

Extraction Site Management utilizing Platelet Rich Fibrin



F





We can preserve quality of life While preserving & enhancing esthetics

Sec. 2.



5. None of these



We can preserve quality of life While preserving & enhancing esthetics



5. None of these





While preserving & enhancing esthetics

5. None of these



4

We can preserve quality of life While preserving & enhancing esthetics

· .a.



Keep your perspective Dont miss the forest for the trees



• Diagnostic -Freehand



• Full template-Guidance

MARCO REALDI SCOTT D. GANZ ANGELO MOTTOLA

COMPUTER-GUIDED APPLICATIONS

for Dental Implants. Bone Grafting, and Reconstructive Surgery

DESCRIPTION.





• Template-Assisted

• Full template-Guidance

All roads lead to Rome Some may be bumpier than others









Some may be bumpier than others

AVDIDING ESTHETIC DISASTERS



AVDIDING ESTHETIC DISASTERS



















EXTRACTION SOCKET TYPES



Salama & Salama IJPRD 1993



Decsions?

Immediate

Chen ST, et al. (2007) A prospective clinical study of non-submerged immediate implants: clinical outcomes and esthetic results. Clinical Oral Implants Research

Delay



Clinical D

- Site Specific

Patient Specific

Decisions

- Clinician Specific

- Risk Specific



Clinical D

- Evidence Based

Decisions

- Efficient & Effective



Timing of Implant placement in relation to tooth extraction

Ч	Type I	Imr
U		
0	Type 2	Cor
rc		
Ą	Type 3	Sub
Ą		
K	lype 4	Fully

- nediately following tooth extraction
- mplete soft tissue coverage of the socket
- stantial radiographic bone fill of the socket
- healed ridge

Hammerle et al. 2004



Timing of Implant placement in relation to tooth extraction

Y U D 0 App

Type I Type 2 Type 3 Type 4

Each has advantages and disadvantages but each is suitable for specific clinical situation

Hammerle et al. 2004



Timing of Implant placement in relation to tooth extraction

Y U D 0 4 Q Y

Type I Type 2 Type 3 Type 4

Which one of these is more appropriate when an anterior tooth needs to be replaced by an implant ?

Immediate

Early (6-8 weeks)

Delayed (12-18 weeks)

Late (above 18 weeks)

ITI CONSENSUS 2003 & 2008







ferences (2003 and 2008).

Option #1 - Extract & WAIT

Option #1 - Extract & WAIT

An alveolus is left after a tooth extraction

Alveolus

What happens when we extract a tooth?



Dimensional Ridge alterations following extraction An experimental study in the dog



1week

2 weeks Arau'jo MG, Lindhe J: J Clin Periodontol 2005; FEB 32: 212-218.

3 weeks 4 weeks











Horowitz R, Holtzclaw D, Rosen PS, 'Tooth extraction induces significant dimensional changes of the alveolar ridge'. J Evid Based Dent Pract. 2012 Sep;12(3 Suppl):





3-6 month after extractions

2-3 mm loss of height 3-6 mm loss of width







Option #1 - Extract & WAIT Risks

TYPE I

Extraction Sites

Mark Farmer Ivan Darby

CLINICAL ORAL IMPLANTS RESEARCH

Ridge dimensional changes following single-tooth extraction in the aesthetic zone

Clin. Oral Impl. Res. 25, 2014 / 272–277





Option #1 - Extract & WAIT

CLINICAL ORAL IMPLANTS RESEARCH

Mark Farmer Ivan Darby

Ridge dimensional changes following single-tooth extraction in the aesthetic zone



Clin. Oral Impl. Res. 25, 2014 / 272–277

Risks

Option #1 - Extract & WAIT RIS (S

Discussion: After a 6- to 8-week healing period post-extraction, there were significant reductions

in the hard and soft tissue dimensions of the ridge, most notably on the most coronal mid-buccal 100% of implants placed required simultaneous bone aspect (GBR) augmentation as a result.

Extraction Sites



Extraction Sites



CLINICAL ORAL IMPLANTS RESEARCH

Mark Farmer Ivan Darby

Ridge dimensional changes following single-tooth extraction in the aesthetic zone



What happens if you do delay approach?

Option #1 - Extract & WAIT



What happens if you do delay approach?

Option #1 - Extract & WAIT





5 keys to consider for success with Immediate Implant

- (I) BUCCAL PLATE
- (II) PRIMARY STABILITY
- (III) IMPLANT DESIGN
- (IV) FILLING OF THE GAP
- (\vee) TISSUE BIOTYPE



5 keys to consider for success with Immediate Implant

(I) BUCCAL PLATE

PRESENCE

AND

PRESERVATION

CBCT

MINIMALLY TRAUMATIC

EXTRACTION



Continuing Education 1

CS 9600

Defining New Paradigms for Assessment of Implant Receptor Sites The Use of CT/CBCT and Interactive Virtual Treatment Planning for Congenitally Missing Lateral Incisors

scott D. Ganz, DMD*

Abstract. An enouging technology that encompasses computed temography, excelerant econocies temography, and In provider software applications set developmentations are evolved into a reasoner well for dispersion, teatment plan-ning, and delivery of dorbal implant and associated restructive and surgical presedures. The integration of these incovalues tools is itelains to define new methods for appreciating anatomic, ingravities meaning and enhanding preservation proclearly planning in actions was restaution-crosentinglant densistry. This active will demonstrate how computed tomography combined with interactive nintual prostment pleasing and tware applications see empower: division with arbancel dispartic sepablists for impart mephraits issuesment, generating man satelyne that eventually may operands of our methods of preverginal alarising for doubl implant inconstruction.

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June 2008 - Nature 29, Norther 31 Ø6x6cm 150 μm

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Cone Beam Computed Tomography-assisted **Treatment Planning** Concepts

Scott D. Ganz, swell bir

REYMORUS

Carle beam computed torsography
Dental incluses - Computed temography
Interactive beamwing joint planning applications

Computed tonography (CI) and cone beam CI (CSCI) technology allows for all unprocessfee three dimensional SDI sustantian of each patient's includus anaromy. The advant of this technology has evolved into an inclugence diagnetic too that can be used for a variety of different clinical applications that include, b, t are not limited to: dental implant receptor site evaluation; a worker come defect and bone expressible presidents impacted with unit-dentes, and donies, temperarised double (TM) joint elegenoides, since asymptotic processing, and entrograms surgical interventions. The presurgical planning phase of these apprications that benefit from CBCT technology starts with the accumulation of data for which educated treatment electricate can be accused by cintermined. Adopting to the ALARA (as low as seasonably achievable) principle, the indiction opages from CBCI have been minimized through the process of collination, and reduction in scan time, yet inclutating a high degree of degree to be accuracy. The benefits versus if only a positive degree of this antide is to show the benefits of using CBCT technology for dental implant applications.

Anyyted of CBCT scaming machines are available in the United States and around We world that staim to delive high quality diagnostic images with most line operations on new this can be schered, in excition, sect mathins is error by

Autions of this test wave as blithed mexically in flars 30. Case Report, CMC assisted treatment of the fit ling long then bridge with traged and immediate load implett resources Dents Tawa, volume 11, 100 e 11, 100 v 2012 pp 82, 65, Reprinted with previous of Dents 1 over Magazine and Deritations zone. Department of Recommiss Devicing, University of Medicine and Deritaty, New Jerray, New .

Jeney Cental School, 116 Bergen Smoot, Nerverk, NJ 87(23, USA) * Private Practice, 155 Universed Piezz, Suite 364 Port Lee, NJ 672354, USA * Department of Descontroly Dearbity, University of Machine and Dentating, New Jeney, New Integration School, 126 Bergen Machine, NJ 87(13) I must a serve al a methics meaner

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796, 719 No. 6, June 2012

'osition statement of the American Academy of Oral and Maxillofacial Radiology on selection criteria for the use of radiology in dental implantology with emphasis on cone beam

Donald A. Tyndal, DDS, MSPH, PaD, Seffery D. Feler, DDS, MS, Sankos Ternala, DDS, PAD, And D. Sone, DMD, "Charles, Haldrad, 2019, 260," and Walker C. Sanko, 405, MS,

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THE USE OF CT/CBCT AND INTERACTIVE VIRTUAL TREATMENT PLANNING AND THE TRIANGLE OF BONE: DEFINING NEW PARADIGMS FOR ASSESSMENT OF IMPLANT **RECEPTOR SITES***

During the past 20 years, an emerging technology encompas-ing computed tomography (CT), cone beam computed tomography (CBCT), and interactive treatment planning sof-ware has slowly evolved into a necessary tool for diagnosis, treatment planning, and delivery of dental implant and associ-ated restorative and sargical procedures. The integration of these innovative tools has helped to define new paradigms for appreciating anatomy, improving accuracy, and enhancing presurgical prosthetic planning to achieve true restorative driven implant dentistry. In the past, the standard tools for diagnosis and treatment planning were two-dimensional (2-D) periapical and panoramic imaging.¹⁵ The dental implant the

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digms to be developed, which may supersede current method of presurgical planning for dental implant reconstruction.¹³⁻ The concepts as presented in this chapter are related to missin Parts of this chapter (schuling Figures 10-1 through 10-15) were reprinted from Gave SD (2008): Defining new paradigms for assessment of implent recepting table measures of the schule schule

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Use of Cone Beam Computed Tomography in Implant Dentistry: The International Congress

of Oral Implantologists Consensus Report Lete Denardes, DDS (PMD* Herby F. Ros, DDC, PHL # Sect D., Gans, DMD.4 Charg, Hyseri An, DDS (PhD)# Residable Bacilla DMD: MEDI; Dayle Treasen Francish, DDS, MS, 1970man & Federate DDS# James K., Iakar, DDS, MSS, DMSC, * David Harther, DDS, MS, 1970mar, A., DDS, MSC, PhD, 21 Dona Sectioniny, GDS, Andrew, Yourill James H., Herb, DA: Medication Residence Transmission, MJ, 2000, DDS, **D34-Curr Original Conference on Conference on Conference on Conference on Conference Original Conference on Conference on Conference on Conference on Conference on Conference Original Conference on Conference on Conference on Conference on Conference on Conference Original Conference on Conference

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EMO

Improved CBCT diagnostic acuity with the 'Lip-Lift' technique

Author_Dr Scott D. Ganz, USA









MAR - Metal Artifact Reduction

CDE World

DIGITAL IMAGING

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Enhanced CBCT Tools for Guided Surgical Applications

PEER-REVIEWE

eBoc

Continuing Dental Education

M/W 2023 - V11 - N214

Isaac D. Tawil, DDS, MS; and Michael Erdos, DDS



High Resolution Advantages



0.076 mm voxel - CS9000 0.3 mm voxel CS 9500



0.4 mm voxel - iCat

The difference between 75 microns and 150 microns is 8 times!

BUCCAL PLATE



TYPE 3

Elian, Cho, Forum, Tarnow A simplified socket classification and repair technique. Pract Proced Aesthetic Dent. 2007;19:99-104





Elian, Cho, Forum, Tarnow A simplified socket classification and repair technique. Pract Proced Aesthetic Dent. 2007;19:99-104


Elian, Cho, Forum, Tarnow A simplified socket classification and repair technique. Pract Proced Aesthetic Dent. 2007;19:99-104





Elian, Cho, Forum, Tarnow A simplified socket classification and repair technique. Pract Proced Aesthetic Dent. 2007;19:99-104



BUCCAL PLATE Type 1

TYPE 2

TYPE 3

on and repair technique. 9-104



Classification of Sagittal Root Position in Relation to the Anterior Maxillary Osseous Housing for **Immediate Implant Placement: A Cone Beam Computed Tomography Study**

Joseph Y. K. Kan, DDS, MS¹/Phillip Roe, DDS, MS²/Kitichai Rungcharassaeng, DDS, MS³/ Rishi D. Patel, BDS, MS²/Tomonori Waki, DDS, PhD²/Jaime L. Lozada, DMD⁴/Grenith Zimmerman, PhD⁵

Classification of Sagittal Root Position in Relation to the Anterior Maxillary Osseous Housing for **Immediate Implant Placement: A Cone Beam Computed Tomography Study**

Joseph Y. K. Ken, DDB, MS¹/Phillip Roe, CDB, MS²/Kitichai Rungsharasseeng, DDB, MB¹/ Tomonori Walki, CCS, PhD⁹/Jaime L. Lozada, DMD⁹/Grenith Zimmerman, PhD⁴

Purpose: The purpose of this study was to causally the relationship of the southal root position of the manilary antaxion teeth to their respective paseous locusings using none beam computed tomography (CBCT). The frequency of each clacelification was also reported. Materials and Methoder A retrospective raview of CBCT images was banduated on 100 patients (40 mer, 60 woman; mean age, 53.1 years, who fulfilled the inclusion criteria. The CECT images were evaluated and the relationship of the segitial root position of the maxiliary anterior teeth to its associated observe housing was recorded as Class I. P. W. or P. Results: The frequency cistribution of sagittal root position of maxiliary enterior seeth redicated that, of the ISOD samples 81.1%, 6.5%, 0.7%, and 11.7% were classified as Class . II, II, and IV, respectively. Conclusion An understanding of the plinice velevence of sagittel root position will provide adjunct data for the treatment planning of immediate implant plecement and previalenalization in the anterior maxilia A slassification system may load to improved interdisciplinary communication in treatmont planning far Inglan-based thetapy in the antesion maxilla, bit 3 Gen. MixLonic Instants 2011;26:873-876

Key words: anterior maxillo, cano beam computed tomography; pathetics, immediate impler placement, immediate provisionalization, esseeus housing, sagittai reet position, single toeth replacement, treatment planning

ediate implant placement and provisionalizain (IPP) of a single tooth in the esthetic zone was first advocated in the wid-1990s and has since een considered a predictable treatment option

roser, Department of Restorative Centioury, Lense Linda rsity School of Densistry, Lone Linda, California int Professor, Department of Restwative Dentistly

entotacial Orthopecics. Lotta Linca University School p listry, Loma Linda, California. wseer and Director. Advanced Education in Implant sistry, Lone Linde University School of Destistry, Low

rts. Calfaraia. Professions, Lonal, Inda University, Lonal, Inca, California,

Commondance to: Or Joseph Kee, Denter for Prosthodentics. and Implant Dentistry, Lone University School of Sentistry, Lone Linde, GR 92050, Rec. -909-558-48008. **Enalt JenBlunds**

replacing failing treth.1.0 in addition to preser ing tissue architecture, reducing treatment time, and providing the patient with the convenience of an immediate tooth replacement,1,1,18 IPP procedures have also been cocumented with high su cess rates when established clinical guidelines an followed.^{14,1} To ensure successful TPP, in addition to the presence of an intact bony socket following extraction and the absence of active infection pri ary implant stability must be achieved by engag ing the implant with the palata, wall and the bor approximately 4 to 5 mm beyond the soot apex.6 Unfortunately, because the available bone around the failing tooth may not always be sufficient to achieve primary implent stability, alternative treatment op considered. Factors such as n length, sag tial root position (SRP), and themicrohology of the piseous housing are important in determin ing the feasibility of IPP and must be evaluated via the use of cone beam computed tomography (CBCT). While the effect of root length on the IIP is easily

The International Journal of Crol & Nexillafecial Implants 873



Fig 1 Class | sagittal root



position.

position.

JOMI 2011





Fig 2 Class II sagittal root Fig 3 Class III sagittal root position.





Sagittal Root Position in Relation to the Anterior Maxillary **Osseous Housing For Immediate Implant Placement**





ig 1 Class I sagittal root osition

Centered in the middle of the alveolar housing without engaging either the labial or the palatal cortical plates at the apical third of the root



Fig 2 Class II sagittal root position.

Joseph Y. K. Kan et al. Classification of Sagittal Root Position in Relation to the Anterior Maxillary Osseous Housing For Immediate Implant Placement: A Cone Beam Computed Tomography Study. IJOMI Volume 26, Number 4, 2011

Positioned against palatal cortical plate Two thirds of the root is engaging both the labial and the palatal cortical plates

Fig 3 Class III sagittal root position.



Fig 4 Class IV sagittal root position.

Classification of Sagittal Root Position in Relation to the Anterior Maxillary Osseous Housing for **Immediate Implant Placement: A Cone Beam Computed Tomography Study**

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Periodontology 2000

Clinical relevance of dimensional bone and soft tissue alterations post-extraction in esthetic sites

VIVIANNE CHAPPUIS, MAURICIO G. ARAÚJO & DANIEL BUSER

2017



Option #1 - Extract & WAIT

Immediate post-extraction

8 weeks

Superimposed bone surface models



Thin bone wall phenotype

3

Thin bone wall phenotype





Immediate post-extraction

8 weeks







Baseline







The Dual-Zone Therapeutic **Concept of Managing Immediate Implant Placement and Provisional Restoration in Anterior Extraction Sockets**

Stephen J. Chu, DMD, MSD, CDT; Maurice A. Salama, DMD, Henry Salama, DMD, David A Garber, DDS, BDS; Hanae Saito, DDS, MS; Guido O Sarnachiaro, DDS; and Dennis P. Tarnow, DDS

Flapless Postextraction Socket Implant Placement in the Esthetic Zone: Part 1. The Effect of Bone Grafting and/or Provisional Restoration on Facial-Palatal Ridge Dimensional Change—A Retrospective Cohort Study







Int J Periodontics Restorative Dent 2014;34:323-331.

Dennis P. Tarnow, DDS¹/Stephen J. Chu, DMD, MSD, CDT² Maurice A. Salama, DMD³/Christian F.J. Stappert, DDS, MS, PhD⁴ Henry Salama, DMD³/David A. Garber, DDS, BDS³ Guido O. Sarnachiaro, DDS⁵/Evangelina Sarnachiaro, DDS⁶ Sergio Luis Gotta, DDS⁷/Hanae Saito, DDS, MS⁸





Esthetic Implant Site Management

The Dual-Zone Therapeutic **Concept of Managing Immediate Implant Placement and Provisional Restoration in Anterior Extraction Sockets**

Stephen J. Chu, DMD, MSD, CDT; Maurice A. Salama, DMD, Henry Salama, DMD, David A Garber, DDS, BDS; Hanae Saito, DDS, MS; Guido O Sarnachiaro, DDS; and Dennis P. Tarnow, DDS

Flapless Postextraction Socket Implant Placement, Part 2: The Effects of Bone Grafting and Provisional Restoration on Peri-implant Soft Tissue Height and Thickness— A Retrospective Study



Stephen J. Chu, DMD, MSD, CDT/Maurice A. Salama, DMD² David A. Garber, DDS, BDS²/Henry Salama, DMD² Guido O. Sarnachiaro, DDS³/Evangelina Sarnachiaro⁴ Sergio Luis Gotta⁵/Mark A. Reynolds, DDS, MS, PhD⁶ Hanae Saito, DDS, MS7/Dennis P. Tarnow, DDS8 (Int J Periodontics Restorative Dent 2015;35:803-809.



Int | Periodontics Restorative Dent 2015;35:803-809.

Implant placement into postextraction sockets with a provisional restoration in nonfunctional occlusion in the maxillary anterior region has increased in use and clinical relevance









Concept and the Triangle of Bone

IMPLANTS





The Root Membrane Concept:

In the Zone With the "Triangle of Bone"

INTRODUCTION Implant dentistry has continued to evolve with refined tech

Rear Texis DDS.MS Millingly R. Mitslay, DOE



signes for immediate or delayed loading, tromed ate ortnaction placement, hone grafting, guided surgery applications, and restorative options. However, the importance of the diagnostic process of dental implant reconstruction cannot be underestided to achieve both functional and aeithetic outcomes. The alvest of y D imaging modalities and interactive treatment planning software has provided clinicians with an enhanced set of tools for accounts assessment of each individual patient prosentation, repectally when implant reconstruction may be moside ed. Whenevalua fingpotential implant roceptor siles, it is important to appreciate the volume of bone, the drickment of the cortical plates, hone density, hony topography, and the position of existin

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The goal is also ays to place the implant in a restoratively driver position while preserving_bone



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It is well h lowed by irres alvoolan bone a



Figure 1. (a) The concentrational alian researching the absorbe latent are (b) the interaction of the tooth root within the absorber to be assumed



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SD GANZ



Dentistry Today Oct 2017



5 keys to consider for success with Immediate Implant

(I) BUCCAL PLATE

- (II) PRIMARY STABILITY
- (III) IMPLANT DESIGN
- (IV) FILLING OF THE GAP
- (V) TISSUE BIOTYPE



II. Primary Stability & III. Implant Design

SUFFICIENT BONE APICAL TO THE EXTRACTED TOOTH'S ALVEOLUS 2-4 MM OF BONE APICAL TO THE **ALVEOLUS CREATES STABLE ANCHOR** ENHANCED BY THE TYPE OF IMPLANT

(TAPERED DESIGN)





II. Primary Stability & III. Implant Desi











0 Dia

64.0

2

in the second second









5 keys to consider for success with Immediate Implant

(I) BUCCAL PLATE

- (II) PRIMARY STABILITY
- (III) IMPLANT DESIGN

(IV) FILLING OF THE GAP

(\vee) TISSUE BIOTYPE





Immediate placement in Type I Sites





Bone Remodeling Around Implants Placed in Fresh Extraction Sockets

Int J Periodontics Restorative Dent. 2010 Dec;30(6):601-7.

Ugo Covani, MD, DDS¹/Roberto Cornelini, MD, DDS² Josè Louis Calvo, DDS³/Paolo Tonelli, MD, DDS⁴ Antonio Barone, DDS, PhD⁵

No Graft was placed







Should we graft the gap ?



Araujo et al. 2005, 2006a, b, Botticelli et al 2004, Sanz et al. 2010, Ferrus et al. 2010, Tomasi et al. 2010

During the first 4 months following tooth extraction and implant placement





Immediate placement in Type I Sites

• 1) Marked alterations occurred in the edentulous site • 2) The buccal wall of the socket was markedly resorbed • 3) The height of the buccal crest was reduced 4) New Bone formation occurred in the void between the implant and the walls of the socket with up to 50% resorption

Should we graft the gap ?





CLINICAL QUESTION If grafting... which material to use?

Allograft? Xenograft? Synthetic? Autogenous? Particulate Dentin?





Autograft

Gold Standard

Bone harvested from the patient's own body has osteoconductive, osteoinductive, and osteo-genic properties

Allograft

Cadaveric bone (obtained from a bone bank) available in mineralized and demineralized freeze-dried forms. Can consist of cortical, cancellous of mixture

Synthetic

Often made of hydroxyapatite, tricalcium phosphate or other naturally-occurring and biocompatible substances with similar mechanical properties to bone.

Xenograft

a tissue graft or organ transplant from a donor of a different species (bovine, porcine, equine) from the recipient.

Sources of grafts





Figure 2: Bone Grafted to Replace Lost or Deficient Bone





\bigcirc

Component	% make up
HA	70%
Collagen I	25%
Water	5%
BMP / GF	More than bone



Component	% make up
HA	60%
Collagen I	30%
Water	10%
BMP / GF	Some

.....





8 minutes from extraction to graft material including sterilization process

Chore the second



Dontin to Pone Interface

IMPLANTS

VOLUME 40 NO. 8



r. Nathaniel Lawson Page 90





r. Michael Sonick Page 76



ge 94







THE NATION'S LEADING CLINICAL NEWS MAGAZINE FOR DENTISTS

Figure 5. Implort domaing for the mandibular and with straight and angled MEVAs

Autologous Toeth Structure ... contribut from page 79 from the maxillary arch, which, with transparency' to similar structures themerging of the instructed warming based on their densities (Figure (b)) data, helped with the reducatively. Selective transportery was again ati-driven planning and selfnement of liked to visualize the final location of an factured toeth, which severely tech are to be extracted and gratting.

REALITY FOR CONSIGNATION AND

Ubrary within the software (Figures dated, the amount of diveolar reduced and ab). The planning continued tion (after tooth extraction) was the permuters of the implantacy of the matrix of the software (Figure 1) and the software (Figure 2) and the softw with the communities and manipula-determined A bone seduction guide and guided drill kirunificed. The one is was therefore elected to utilize tion of the 3D reconstructed volume was then designed which a anchor or only drill guide was to be secared the patient's own teeth to fabricity. of the mandible and modifie (Fig. pins for stable fixation to the man to the mandible with the same fixation dible (Figure tal. The various component to the prediction guide both the manified or and mandibular to the manified or the same fixation of the same fi within the Elite Sky Fim software, ments of the diagnostic progress can (Figure a), the nandibular arch was separated. Be better appreciated using "selective"

projections, which estended above manditular tech and virtual tech. (USS Instruments), and all tockets the sociusal plane (Figure 6d). Once - helped relate the implane positions - were thoroughly debrided and then each of the implant receptor sites for the virtual restorative plan Hig-raff height chosen from the implant and the vertical positions were salid use the sequential estentary nate or 12% (Figure 12) Mary of the

Glinical Presentation

implant politioning (Figures 66 and the y-central straight implants and affected her shifty to masticute lovel, is required set The implants were then planned the standed implants clearly indicat resulting in embarragement and a When teeth are to be extracted with precise regard for the error- ing the safe proximity to the blateral diminished quality of his Pigure rob. the extraction sites and implant gener of the server assess charmels inferior elsenfar nerves (Figure 8a). After a thorough review of the diag receptor sites will often remaine represented by the yellow abutment. The introducent STL model of the stostic process, the treatment plan some type of grafting to manage the

was presented and accepted by the patient for mescillary and mandibu lar implant-supported, fixed restoras. At the request of the patient, me long procedure was scheduled to upleted under sedition admintered by a dental anesthesiologist. have the patient had been solated. filateral mandibular blocks were applished with 1% licocaine ith mission spin-phrine and eticaine. The reinaining man dibular testis were estrated using periotimes, elvatories, and forceps

OCTOBER 2021

arches. The process of harvesting graft material from tooth structure has been successfully reported in

use road and covered with large : × 30 mm collagen membranes (Figuse 1989. The immediate postopera tive partoramic radiograph nevealed the placement of 5 implants for the

mandibular arch and e for the maxil lary anch (Figure 10). The classic radiolucent appear Pigers 6a. 4 3D warnets ance of fresh extraction sites was not evident as each seas filled with the dentin graft material Small, round,

natiolucent "holes" could be visual laed in the mandibular arch from the a fixation screws. The sD pap ramic reconstructed view is som what distorted, and thus, the true trajectory of each implant cannot he accurately approxiated it was the original plan that the right- and left most distal "filted" implants receive angulated multi-unit abutment the appropriate ties as cuff height

once the implants were uncovered

resultant anatomical defects and ling with a sterile game, and then the grafted site and stabilized with drill guide was fixated in the maxibony concavities. Contently, most - killowed by a repeat of the sinse pro-bone grafting is dependention sizes - Then hwas creating have use as - Cheuro was then achieved with con-were then propagat, and 6 Helin GM

entin

are essential to have on hand when - completed by a trained auxiliary. oth are in he extracted, perhaps

with a fulling dentition due to also. The base was then reduced to the increpose the residual liberales. Once graft material gleaned from the toeth of a base dentities of the base was reduced an extension of the base was reduced an extension. gained popularity as in important genrs and flattened with carbide burs ancillary method to gain significant in a straight handpiece (Alveeplasty volumes of graft material, especially Kit/Meisinger/USAb Based upon the when patients are to undergo full ______3D planning, the 3D printed cases. arch dental implants."" One such unny drill gatch was designed to fit innovation is the Smart Dentin ever the reduced hone and fixeted in Grander (Koneta/Kohl/Egure 124). The same holes as the bare reduction Grant the remaining manifolder guide (Figure rg).

banks to supply as with "bone in a meeded in both the upper and lower timuous and interrupted 40 sources implants were placed through the bothle" in various shapes, sizes, and anches. The entire process can range (VCRNL/Bintom). guide (Figures 17 and 18).

teeth were extracted and evaluated, a flarroadburth a high open hand-ferent lengths and secured the rein place was used to elean the tooth guile to the mandible (Fixation Kit

IMPLANTS



IMPLANTS



Figure 7. Cone reduction guide design, reduced manchile, remas, and simulated inclusion with whether itemportance.



DISCUSSION

Figure 32, (a) Smart Dente Gondes Hamateliks and estacted sets, (a) tests in the ting character, and ick large and ranell particle sizes sorted in 7 character





local menticle, 5 includes, and getwe abstract

Figure 8. (a) Transported reduced monolide. 5 includes, provedients, (b) Transported 5% model and virtual testing

Figure 10. Propertieve restorted view. Figure 11. Mandbalar pitkartions.







IMPLANTS

Autologous Tooth Structure as an Adjunct Grafting Modality

completed by a trained auxiliary. pleted for the maniflary arch. After was objectively measured, and ISQ A full-thickness nuceperiosted head infiltration of anothetic values sense found to be below the an alternative concept would be to that was elevated from the approxi-use the antilogene material from maternae of teeth Nos go to an and the th wave strained fully scracied. Therefore, the maxillary implants enamel and dentin to serve as grafy carefully reflected to expose the alve- and all sockers were throughly were buried in a 2-stage protocol. To the matche angical sites. In generating of a site of the site of As many of our patients present with a anchor pine (not shown), mately the area of teeth Nos, 3 to 14, then sites were all filled with the





after extraction. When implants an planned to be placed directly within a fresh extraction societ, often then is a gap on the buccal, which can be filled with graft insterial to help preserve the bony housing. In other ertais, the whole sockets can be filled to reduce the potential for volumit

ric shrinkage of the ridge over time. Figure b. The categoing diffigure sense: illustrated the effectiveness of uti-The current case presentation

where the teeth will be removed an

what type of boary delects will be left

The gold standard has always been autologous tissue harvested from the patient....

and after consoluterration had been liking an innovative device to grind confirmed. The patient was then contacted teeth to produce sufficient brought out of sedation and allowed graft volumes required during the to recover until she was fully other surgical phase of full-arch implant ent and ambulatory, immediate com- reconstruction. Calvo-Gairado et plets dentures were then delivered al found that after precessing with to the patient after soft tissue selin the Smart Dentin Grinder, "0.25 gr ing was accomplished to improve fit. of human teeth produced to ac of Postop instructions were provided biomaterial" and that the "chemical to the patient orally and in writing composition of the particular was The procedure was well-tolerated, clearly similar to natural bose." and the patient has been followed for The present case illustrated imme-

utureremoval and healing progress, diate extractions and immediate implant placements for a delayed loaling protocel with autologous When full arch implant sestors dentin graft material, which can also tien is contemplated for patients be used for immediate load protocols who are partially dentate, imme- when appropriate

dable guided or full-

INTRODUCTION

Sorth D. Ganz, DMD



lary complete dentury vs.a mandibular EFD, and (5) implant supported removable and fixed restorations for both arches. The patient selshed to determine if a ned-type full-arch sesteration could be considered for both the maxilla and mandble. The patient's medical history revealed hyperthyroidism and hip replacement within the prior s years. Clinical extenination confirmed the diminished

idition of the patient's dentition. The need for a rough (Dassessmental the patient's existing anatomical presentation, which could only be accome plished with CICT, was explained to het. The CICT llowed for the inspection of the anatomy in multile views and utilizing the digital tools afforded by the software (CS 3.D Imaging [Cardstream Dental]) Figure 13. The pastoramic reconstruction served as a cout" ilm to help visualize the present condition the patient's dentition (Figure 2). The upper arch ithad several fractured teeth, several with preous root canal treatment, one single crown, and a unit posterior bridge on teeth Nos. 12 to 15. Using the embedded link, the original CBCI scan data was

then expirited from the Cavetrians βD Imaging Software directly into Blue Sky Han software (Hue Darrent innovations, Sky Biol The Blue Sky plan offen additional planning and design visuady notapped tools toold in accurate diagnosis, treatment planning, and surgical ted tooth, which is guide fabrication.

The preliminary plan constitued of placing implants in strateti reconstruction in a that it is possible to give positions to support fixed, timp and supported restorations that Italiaesidual sockets would be accurately delivered with the implementation of static. Iduring immediate sequential surgital guides (Figure 3). Each potential implant seeep for the was designated by tooth number for the maxillary and mandibular arches. Manufacturer-specific simulated implicits some then refined within the cross-sectional images, recording diam-

entition in the maxil-givet and partitioners and lengths in screensbots for the maxilla (Figure 4) and the mandible (Figure 4) that were entitled during the surgery is color

IMPLANTS



Repurpose extracted teeth for autologous graft

Regenerates native bone

Smart Dentin Grinder GENESIS

The Smart Dentin Grinder converts extracted teeth into the highest quality and most effective and predictable AUTOLOGOUS graft.

RECYCLE the extracted tooth into bloactive, estepinductive dentin graft within 8 minutes.

What to expect

High predictability every time

- Excellent new bone regeneration
- Slow resorption / bloactive scattoid
- Contains GFs and BMPs
- Minimal inflammation

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11507 (pm),6259 , Ghamotose L, Ygediebi T Effect dae precentation indeventane fo Master 2. Heatwitz FPL Phased H. et al. Heating Desi, 2009-38(7)-097-117

Becho L Machalo Z et al Adop remnand centri sensus screepel in sidge presentation for censor sills 3, 5, 5, 00410000 04 M IC IDE MANUELER.

I Buly D. et al. Phylic 202.90013/0.572 (ki)

other available grafting material. Dr. Gasta second has no the depice from the trients are also pleased that their. Denses of Monterne are Deviate in modes on calls are being and a specialty coefficient is mode. Houston, Ho is a Fellow of the Acade bart, a Follow of the Interna Full and, implant supported readers in the either fixed or removes the second of the proposed treatment modality, when extra term produce mywhere between of teaching ample amount of grad materials (0) autologous dary in that does not require a secondary in the law of the field of t lights (ICO), uS Arebanadar of the Dight

 and a LIB/L/SIGNOB-LISON of Library and the second s Dr. Jawii m Berlin, 200 right: 1818. definition: Filters of the ACB and the Westered Interface and American Structure in the American Structure in the American Structure and American Structure in the American Structure in the American American and American Structure in the American Structure in Stru



Figure 194. Implementer and residual

CONCLUSION

rated from the patient's ow seeth has many advantage including (it) representing a biocommutible material and are being namenical as a forcign body; (2) having almost he same composition at Figure 20. Postesorative constantic toology pri-

hone, composed of higher assaults industriation. density hydroxyapathe and



type I collegen filter; (g) dentin and harvesting site and, therefore, climi



Figure 10. Fail-tomplete guided implements

mai uses can include (13 entrymtional socket preservation, (a) onlay grafting, (1) since augmentatione, (a) ning sticky hone with plateletrich fibrin, and 653 use with nartial traction/socket shield cases,14 like wn cells are being used to enhance Phone 150. Colleger reactivities places: the healing process. More research, over the graft tota long term studies, and follow-up pro- of Ossosrtop coduces are recommended to quantify the interval Dologe of Dentets, a Detected to plantaria grafts, hence osteoinductivity; (2) a the benefits of this adjunct modality



-/10115





Radiographic Cone-Beam Computed Tomography Study Snjezana Pohl, Itzhak Binderman, Jelena Tomac; Materials 2020, 13, 1083; doi:10.3390/ma13051083



Maintenance of Alveolar Ridge Dimensions Utilizing an Extracted Tooth **Dentin Particulate Autograft and Platelet-Rich Fibrin: A Retrospective**

- 58 extraction sockets with up to 2mm of missing buccal bone
- CBCT measurements at time of extraction and 4 months later
- Results: minimal dimensional loss and in some aspect – gain!





Option #2 - Extract & Immediate Implant



Option #2 - Extract & Immediate Implant

Triangle of BONE ZONE

Buccal Plate

Triangle of BONE ZONE

Triangle of BONE ZONE

Filling the Gap

Filling the Gap

#




















6 Vr Post Op

5 keys to consider for success with Immediate Implant

(I) BUCCAL PLATE

- (II) PRIMARY STABILITY
- (III) IMPLANT DESIGN
- (IV) FILLING OF THE GAP

(V) TISSUE BIOTYPE



- Nozawa T, Enomoto H, Turumaki S, Sugiyama T, Kurasima T, Watanabe F, Ito K Biologic ratio of supra-implant mucosa





V:H = 1:1.5



ZERO BONE LOSS CONCEPTS by Prof. Tomas Linkevičius

CRESTAL BONE STABILITY WITH EVERY IMPLANT

NEW! ZBLC Immediate MasterClass







ZERO BONE LOSS CONCEPTS

TOMAS LINKEVICIUS, DDS, Die Pres, PrD







Zero Bone Loss Concept

The Influence of Soft Tissue Thickness on Crestal Bone Changes Around Implants: A 1-Year Prospective Controlled Clinical Trial

icius, D05, Dip Pros, PhD¹/Peteris Apse, Prif, D05, Dip Pros, MSc, Dr Fabil/Mer nea Grybeurakea, DOS, MOS, MD, TIOSCA, Ph.D. / Algindes Pulaya, 305

stants after a Lynax Italian-up. Materials and Methods: Forty-al eos al intelare siter was inclusivel with a periodoctal prove. Alter healt strong A (this englobal) and 182 a 0.24 mer (SE paras), 0.9 to 3.3 merial and 1.18 a 0.062 min stands 0.8 is 2.1 ment in the shiftal Mean have time in hal one text A (thir) and Bythiesi groups in both the mesial and he distal, Dandasian Initial prof. hickness of the creat may be considered as a significant influence or marginal loose stabili

opt of early crestal bone less after pro ction of an implant was sur ted by Abreituan et all more than two decade co. Since then, many factors have been identified a

712 Islams 24, Sumilar 4, 1001 TONCE PUBLICHEN CO. NC. PENEMIC

ntion in comparison to other tectural It has been proposed that a minimum of 3 even of fart mucosa is measired for a stable epithelia that if a minimal dimensio

Initial gingival tissul thic ness at the crest may be considered a significant influence on marg plants. If morless, +5 mm ma estal posit butmen

Tomas Linkevicius DDS Phd et al 2009 JOMI

B e stability re thicknes. bone loss u despite a e implant. CL.









5 keys to consider for success with Immediate Implant

BUCCAL PLATE

PRESENCE AND

PRESERVATION

CBCT

MINIMALLY IRAUMAILS

EXTRACTION



How do we extract teeth?

INSTRUMENTATION

TECHNIQUES

TERMONOLOGY



How do we extract teeth?

INSTRUMENTATION

TECHNIQUES

TERMONOLOGY



Tooth





How do we extract teeth?

INSTRUMENTATION

TECHNIQUES

TERMONOLOGY

Root canal system





How do we extract teeth?

INSTRUMENTATION

TECHNIQUES

TERMONOLOGY



PDL Periodontal Ligament





MINIMALLY TRAUMATIC EXTRACTION

The first step in removing a tooth using the simple technique is to sever or loosen the soft tissue attachment surrounding the tooth.

Instruments are required to sever the soft tissue attachment: straight or curved periotomes



The Straight Periotome is used for 6 maxillary anterior teeth



Use of peristomes to engage PDL aides in elevation and separation of soft tissue from cementum







Initial separation of PDL





Use of peristomes to engage PDL aides in elevation and separation of soft tissue from cementum





Reversed

Initial separation of PDL

Concave



Initial separation of PDL

Use of peristomes to engage PDL aides in elevation and separation of soft tissue from cementum



Mechanical Principles for Extractions TBSINOX

1. Expansion of the bony socket

2. The use of fulcrum or lever



1. Expansion of the bony socket

2. The use of fulcrum or lever

Mechanical Principles for Extractions



FIGURE 7-51 Handle of small, straight elevator, turned so that occlusal side of elevator blade is turned toward tooth. The handle is also moved apically to help elevate the tooth.



FIGURE 7-52 Handle of elevator, which may be turned in opposite direction to displace tooth further from socket. This can be accomplished only if no tooth is adjacent posteriorly.





2. The use of fulcrum or lever



1. Expansion of the bony socket

2. The use of fulcrum or lever

3. Insertion of wedge or wedges. Wheel and axel



Mechanical Principles

1. Expansion of the bony socket

2. The use of fulcrum or lever

3. Insertion of wedge or wedges. Wheel and axel







ECHNIQUE



HOW TO HOLD AN ELVATOME?





Tooth Morphology

(Maxillary)



(Occlusal line)

(Mandibular)

(Median line)



Tooth Morphology

Single root















FRINCES Extraction Forceps



ANTERIORS

UPPER UNIVERSAL



UPPER MOLARS

LOWER 3RD MOLARS

LOWER MOLARS

UPPER CANINES & PREMOLARS



LOWER ROOTS

UPPER ROOTS



Patel FRINGS forceps with spr Hybrid 23 Tawil FRINGS **Modified 151** 13 13

Special Edition FRINCS



Ganz FRINGS

Micro Root Tips

Auerbach FRINGS Modified 150


Expansion of the bony socket



Mechanical Principles for Extractions



Expansion of the bony socket







Lower root forceps with fine blades are used to extract lower

incisors.



1. Expansion of the bony socket

- The initial linguo-buccal movement for extraction of lower second mandibular molar.
- Initial rotational forces it is useful for removal of teeth with conical roots; such as maxillary central.
- Tractional forces are useful for final removal of tooth from socket. They should always be small forces, because teeth are not "pulled."



Mechanical Principles for Extractions

1. Expansion of the bony socket



Expansion of the bony socket











"Extracting" Failed Implants





































12 week post op

D













Statement of the













































te about slood?



GROWTH FACTORS: Protein released by Placelets and Leukocytes = CYTOKINS

Degranulation after Clotting



PLATELETS

Inflammatory Phase





REPAIR AND REGENERATION...



New Angiogenesis



Proteins

Hormons

Grown Factors



GROWTH FACTORS = PROTEIN

Present in Platelets and Leukocytes

Substances who simulate cell differentiation, growth, and proliferation

Growth factors play a predominant role in wound healing







GROWTH FACTORS: 150 *EACH FACTOR HAS A SPECIFIC FUNCTION*

BMP: Bone Management Proteins **FGF:** Fibroblast Growth Factor **PDGF:** Platelet Derived Growth Factor **IGF:** Insulin like Growth Factor **TGF:** Transforming Growth Factor **VEGF:** Vascular Endothelial Growth Factor etc...



Using only blood mixed with biomaterials leads to higher implant bed vascularization



Addition of blood to a phycogenic bone substitute (blood) leads to increase in vivo vascularization

Barbeck M, Choukroun J, Ghanaati S, BIOMEDICAL MATERIALS 2015



PLATELETS GROWTH FACTORS PDGF VEGF TGF



ANGIOGENISIS





PROLIFERATION CHEMOTAXIS

WHAT IS YPLATELET CONCENTRATE TECHNIQUE"? Using a Centrifuge

to separate the blood components





and transiently, increase platelet and

leukocyte count.





Platelet concentrates

PRP **Anti-coagulants** PLATELET RICH PLASMA YES

Marx 1998





anitua

PRGF

PLASMA RICH IN GROWTH FACTORS

Anitua 1999

Anti-coagulants








PLATELET RICH FIBRIN

Platelet concentrates



Anti-coagulants

Choukroun 2001



GROWTH PLATELE' Why should we





NIN CLO

eased from KOCYTES

Anticoagulants?

STIMULATION

OUND HEALING



PLATELET CONCENTRATE TECHNIQUES

PRP = Platelet Rich Plasma Marx 1998

PRGF = **Plasma Rich in Growth Factors** Anitua 1999

PRF = **Platelet Rich Fibrin Choukron 2001**

DRAWING + ANTICOAGULANT

DRAWING + ANTICOAGULANT

DRAWING WITHOUT ANTICOAGULANT



S. GIANNINI, A. CIELO, L. BONANOME, C. RASTELLI², C. DERLA¹, F. CORPACI¹, G. FALISI Eur Rev Med Pharmacol Sci. 2015;19(6):927-30.



Comparison between PRP, PRGF and PRF: lights and shadows in three similar but different protocols



Comparison between PRP, PRGF and PRF: lights and shadows in three similar but different protocols same patient 3 tubes















Platelet Concentrat

few leukocytes

No leukocytes

leukocytes



One Donor PLATELET CONCENTRATION **3 Tubes** HANDELING REPRODUCIBILITY CLOTTING



S. GIANNINI, A. CIELO, L. BONANOME, C. RASTELLI, C. DERLA, F. CORPACI, G. FALISI Eur Rev Med Pharmacol Sci. 2015;19(6):927-30.





Comparison between PRP, PRGF and PRF: lights and shadows in three similar but different protocols

Among the advantages that shows the PRF, compared to PRP and PRGF, we can cite a greater simplicity of production for the absence of manipulation that leads to a reduced possibility of alteration of the protocol due to an error of the operator. The special texture of the PRF and its biological features shows clearly an interesting surgical versatility and all the characteristics that can support a faster tissues regeneration and high-quality clinical outcomes.

S. GIANNINI, A. CIELO, L. BONANOME, C. RASTELLI, C. DERLA, F. CORPACI, G. FALISI Eur Rev Med Pharmacol Sci. 2015;19(6):927-30.







Dohan, E.D., de Peppo, G.M., Doglioli, P. and Sammartino, G. (2009) Slow Release of Growth Factors and Thrombospondin-1 in Choukroun's Platelet-Rich Fibrin (PRF): A Gold Standard to Achieve for All Surgical Platelet Concentrates Technologies. Growth Factors, 27, 63-69. https://doi.org/10.1080/08977190802636713







• PLATELETS = Release of Growth Factors • LEUKOCYTES = Release of Growth Factors



• FIBRIN = Major Role





PRRI - FIBRIN = Major Role BOESCAFEOLD Fibrin is a Provisional Matrix through which cells migrate during the repair. 10-15 days = time of release

Chase AJ. J Vasc Res 2003; 40:329-343

Mazucco L. Transfusion Medicine Reviews Vol 24, No 3, July 2010







Nguyen L.H. et al. **Tissue Engineering part B Oct 2012**





	PRP	PRF	A-PRF
PDGF-AA	6176 (2812-9184)	9262 (2877-13839)	11048 (5036-18817)
PDGF-AB	4131 (1837-5492)	4396 (862-7563)	6007 (3455-10298)
PDGF-BB	1155 (531-1371)	680 (220-1147)	1010 (643-1803)
TGF-beta1	1105 (619-1453)	1110 (302-1714)	1589 (1052-2315)
VEGF	847 (693-1009)	732 (537-914)	847 (814-1063)
EGF	363 (210-497)	512 (146-715)	659 (447-795)
IGF	54 (44-67)	166 (55-252)	129 (81-179)

Data represents averages (pg/ml) with ranges (minimum to maximum values)

Grown Factors Slow Release



Eizaburo Kobayashi, Laura Fluckiger, Masako Fujioka-Kobayashi, Kosaku Sawaga, Alton Sculcan, Benoit Schaller, Richard J. Miron. Comparative release of growth factors from PRP, PRF, and advanced-PRF TClin Oral Invest. 18 September 2015. DOI 10.1007/s00784-016-1719-1







L-PRF





T - THE THE START OF A SAL TO SAL TO SAL TO SAL



3000 RPM for 10-12 minutes

2400 RPM for 12 minutes

1300 RPM for 8 minute



LOW SPEED CONCEPT

Leukocytes





SPEED CONCEPT

VEGF









Dohan, E.D., de Peppo, G.M., Doglioli, P. and Sammartino, G. (2009) Slow Release of Growth Factors and Thrombospondin-1 in Choukroun's Platelet-Rich Fibrin (PRF): A Gold Standard to Achieve for All Surgical Platelet Concentrates Technologies. Growth Factors, 27, 63-69. https://doi.org/10.1080/08977190802636713



~	
	20

R.C.F. relative centrifugal force

The relative centrifugal force (RCF) or the g force is the radial force generated by the spinning rotor as expressed relative to the earth's gravitational force. The g force acting on particles is exponential to the speed of rotation defined as revolutions per minute (RPM).

Doubling the speed of rotation increases the centrifugal force by a factor of four. The centrifugal force also increases with the distance from the axis of rotation. These two parameters are of considerable significance when selecting the appropriate centrifuge.



R.C.F. relative centrifugal force



$G = 1,118 \times 10^{-5} \times r \times n$

r = radio (cm) n = r.p.m.FCR = x G (gravity)



The

Evaluation of 24 protocols for PLATEL production of platelet-rich fib



G force vs time











Platelets and Leukocytes











Platelets and Leukocytes









Evaluation of 24 protocols for the production of platelet-rich fibrin

Miron, R.J., Chai, J., Fujioka-Kobayashi, M. et al. Evaluation of 24 protocols for the production of platelet-rich fibrin. BMC Oral Health 20, 310 (2020). https://doi.org/ 10.1186/s12903-020-01299-w



Platelets and Leukocytes





Erythrocites



Evaluation of 24 protocols for the production of platelet-rich fibrin



Miron, R.J., Chai, J., Fujioka-Kobayashi, M. et al. Evaluation of 24 protocols for the production of platelet-rich fibrin. BMC Oral Health 20, 310 (2020). https://doi.org/ 10.1186/s12903-020-01299-w

"Not as many cells are located in the plasma layer, a higher concentration of platelets and leukocytes can be found owing to the reduced plasma volume"

Platelets and Leukocytes







Platelets



Lymphocytes







Plasma

Erythrocites



Post Centrifugation







Platelet-rich fibrin (PRF): A second-generation platelet concentrate. Part II: Platelet-related biologic features David M. Dohan, DDS, MS, a Joseph Choukroun, MD, b Antoine Diss, DDS, MS, c Steve L. Dohan, d Anthony J. J. Dohan, e Jaafar Mouhyi, DDS, PhD, f and Bruno Gogly, DDS, MS, PhD, g Nice and Paris, France, Los Angeles, Calif, and Go⁻teborg, Sweden. OOOOE. March 2006



Liquid - Blood Plasma Solid - Platelets - Erythrocytes

- Leukocytes





PRF: Simple Preparation Choukroun 2001 Drawing











End of Spin: PRF = Fibrin Clot



Physiological Clotting



Cephalic Vein

Median Cubital Vein

Cephalic Vein

Copyright © 2001 Benjamin Cummings, an imprint of Addison Wesley Longman, Inc.







dorsal metacarpal veins

cephalic vein

Venous System of the Hand

dorsal digital veins

dorsal venous arch

basilic vein

Harvest from ACF



Multiple Tubes

8





Suture



Incise











Membranes











Plasma + Proteins + Fibrin

Choukroun 2005

Fibronectin: 2046 ng/ml Vitronectin: 251 ng/m

DOHAN D. Curr Pharm Technol Jul 2011









5 layers PRF






• •



Dentin Graft



PRF Sling

1.6 44



Immediate Post Op





10 Days Po







Thick Plate - Pt refused Grafting (Religious)

RR Plugs













Tooth Morphology



Tooth Morphology



Multi root

Tooth Morphology

3 Single roots



Multi root























Serrated Curettes

Large SKU: 38001

TESUSA

TESUSA

Medium SKU: 38003

Small SKU: 38002

TESUSA

Mini SKU: 38004

TESUSA



Fine Titanium Serrated



Shark Handle







Br J Oral Maxillofac Surg. 1988 Oct;26(5):395-401.

The effect of chlorhexidine irrigation on the incidence of dry socket: a pilot study.

Field EA¹, Nind D, Varga E, Martin MV.

Author information

Abstract

A pilot study was conducted to measure the reported incidence of dry socket following pre-operative irrigation and mouthrinsing with either 0.2% (w/v) chlorhexidine gluconate or normal saline or with no irrigation (control). Three hundred and twenty-four patients presenting for the single extraction of a lower premolar or molar under local anaesthesia were divided into three equal groups; no irrigation, irrigation with saline and irrigation with a 0.2% (w/v) chlorhexidine gluconate solution. After administration of the local anaesthetic agent, 10 ml of the test solutions were applied to the gingival crevice using a blunted needle. The solutions were retained in the patients mouth for 2 min following irrigation. Pre-operative irrigation of the gingival crevice and mouthrinsing with 0.2% (w/v) chlorhexidine gluconate significantly reduced the number of dry sockets. There was no significant reduction in the number of dry socket cases following irrigation and rinsing with normal saline. The irrigation technique, using 0.2% (w/v) chlorhexidine gluconate is safe, inexpensive, easy to apply and can be recommended for routine use in dental practice, to reduce the incidence of dry socket.

PMID: 3191090

CHX Inrigation, Curnelage





PLoS One. 2015 May 8;10(5):e0124249. doi: 10.1371/journal.pone.0124249. eCollection 2015.

Post-tooth extraction bacteraemia: a randomized clinical trial on the efficacy of chlorhexidine prophylaxis.

Barbosa M¹, Prada-López I², Álvarez M³, Amaral B⁴, de los Angeles CD², Tomás I².

Author information

Abstract

OBJECTIVES: To investigate the development of post-extraction bacteraemia (PEB) after the prophylactic use of chlorhexidine (CHX).

PATIENTS AND METHODS: A total of 201 patients who underwent a tooth extraction were randomly distributed into four groups: 52 received no prophylaxis (CONTROL), 50 did a mouthwash with 0.2% CHX before the tooth extraction (CHX-MW), 51 did a mouthwash with 0.2% CHX and a subgingival irrigation with 1% CHX (CHX-MW/SUB_IR) and 48 did a mouthwash with 0.2% CHX and a continuous supragingival irrigation with 1% CHX (CHX-MW/SUB_IR). Peripheral venous blood samples were collected at baseline, 30 seconds after performing the mouthwash and the subgingival or supragingival irrigation, and at 30 seconds and 15 minutes after completion of the tooth extraction. Blood samples were analysed applying conventional microbiological cultures under aerobic and anaerobic conditions performing bacterial identification of the isolates.

RESULTS: The prevalences of PEB in the CONTROL, CHX-MW, CHX-MW/SUB_IR and CHX-MWSUPRA_IR groups were 52%, 50%, 55% and 50%, respectively, at 30 seconds and 23%, 4%, 10% and 27%, respectively, at 15 minutes. The prevalence of PEB at 15 minutes was significantly higher in the CONTROL group than in the CHX-MW group (23% versus 4%; p = 0.005). At the same time, no differences were found between CONTROL group and CHX-MW/SUB_IR or CHX-MW/SUPRA_IR groups. Streptococci (mostly viridans group streptococci) were the most frequently identified bacteria (69-79%).

CONCLUSIONS: Performing a 0.2% CHX mouthwash significantly reduces the duration of PEB. Subgingival irrigation with 1% CHX didn't increase the efficacy of the mouthwash while supragingival irrigation even decreased this efficacy, probably due to the influence of these maneuvers on the onset of bacteraemia.

CLINICAL RELEVANCE: These results confirm the suitability of performing a mouthwash with 0.2% CHX before tooth extractions in order to reduce the duration of PEB. This practice should perhaps be extended to all dental manipulations.

TRIAL REGISTRATION: Clinicaltrials.gov NCT02150031.

PMID: 25955349 PMCID: PMC4425363 DOI: 10.1371/journal.pone.0124249

CHX Inrigation, Currelage







More than 025 articles have been published, validating the objective measurement.



When do we load our im











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Radiographic Control


























































EXCEPTIONAL



HEALING





EXCEPTIONAL





EXPOSURE



 $\mathbf{\circ}$







Ridge augmentation

10.28.13







Autogenous bone harvest mixed with Dentin graft













Integration 9 Months Post op H

Slice spacing: 2.7 mm. Η



F































LB












Mucoperiosteal Release

















3 month removal of i-Gen mesh







2.9mm













Clinical Study

Alveolar Ridge Reconstruction with Titanium Meshes and Simultaneous Implant Placement: A Retrospective, Multicenter Clinical Study

Raquel Zita Gomes,¹ Andres Paraud Freixas,² Chang-Hun Han,³ Sohueil Bechara,4 and Isaac Tawil5

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Objective. To evaluate horizontal bone gain and implant survival and complication rates in patients treated with titanium meshes. placed simultaneously with dental implants and fixed over them. Methods. Twenty-five patients treated with 40 implants and simultaneous guided bone regeneration with titanium meshes (i-Gen®, MegaGen, Gyeongbuk, Republic of Korea) were selected for inclusion in the present retrospective multicenter study. Primary outcomes were horizontal bone gain and implant survival; secondary outcomes were biological and prosthetic complications. Results. After the removal of titanium meshes, the CBCT evaluation revealed a mean horizontal bone gain of 3.67 mm (±0.89). The most frequent complications were mild postoperative edema (12/25 patients: 48%) and discomfort after surgery (10/25 patients: 40%); these complications were resolved within one week. Titanium mesh exposure occurred in 6 patients (6/25:24%): one of these suffered partial loss of the graft and another experienced complete graft loss and implant failure. An implant survival rate of 97.5% (implant-based) and a peri-implant marginal bone loss of 0.43 mm (±0.15) were recorded after 1 year. Conclusions. The horizontal ridge reconstruction with titanium meshes placed simultaneously with dental implants achieved predictable satisfactory results. Prospective randomized controlled trials on a larger sample of patients are required to validate these positive outcomes.

1. Introduction

Dental implants are a predictable treatment procedure for the prosthetic rehabilitation of partially and fully edentulous patients [1-3].

An adequate bone volume is required for insertion of dental implants [4, 5]; the absence of a sufficient amount of horizontal and vertical bone is a problem that can affect the survival and success rates of dental implants in the short, medium, and long term [4, 5].

Since frequently patients present with bone defects of variable entity [4, 5], different surgical techniques have been

proposed to restore the ideal anatomical conditions required for implant insertion or to allow simultaneously positioned implants to succeed [6-14]. These techniques include onlay/inlay bone grafting [6, 7], distraction osteogenesis [8], maxillary sinus augmentation [9], inferior alveolar nerve transposition [10], alveolar ridge split [11], and guided bone regeneration (GBR) with resorbable [12] and nonresorbable membranes, such as those in polytetrafluoroethylene (PTFE) [13] or titanium [14].

GBR is considered one of the most predictable of these techniques in terms of clinical outcomes, as reported by several systematic reviews of the literature [12-15], particularly







tes of i-Gen 25 cases ars after loading

97.5%

1/2013 - 4/2016

failure



















Α























e thickness: 14.9 mm.





Slice spacing: 1.1 mm.































































Center the root tip for anticipated perforation


















REPACABLE



bait5/ziy-id/ziy00211/ziy3157-11z xppws S=1 2/22/11 322 4/Color Figure(s): F1-4,F6-9 Art: ID200409 Input-pia IMPLANT DENTISTRY / VOLUME 20, NUMBER 2 2011 1

Removal of Displaced Foreign Body From the Maxillary Sinus Using Replaceable Bony Windows and Saline Irrigation, Followed by Suctioning of the Foreign Body

AQ: 1

Dong-Seck Sohn, DDS, PhD,* Heul-Seung Jung, DDS,† Ki-Hyun Kim, DDS,‡ Kyung-Jin Song, DDS,§ Hee-Won An, DDS, and Kyung-Ho Min, DDS¶









Push Blade

Multiple was a second and the second s





ELEVATE YOUR INNER SURGEON

Mirror/Ruler

ENDO (ROOT CANAL)



IMPLANT







Mirror/Ruler

ENDO (ROOT CANAL)

















ELEVATE YOUR INNER SURGEON











Getting Creative





Pulling it all logether

















FIRST 3 DAYSPOST-OP



- RINSING
- SWISHING
- SPITTING
- SUCKING **THROUGHA STRAW**





This is standardpostextraction instruction.

This is to prevent disruption of the blood clot and/or grafting materials after ALL extractions.

PATIENT NAME

ADDRESS

PRESCRIPTION

CHLORHEXIDINE

DATE

SIGNATURE

COMPLETELY AVOID CHLORHEXIDINE...

when membrane is exposed

for 10 days post-op

BRAND NAMESINCLUDE:

Paroex (GUM)
Peridex (3M)
PerioGard (Colgate)





7-10 post-op."

"for all of these reasons, we have found that it is best to only rinse gently with tap water days



A Pinch of Salt Won't hurt



Antibiotics Augmentin 500 mg tid 10 days Pen Allergy Cephalosporin 10 days What is the potential for cross-reactivity? Are we concerned about prescribing in that case? Pain meds as normal rx (NSAIDS, Acetaminophen, Narcotics prn) No Aspirin (bleeding) Exparel injection up tp 72 hrs analgesia Steroids Oral steroids: Medrol dose pack (methylprednisone-4mg) **'Diabetics contraindicated'**





Sinus Post op

Antihistamines: Zyrtec[®], Clartin[®] aide in drying the sinus cavity.

Antibiotics Augmentin 500 mg tid 10 days Pen Allergy Cephalosporin 10 days If infection presents Flagyl (metrondiazole) 500 mg PO 7-14 DAYS

Nasal Sprays such as Nazacort[®], Nasonex or Flonase[®] recommended Bid 1 spare each nostril Oral steroids: Medrol dose pack (methyprednisone 4mg)¹Diabetics **contraindicated**

Pain meds as normal rx (NSAIDS, Acetametphen, Narcotics prn) No Asprin Exparel injection up tp 72 hrs analgesia

Decongestants such as Drixoral®, Dimetapp®, Sudafed® help reduce pressure in the sinuses.

Steroids



WHAT CAN WE DO TO HELP DECREASE THE INCIDENCE OF FAILURE?

IV ANTIBIOTICS. PRE-OP ANTIBIOTICS (3 DAYS) PRE-OP CHX RINSES (3 DAYS)

Do Penicillin-Allergic Patients Present a Higher Rate of Implant Failure?

Oscar Salomó-Coll, DDS, MSc, PhD1/Naroa Lozano-Carrascal, DDS, MSc, PhD1/ Aida Lázaro-Abdulkarim, DDS, MSc²/Federico Hernández-Alfaro, MD, DDS, PhD³/ Jordi Gargallo-Albiol, DDS, MSc, PhD⁴/Marta Satorres-Nieto, DDS, MSc, PhD⁵

Purpose: The aim of this clinical study was to determinate if patients allergic to penicillin present a higher incidence of dental implant failure compared with nonallergic patients. Materials and Methods: This crosssectional clinical study analyzed patients rehabilitated with endosseous dental implants between September 2011 and July 2015, at the University Dental Clinic, School of Dentistry, International University of Catalonia (UIC). Prophylactic antibiotic therapy was prescribed for all patients: a single dose of 2 g of amoxicillin taken orally 1 hour before implant surgery for non-penicillin-allergic patients, and 600 mg of clindamycin taken orally 1 hour before the implant surgery for penicillin-allergic patients. Postsurgical antibiotics were prescribed to prevent early implant failures and postoperative infections: amoxicillin 750 mg three times a day for 7 days for nonallergic patients, and in patients with penicillin allergy, 300 mg clindamycin every 6 hours for 7 days. Implant failure was defined as the removal of the implant for any reason and was classified as early or late failure. Results: A total of 1,210 patients' files were analyzed; 8.03% of nonallergic patients and 24.68% of penicillin-allergic patients presented at least one implant failure. In penicillin-allergic patients, 21.05% were classified as late implant failure and 78.95% as early implant failure, with a lack of osseointegration (80%) being the mean reason for an early implant failure. Penicillin-allergic patients demonstrated a higher risk of implant failure with a risk ratio of 3.84 (95% CI) compared with nonallergic patients. Conclusion: Penicillinallergic patients treated with clindamycin presented almost four times the risk of suffering dental implant failure, although other variables such as implant brand, location, and the surgeon's skill might have influenced these results. INT J ORAL MAXILLOFAC IMPLANTS 2018;33:1390-1395. doi: 10.11607/jomi.7018

Keywords: clindamycin, dental implant, implant failure, implant osseointegration, penicillin allergy

nental implants are a highly effective, safe, and predictable means of rehabilitation in partially or

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1390 Volume 33, Number 6, 2018

complications (fistula, hyperplasia, infections, and/or inflammation), sensory disturbances, and peri-implant disease (mucositis and peri-implantitis), which can result in early or late implant failure.1,4 The most common complication leading to early dental implant failure is postoperative infection occurring during

fracture of the implant itself.2,3

fully edentulous patients and enjoy a high long-term

survival rate. The fifth International Team for Implanto-

logy (ITI) consensus conference reported a 5-year survival rate of 97.1% of implant-supported restorations.1

However, despite this excellent survival rate, implant

restorations are not exempt from esthetic, technical,

or biologic complications that may cause early or late

implant failure. Technical complications may compro-

mise implants or prostheses, the most frequent being

veneer or reconstructive material fracture, followed by

screw or abutment loosening, component fracture (for

example, abutments or screws), and—although rare—

the osseointegration process, which may be due to

bacterial contamination during the implant surgical

Possible biologic complications include soft tissue



brand, location, and the surgeon's skill might have influenced these results.]

INT J ORAL MAXILLOFAC IMPLANTS 2018;33;1390-1395. doi: 10.11607/jomi.7018





Swelling: Swelling is to be expected. Apply cold compresses to affected area at 15 minute intervals for the first 24 hours to minimize swelling. Any swelling that occurs usually begins to diminish within 72 hours; call the office if there is no change.





RECOVERY

Eat only a soft diet. The time will be specified by your doctor. A soft diet is described as "nothing harder than scrambled eggs." Avoid extremely hot foods. It is important not to skip meals! If you take nourishment regularly, you will feel better, gain strength, have less discomfort and heal faster.





Sharp Edges

If you feel sharp edges in the surgical areas with your tongue, it is probably the bony walls that originally supported the teeth. Occasionally, small slivers of bone may work themselves out during the first week or two after surgery. They are not pieces of tooth, but if they are bothersome, will be removed.





A gentle lukewarm salt water rinse can be used to freshen your mouth. But again, do not spit; just let the fluid passively empty. The corners of your mouth may become cracked and drymoisturize frequently.

Begin your normal hygiene routine the day after surgery. Soreness and swelling may not permit vigorous brushing of all areas, but please make every effort to clean your teeth within the bounds of comfort.

DO NOT USE a Electric brush or other device or mechanism that can introduce vibrations around your implants until your surgeon gives you authorization.

Be aware of any These devices can cause implant integration issues!

USE a Waterpik® or electric flossing device starting 3–4 weeks

Oral hygiene

after surgery.



Post Op Care

Bleeding: Some oozing of blood is normal for the first **12-24 hours. Put a hand towel** on your pillow as some drooling can occur when you are numb. If you experience excessive bleeding, apply firm pressure with 1-2 folded gauze pads or damp tea bag on the affected area for 30-60 minutes and keep head elevated. Call the office if the bleeding does not subside.



** PRO TIP: Keep Black Tea Bags in Office, and Use Them as a Post-Operative Recommendation



Black Tea Bags

Black tea is full of tannin's, bitter plant polyphenols that either bind and precipitate or shrink proteins

-Tannins are homeostatic (i.e. they cause blood to coagulate, which in turn makes the bleeding stop)

-Tannins are also astringent. An astringent is something that causes body tissues, including blood vessels, to shrink or constrict. It's because of tannin's that your month might feel puckered after drinking black tea, red wine or eating an un-ripened fruit.

-In addition, tannin's are mildly antiseptic, which means that they kill bacteria and might help prevent the site from becoming infected while continuing to heal the wound internally.

-Finally, the tea bag itself acts as a wound dressing, forming a protective layer over the exposed tissue absorbing blood while protecting the affected area and stopping any infection that may occur from spreading





Suturls lf you have received sutures, avoid playing with them. Sutures should dissolve on their own within 7-10 days or willberemovedatpost op visit



0

Utilize the most Efficient & EFFECTIVE Therapy To Address the Specific Challenge

Conclusion: Extraction Site Management It's not that controversial











Injectable PRF







1.5




Injectable PRF





WWW.AIEDENTAL.COM

Isaac D Tawil DDS MS

For your allention

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