

CISTシステムにてインプラントメンテナンスを行った1症例

A Case using Cumulative Interceptive Supportive Therapy (CIST) System for Implant Maintenance

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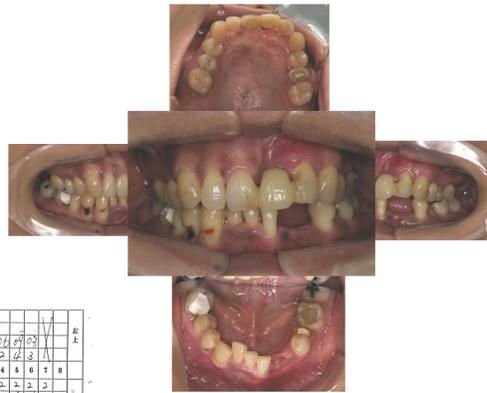
【Purpose】

Recently, a maintenance system known as cumulative interceptive supportive therapy (CIST) was proposed by Prof. Lang. CIST states that the detection and treatment of early pathogenic changes during follow-up maintenance visits can prevent peri-implant inflammation and progressive bone loss

Schwarzf et.al, have reported that non-surgical periodontal treatment with Er:YAG laser led to significant improvements in all clinical parameters of periodontal disease (2000). In this presentation, a case using CIST system to maintain implants was permitted to declare for academic use. It will be reported and the role of Er:YAG laser in CIST system will also be considered.

【Case】

Female, 39 years old, 158cm, 46Kg. First visit: 27, April, 2009. Complaints: bleeding in No22. Clinical examination showed PD was 5mm and BOP in the deepest site was positive in No.21 and 22.



Under IV sedation, rough surface titanium implants were placed simultaneously with bone augmentation after teeth extraction 3, June 2009.

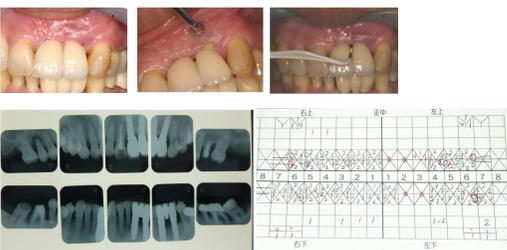


A second-stage surgery was performed 6 months later and the superstructures were set on December 2009.



Provisional and final restorations on Feb. 2010. Initially after implant treatment, daily care was undertaken by patient under diagnoses as protocol B. SRP was performed by dental hygienist at the first recall. PMTC was performed monthly since then.

Maintenance: 12 months

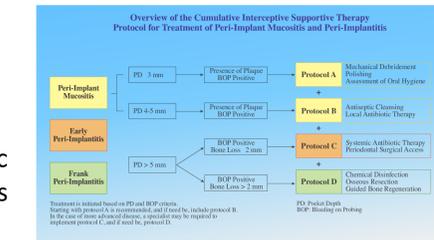


Protocol D (PPD:5mm, PI:+, BOP:+, BL:2mm)

Biological examination using PCR-Invader method



Biological examination detected T. denticola and T. forsythensis. However, the pus discharge continued.



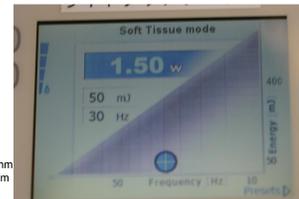
antibiotic therapy using azithromycin hydrate and surgical debridement

Under diagnoses as protocol D, antibiotic therapy using azithromycin hydrate and surgical debridement were performed.

Maintenance: 18 months: protocol B (PPD:3mm, PI:+, BOP:-, BL:2mm)

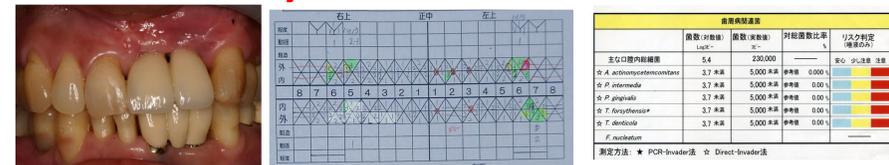


Er:YAG laser with low energy



A daily home care and monthly PMTC + Er:YAG laser irradiation with low energy (1.5W; 50mJ, 30Hz, full water spray) were performed.

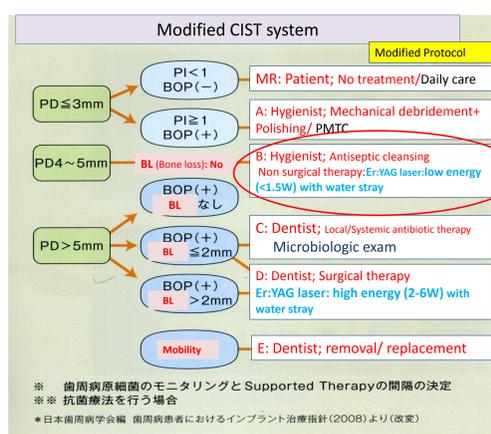
Maintenance: 3 years: Protocol B (PPD:3mm, PI:+, BOP:-, BL:2mm)



【Results】 Inflammatory findings (BOP) were not observed although deep periodontal pocket and bone loss remained.

【Discussion】 The most common utilization is the thermal effect, whereby light energy is absorbed and transformed into heat. This results in the denaturation of proteins at 42-65° C, the shrinkage of arteries and veins at 70° C, and cellular dehydration at 100° C. Once water is completely evaporated from tissue, a rapid rise in temperature ensues, carbonization then occurs at 250° C, and, finally, vaporization occurs at 300° C. Protocol B indicates peri-implant mucositis. The low laser energy to make thermal damage at 42-65° C may be enough to reduce number of bacteria in conjunction with periodontitis at peri-implant pocket. A rapid rise in temperature over 70° C should be avoided because of the thermal damage in the surrounding gingival mucosa. Er:YAG laser irradiation over 0.75W without water spray caused morphological changes in the microstructure of the surface (Katsunuma, 2012). The water spray is effective to cool the surrounding tissue and also implant surface. In this case at protocol B, low level laser energy at 1.5W; 50mJ, 30Hz, in combine with full water spray was successfully carried out monthly at the time of PMTC by dental hygienist.

The mono-therapies using Er:YAG laser were limited (Renvert, 2011). The accomplished therapies with the use of chemical agents (eg, chlorhexidine) or mechanical (eg, ultrasonic) or photonic (eg, laser) devices are effective (Schwartz, 2005 and Badran, 2010). Systematic treatment and continuous monitoring of peri-implant tissue conditions are included in CIST system.



【Conclusion】 Low level laser energy of Er:YAG laser (1.5W; 50mJ, 30Hz, with full water spray) in combination with daily home care and regular recall by dental hygienist is adequate at the stage of protocol B in CIST system.

歯周病関連菌				
	菌数(対数値)	菌数(実数値)	対総菌数比率 %	リスク判定 (唾液のみ)
主な口腔内総細菌	5.8	610,000		安心 少し注意 注意
☆ A. actinomycetemcomitans	3.7 未満	5,000 未満	参考値 0.00%	
P. intermedia				
☆ P. gingivalis	3.7 未満	5,000 未満	参考値 0.00%	
☆ T. forsythensis*	4.2	17,000	参考値 2.79%	
☆ T. denticola	3.9	7,100	参考値 1.16%	
F. nucleatum				

測定方法: ☆ PCR-Invader法 ☆ Direct-Invader法