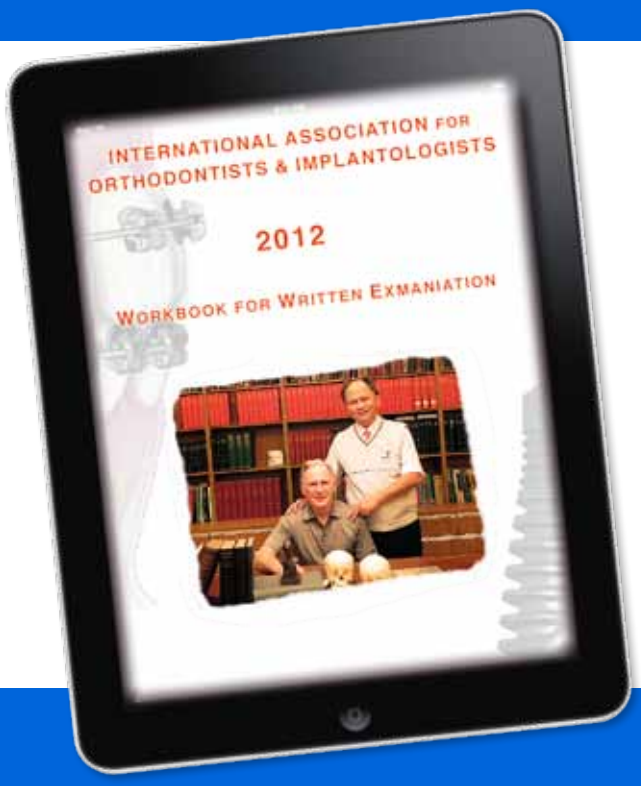
F. 有聲精修視訊課程系列(一)： $14,300

Session 1: *Introduction of excellent finishing*	Session 7: *Impacted canine*
Session 2: *Concepts of growth & development*	Session 8: *ABO demo*
Session 3: *Early stage of development*	Session 9: *Orthodontic treatment planning*
Session 4: *Later stage of development*	Session 10: *Retrospect & prospect*
Session 5: *Etiology of orthodontic problems*	Session 11: *Class II low angle*
Session 6: *Orthodontic diagnosis*	

IF. 有聲植牙論壇系列： $14,300

Session 1: *Implant desgin*	Session 7: *Esthetic implant*
Session 2: *GBR*	Session 8: *Sinus Lift*
Session 3: *Immediate implantation*	Session 9: *STM*
Session 4: *Intrusion & foreced eruption*	Session 10: *Save vs extraction*
Session 5: *Vista*	Session 11: *Prosthesis and sinus lifting*
Session 6: *Ortho-Implant Posterior*	

Newton's A, Inc. 金牛頓藝術科技 新竹市建中一路25號2樓 Tel: 03-5735676



I *nternational*

A *ssociation for*

O *rthodontists &*

I *mplantologists*

For more information on benefits and requirements of iAOI members, please contact **Ms. Huang at thhuang@newtonsa.com.tw.**

Join the *iAOI*, the future of dentistry!

How to join iAOI?

Certified members of the Association are expected to complete the following three stages of requirements.

1. Member

Doctors can go to *http://www.orthobonescrew.com/* to apply for membership to join iAOI. Registered members will have the right to purchase a workbook in preparation for the entry exam.

2. Board eligible

All registered members can take the entry exam. Members will have an exclusive right to purchase a copy of iAOI workbook containing preparation materials for the certification exam. The examinees are expected to answer 100 randomly selected questions out of the 400 ones from the iAOI workbook. Those who score 70 points or above can become board eligible. The exam is one hour and the first session will be held on October 23, 2011 in Kaoshiung, Taiwan.

3. Diplomate

Board eligible members are required to present three written case reports, one of which has to be deliberated verbally. Members successfully passing both written and verbal examination will then be certified as Diplomate of iAOI.

Ambassador

Diplomates will have the opportunity to be invited to present six ortho-implant combined cases in the iAOI annual meeting. Afterwards, they become Ambassador of iAOI and will be awarded with a special golden plaque as the highest level of recognition in appreciation for their special contribution.

*International Journal of Orthodontics & Implantology (IJOI) is the official publication of International Association for Orthodontists & Implantologists (iAOI).

iAOI

金牛頓藝術科技

Authorized Reseller
授權經銷商

K1 簡報聖經

1. 06/30(四) 2. 12/22(四) 9-5 pm

看過太多充滿複雜文字和圖表的幻燈片，聽過就忘了的演講嗎？Keynote系列一的演講要教你如何利用Keynote，製作出令人目眩神迷、印象深刻的電腦簡報。透過小班教學，貼身指導，務必讓你在八小時裡輕鬆掌握Keynote的簡報技巧。

學習重點：1. Keynote操作入門 2. 演講常見十大謬誤 3. 視覺化技巧

K2 Dr. Kokich的10大演講秘訣

1. 7/28(四) 2. 2012 1/12(四) 9-5 pm

Keynote系列二為各位介紹世界牙醫界的天王講師Dr.Kokich的十大演講秘訣，讓您在進階的課程中更加掌握演講設計的關鍵原則，不但讓你知其然，更知其所然！

學習重點：1. Dr. Kokich 十大演講祕訣 2. 準備演講的九個步驟
3. 多媒體影片剪輯

K3 Jobs令人目眩神迷的5項演講技巧

1. 8/25(四) 2. 2012 2/16(四) 9-5 pm

總結我們Keynote系列的系列三，我們要為大家逐步解析跨界演講大師Steve Jobs是如何說出打動人心、價值數十億美金的關鍵故事。透過逐步的分析拆解，要讓你也可以成為獨具魅力的演講人。

學習重點：1. Steve Jobs的五項演講技巧 2. 幻燈片的設計概念
3. 幻燈片修改應用

好康 連續報名三堂課，學費再享八折優惠！

報名專線：03-5735676 Hours：2-9 pm 上課地點：新竹市建中一路25號（交大華廈）2樓

貝多芬矯正系列課程

矯正植體課程

講解矯正植體操作時機、方法，並在診所臨床跟診及實例示範。

9/16 (五)

課程介紹：OrthoBoneScrew in - office Workshop

牙醫師不敢或是不知如何植入miniscrews，大抵有兩個原因：一是無法突破心理障礙；另一則是認為操作困難。然而，張醫師透過高效率的課程講授，直接切入重點，使您輕鬆掌握；簡潔的步驟，讓您不再求助牙周或口外醫師。百聞不如一“做”，相信短短一天的課程，您將親身見證！

全方位牙醫診所
王肖龍醫師

助理訓練課程

兩階段實務課程，含照相術，Morph製作及病患公關和衛教。

10/7、14 (五)

課程介紹：訓練得力助手好時機

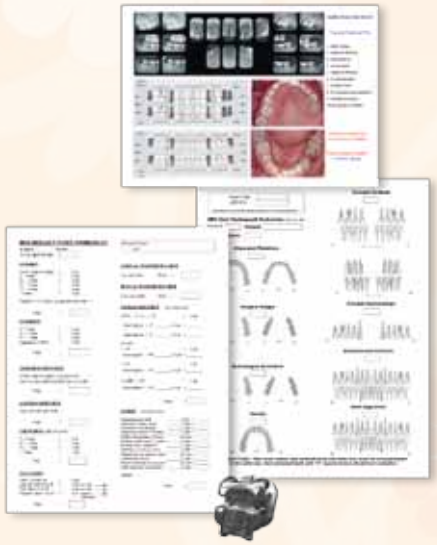
針對矯正助理的臨床技巧，包含：照相、X光拍攝、Damon系統相關知識介紹等等，以及牙科電腦應用，例如：衛教檔案製作、Morph病例以及Keynote病例製作進行示範教學。 結合課堂講解以及診間實習雙重教學方式，務必幫助您快速培養出得力的矯正助理。此外，本期課程新增iPad在診間的應用，讓您的助理可以善用科技，為病人創造理想的就診經驗。

★ 報名專線：湧傑 北區02-27788315 中區 04-23058915 南區 07-5361701

2011-12 貝多芬矯正進階班

	新竹 (W2)	Paper reviews	Topics & Case Demo
1	09/27 11′	Bracket Placement	*Cowding: Ext. vs. Non-ext.*
2	10/25 11′	Impacted Canines	*Upper Impacted Teeth*
3	11/15 11′	Canine Substitution	*Lower Impacted Teeth*
4	12/06 11′	Missing 2nd Premolar	*Missing: Ant. vs. Post.*
5	12/27 11′	DI Workshop	*Crossbite: Ant. vs. Post.*
6	01/10 12′	CRE Workshop	*Open Bite High Angle*
7	03/27 12′	Excellence in Finishing (occlusion)	*Deep Bite Low Angle*
8	04/03 12′	Excellence in Finishing (esthetics & perio)	*Gummy Smile & Canting*
9	04/10 12′	Ortho-Perio-Restore Connection	*Esthetic Finishing (Transposition)*
10	04/17 12′	Adjunct to Perio	*Implant-Ortho (1)*
11	05/01 12′	Unhappy Patient	*Implant-Ortho (2)*

以病例討論為主軸，培養學員如何正確診斷及快速排除臨床疑點，課程中亦訓練每位學員善用Keynote。



- ✦ 時　　間：2011~2012年 週二
  上午 09:00-12:00
- ✦ 地　　點：金牛頓教育中心
  新竹市建中路 25號2樓
- ✦ 報名專線：02-2778-8315*122
  湧傑　楊文君小姐

DATE: 100.9.11(日)

地點：高雄醫學大學附設中和紀念醫院啟川大樓6F

台灣牙醫美容醫學會 2011年會暨學術演講

牙醫美學的呈現 ✚ 多方位牙醫整合

貝多芬的美學修煉

根據統計，在貝多芬牙醫團隊，
平均7個初診病患，
會有5個以上留下來治療，
並且知道他接受的治療的每件事。
我認識張慧男醫師這個人，
演講台上，他是實作派的先鋒，用一個個病例證實他舉列的觀點。
事業上，他是睿智之人，看懂，做對每一個人生的抉擇。
私底下，嚴格來說，他是個好好人，他做到每一件曾經承諾的事，
即使讓他損失不菲，即使家人雙手雙腳反對，說到，做到！
對於牙科美學，張醫師和他的醫師團隊有著獨到的見解，
他主張“從「技巧」的小格局，拉大到「思考」的大視野”
並率領團隊以接近苦行僧的修煉方式精進。
這是一個醫師和診所助理都要知道的秘訣，
也邀請您和您的團隊一起前來，看看貝多芬團隊如何『一次到位』！ >>南台灣牙醫植體醫學會理事長 黃啟洲 慧眼推薦

時間	主題	講師	主持人
09:00~09:10	**理事長的勉勵**	吳映德醫師	
09:10~10:40	牙科美學的追求 [牙醫美學的呈現(一)]	張慧男醫師	吳映德醫師 周肇茂教授
	Esthetic consideration for anterior protheses	李裕隆醫師	
	Esthetic consideration for anterior deep bite management	吳致賢醫師	
10:40~11:00	Break		
11:00~12:00	牙科美學的追求 [牙醫美學的呈現(二)]	張慧男醫師	吳映德醫師 周肇茂教授
	Esthetic consideration for anterior open bite management	周思婷醫師	
	Esthetic consideration for anterior torque and bonding position	黃瓊嫻醫師	
	Guidelines for anterior esthtics	蔡誼德醫師	
12:00~13:30	Lunch		
13:30~15:00	牙科美學的追求 [多方位牙醫整合(一)]	張慧男醫師 徐玉玲醫師	謝順得醫師 曾錦皇醫師
15:00~15:20	Break		
15:20~17:00	牙科美學的追求 [多方位牙醫整合(二)]	張慧男醫師 蘇筌瑋醫師	謝順得醫師 曾錦皇醫師
(助理課程) 09:00~12:00	診所 e 化 & 行銷	金牛頓藝術科技公關教育經理 貝多芬診所 矯正助理 安徒生青少年牙醫診所 姊姊	李晃銘醫師

主辦單位：台灣牙醫美容醫學會　湧傑企業股份有限公司
協辦單位：金牛頓藝術科技公司團隊 Newton's A
備　　註：①.本演講醫師專業7學分　②.備茶點及午餐　③.報名者未出席恕不退還報名費用

活動諮詢.07-3945411　fax.07-3966338　e-mail：tacd2007@gmail.com　80761高雄市三民區民族一路76號3樓

VISTA & Sinus Lift

In-office Workshop (pig & sheep)

2011 09/25 (日) 9:00~5:00 第二梯次

1. VISTA with CTG
2. VISTA with OBS Placement
3. Lateral Window Technique
4. Bone Grafting & Membrane Placement

- 地點：金牛頓教育中心 新竹市建中一路25號2樓
- 費用：20,000 (費用包含午餐講義、視訊(iPad / iPod 版))
- 匯款帳號：109-25203060-000 日盛銀行 光復分行
  戶名：金牛頓藝術科技股份有限公司
- 報名專線：03-573-5676 黃思涵小姐

Dr. Chris Chang
President of the Beethoven Orthodontic Center. He received his PhD in bone physiology and Certificate in Orthodontics from Indiana University in 1996. As publisher of News & Trends in Orthodontics, he has been actively involved in the design and application of orthodontic bone screws.

VISTA (pig)

Sinus Lift (sheep)

06/26 第一梯次 活動花絮

對於這次的課程 , 內心著實受到深深地感動！也就是：

為準備課程的用心及創新感動！
為學習操作的認真及效率感動！
為課後成果的探討及紀錄感動！

這是因為張醫師，高老師及蘇醫師用心地設計課程，讓學習的效率達到最高，分分秒秒都紮紮實實地運用。

因為貝多芬團隊一再地演練、探討及改進，讓操作時學員能順利認真地完成學習。

因為貝多芬助理訓練有素，精確地紀錄學員 操作成果，並且立即製作成光碟，讓醫師課後可以立即針對當日的操作成果進行討論， 同時日後更可作為複習的依據。

所以下次我還要參加，還要再感動一次！

蘇乙洋

蘇乙洋 醫師
新洋牙醫診所

上午張醫師 Lecture




下午診所實作














Chris H.N. Chang, DDS, Ph.D. Founder, Beethoven Orthodontic Center

- Taiwan Orthodontic specialist
- Publisher, News & Trends in Orthodontics
- ABO-Certified Orthodontist
- Ph.D, Dept. Orthodontics, Indiana University-Purdue

The Beethoven Dental Group

A Learning Organization

Tzu Han Huang

Beethoven, a worldly renowned musician, is also the name of a famous dental clinic in Taiwan. If you google it, it ranks the 5th in the research results, with more than 6,000 findings. From this you get an impression of its popularity by the general public on the internet.

The Beethoven Dental Group

The Beethoven is a dynamic team, led by Dr. Chris Chang, with its origin in orthodontics but quickly extending to general practice, pedodontic center, as well as specialized care in periodontics and prosthodontics. The team is consisted of excellent specialists as well as dental assistants. In addition to dental clinics, the Beethoven group established a subsidiary, Newton's A, Inc, whose primary focuses include dental information technology, development of dental equipment and providing dental education. In order to provide more comprehensive dental care, we will open an implant clinic next year.

Beethoven Orthodontic Center-Environment

When you first enter the clinic, you will be immediately greeted by the beautiful and warm smile of our assistants. We have a very spacious waiting area and consultation space surrounded by lines of bookshelves with a wide selection of books and magazines to entertain you. What's even more precious is the open atmosphere created by French window and ample natural lighting.

Such a stress-free environment is appreciated by not only patients but also doctors who spend all day in the clinic. The greens from the outside is a soothing reminder of another beautiful day at work. The open design of the waiting area aims to create ample space for patients and facilitate communication between parents and doctors. This type of space design also allows a smooth and efficient workflow when patients arrive during peak hours.

The supply station is located at the rear side of the chairs, mainly for equipment and patient records. In addition, the technology structure is built on a Mac-based system, using Apple desktops, iMac, to store patient data, run the customized patient appointment system and its native presentation software, Keynote, to guide clinical consultation. All patients' records and photos are entered and saved before the end of a clinic session. The saved data is also shared between computers located in the internal network.

Orthodontic Center

Beethoven Orthodontic Center-Operating system

One of the most unique features of the Beethoven clinic is its operating system. The daily average number of patients that enter the clinic is very significant and the combination of residents and specialists change in different days of the week. However, patients can still expect to go through a standard treatment process, fully executed by the doctors and assistants. A key secret weapon is a simple, concise, image-based patient record. You can clearly identify a patient's background, extra-oral, intra-shots, chief complaints, source of referral, treatment plans, all in a piece of A4 size paper. All doctors can easily pick up a patient record and immediately follow the instructions left from the previous visit. Most of all, an ideal treatment outcome can still be obtained despite the changes in doctors. An effective and efficient system should be able to be replicated by different operators, in different location. The aim of the system in Beethoven is to create such a model so doctors can make treatment more easy and predictable.

Dr. Yang and Dr. Park visiting Beethoven（first 1, 2 on the left）

Continuing Education

Indonesian doctors practicing screw placement on a model.

One may wonder how doctors can continue to update their knowledge and skills in today's busy world. The answer for Beethoven's doctors is the standardized training process. All residents in Beethoven have to complete Beethoven's Comprehensive Damon Q course, the Advanced Damon Course and continue their pursuit of excellence in the Finishing course. Dr. Chang's teaching style is very interactive and engaging, filled with fresh cases. Students constantly find cases they just saw last week or yesterday at the clinic, demonstrated and analyzed in the class next day.

International Course

Beethoven's courses are not only designed for the local doctors; many doctors from overseas also attend the customized international workshop. The response from the participants were so overwhelmingly positive that several of them repeated the class. Besides providing international courses, Dr. Chang is frequently invited to give lectures around the world and brining the most up-to-date news and internationally renowned speakers back to Taiwan's audience.

International Journal of Orthodontics & Implantology

After over a decade of service to the people in Hsinchu, Dr. Chang has won the trust and support of his patients. In addition to providing orthodontic treatment, Dr. Chang dedicates most of his energy to providing continuing education and devoting himself to academic exchange locally and internationally. In order to provide a platform for dentists to share their clinical experiences, Dr. Chang also publishes a quarterly journal, News & Trends in Orthodontics, now renamed as International Journal of Orthodontics & Implantology. Famous doctors in Taiwan and abroad frequently share their clinical secrets or summaries of recent lectures in the journal. We hope through this channel we can spread the messages of knowledge sharing and pursuit of excellence to our readers.

The Beethoven Team

The Beethoven team is not only consisted of Dr. Chang himself. We have a team of doctors specializing in pedodontics, prosthetics, periodontics as well as implant therapy. So we can take care of patients from 1 year old to 99 years old. In addition to specialized care, we also have a general practice taking care of patients common dental issues. Through this comprehensive approach, we can provide total care to our patients.

Needless to say, dental assistants play an indispensable role in Beethoven's operating system. When every new patient enters the clinic, he or she will immediately be greeted by a professional assistant whose main function is to provide orthodontic consultation.The assistant will walk you through the consultation process, explain the data she will collect in this visit, including photos and X-rays, and the fees and stages of the treatment process. In terms of controlling the flow of patients during a clinic session, a senior assistant acts as the conductor in the clinic, assigning assistants to each chair and notifying doctors the order of patient sequence. Assistants are the crucial link between doctors and patients. If you think your assistants haven't met your expectations, you can consider signing up for Beethoven's assistant training for them.

The Beethoven team

Andersen Pedodontic Center

Guarding children's dental health

Andersen Pedodontic Center-Introduction

After serving the local community for over a decade, the local community leader approached Dr. Chang to express the community's needs for a doctor who understands children's dental health. At the time when children had toothache, parents have to travel to the crowded city center for treatment. In response to such wishes from his own community, and the repeated requests from parents of his orthodontic patients, he and Dr. Hsu together established"Andersen Pedodontic Center". "Our mission is to create an environment where parents can feel safe, children can experience joy and doctors can provide the best possible care to children", Dr. Hsu said.

Flower-decorated ceiling is what children see during treatment.

Newton's A *Dental education center*

The constant dilema for successful dentists is the conflict between time and need for continuing education. It's almost a luxury to devote one's full attention to a full-day lecture or a new book. Newton's A understands doctors' needs for a more flexible and effective method of learning and has turned Beethoven's excellent teaching materials to videos. Combined with a mobile device, such as iPad or iPod touch, one can learn orthodontics anytime and anywhere. This latest utilization of technology has revolutionized the orthodontic world.

Newton's A-Mobile Learning: Orthodontic Podcast Encyclopedia + iPad

Dr. Chang is the first dentist to combine the three seemingly distinctive but closely related courses, Damon orthodontics, orthodontic bone screws and assistant training into easy viewing educational presentation videos. Using Mac's native presentation software, Keynote, he can instantly record live narration with his slides and turn his lecture into an engaging movie. Students can use these videos as electronic notes, carry them in their iPod or iPad wherever they are and review the content whenever they want. Whether you are past, current or prospective students of Beethoven, you can use these videos for course preview or review to enhance the learning experience. Since the content is digitalized and frequently updated, students won't have to worry about being outdated once they purchase the course videos.

Newton's A-Effective teaching tools: Mac + Keynote

In addition to produce professional dental educational podcast, Newton's A is also in charge of the design, execution and maintenance of Beethoven's technical environment. For example, recently the chairman of the premier teaching hospitals in Taiwan came to visit Beethoven with his son-in-law from the US. During the visit Dr. Chang performed an out-patient surgery. Some trained assistants provided clinical assistance to Dr. Chang while others took photos and videorecorded the procedures in small segments. Immediately after the surgery, assistants uploaded the patients' photos and videos and organized them in Beethoven's standardized patient record template, utilizing Mac's presentation software, Keynote. So Dr. Chang then used data from the previous visits as well as the procedures that just took place a moment ago to demonstrate to the patient the treatment progress and surgery process instantly. Followed by the presentation to the patient, Dr. Chang used the same file to continue a further in-depth discussion with the chairman.

A case report as described may take several interns a week to complete in other institutions. With the aid of proper technology, one can finish such tasks in less than 30 minutes.

This wonderful combination of Mac and Keynote makes preparing case reports, producing educational materials or

BEETHOVEN

Andersen Pedodontic Center-Environment

The clinic is named after the famous children's book author, Hans Andersen. The image design of the clinic is inspired by Andersen's most famous fairy tales, the emperor's new clothes, the little match girl and thumbelina. Dr. Hsu hopes visiting the clinic can bring children not just the thought of stinky smell or feary drills but also beautiful stories. Besides the pleasant visual stimulants, the brushing station is designed at three levels to fit the varying heights of children of different development stages.

Andersen-Long-term dental growth data preservation

Andersen sees itself as the long-term guardian of children's dental health. In order to closely monitor patients' growth, we routinely take intra-oral, extra-oral photos and X-rays to make sure we won't miss the first sign of an emerging problem at a later stage. To achieve this goal, we use high quality digital cameras and wireless memory cards to ensure fast and secure data transmission. Mac's dual operating system allows us to take advantage of both windows and Mac's functions.

Andersen-Children's health education

Prevention is better than cure. This is particularly true for parents battling with young children's cavity. In view of this common challenge for parents, Andersen regularly collaborates with local kindergartens to administer supplemental fluoride. Parents can also play a strong advocate for children's dental health by helping children develop proper concepts and practices of dental hygiene.

presenting treatment progress to doctors, assistants, patients or parents so easy and effective. The built-in recording function allows presenters to record voiceover as the slides advance so the audience can better appreciate the content.

Newton's A- OrthoBoneScrew

Originated from Beethoven's clinical experiences, Dr. Chang is leading a team of experts from academia and engineering to develop an orthodontic mini anchorage device, OrthoBoneScrew. The research and development team include experts from University of Indiana-Purdue's professor of Emeritus, Dr. Eugene Roberts, Dr. John Lin and Dr. Lin Shan Jie from National Central University in Taiwan. Our products have improved over the last two years and received positive feedback from orthodontists in Taiwan and abroad. The combined use of bone screw and Damon can significantly reduce extraction rates in borderline surgical cases. Cases that traditionally require surgery can achieve satisfactory results with the use of orthodontic bone screws.

Implant Center *Future plan*

In recent years Beethoven have seen a growing number of adult patients seeking treatment for missing teeth. This indicates a stronger need for esthetic appearance for adult patients. However, this brings a new set of challenges for orthodontists because the problems are far more complex than creating ideal alignment. Patients often have periodontal problems, multiple missing teeth and the reconstruction of prosthetics or implant placement. Hence, Beethoven believes providing adult patients a comprehensive treatment is our new goal.

Traditionally adult dental treatment can be summarized in two words, periodontics and prosthetics. However, in the era of inter-disciplinary treatment, orthodontics and implantology have become the new two pillars in this treatment structure. Orthodontics can lay a solid foundation to suppor future implant placement. Therefore, the establishment of the new implant center is to provide a more comprehensive care to our patients in our dental network.

The core value of the Beethoven group is education. The new implant center will also integrate education into its routine operation. Through Beethoven's courses we have established a common platform to showcase their clinical results in their practice. Dr. Chang believe the most effective way of learning is through case presentation to the course participants. The organization and delivery of the case report demands the presenter to fully digest and internalize the lessons learned in the case. This continuous teaching and learning enables us continuously improving our treatment quality.

The new implant center will be open in the fall of 2011. Before that, we have set up an Implant Forum to prepare ourselves. In 2010 & 2011, we collaborated with University of Southern California to host a 6-month certificate course for dentists interested in continuing education. We hope doctors of similar ideas and passion can join our efforts in improving treatment quality for patients.

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Newton's A Fall 11′ course schedule

類型	課程名稱	內容	開課日期	上課對象
專業簡報	Keynote 簡報法 series 1 簡報聖經	1. 常見簡報謬誤 2. Keynote 入門	*12/22*（四） 09:00 ～ 17:00	科技人、醫師 教師、學生
專業簡報	Keynote 簡報法 series 2 Kokich 的 10 大演講秘訣	1. 多媒體影像處理 2. 簡報設計	*7/28, 2012/1/12*（四） 09:00 ～ 17:00	科技人、醫師 教師、學生
專業簡報	Keynote 簡報法 series 3 How to Wow'em like Steve Jobs?	1. 賈伯斯演講秘訣 2. 簡報設計進階應用	*8/25, 2012/2/16* 09:00 ～ 17:00	科技人、醫師 教師、學生
International	Damon and OBS workshop	1. Damon System 2. OrthoBoneScrew	*8/9-11, 11/15-17*	International Orthodontist

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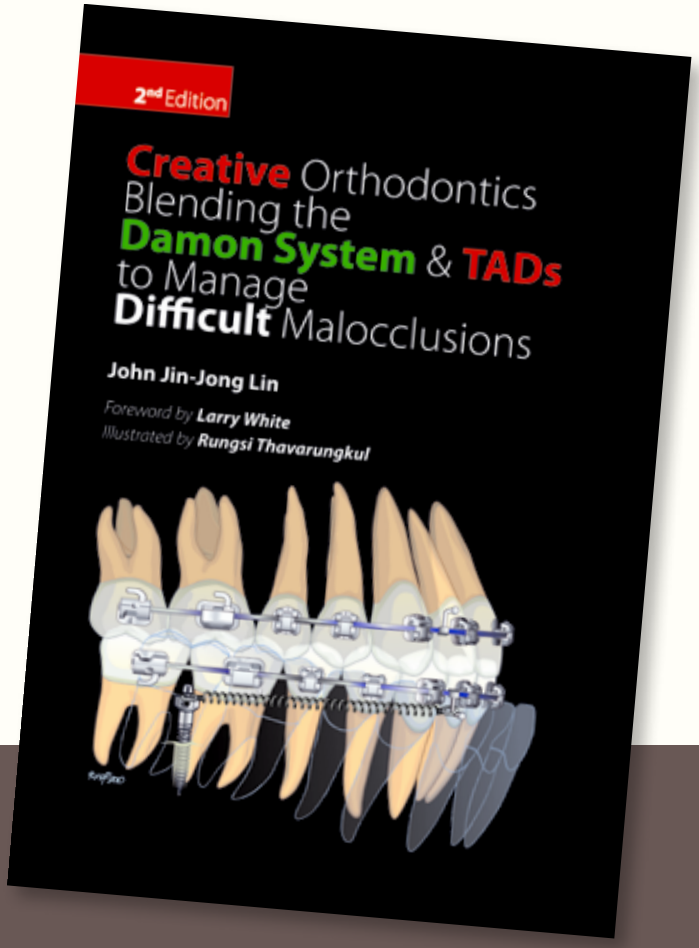

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