

Int Poster J Dent Oral Med 2004, Vol 6 No 01, Poster 216

International Poster Journal

# Treatment of intrabony defects with Alpha-TCP and an oily Calcium Hydroxide suspension. A 14-case-report

Language: English

#### Author:

Stefan-Ioan Stratul Departement of Odontology-Periodontology, Faculty of Stomatology, "Victor Babes" Medical and Pharmaceutical University of Timisoara/Temeschburg, Romania

#### Date/Event/Venue:

October 19th, 2002 10. Jahrestagung der Neuen Arbeitsgruppe Parodontologie e.V. Giessen/Germany

### Introduction

Results of basic research as clinical studies have proven the influence of an oily Calcium Hydroxide suspension on bone regeneration in closed defects. Its osteostimulative effect seems to rely on many factors, as the deposit action of the Calcium Hydroxide, which sustains the bone metabolism in a constant, mild alkalic environment, the stimulation of the angiogenetic bone growth with concentration of the growth factors next to the defect wall, and the reduction of the inflammation in the operated site, which enhances the wound healing. Histological and radiological analysis, both in animals and humans seem to indicate a predictable regeneration of closed bone defects. Such results lead recently to attempts to use the oily Calcium Hydroxide suspension, alone or under various combinations, in treating periodontal defects.

#### Objectives

Aim of the study is the presentation of the surgical technique and of the clinical results after the treatment of intrabony defects with a combination of Alpha-TCP and an oily suspension of Calcium Hydroxide.

#### Material and Methods

Fourteen patients (9 male and 5 female), between 26-42 years old, non-smokers, each displaying one deep intrabony defect, were treated with a combination of alpha-TCP (BioBase® Alpha-pore Biovision GmbH., Ilmenau, Germany) and an oily Calcium Hydroxide suspension (Osteoinductal®, Osteoinductal GmbH, Muenchen, Germany). All patients underwent initial therapy one month prior to surgery. All patients were instructed and motivated to maintain a good oral hygiene level, verified by a reduction of the PI (Silness and Loe) < 1. Before surgery and six months after, the following clinical parameters were registrated: the periodontal pocket depth (PD), the gingival recession (GR) and the clinical attachment level (CAL).

All measurements were performed with a rigid periodontal probe (PCP 12, Hu-Friedy), at six sites per tooth (buccal: mesiobuccal, central, distobuccal; oral: mesiooral, central, distooral). Radiographic examination was performed using the conventional RIO technique. For each patient, the highest measured value was taken into account and the mean PD, GR and CAL were calculated. The paired Student t-test was used to compare the differences between baseline values and values measured six months after. Surgery was performed under local anaesthesia. A full thickness flap was raised after intrasulcular incision, without using release incisions. After removal of the granulation tissue, the exposed roots underwent thorough S/RP using ultrasonic devices and curettes. No resective surgery was performed, nor any root conditioning. Equal amounts of Osteoinductal® and Biobase® alpha-pore were mixed in a dappen-dish to a putty consistency mixture, which was placed into the defects in direct contact with the rough, vital bone surface. The amount of mixture did not exceed the margins of the defect. Post surgical care included antibiotherapy for one week (3x500 mg Amocycilin daily) and 0.2% Chlorhexidin (Plak-Out®, Santa Balanos, Greece) mouth rinses, twice a day, for the following four weeks, as gentle debridement of the operated area every second week, during two months.

Fig. 1, Case A





a) The bone defect exposed b) The mixture in situ

Fig. 2, Case B



a) The bone defect exposed b) The mixture in situ

#### Results

The healing phase progressed uneventful. No signs of inflammation, infection, allergy or severe pain were present. Pre-and postoperative mean values of the PD GR and CAL are displayed in the table No 1.

			PPD	(mm)	PPD	GR	(mm)	GR	CAL	(mm)	CAL gain (mm)
Patient Nr.	Tooth type	Defect type	Preoperative	After 6 months	Diff.	Preoperative	After 6 months	Diff.	Preoperative	After 6 months	
1.	35	2	7	5	2	2	2	0	9	5	4
2.	13	2	10	2	8	0	1	1	10	3	7
3.	14	2	10	3	7	0	1	1	10	4	5
4.	15	3	8	1	7	0	3	3	8	4	4
5.	16	2	7	2	5	0	2	2	7	4	3
6.	33	3	9	2	7	0	0	0	9	2	7
7.	34	2	10	5	5	0	3	3	10	8	2
8.	35	2	7	1	6	0	4	4	7	5	2
9.	15	1	8	6	2	0	0	0	8	6	2
10.	12	2	7	1	6	0	0	0	7	1	6
11.	13	1	6	3	3	0	0	0	6	3	3
12.	46	2	7	3	4	0	0	0	7	3	4
13.	47	2	6	5	1	0	0	0	6	5	1
14.	11	1	9	4	5	0	2	2	9	6	3
Mean			7.93	3.07	4.86	0.14	1.29	1.14	8.07	4.21	3.79
SD			1.44	1.69	2.18	0.53	1.38	1.41	1.44	1.81	1.89
<b>T</b> 1 1 4	~										

Table 1. Six months clinical results of treatment of intrabony defects with Osteoinductal® and Biobase® alpha-pore

The clinical measurements six months after treatment revealed a reduction of the probing pocket depth (PPD) from 7.93  $\pm$  1.44 mm to 3.7  $\pm$  1.69 mm, and a change of the mean clinical attachment level (CAL) from 8.07  $\pm$  1.44 mm to 4.21  $\pm$  1.81 mm, while the mean gingival recession (GR) increased from 0.14  $\pm$  0.53 mm to 1.29  $\pm$  1.38 mm. Both the PPD and CAL changes were statistically significant compared to baseline (p < 0.001). (Table 2)

Difference	mean	SD	р
PPD	4.86	2.18	0.00
GR	1.14	1.41	0.17
CAL	3.79	1.89	0.00

Examination of Rx reveals a visible defect fill in all treated cases

#### Fig. 3, Case A



RX images before treatment (a)



RX images six months after (b)



RX images before treatment RX six months after (b) (a)

### **Discussion and Conclusions**

The results of the case report indicate that treatment of deep intrabony defects using an oily Calcium Hydroxide suspension combined with alpha-Tricalcium Phosphate can lead to a statistically and clinically significant reduction of the PD and CAL gain. The lack of allergical or infectious reactions indicates that the combination of the two materials, while stable and very well tolerated, benefits from the anti-inflammatory and possible osteostimulative action of the oily suspension of Calcium Hydroxide. As histological evidences of the healing obtained by this therapy are still expected, further validation of this combination in treatment of deep intrabony lesions will need controlled clinical studies, in order to elucidate whether this approach can improve the clinical outcomes, when compared to each single treatment.

#### Abbreviations

- alpha -TCP: Alpha-Tricalcium Phosphate
- PD: periodontal pocket depth
- PPD: probing pocket depth
- GR: gingival recession
- CAL: clinical attachment level

This Poster was submitted by Stefan-Ioan Stratul.

#### Correspondence address:

Stefan-Ioan Stratul Str.Em.Gojdu nr.5 300176 Timisoara Romania sbs@online.ro

## TREATMENT OF INFRABONY **DEFECTS WITH ALPHA-TCP AND AN OILY CALCIUM HYDROXIDE** SUSPENSION, A 14 CASE REPORT.





Stefan-Ioan Stratul Department of Odontology-Periodontology, Faculty of Stomatology, "Victor Babes" Medical and Pharmaceutical University of Timisoara/Temeschburg, Romania

#### estreat

INTRODUCTION

An oily Calcium Hydroxide formulation proved sver the last years to be highly efficient in promoting point engeneration in closed deletis (Siguech, Paradontologie 2000, 3.243-250), Am of the study is the interest-tilter of the surpoid technique and of the clinical results alter the treatment of intrabory deletics with a combination of Alghan-12C and an only suspension of Calcium Hydroxide, Fourteen potents, each with a deep intrabory deletic with a combination of Alghan-21C and an only suspension of Calcium Hydroxide, Fourteen potents, each with a deep intrabory deletic with the statement of intrabory deletics with a combination of Alghan-21C and an object with the statement of intrabory deletics. Many constraints alter postperative healing was inclined. The clinical attachment fevel (CAL) from the 3.1.44 nm to 7.1.4.48 pm, and a change of the mean clinical attachment fevel (CAL) 0.51 pm to 2.7.9.1.51 and most both the PPD and CAL changes were statistically significant compared to based in the submit PPD inductions and CAL gains an instation of time taken and the basing administer PPD inductions and CAL gains and instantion of time taken and the significant fevels (CAL) from 0.14 ± 0.53 mm to 7.29 ± 1.38 mm. Bodo the PPD and CAL deletics were statistically digitaticant compared to based the basing administer of the provide again the analysis and CAL gains and instantion of time taken administer may inad to again them the PD enductions and CAL gains and instantiation of time taken administer the clinical whether this again administer and the provide the develocity whether the submit and the administer combined a divide. An order to be based additioned by its baserapia an submit addition and the combination of the basering additioned by the submit addition and CAL gains and instantion additions and the technical whether this again addition and instantion with each controlled dimensional basers and the whether this additional states and improve the chincal outcomes, when compared to each su

Results of basic research as clinical studies have proven the influence of an ely Calcium Hydroxide surpension on bone regeneration in cliced defects. Its osteostimulative effect seems to rely on many factors, as the deposit action of the Calcium Hydroxyde, which sustains the bone metabelism in a constant, mid alkalie environment, the simulation of the angiogenetic bone growth with concentration of the growth actors next to the defect well, and the reduction of the inflammation in the operated site, which results add recently to altergist Histological and radiological analysis, both in animatia and humans seem to indicate a predictable regeneration of closed bone defects. Such results lead recently to altergist to use the oily Calcium Hydroxyde suspension, alone or undervarious combinations, in treating periodental defects.

Aim of the study is the presentation of the surgical technique and of the clinical result after the treatment of intractory defects with a combination of Alpha-TCP and an oil suspension of Calcium Hydroxide.

MATERIALS AND METHODS

### RESULTS

The healing phase progressed uneventful. No signs of inflammation, infection, allergy or severe pain were present. Pre- and postoperative mean values of the PD, GR and CAL are displayed in the lable No.1.

Table 1. Six months chrical results of treatment of infrabony detects with Osteonaluctal® and Biobase®  $\alpha$  -pore

- mark	1100.000		100	14641	1460	0H	(wen)	<b>CH</b>	CAL	OWTH.	CAL Ger
Parent Nr'	100th 17pm	fupe (asks)	Precase- table	Alter 8 months	det.	Preoperative	Atar 6 manta	ba	Prespe- rotum	Aber 8 monites	
1. C	35	2	7	:5:	2	- 2	22.1	0	9.	.5	1.40
z.	13	2	10	2	8.	0	1.	1	10	.3	7
3	1A:	23	10	3	1	- CO	1	1	10		.5
4	15	3	4	8	1	<u>.</u>	3	3		4	4
5	16	2	7	2	5	2.0	820	2	7	4	- 2
8.	16 33	3		2	7.	0	0	0	9	2	7
f	34	2	10	- <b>8</b> 2	6.	0	- 3	3	- 10		2
8	34 35	2	7	- 42 L	6	0	6.4		7		2
a	35	1		8	2	0	D	0	8	.6	2
10.	12	2	7	1	6	0	0	0	7	- 242	6
11	13	1.1	6	3	3	50	0	0	6	3	- <b>T</b>
12	45	2	7 -	3	4	o a	D	0	7	3	- 4
13	-47	2	ė-	5	111	Ċ.	0	D	6	5	1
14	11	1	9	- 4	1.6	0	1.2	- 12 m			9
Mean	-		7.93	3.07	2.18	0.14	1.29	1.14	8.07	4.21	3 79

The clinical measurements aix months after treatment revealed a reduction of the probing pocket depth (PPD) from 7.93 ± 1.44 mm to 3.7 ± 1.69 mm, and a change of the mean clinical latchmeric level (CAL) from 8.09 ± 1.44 mm to 4.21 ± 1.81 mm, while the mean grigual recession (GRI) increased from 0.14 ± 0.53 mm to 1.23 ± 1.38 mm. Both the PPD and CAL (changes were statistically significant compared to baseline (p<0.001).(Table 2)

Table 2.

oh

Difference	mean	SD	pi
PPD	4.88	2.18	0.00
GR	1.14	1.41	G. 17
CAL	3.79	1.89	0.00

Examination of the Rx revealed a visible defect fill in all treated cases











Fig. 2. Case B

**DISCUSSION EXCOUNT OF** The results of the case report indicate that treatment of deep intrabony defects using an oly Calcium Hydroxyde suscension combined with  $\alpha$  - TCP can load to a statistically and clinically significant reduction of the PD and CAL gain. The lask of a largical or indications reactions indicates that the combination of the two muterials, while stable and very well loadered, theorem of Calcium Hydroxyde As histological avidences of the healing obtained by this therapy are still expected. Inthe work disclosed or normation in treatment of deep intrabory losions will need controlled clinical studies, in order to elucidate whether this agenoact can improve the clinical externes, when compared to each single treatment.

Aut	or: Dr. Ştefan-Ioan Stratul, DMD, Medicus Primanus, PhD, MDM,
	Assistant Professor - Department of Odontology-Periodontology
	Faculty of Stomatology
	"Victor Babes" Medical and Pharmaceutical University
	P-ta Ettimio Murgu 2, 1900 Timigoara, Romania
	e-mail: sbe@enine.re

0

Fig. 4. Case 8. Fix images before reatment (a) and six months after (b)