BIOLOGICKÁ AUGMENTACE KOSTI AUTOLOGNÍM DENTINEM

D R. I V A N T R E S N A K

RATHAUSSTRAßE 5, I-39032 SAND IN TAUFERS
TEL.: 0039-0474/679510 FAX: 0039-0474/679511

IVAN.@TRESNAK.COM
WWW.TRESNAK.COM

CENA A BIOKOMPATIBILITA

- Vedeli jste ze lidsky dentin ma stejne vlastnosti v ohledu na augmentaci jako kortikalni kost??

Vedeli jste ze lidsky dentin ma stejne vlastnosti v ohledu na augmentaci jako kortikalni kost??

KometaBio

Tissue Engineering

srdce systemu, jez umoznuje ziskavat augmentacni granulat z extrahovanych zubu

1.Extrakce
2.Ocisteni a rozemleti
3.Vycisteni granulatu
4. Augmentace

VEDECKE PODKLADY

- Remodeling po extrakci zubu
- Status presens: biologicky odpad kontaminovaneho materialu
- Autotransplantace
- Retinovane zuby

- Autogenni dentin je ten nejlepsi augmentacni material pro socket preservation a augmentaci alveolarni kosti

DENIN Z POHLEDU AUGMENTÁTU

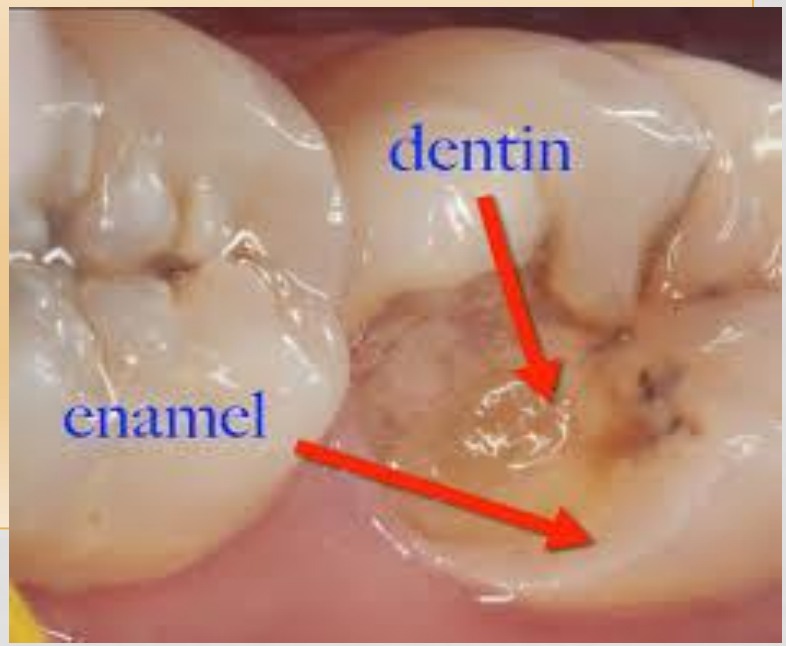
- Zuby jsou částí obou čelistí, obou alveolárních výběžků
- Dentin představuje 85% zubní struktury
- Sklovina sestavá pouze z HA minerálu a nepředstavuje 10% zubní struktury
- V ohledu na chemickou kompozici je dentin totožný s kostí – **stejné volumen obsahuje 50% HA minerálu a 50% organické matrix**, převážně fibrozní typ Kolagenu I.
- Podobně jako kost může dentin uvolňovat růstove a diferenciační faktory které jsou rezorbovány osteoklasty.
- Indukuje generování nové kosti.

CISTENI GRANULATU

- Presypani z kontejneru do pripravene dozy
- Pridej cleanser do dozy tak, aby granulat byl kompletne ponoren.
- Uzavri dozu vickem a protrepej kruhovym pohybem ve smeru rucicek.
- Ponechej v cleansing roztoku po 10 minutes.
- Pomoci pipety odsaj cistici roztok.
- Napln dozu cistym Phosphate Buffered Saline (PBS). Napln priblizne polovinu kontaineru.
- Protrepej kontainer jemne a odsaj pipetou zbytek PBS. Zopakuj process podruhe.
- Partikulovany dentin je n<ni pripraven pro immediatni augmentaci

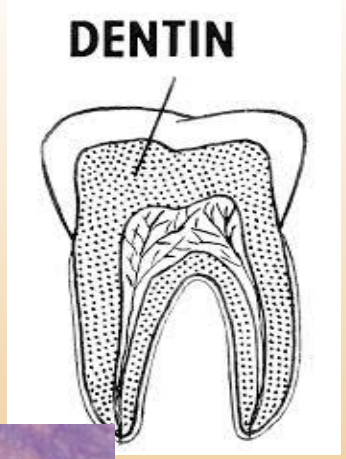
PROČ ZUBY A PROČ DENTIN?

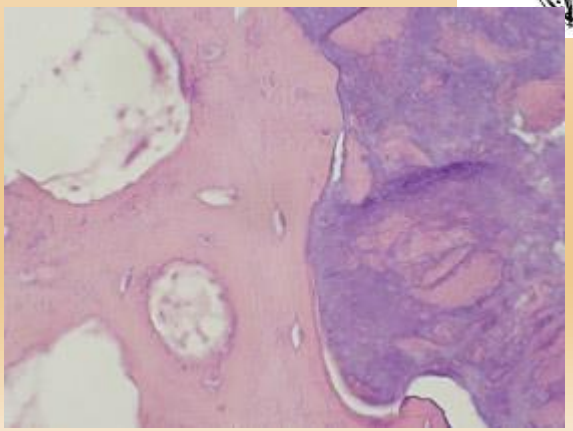
- Zuby jsou anatomicky částí obou čelistí
- Dentin - 85%
- Sklovina - 10%
- Chemicka kompozice totozná s kostí 50/50
- uvolňování růstových a
- diferenciačních faktorů
-



ZÁVĚR: PROČ SE STALY EXTRAHOVANÉ ZUBY BIOLOGICKÝM ODPADEM?

- Dentinová matrix má
- podobně jako kost
- vrozené chemické a
- fyzikální vlastnosti
- přitahovat progenitorni
- buňky a schopnost jejich
- indukce ke generování
- nové kosti.

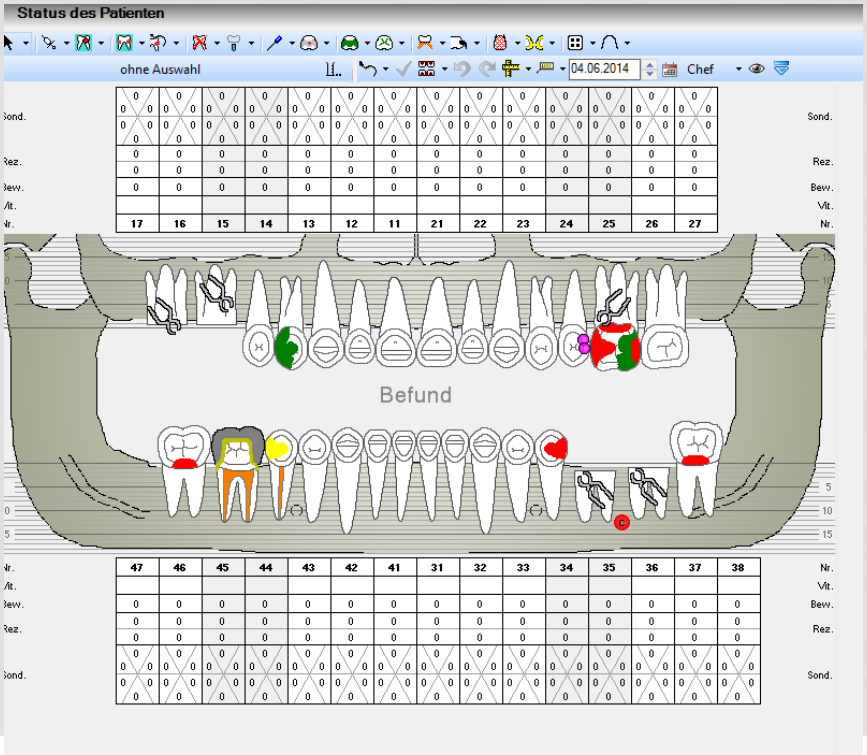




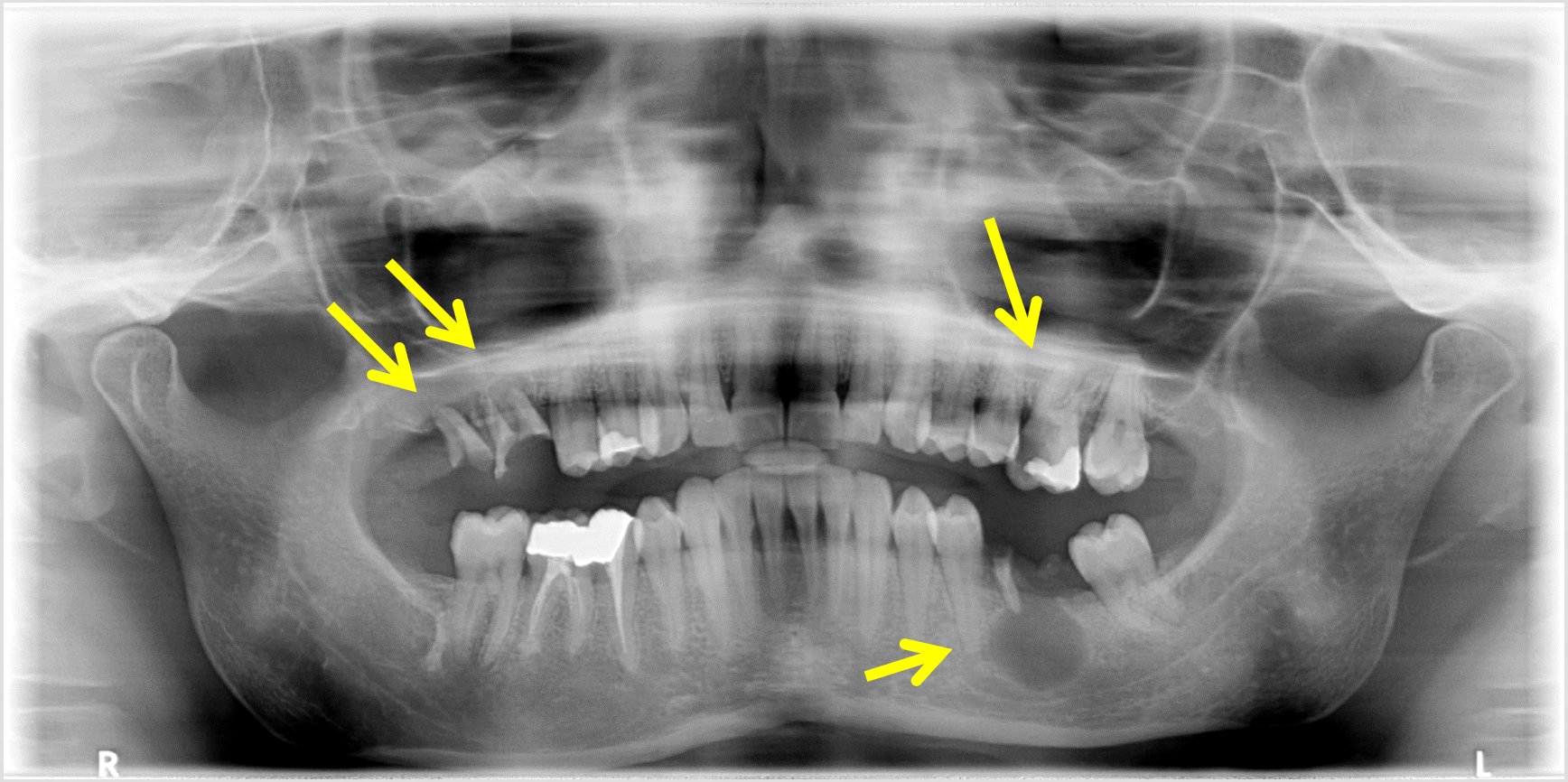
DALŠÍ INDIKACE NEJSOU UVÁDĚNY

- **Indikace k extrakci v mé praxi:**
- • Parodontálně poškozené zuby
- • Kariesní destrukce zubu
- • Orthodontické indikace
- • Zuby moudrosti
- • Endo komplikace (nevhodne)
- • Paro-endo komplex (nevhodne)
- • Urazy
- • Extrakce v rámci nového léčebného plánu

TANJA, 37 LET, ZDRAVÁ

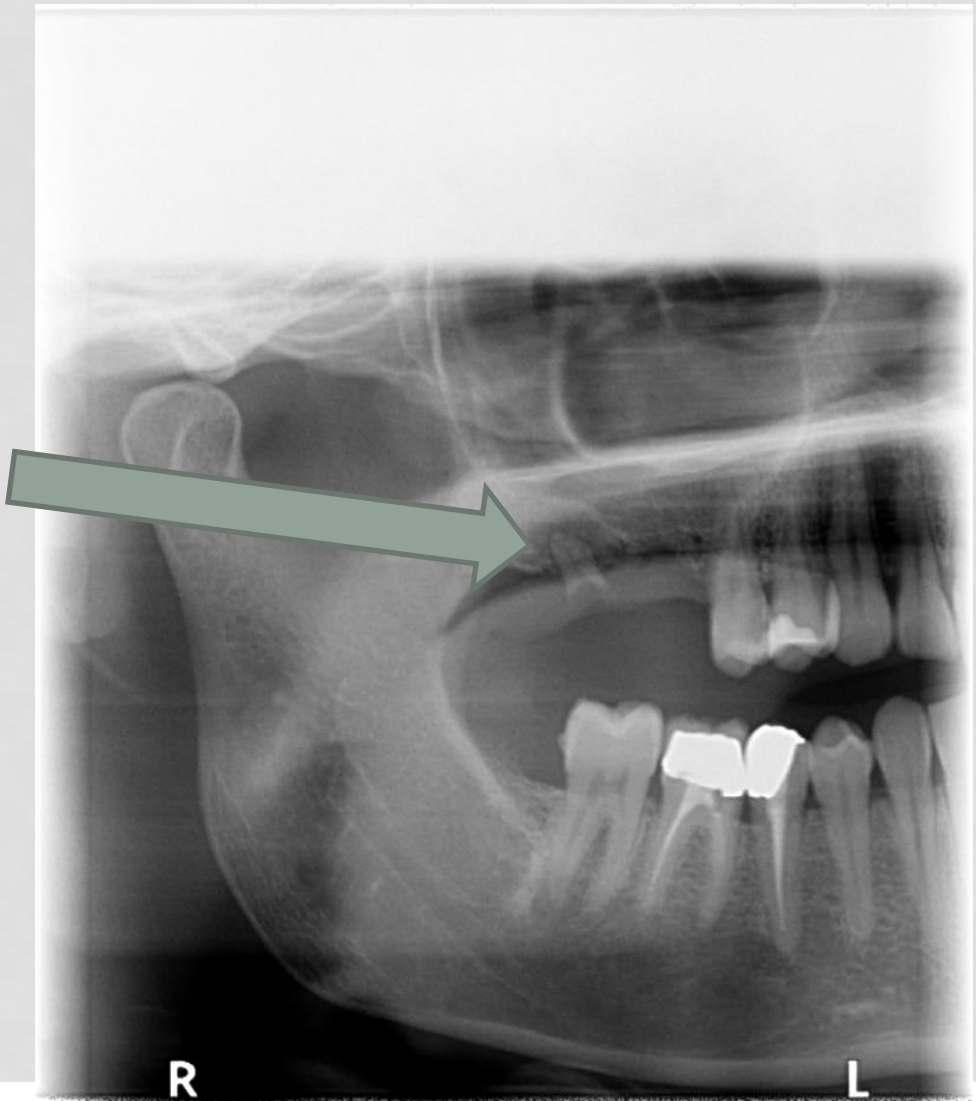


VSTUPNÍ OPG

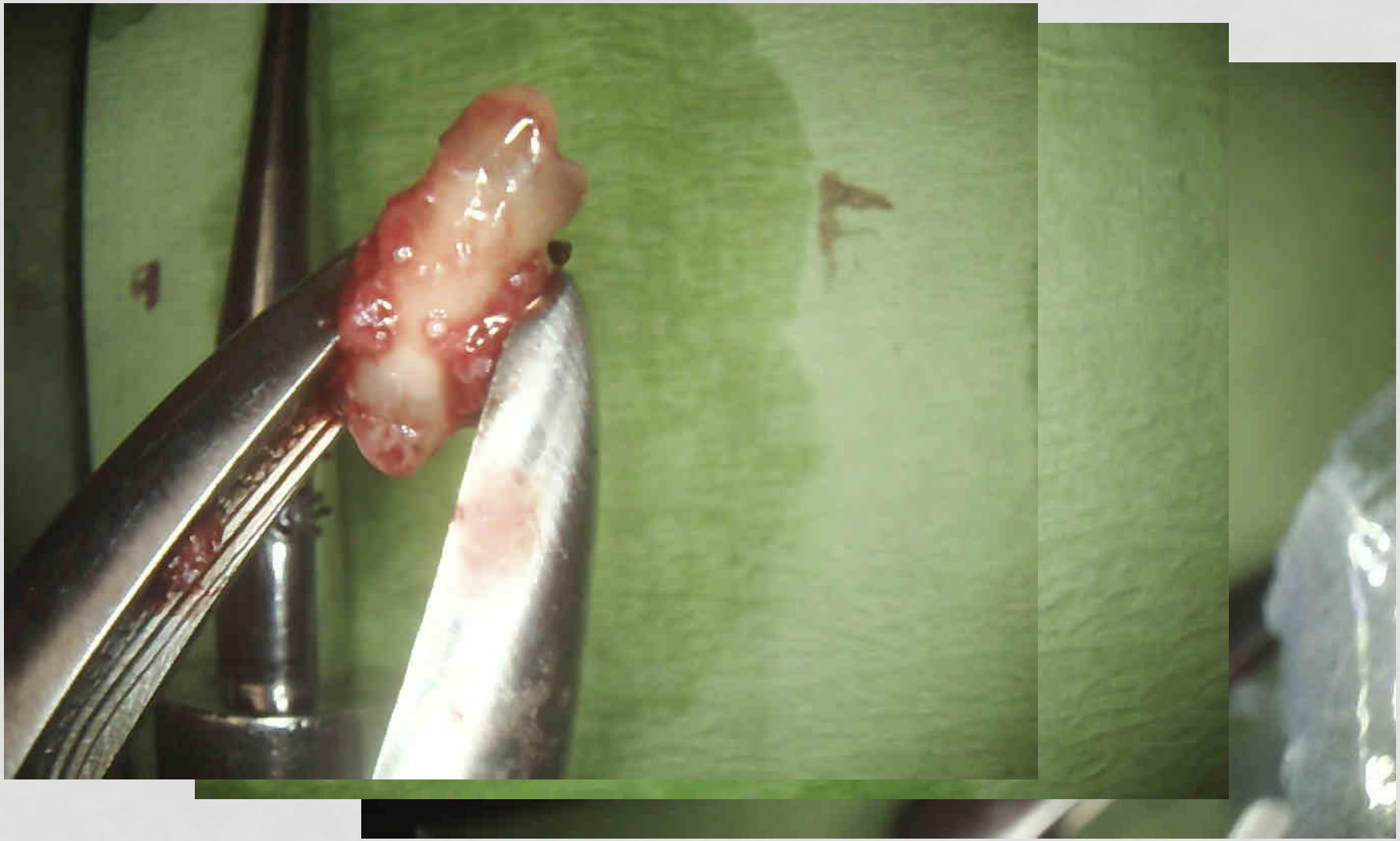


…KAZDY ZVBYTEK DENTINU

…i radix relicta



EXTRAKCE



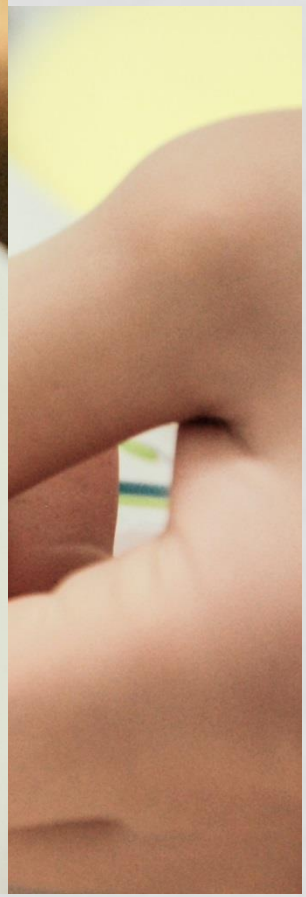
PŘÍPRAVA EXTRAHOVANÝCH ZUBŮ

MLÝNEK, OBA ČISTÍCÍ ROZTOKY

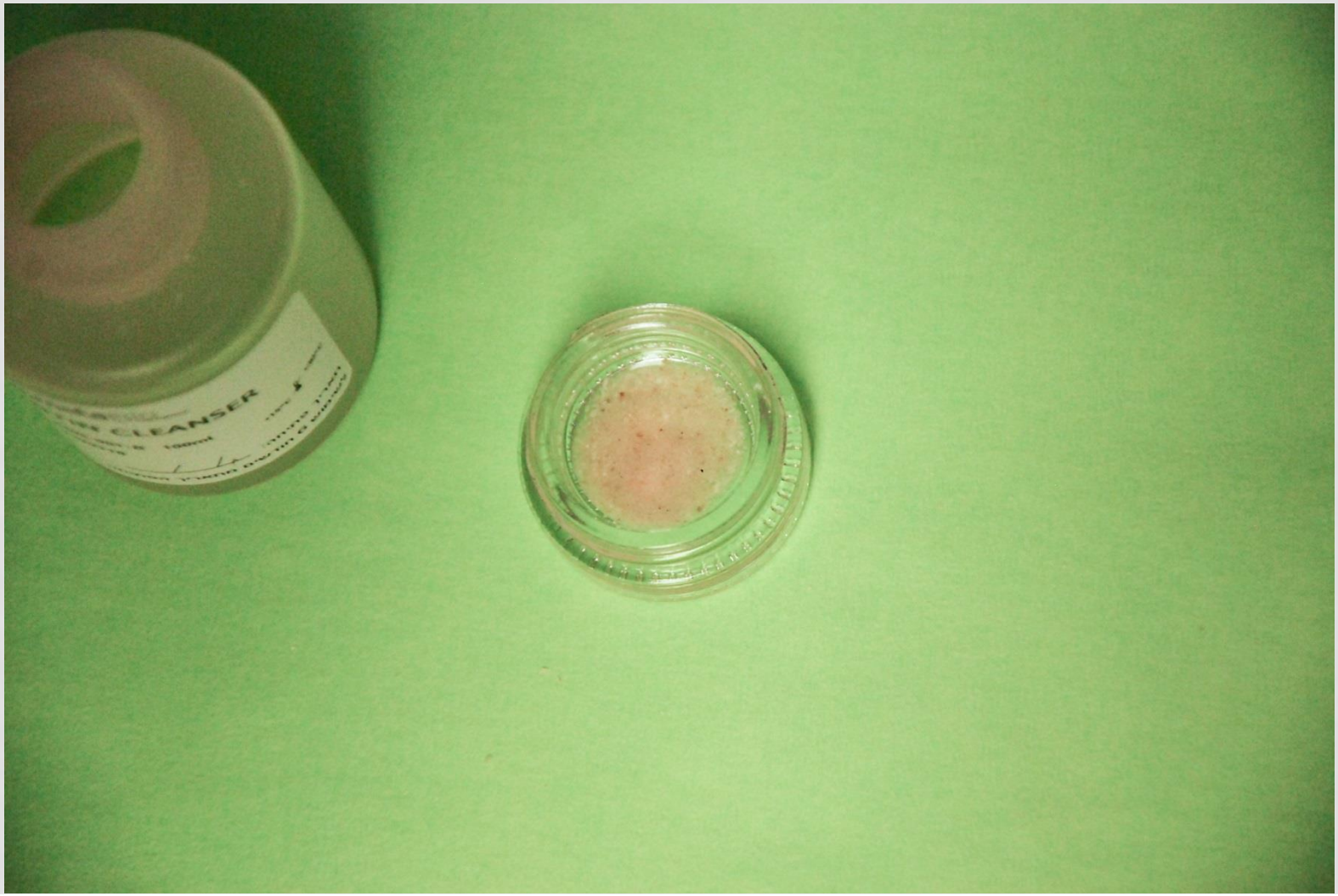
VÍKO JE NUTNO ZAARETOVAT

PROCES MLETÍ A ODSÁTI GRANULÁTU

ZÁSOBNÍK PRO GRANULÁT

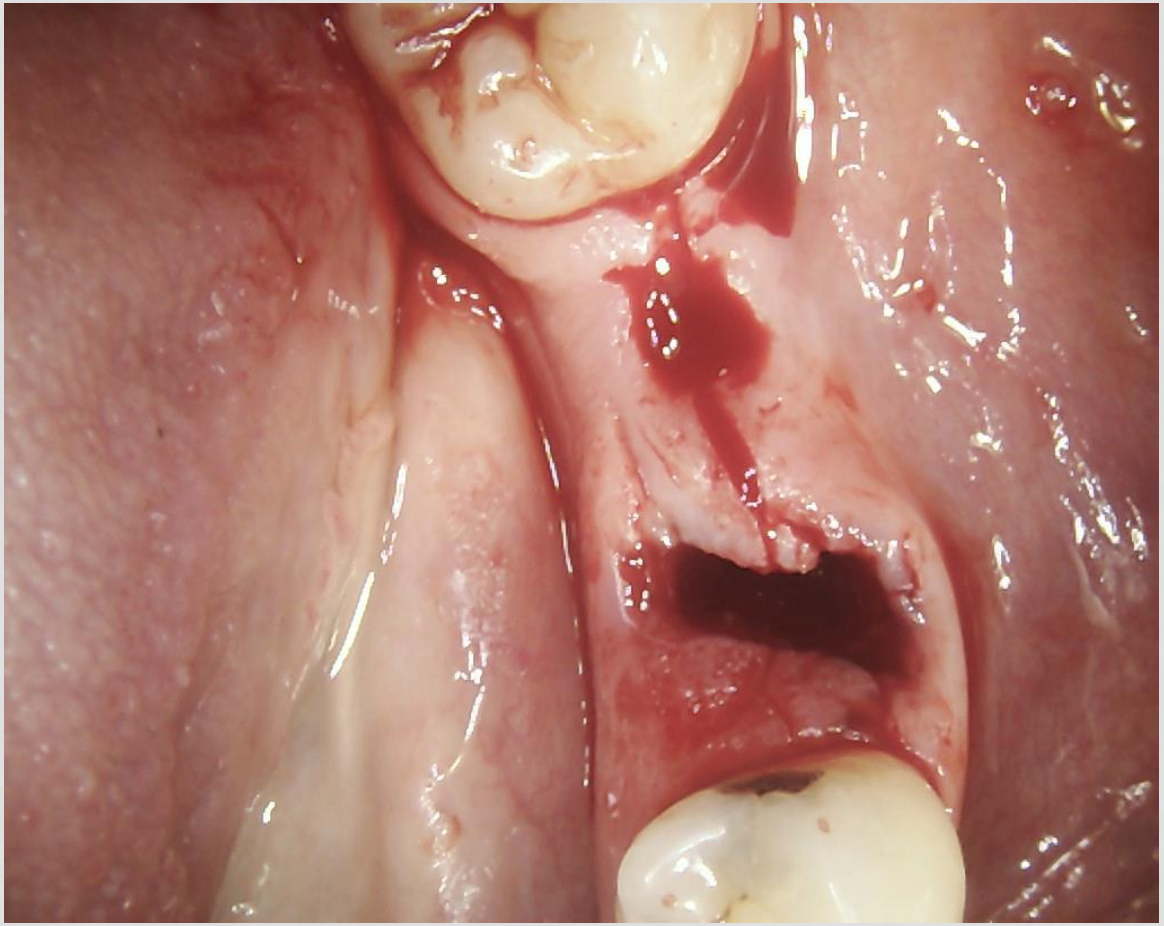



KometaBio
DENTIN CLEANSER
KOM-001-B 100ml
1329118
+15°C
+30°C
תאריך פתיחה:
לשימוש 6 חודשים מתאריך הפתיחה

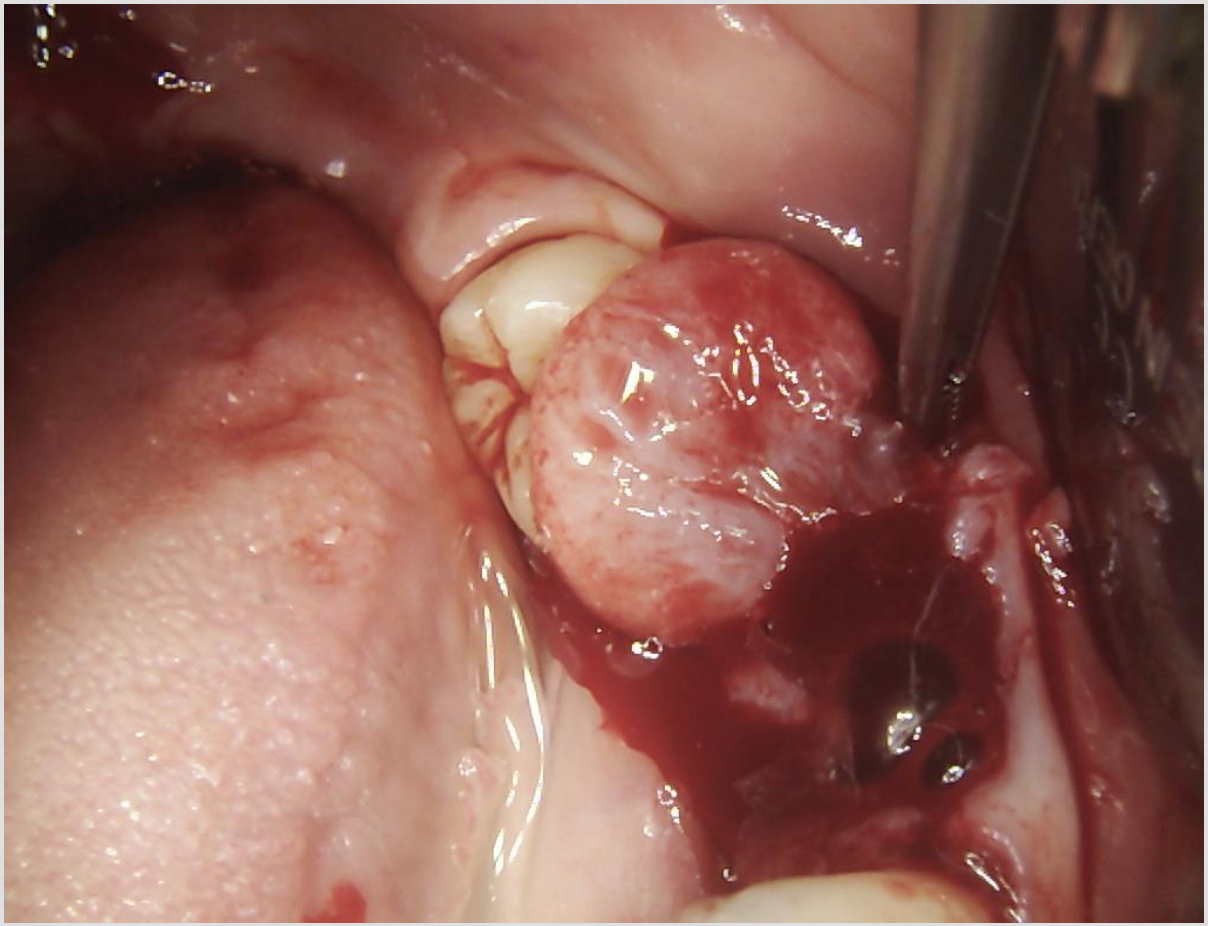


GRANULAT A KOLAGENNÍ BUNIČINA

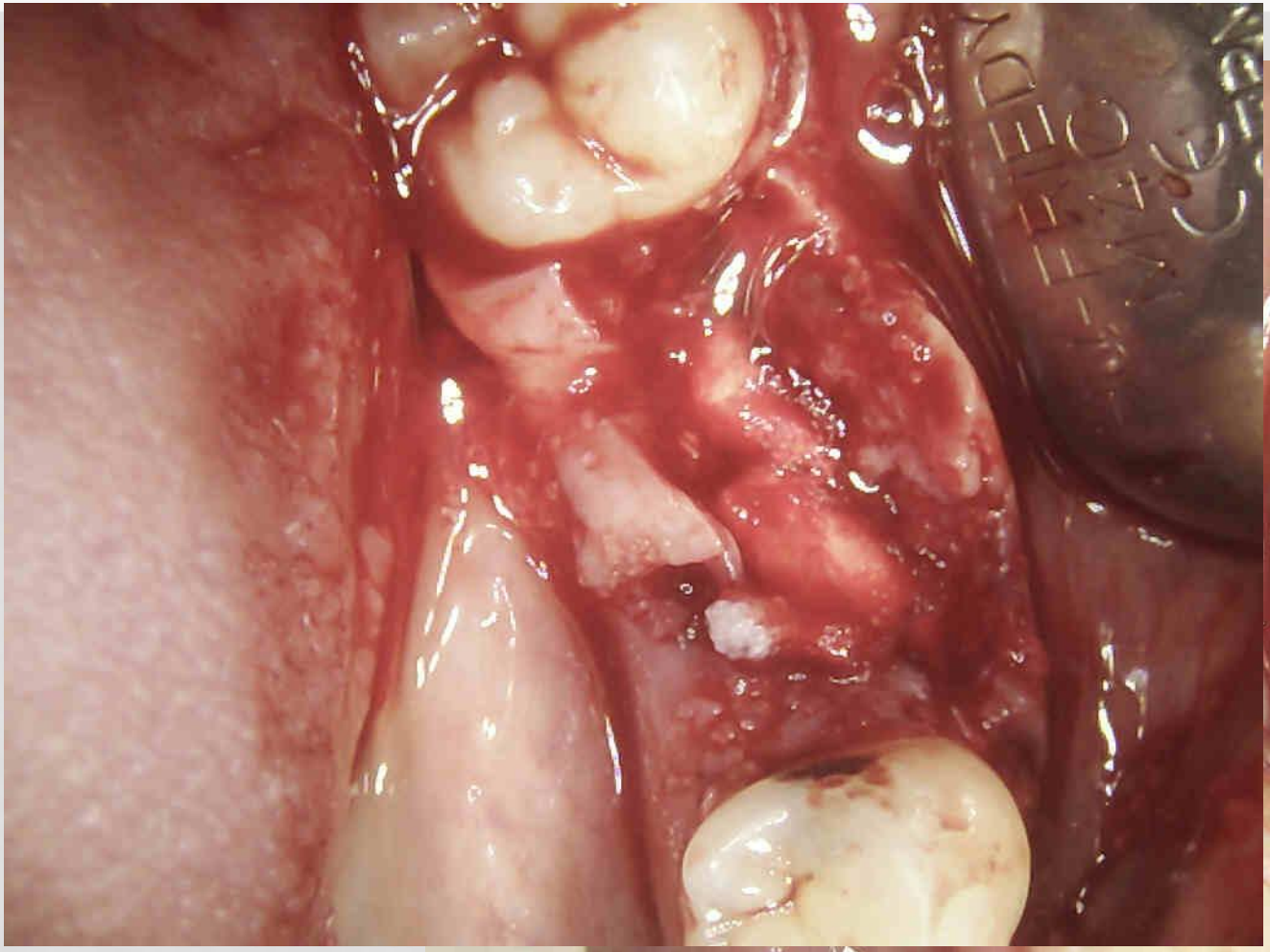
CRESTÁLNI INCIZE PRO CYSTEKTOMII



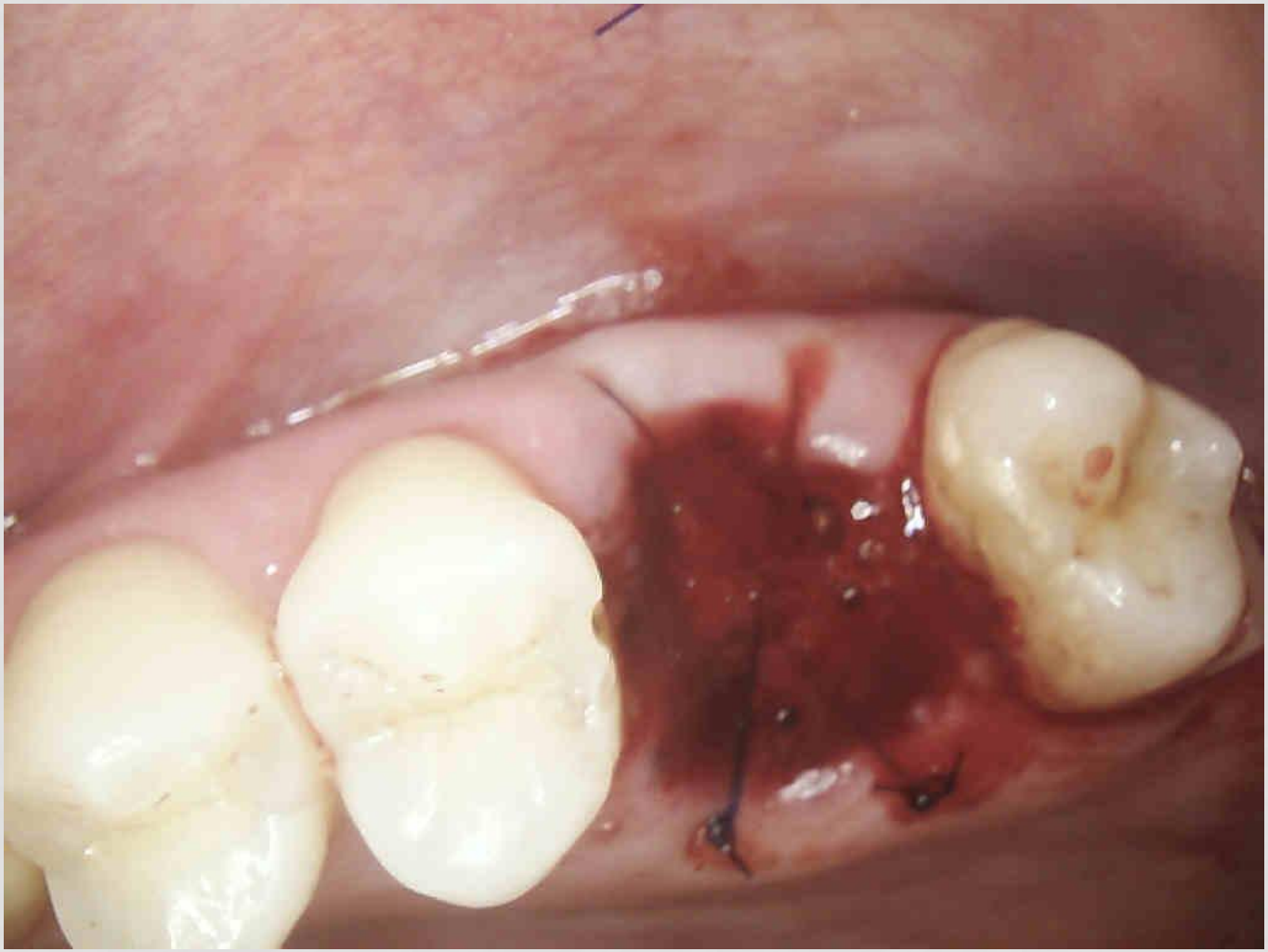
EXTIRPACE CYSTY IN TOTO



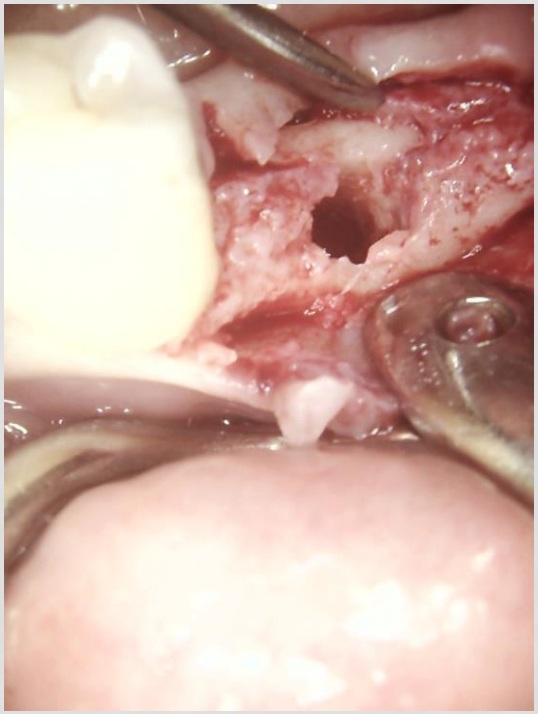
AUGMENTACE A SUTURA

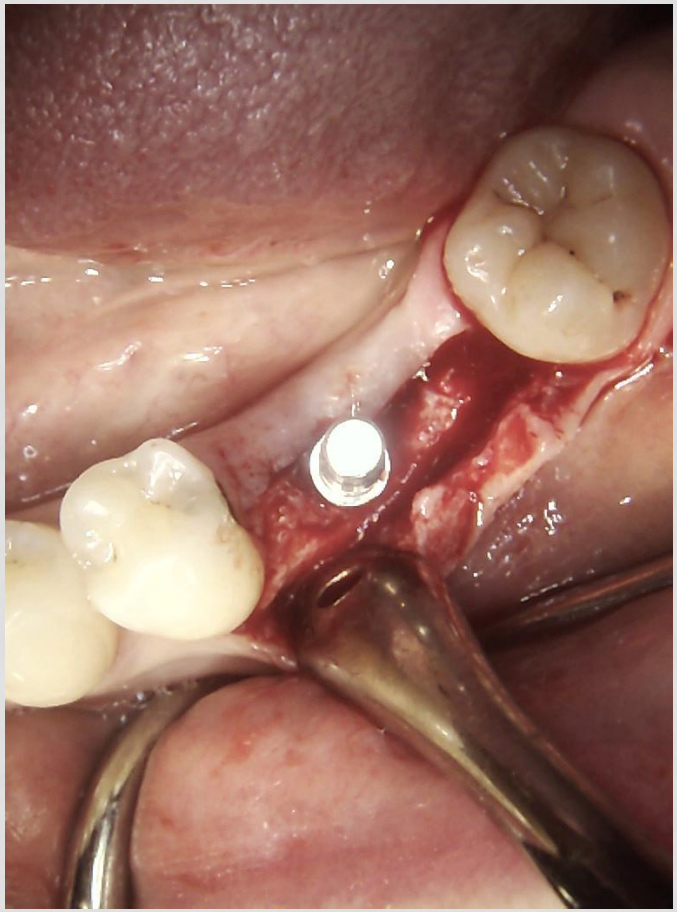


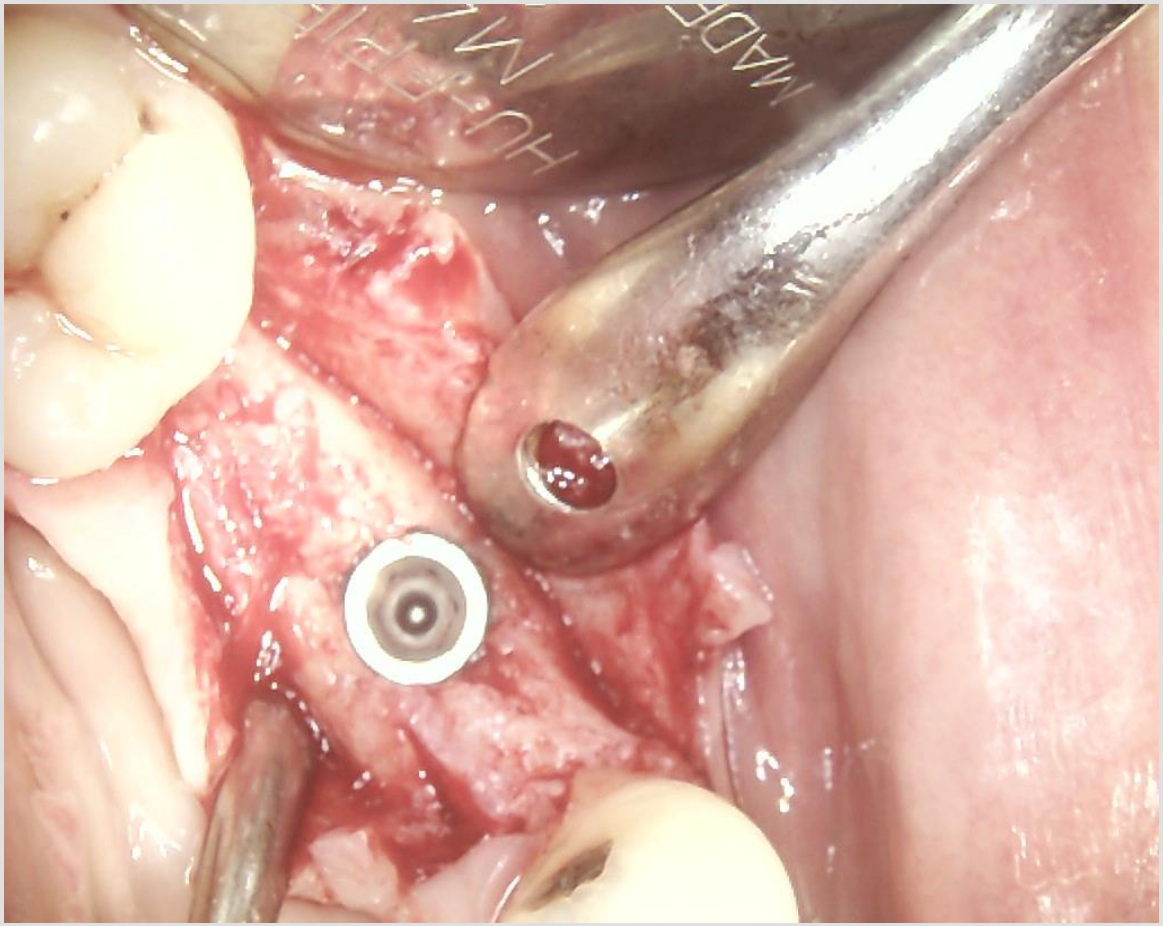
SOCKET PRESERVATION 26

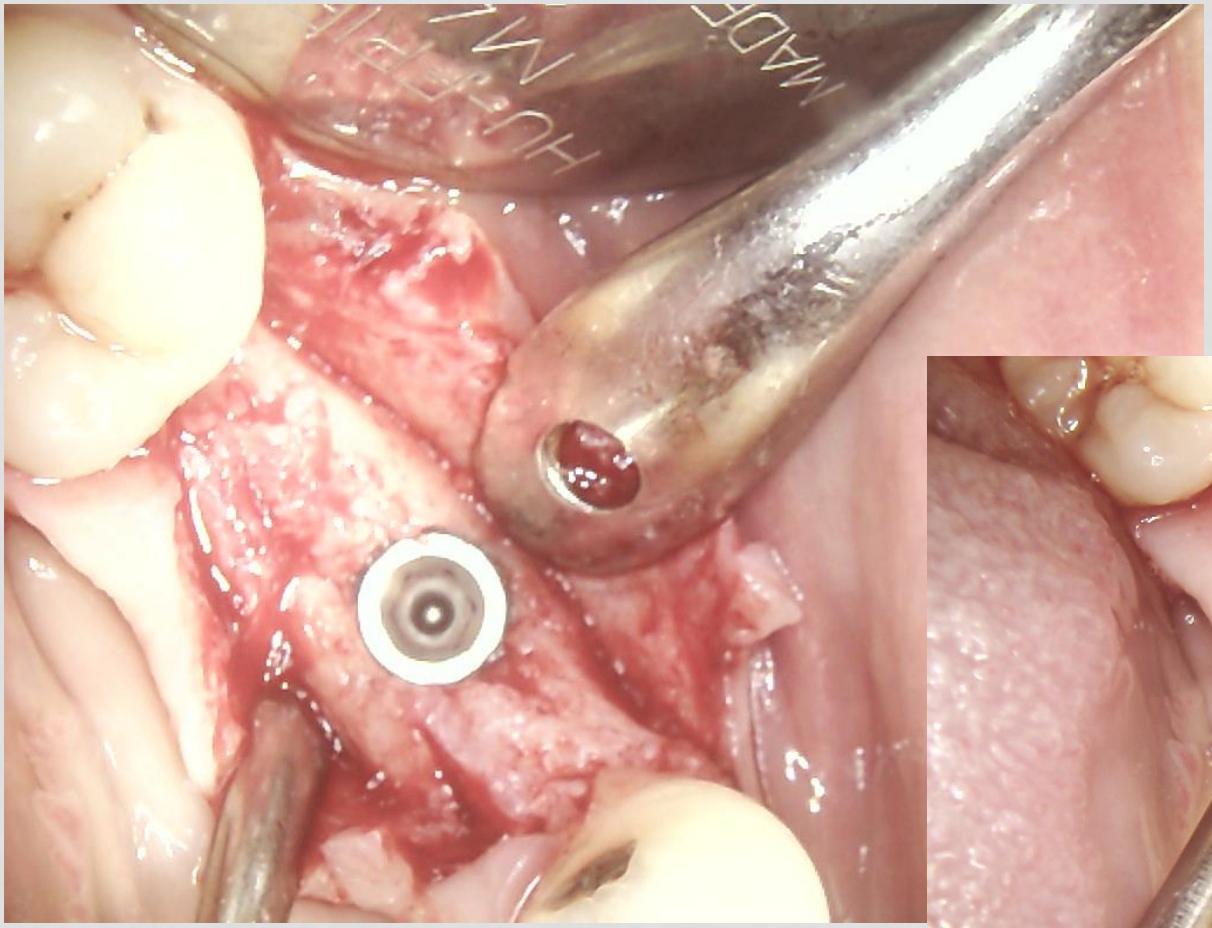


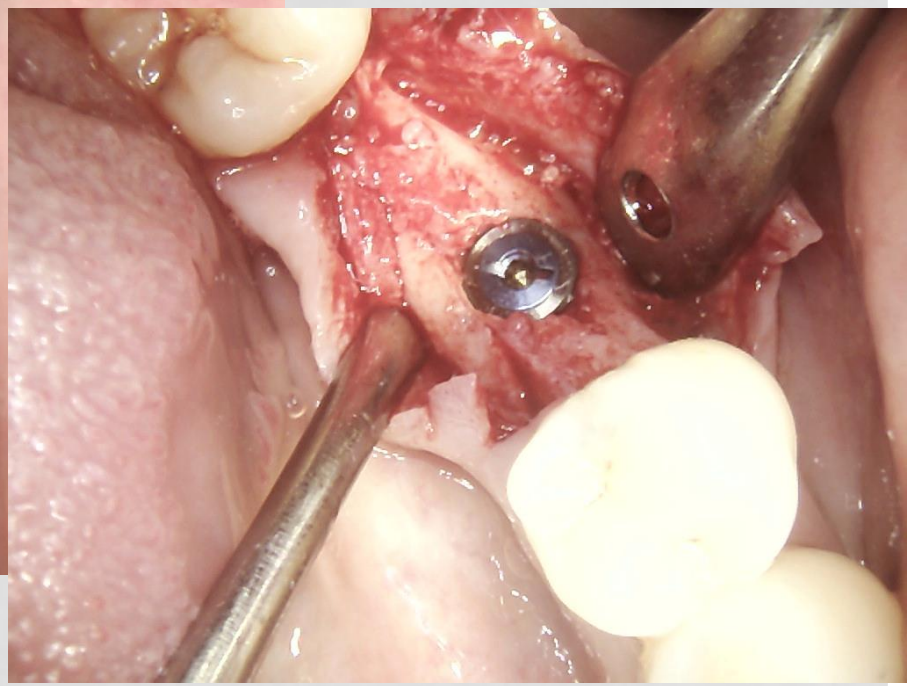

R
L





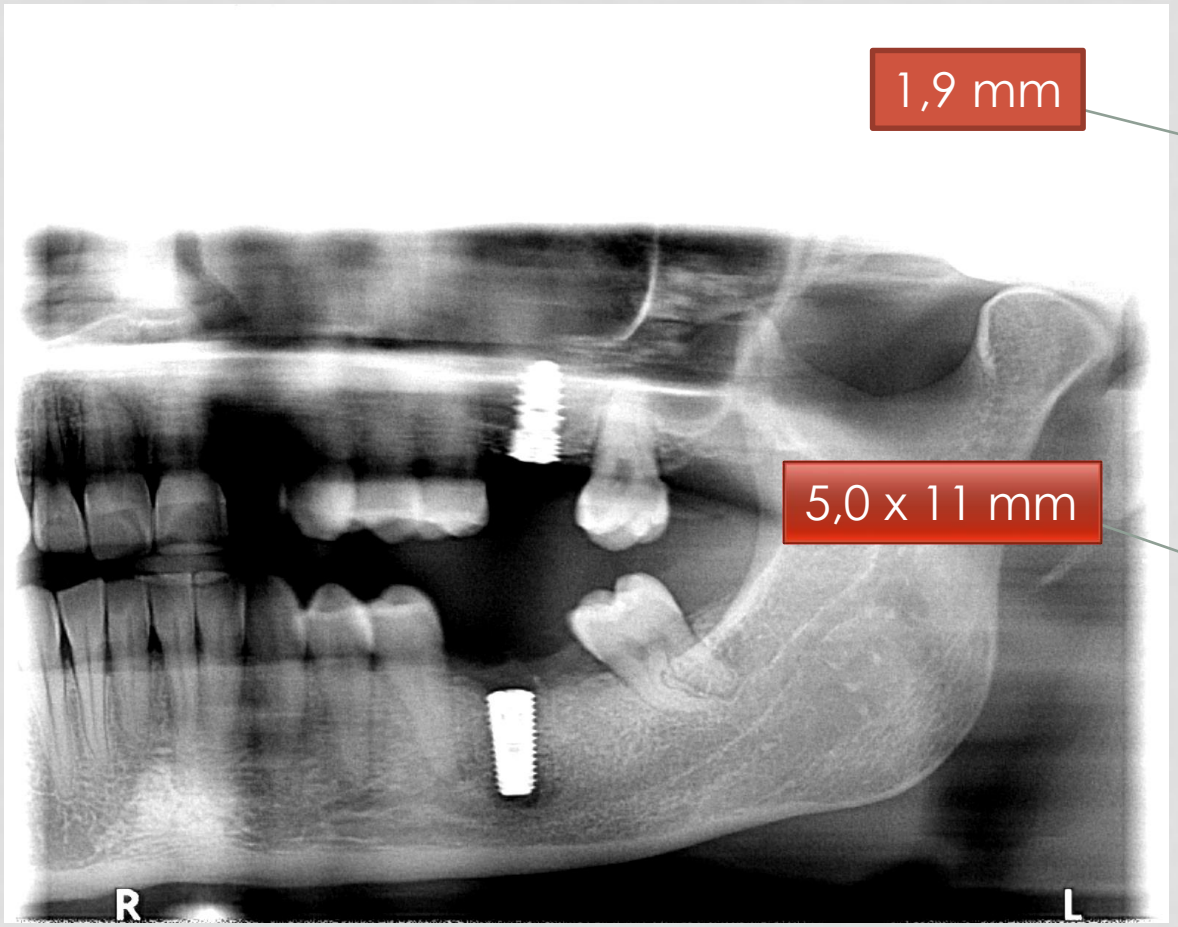


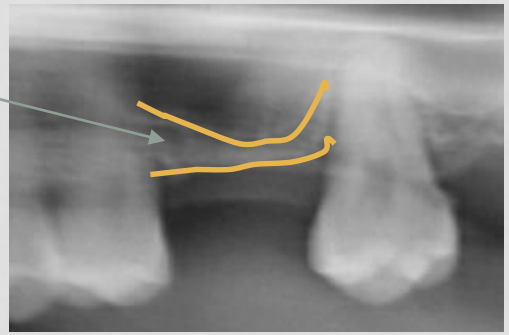


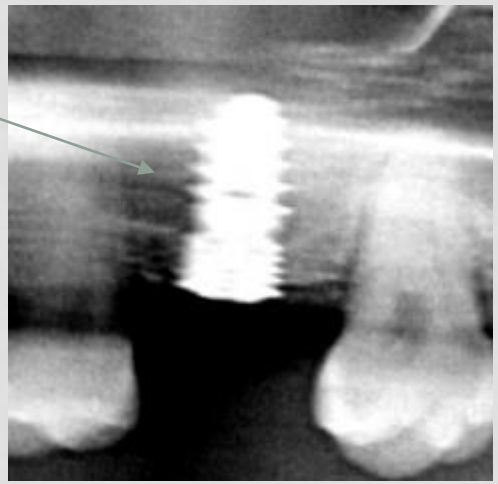


INSERCE 36

IBS IMP. C.M.C. (CRESTAL APPROACH WITH MEMBRANE CONTROL)







Reference

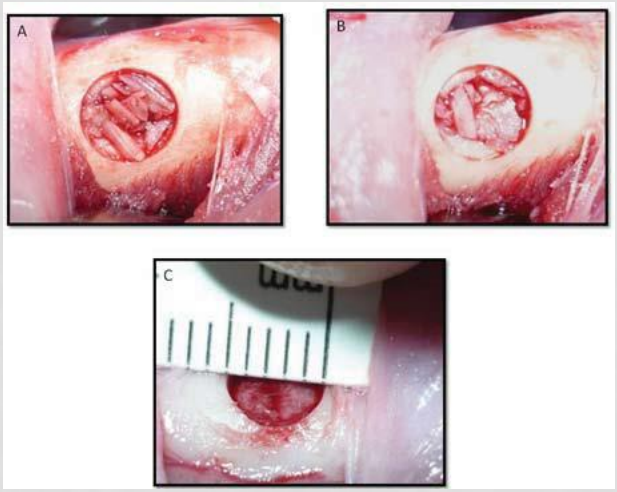
Human dentin has the same grafting properties as cortical bone? That's why extracted teeth, a valuable organic material, can no longer be considered a clinical waste!

Extracted teeth can be recycled as an autologous bone graft, which is considered the GOLD STANDARD of grafting.

LITERATURA

- **Scientific Articles**
- Related Scientific Articles – Autograft of Dentin Materials for Bone Regeneration

AUSTRALIAN JOURNAL OF BASIC AND APPLIED SCIENCES



osteo-compatible and effective

Australian Journal of Basic and Applied Sciences, 4(12): 5932-5940, 2010
ISSN 1991-8178

AJBAS
Australian Journal of Basic and Applied Sciences

Processed Allogenic Dentine as A Scaffold for Bone Healing: An in vivo study.

[1]Dr. AL-Namnam, N.M., [1]Shanmuhasuntharam, P., [1]Dr. Ha K.O. and [2]Prof. Siar C.H.

[1]Department of Oral & Maxillofacial Surgery and [2]Department of Oral Pathology, Oral Medicine & Periodontology, Faculty of Dentistry, University of Malaya, Kuala Lumpur, Malaysia

KEY WORDS: DENTINE, AUTOGRAFT, ALLOGRAFT, LIQUID NITROGEN, BONE SUBSTITUTE.

- Abstract: Processed Allogenic Dentine as A Scaffold for Bone Healing: An in vivo study Purpose: (i) to assess the osteo-compatibility of dentine in vivo; (ii) to evaluate the ability of liquid nitrogen treated allogenic dentine to accelerate bone healing compared to normal healing in ungrafted defect, and (iii) to compare quantitatively the amount of new bone formation in the allogenic dentine treated defect to autogenous bone treated defect. Methods: Allogenic dentine of New Zealand White rabbits
- was treated with liquid nitrogen for 2 weeks. In sixteen rabbits, a defect (diameter: 5 mm) was created in each femur for grafting with either allogenic dentine (experimental groups) or autogenous bone (positive control), and in another four rabbits a defect (diameter: 5 mm) was created in each femur and left ungrafted (negative control). The rabbits were sacrificed at 2, 4, 8 and 12-week intervals. Results: Histologically, dentine-bone union has been achieved with no signs of inflammation.
- Histomorphometric, there was no significant difference in bone regeneration between the groups ($p>0.05$). However, the difference was clinically significant between the experimental and negative control groups at 2, 4 and 12 weeks. Conclusion: Results suggest that the liquid nitrogen-treated dentine is osteo-compatible and effective as a bone substitute for accelerating bone repair.

ADVANCES IN BIOMATERIALS SCIENCE AND BIOMEDICAL APPLICATIONS

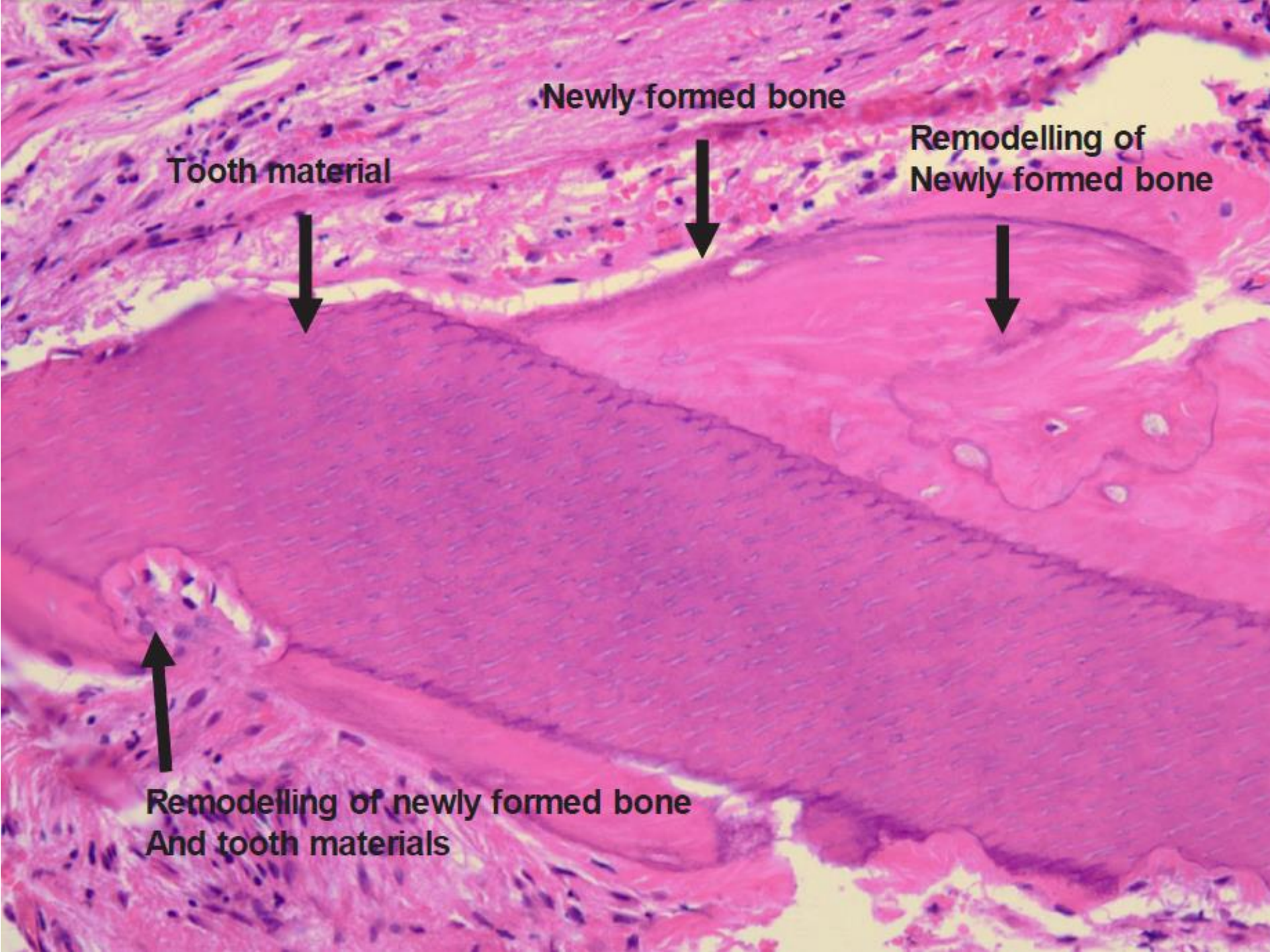
Healing Mechanism and Clinical Application of Autogenous Tooth Bone Graft Material

Young-Kyun Kim, Jeong Keun Lee,
Kyung-Wook Kim, In-Woong Um and
Masaru Murata

autogenous tooth bone graft materials, are safer than allogeneic and xenogeneic bon egraft materials

CONCLUSION

- It is obvious that autogenous tooth bone graft materials(AutoBT) are safer than allogeneic and
- xenogeneic bon egraft materials; the fact that they are compared with the healing performance
- of free autogenous bone graft in histological view is clear evidence. AutoBT can be used safely


Newly formed bone
Tooth material
Remodelling of
Newly formed bone
Remodelling of newly formed bone
And tooth materials

KNOCHEN TECHNIK MIT DEMINERALISIERTEM DENTIM-MATRIX UND MENSCHLICHEN BMP-2

-
- Als erstes bestätigen wir die ostoinduktiven Eigenschaften von menschlicher demineralisierter Dentin-Matrix. Menschliches DDM ist von lebenswichtigem Zahn gewonnen, und im Unterhautgewebe von Nacktmäusen implantiert worden. Die Form vom DDM ist eine Teilchenart und variiert von den Größen 0,4 bis 0,8mm. Hautgewebe mit 70mg vom DDM ist schätzungsweise 4 Wochen nach der Implantation hart. Das DDM induziert Knochen und Knorpel. Des Weiteren, wurde im Zeitverlauf des Biotests vom menschlichen BMP-2/DDM (70g) das Hautgewebe von Ratten geschätzt. Histologische Untersuchungen zeigten, dass das BMP-2/DDM Knochen und Knorpel beinhalten und das DDM nach und nach mit neuen Knochen ausgetauscht worden ist. Die Analysen zeigten, dass das BMP-2/DDM 79.0 % im Volumen des Knochen und Knochenmarks war, und in dem des DDM 21,0%, in 32 Wochen. Diese Resultate zeigen, dass menschliches DDM ostoinduktive Matrics hat, und die DDM-Macht wird effektiv eine Karriere von BMP-2 für Knochen Technik.

Interdisciplinary Medicine and Dental Science

Binderman et al., J Interdiscipl Med Dent Sci 2014,
http://dx.doi.org/10.4172/jimds.1000

Research Article Open Acce

A Novel Procedure to Process Extracted Teeth for Immediate Grafting o Autogenous Dentin

Itzhak Binderman[1*], Gideon Hallel[2], Casap Nardy[3], Avinoam Yaffe[4], and Lari Sapoznikov[2]

[1]*Department of Oral Biology, School of Dental Medicine and Department of Bio-Engineering, Faculty of Engineering, Tel Aviv University, Tel Aviv, Israel*
[2]*Private Practice, Tel Aviv, Israel*
[3]*Departments of Maxillofacial Surgery and Hebrew University Jerusalem, Israel*
[4]*Hadassah Faculty of Dental Medicine, Hebrew University Jerusalem, Israel*

Abstract

Background: Extracted teeth are still considered a clinical waste and therefore being discarded. It is evident that chemical composition of dentin is similar to bone. Following tooth replantation the tooth is replaced by bone then followed by root resorption and ankyloses and finally integrated into the surrounding alveolar bone.

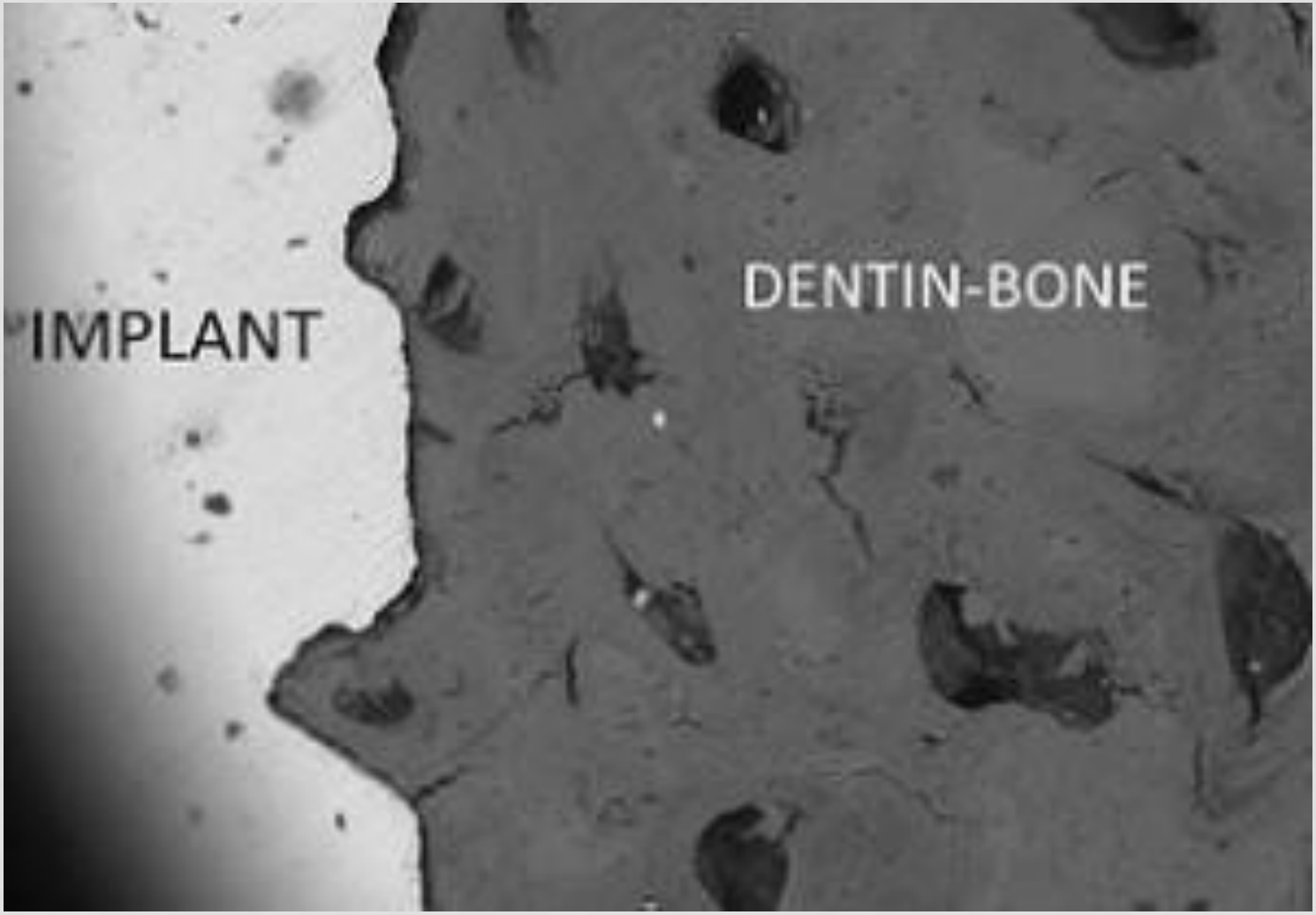
Aims: Here we present a novel procedure in a clinical setting that employs freshly extracted teeth that are processed into a bacteria-free particulate dentin, and then grafted immediately into extraction sites or bone deficiencies.

Methods: The procedure consists of reducing any restorations, caries or debris. The clean and dry tooth, mostly dentin, is immediately grinded using a specially designed 'Smart Dentin Grinder'. The dentin particulate of 300-1200 um is sieved through a special sorting system. The sorted particulate dentin is immersed in basic alcohol cleanser in a sterile container to dissolve all organic debris and bacteria. Then, the particulate is washed by sterile saline. The bacteria-free particulate dentin is ready for immediate grafting into extraction sites or into bone defect sites.

Results: During the period of two years, more than 100 procedures were performed, most of which for the purpose of preservation of alveolar bone. In those patients, implant insertion was possible as soon as 2-3 month after grafting of autogenous dentin. On x-rays and biopsy of grafting sites a dense dentin-bone composite was found. No wound healing complications were observed.

Conclusion: Autogenous mineralized dentin particulate grafted immediately after extractions should be considered as the gold standard for socket preservation, bone augmentation in sinuses and bone defects.

SHRNUTÍ, INFO – DALŠÍ DOPORUČENÍ A ÚVAHY AUTORA



OBJEKTIVNÍ POLOHA

- Stovky dokumentovaných cases ve světě
- 5 vlastních kasuistik, bez komplikace,
- Rychlé a bezproblémové hojení
- 15 minut přípravy je rálný čas
- Pokud je očištění delegováno, lze paralelně operovat
- Recykling, biologický přístup k likvidaci biol. odp.
- Ne rezignace na NKM, možná každý pátý pacient
- Compliance pacienta

DĚKUJI ZA POZORNOST