壁報論文作品欣賞 診所組

佳作

The analysis of Diode laser application in facilitated blood coagulation

二極體雷射於促進血液凝結之分析

維思登牙醫診所 - 張朝富 醫師

Abstract

After trauma or injuries,the wounded sites usually result to bleed.The blood will then undergo a physiological process called coagulation to achieve hemostasis in order to prevent excessive blood loss and to make the wound ready for further healing.However,the time required by the blood to start coagulating is determined by the individual’ s phenotype through its coagulation cascade. There are several known diagnostic diseases or disorders which are related to the impairment of the coagulation cascade such as hemophilia,Von Willebrand disease, and deficiency of vitamin K... etc. In addition, drug application can also be a result of prolonged blood coagulation. This study;however, introduces a clinical method of directly and externally making a pool of blood instantly coagulate by the treatment of Diode laser.For example: to stop bleeding in a dental extraction sockets.

身體因外傷流血時，血液循著凝血連鎖反應機制自然達到凝血作用以避免血液過度流失的情況產生。在某些情況下，例如血友病、von Wililllebrand 疾病、及維生素 K 的缺乏或是某些藥物的應用，會導致凝血連鎖反應機制受到干擾而不能正常地實行凝血作用。原則上，凝血時間的長短會因人而異，且目前已知鮮少有＂直接＂及＂體外＂的醫學處置能＂達到縮短凝血時間的目的。此實驗介紹一種使用牙科二極體雷射透過直接及體外的照射，達到於傷口立即凝血之目的。

LASERS（Light Amplification by Stimulated Emission of Radiation）emit a precise beam of monochromatic,coherent,and collimated light energy.The diode laser is a near-infrared continuous wave laser whose wavelength varies from 655nm to 980nm.The wavelength determines the absorption characteristic in biologic tissues.2When the laser beam is applied to the tissue, the light energy is transformed the laser beam is applied to the tissue, the light energy is transformed into heat and causes a photo-thermal event resulting a temperature rise in the tissue.Different observed effects take place by different tissue temperature achieved.Coagulation begins at over 50°C,with protein denaturation at 60°C.Vaporization of water occurs at over 100°C, with carbonization of tissue at

200°C3,4.A typical laser surgery is achieved by the process of ablation,meaning tissue removal by converting it to a gaseous state or plume.Lasers have also been utilized to induce vascular occlusion and photocoagulation.

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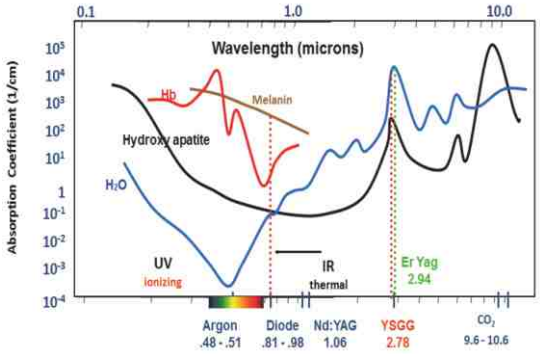

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In spite of having a variety of tips of different diameter to choose from (200µm, 300µm, 400µm),the diameter of 400µm tip was selected to conduct the experiment as it would theoretically produce blood clot of greater surface area which was more effective and less time consuming.

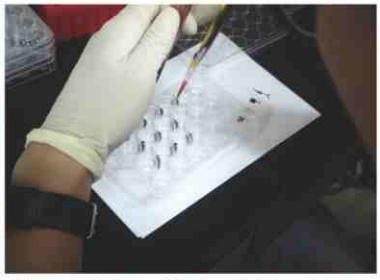
Aim

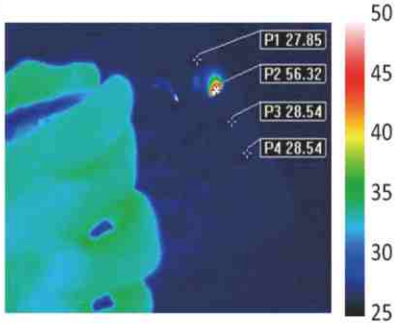
The study assessed the level of blood coagulation after diode laser treatment through different power settings and at a different time period comparing to the normal coagulation process.

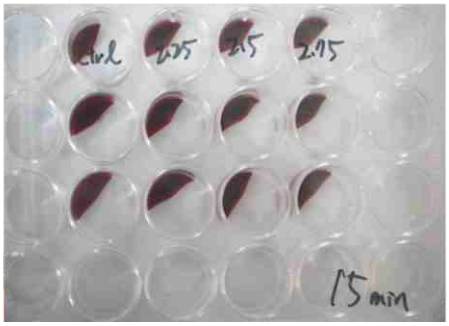
此實驗以相同的總能量，使用不同的雷射功率以不接觸方式照射人血後分析各組別凝血程度。

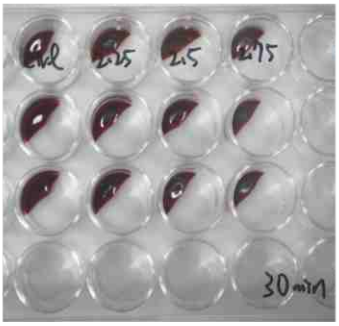
Materials and Method







Conclusion

Physiologically, the blood start to coagulate when blood temperature reaches over 50°C because of the denaturation of its protein (i.e. blood cells, serum ,etc...) .This facilitated coagulation process is different from the natural coagulation cascade where internal and external pathway and activation of huge amount of various coagulation factors are involved.Depending on the individual, the coagulation process normally takes a certain period of time and cannot be accelerated by any means.However when the individual is in certain pathological status,or has certain blood disorders, the time required by the blood to clot is even prolonged. The experiment introduced a way to make an instant blood clot and thus stop bleeding when a pool of blood in a defect already exists (i.e. dental extraction sockets) . According to the results of spectrophotometry test,the Optical Density of laser-treated blood sample groups showed a significant difference than the control group,which proves the blood do form a clot after laser treatment. In addition, since the working principle of the diode laser is to heat-up the chromophore of the target tissue or substance, a functional infrared thermography device was used to directly measure the blood temperature at the time when laser treating, thus explaining the reason of blood clotting due to the physiological mechanism : the blood will denature and coagulate when the temperature achieve over 50°C.

Furthermore, the SEM photo provide the real images of the blood samples and visibly show the blood clot components in nanoscale.Although it is demonstrated that a blood clot in a blood pool can be instantly produced by a diode laser at this experiment,further in vivo studies is needed to prove whether this technique can work in the same manner clinically to achieve facilitated stop-bleeding or if this blood clot formation assisted by laser would cause any negative or positive effects at the surrounding wounded tissues.

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此實驗介紹一種使用牙科二極體雷射透過直接及體外的照射，達到於傷口立即凝血之目的。

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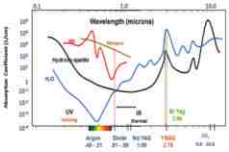

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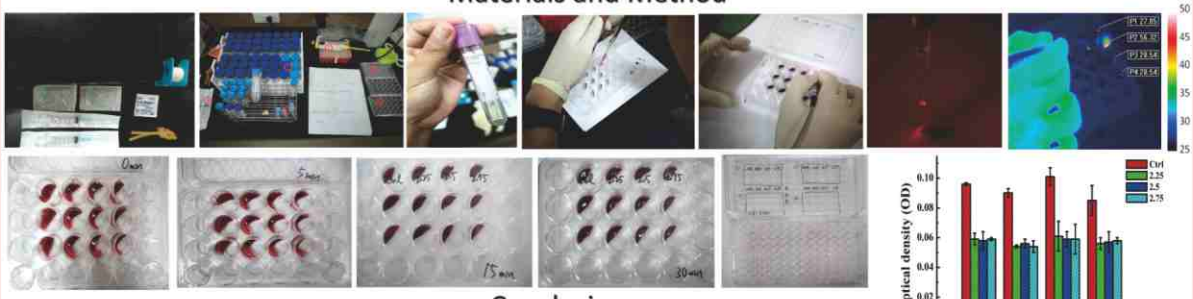

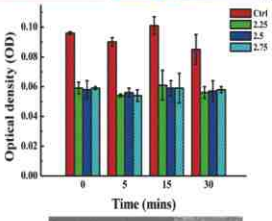

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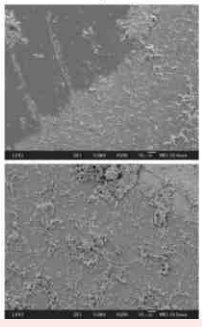

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佳作

ANTIMICROBIAL PHOTODYNAMIC THERAPY FOR PERIODONTAL TREATMENT

潔明牙醫診所 - 吳啟明醫師

Abstract

The patient was suffering from tooth discomfort of tooth 47 for 3 months and was treated at other clinic by conventional approach. Bony defect was noted upon Panoral x-ray examination at the distal site of tooth 47 with a 11mm probing depth pocket. Phase contrast microscopy was used to sample the quantity of microorganism at the pocket site.

There was substantial reduction of microorganism in the pocket after a combination of a Er:br YAG laser periodontal treatment and two antimicrobial photodynamic therapy (aPDT) using methylene blue as photosensitizer. (Please see attached Phase contrast microscope photograph Considerable bone regeneration was detected upon X-ray examination at 6 months follow up appointment.

圖13

圖14

圖１３(Fig.1)：pre-treatmentan infrabony defect over #47 distal side
圖１４：Phase contrast microscopy pre-treatment

Treatment Procedure

圖15

圖16

圖１５(Fig.２)：Scaling and root planning and Er:Br YAG laser finished
圖１６(Fig.３)：after SRP 2days, photosensitizer injection (methylene blue) to pocket buttom 3 min.s

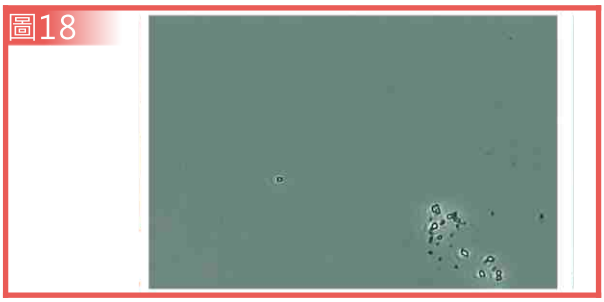

圖１７(Fig.4)：660nm diode laser 10sec per point, 6point per tooth
圖１８：Phase contrast microscopy Post-treatment

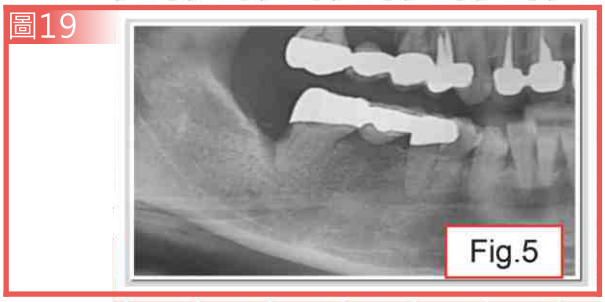

圖１９(Fig.6)：Post OP 6 months, the newly-formed hard tissue in the periodontal infrabony defect over #47 distal side
圖２０(Fig.5)：Post-OP 3 month

Discussion

Antimicrobial photodynamic therapy(PDT) as an adjunctive treatment in addition to scaling and root planing for the treatment of periodontitis has been shown to be clinically useful. The underlying mechanism of photodisinfection is the targeting and the elimination of the bacteria most responsible for the progression of periodontal disease. In clinical studies it show better outcome in some cases. In the future PDT may be the choice of treatment for patient and dentist before surgical therapy.

Reference

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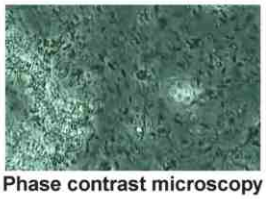
Fig.1: pre-treatmentan infrabony defect over #47 distal side



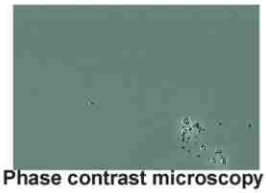
Phase contrast microscopy pre-treatment

TREATMENT PROCEDURE

Fig. 2: Scaling and root planning and Er:Br YAG laser finished

Fig.3:after SRP 2days, photosensitizer injection (methylene blue) to pocket buttom 3 min.s

Fig.4: 660nm diode laser 10sec per point, 6point per tooth



Phase contrast microscopy Post-treatment

Fig.5: Post-OP 3 month

Fig.6: Post OP 6 months, the newly-formed hard tissue in the periodontal infrabony defect over #47 distal side

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佳作

Using Complete Denture and Implant-Supported Overdenture for Treatment of Edentulous Patient with Cleft Palate –A Case Report

二以上顎全口義齒及下顎植體支持覆蓋式義齒治療無牙併上顎裂患者—病例報告

黃韻璇醫師 晨軒牙醫診所
葉立維醫師 當代牙醫診所

摘要

本病例報告針對一位 65 歲上顎前牙區單側性唇顎裂，具有嚴重牙周病問題，舊活動義齒配戴經驗不佳影響咀嚼功能之男性患者，紀錄如何以開窗印模方法製作上顎全口義齒，下顎則是種植四支人工植體，製作植體支持覆蓋式義齒。治療完成後，活動義齒穩定度提高，病人美觀、發音及咀嚼功能大幅改善。旨針對類似的全口無牙併上顎裂患者之贋復療程提供參考。

病例報告

患者基本資料：

姜先生，65歲，已婚退休男性。沒有食物及藥物過敏史。無抽菸及嚼食檳榔之習慣。

牙科主訴：假牙的咀嚼功能不佳已持續數年，想要重做假牙改善咀嚼功能。

顳顎關節檢查：張口度及張口範圍皆正常，顳顎關節無彈響聲。

口外檢查：

正面觀(frontal view) ：臉部有些許不對稱。

微笑觀(smile view) ：無微笑露齦(gummy smile) ，中線些許不對稱，下顎中線與臉部中線相比往左移1mm。

側面觀(lateral view) ：直線輪廓(straight profile) ，鼻唇角(nasolabial angle)約90度。(圖1)

圖1

圖1：患者外觀

口內檢查：

1. 上顎無牙，前牙區齒槽裂（cleft alveolar ridge）合併鬆軟組織（flabby tissue）。唇顎裂形式屬於單側性裂，範圍影響左側唇及齒槽，侷限於原顎（primary palate）範圍，即齒槽裂範圍在門齒乳頭（incisive papilla）之前，並未延伸到後方的硬顎及軟顎（secondary palate）。齒槽裂部分由口腔延伸至鼻腔底部，以軟組織相隔，未完全相通。

2. 下顎尚存牙齒為左下正中門齒至左下第二小臼齒、左下第三大臼齒、右下正中門齒、側門齒及第二小臼齒。除左下犬齒及第一小臼齒外，其餘牙齒有嚴重之齒槽骨喪失（圖2、3、4）。

3. 患者之舊假牙為上顎全口義齒、下顎Kennedy Class I-Modification I 之可撤式局部義齒。假牙有嚴重磨耗現象且上顎全口義齒的邊緣過度延伸（overextension），上顎前牙區的假牙基底不密合。

圖2

圖3

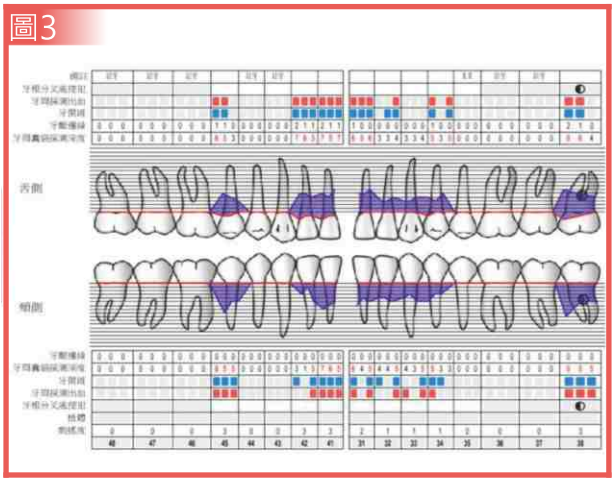

圖4

圖 2 ：初診之口內影像
圖 3 ：下顎周檢查紀錄表
圖 4 ：初診 X 光片

治療計畫：

與患者討論之治療計畫有二方案：治療計劃一為上顎全口義齒，左下犬齒及第一小臼齒析量牙冠，下顎 Kennedy Class I 可撤式局部義齒。治療計畫二為上顎全口義齒，下顎牙齒全數拔除，種植四支人工植體再予以製作以植體支持之覆蓋式義齒（implant-supported overdenture）。經與患者討論後，患者選擇治療計畫二。治療流程如圖 5 至圖 10。

治療後追蹤：

治療完成後，活動義齒穩定度提高，病人對於新製作的活動假牙適應良好，美觀、發音及咀嚼功能大幅改善。

圖5

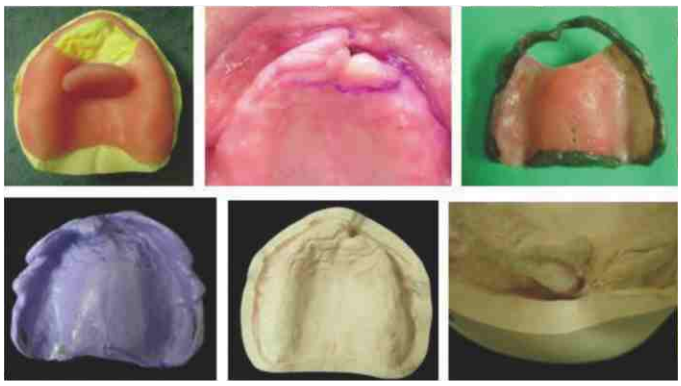

圖6

圖7

圖8

圖9

圖5：上顎最終印模(final impression)
圖6：下顎最終印模
圖7：下顎義齒之組織面
圖8：初診之口內照
圖9：治療前後之比較

討論

一、本病例上顎印模困難之處：

（1）齒槽裂的開口恰位於上顎全口假牙的邊緣（border），邊緣成形（border molding）時，邊緣的建立要兼顧能達到該交界（communication）的邊緣封閉（seal)又不能過度延伸（overextension）[1]。

（2）齒槽裂處無齒槽骨支撐，軟組織似鬆軟組織（flabby tissue)，經由文獻回顧對鬆

軟組織的印模後，決定以開窗印模技術印模[2,3]。

二、治療計畫設計方面，病人全口牙齒經評估後，左下犬齒及第一小臼齒是可以考慮留下的。然而考慮患者年紀為65歲，左下犬齒及第一小臼齒之齒槽骨支持(alveolar bone support)約剩百分之五十，10年後可能無法留存，70幾歲要補種第三象限的植牙風險更大，且齒槽骨條件更差。因病人經濟能力許可，且根據研究顯示以植體來支持下顎覆蓋式義齒效果較好，能有效增加活動假牙的固持力與穩定度，並且提高患者的滿意度，其植牙的成功率介於97%到100%之間，追蹤時間最長可達13年之久[4,5,6]。有關下顎覆蓋式義齒的文獻，多數是使用四支植體支持，且植牙成功率可提高至97%[7]。故與患者討論後決定以四支植體完成植體支持覆蓋式義齒。

結論

治療全口無牙併上顎裂患者，上顎利用開窗印模技術，下顎利用植體支持，可改善活動義齒之穩定度，進而重建病人美觀、發音及咀嚼功能，提供此類型患者良好的生活品質。

參考文獻

1.Reisberg DJ. Prosthetic habilitation of Patients with clefts. Clin Plast Surg 2004; 31: 353-60

2.Hrizdana Hadjieva, Mariana Dimova et al. Selective Pressure nd Hypermobile Mucosa On The Alveolar Ridges

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論文原稿

學術專題

以上顎全口義齒及下顎植體支持覆蓋式義齒治療無牙併上顎裂患者—病例報告

Using Complete Denture and Implant-Supported Overdenture for Treatment of Edentulous Patient with Cleft Palate – A Case Report

黃韻璇 Yun-Hsuan Huang[1]　葉立維 Li-Wei Yeh[2]
[1]晨軒牙醫診所 Chen Xuan Dental Clinic　[2]當代牙醫診所 Modern Dental Clinic

摘要

本病例報告針對一位65歲上顎前牙區單側性唇顎裂，具有嚴重牙周病問題，舊活動義齒配戴經驗不佳影響咀嚼功能之男性患者，紀錄如何以開窗印模方法製作上顎全口義齒，下顎則是種植四支人工植體，製作植體支持覆蓋式義齒。治療完成後，活動義齒穩定度提高，病人美觀、發音及咀嚼功能大幅改善。盲針對類似的全口無牙併上顎裂患者之贋復療程提供參考。

病例報告

患者基本資料：
姜先生，65歲，已婚退休男性。沒有食物及藥物過敏史。無抽菸及嚼食檳榔之習慣。

牙科主訴：假牙的咀嚼功能不佳已持續數年，想要重做假牙改善咀嚼功能。

顳顎關節檢查：張口度及張口範圍皆正常，顳顎關節無彈響聲。

口外檢查：
正面觀(frontal view)：臉部有些許不對稱。
微笑觀(smile view)：無微笑露齦 (gummy smile)，中線些許不對稱，下顎中線與臉部中線相比往左移1mm。
側面觀(lateral view)：直線輪廓(straight profile)，鼻唇角(nasolabial angle)約90度。(圖1)

口內檢查：
1.上顎無牙，前牙區齒槽裂(cleft alveolar ridge)合併鬆軟組織(flabby tissue)。唇顎裂形式屬於單側性裂，範圍影響左側唇及齒槽，侷限於原顎(primary palate)範圍，即齒槽裂範圍在門齒乳頭(incisive papilla)之前，並未延伸到後方的硬顎及軟顎(secondary palate)。齒槽裂部分由口腔延伸至鼻腔底部，以軟組織相隔，未完全相通。
2.下顎尚存牙齒為左下正中門齒至左下第二小臼齒、左下第三大臼齒、右下正中門齒，側門齒及第二小臼齒。除左下犬齒及第一小臼齒外，其餘牙齒有嚴重之齒槽骨喪失(圖2、3、4)。
3.患者之舊假牙為上顎全口義齒、下顎Kennedy Class I- Modification I 之可撤式局部義齒。假牙有嚴重磨耗現象且上顎全口義齒的邊緣過度延伸 (overextension)，上顎前牙區的假牙基底不密合。

治療計畫：
與患者討論之治療計畫有二方案：治療計劃一為上顎全口義齒，左下犬齒及第一小臼齒折斷牙冠，下顎Kennedy Class I 可撤式局部義齒。治療計畫二為上顎全口義齒，下顎牙齒全數拔除，種植四支人工植體再予以製作以植體支持之覆蓋式義齒 (implant-supported overdenture)。經與患者討論後，患者選擇治療計畫二。治療流程如圖5至圖10。

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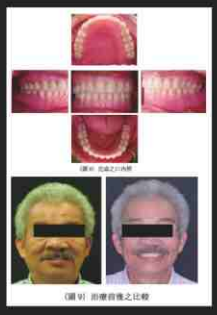

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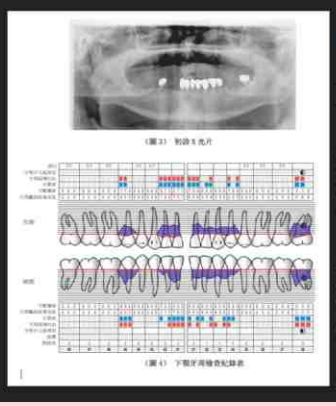

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壁報論文作品欣賞 診所組

佳作

The Influence of Dentist' s Experiences On The Behavior of Preschool Children

Huei Wen Liu[1,2,3,4]), Chen-Yu Hsieh[2,3,4]), Yen-Kuang Lin[3]), Chia-Lan Hsiang[2,3,4])

[1]) 葡萄藤兒童牙科,[2]) Department of Pediatric Dentistry of Taipei Municipal Wan-Fang Hospital,[3]) Taipei Medical University, [4]) Taiwan Academy of Pediatric Dentistry

葡萄藤兒童牙科 - 劉惠文醫師

Background & Aim

Behavior management is a key factor in providing dental care for children. Young dentists usually take time to learn the behavior management techniques by trial and error.

- This study aimed to analyze the behavior management skills of dentists at Taipei Municipal Wan-Fang Hospital, it' s influence to the preschool children' s behavior at the first visit has also been evaluated.

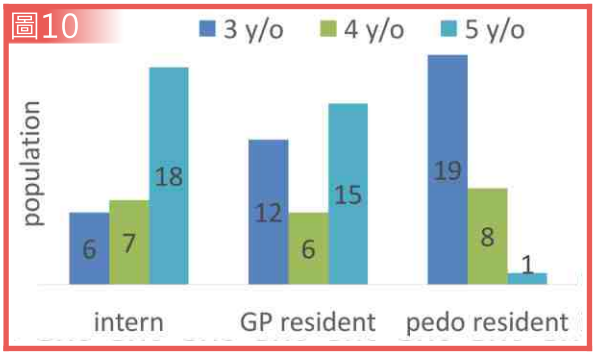
Design

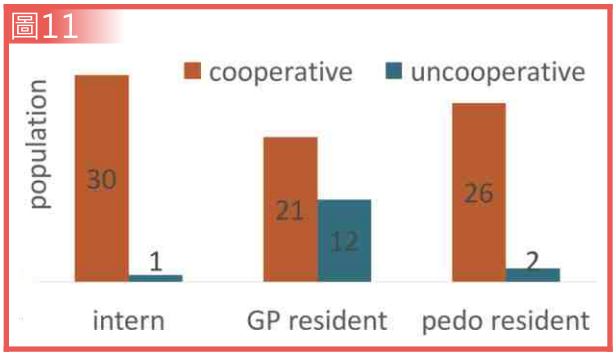
- Children aged 3 to 6 years old.
- First visit at pediatric dentistry department of Taipei Municipal Wan-Fang Hospital were included.
- All subjects were healthy and denied previous dental experience.
- Behavior shaping process in the visit was video recorded.
- The cooperation of patients and the behavior management techniques used by the dentist in the visit were recorded by the author and analyzed by SPSS vol.19.

Results

- A total of 92 patients were included(50 boys and 42 girls.)
- There was a positive correlation between the age of subjects and their cooperation during the visit.
- The pedo resident group treated patients whose age were significantly younger than those in the intern group and the GP resident group.(Figure 1) However, patients in the pedo resident group were significantly more cooperative than the other 2 groups.(Figure 2)

- The pedo resident group used significantly more positive reinforcement and instruction than the other 2 groups during treatment. The intern group and the GP resident groups spent more time on Tell-Show-Do and explanation.(Figure 3)





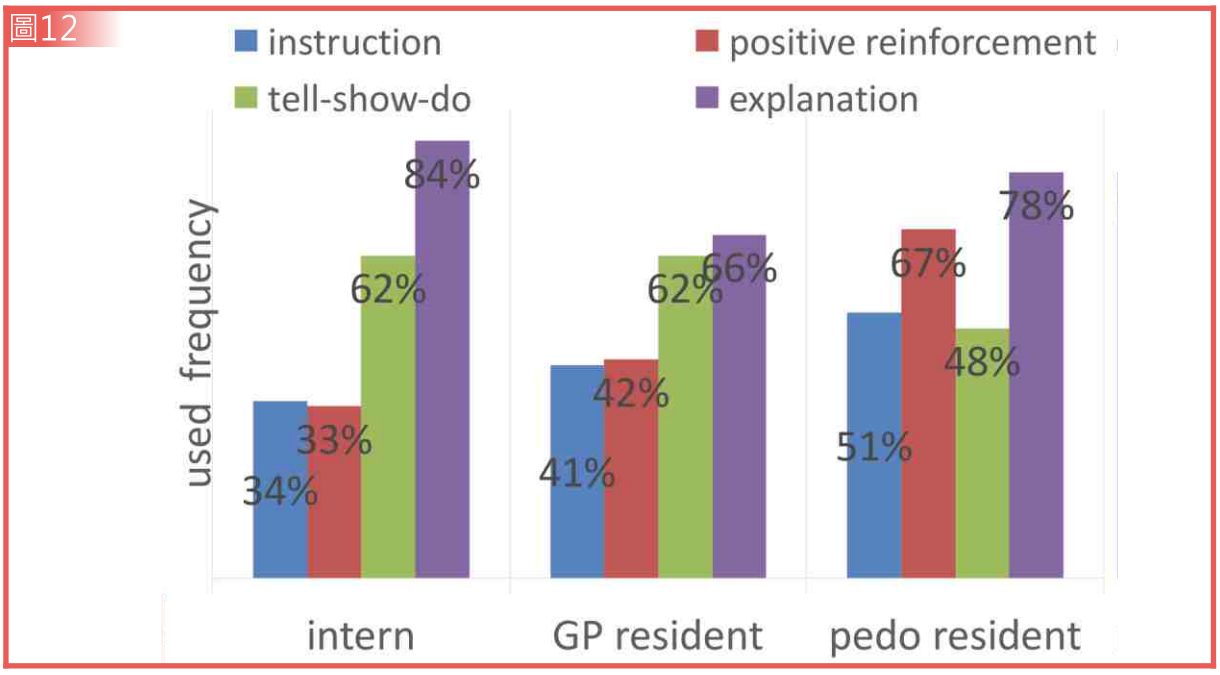


圖10：Figure 1. age of subject
圖11：Figure 2. patient cooperation
圖12：Figure 3. most used behavior management technique in behavior shaping

Results

- The older the patient, the more cooperative during first dental visit.
- Pedo residents treat younger patients with better cooperation.
- Young dentists should use more positive reinforcement and instruction in behavior shaping.

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Figure 1. age of subject

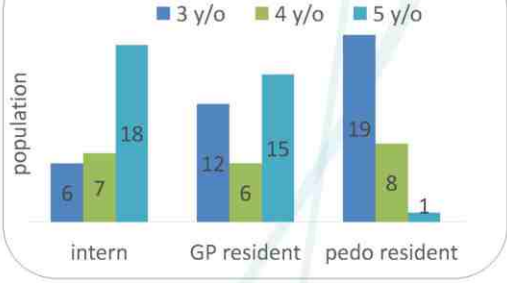

Figure 2. patient cooperation

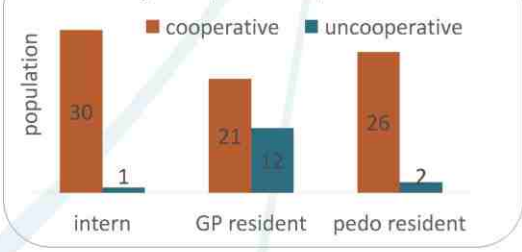

Figure 3. most used behavior management technique in behavior shaping