

REIMPLANTE INTENCIONAL EN DIENTES CON COMPROMISO PERIODONTAL. UNA REVISIÓN SISTEMÁTICA

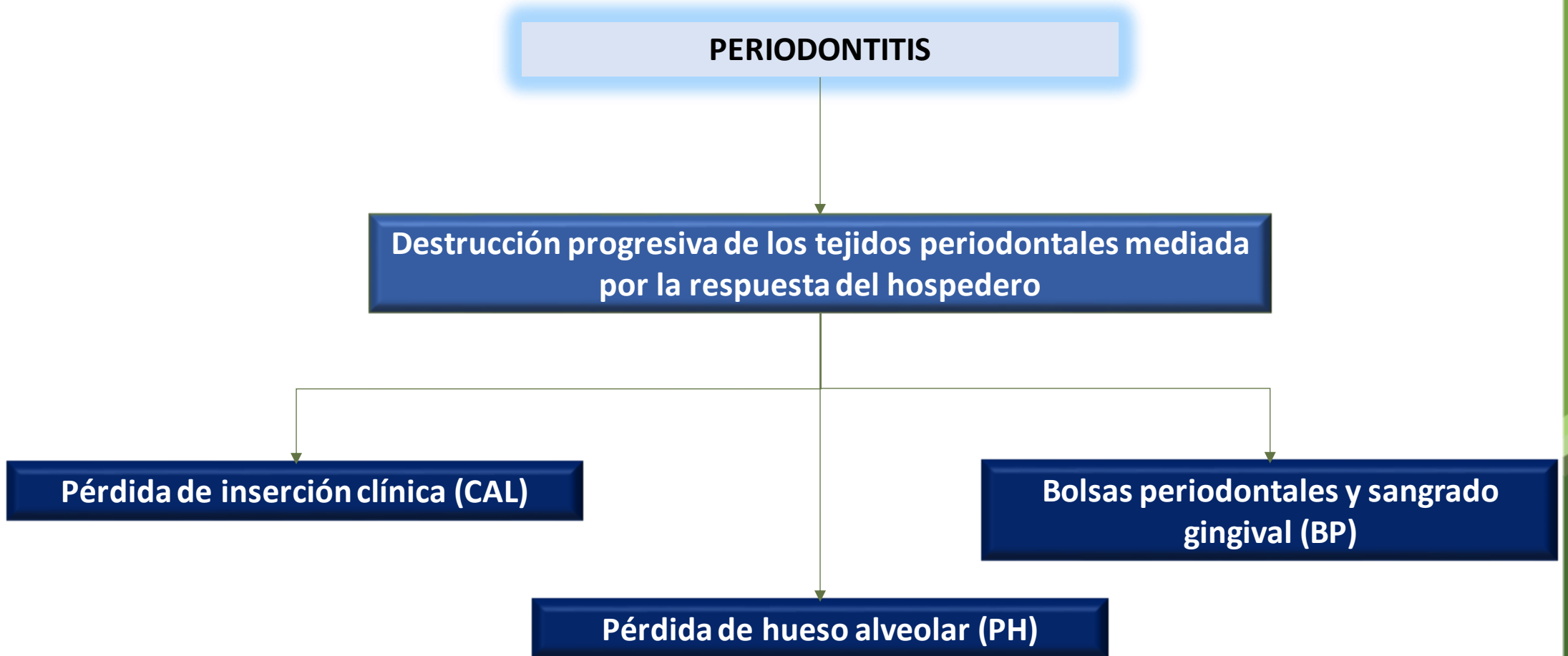
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INTRODUCCIÓN



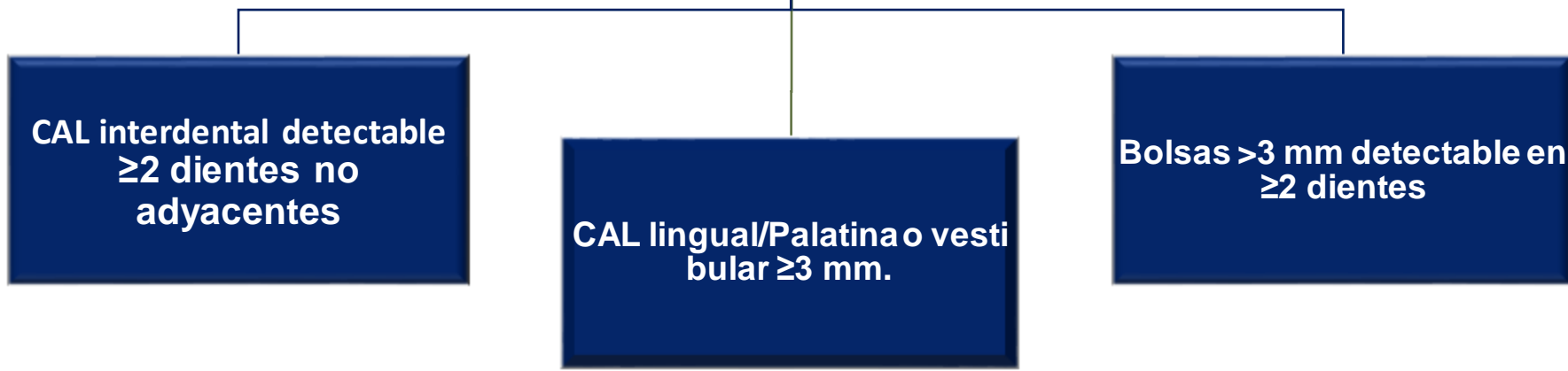
Tonetti MS, Greenwell H, Kornman KS. Staging and grading of periodontitis: Framework and proposal of a new classification and case definition. J Periodontol. 2018;89(February):S159–72.

Papapanou PN, Sanz M, Buduneli N, Dietrich T, Feres M, Fine DH, et al. Periodontitis: Consensus report of workgroup 2 of the 2017 World Workshop on the Classification of Periodontal and Peri-Implant Diseases and Conditions. J Periodontol. 2018;89(March):S173–82.

Kinane DF. Causation and pathogenesis of the host responses of periodontitis. J Clin Periodontol. 2001;25(1):8–20.

Clasificación De Enfermedades Y Afecciones Periodontales Y Periimplantarias (2017)

Caso de periodontitis



Papapanou PN, Sanz M, Buduneli N, Dietrich T, Feres M, Fine DH, et al. Periodontitis: Consensus report of workgroup 2 of the 2017 World Workshop on the Classification of Periodontal and Peri-Implant Diseases and Conditions. J Periodontol. 2018;89(March):S173–82.

Kinane DF. Causation and pathogenesis of the host responses of periodontitis. J Clin Periodontol. 2001;25(1):8–20.

Terapéutica Ideal

Bolsas periodontales poco profundas (1-6mm)

Bolsas periodontales profundas (>6mm)

Raspaje y alisado radicular

Objetivo

Desbridamiento a colgajo abierto

Eliminar la placa supra gingival y subgingival y detoxificar la superficie de cemento radicular contaminada

Astermark J, Altisent C, Batorova A, Diniz MJ, Gringeri A, Holme PA, et al. Non-genetic risk factors and the development of inhibitors in haemophilia: A comprehensive review and consensus report. *Haemophilia*. 2010;16(5):747–66.

Wiley J, Asboe-Jørgensen V, Attström R, Lang NP, Löe H, Rose L, Mealey B, Genco R CD, et al. جميلة ومفيدة وهنالك منها .Pdf. *J Clin Periodontol* [Internet]. 2004;45(1):134–43. Available from: <https://doi.org/10.5301/jabfm.5000215%0Ahttp://linkinghub.elsevier.com/retrieve/pii/S1079210404008145>

Heitz-Mayfield LJA, Trombelli L, Heitz F, Needleman I, Moles D. A systematic review of the effect of surgical debridement vs. non-surgical debridement for the treatment of chronic periodontitis. *J Clin Periodontol*. 2002;29(SUPPL. 3):92–102.



Lang NP, Tonetti MS. Periodontal diagnosis in treated periodontitis - Why, when and how to use clinical parameters. J Clin Periodontol. 1996;23(3 PART II):240-50.



Deutscher HCD, Derman SHM, Barbe AG, Seemann R, Noack MJ. The effect of professional tooth cleaning or non-surgical periodontal therapy on oral halitosis in patients with periodontal diseases. A systematic review. *Int J Dent Hyg.* 2018;16(1):36–47.

Mailoa J, Lin G-H, Khoshkam V, MacEachern M, Chan H-L, Wang H-L. Long-Term Effect of Four Surgical Periodontal Therapies and One Non-Surgical Therapy: A Systematic Review and Meta-Analysis. *J Periodontol.* 2015;86(10):1150–8.

Samet et al.

Bueno (A) cuando se tiene de un 80-90% de soporte óseo que puede ser fácilmente mantenido.

Adecuado (B) cuando se tiene un soporte óseo de una 50-80% que puede ser mantenido con una rigurosa terapia periodontal

Cuestionable (C) presenta un 30-50% de soporte óseo remanente donde es difícil realizar la adecuada limpieza

Comprometido (D) es aquel que tiene un soporte óseo <30% que no puede ser limpiado o mantenido con presencia activa de enfermedad periodontal

No salvable (X) cuando el soporte óseo es <30%, y/o que no puede ser limpiado con focos infecciosos o enfermedad periodontal

Samet N, Jotkowitz A. Classification and prognosis evaluation of individual teeth--a comprehensive approach. Quintessence Int [Internet]. 2009;40(5):377–87. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/19582242>

POLÉMICA

Consenso en general

La no realización del RI

Rateischak (1994), Living Yu(2003),
Saida (2018)

RI terapia factible para dientes con
afectación periodontal sin
esperanza como terapia de último
recurso

RI terapia poco difundida actualmente
para manejo de enfermedades
periodontales y se desconoce pronóstico
a largo plazo



1Rateitschak KH. Failure of periodontal treatment. Quintessence Int (Berl). 1994;25(7):449-57.

L. Y, B. X, B. W. Treatment of combined endodontic-periodontic lesions by intentional replantation and application of hydroxyapatites. Dent Traumatol [Internet]. 2003;19(1):60-3. Available from: <http://ovidsp.ovid.com/ovidweb.cgi?T=JS&PAGE=reference&D=emed6&NEWS=N&AN=12656858>

Saida H, Fukuba S, Miron RJ, Shirakata Y. Efficacy of flapless intentional replantation with enamel matrix derivative in the treatment of hopeless teeth associated with endodontic-periodontal lesions: A 2-year prospective case series. Quintessence Int. 2018;49(9):699-707.

Objetivo

Evaluar el pronóstico del reimplante intencional como terapia para el manejo de dientes con afección periodontal de mal pronóstico en términos de supervivencia dental, a través de una revisión sistémica de la literatura científica.



MATERIALES Y MÉTODOS

ASPECTOS METODOLÓGICOS

TIPO DE ESTUDIO:
Revisión sistemática

OBJETO DE ESTUDIO:
Artículos que hablen sobre la tasa de éxito de dientes reimplantados intencionalmente

ASPECTOS METODOLÓGICOS

Criterios de inclusión:

- Estudios clínicos que reportan la tasa de éxito del reimplante intencional como terapia para dientes con compromiso periodontal severo

Criterios de exclusión:

- Estudios que no definan esta asociación, estudios in vitro, estudios sobre animales, revisiones narrativas, reportes de caso y opiniones de expertos serán excluidas.

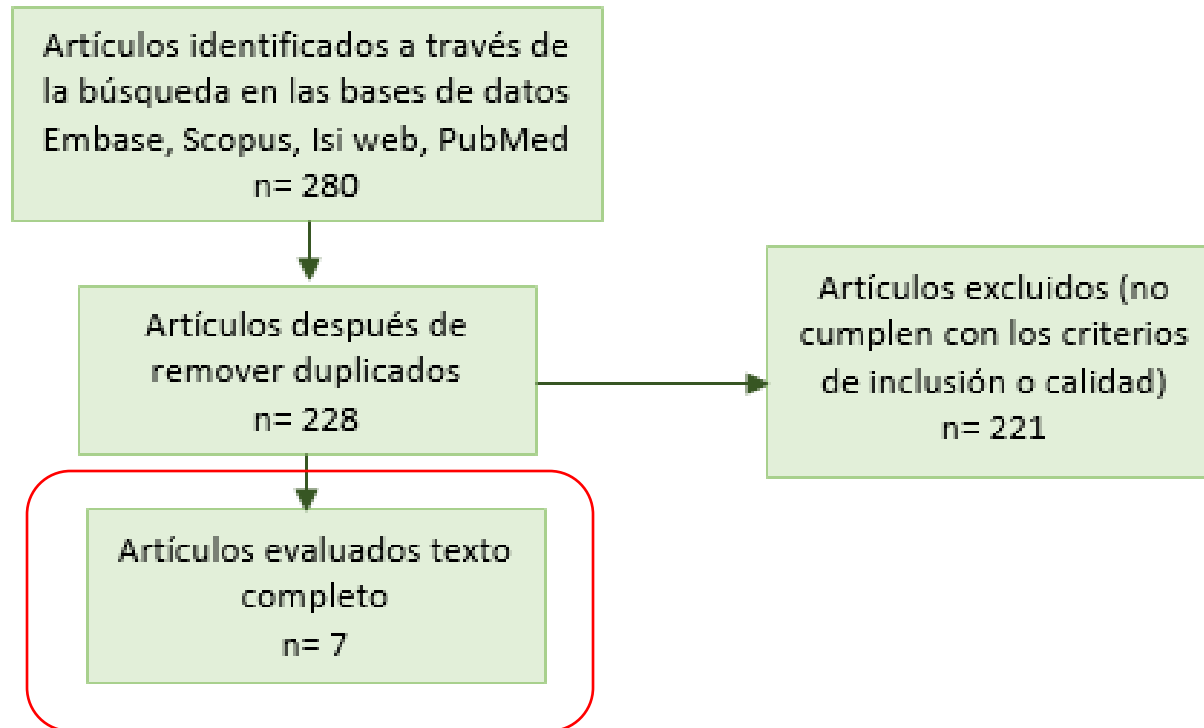
PROCEDIMIENTO

Base de datos	Estrategia de búsqueda	Resultados
ISI WEB (KEY WORDS)	TS=(chronic periodontitis OR periodontitis chronica OR periodontal disease OR periodontal infection OR periodontium disease OR hopeless tooth OR aggressive periodontitis OR periodontally involved tooth OR periodontally hopeless tooth AND dental loss OR furcation defects) AND TS=(intentional replantation OR intentional reimplant OR tooth autotransplantation)	48
EMBASE (KEY WORDS)	('periodontitis'/de OR 'periodontitis' OR 'chronic periodontitis'/de OR 'chronic periodontitis' OR 'periodontitis chronica' OR 'periodontal disease'/de OR 'dental loss' OR 'furcation defects' OR 'periodontal disease' OR 'periodontal diseases' OR 'periodontal infection' OR 'periodontium disease' OR 'hopeless tooth' OR 'aggressive periodontitis'/de OR 'aggressive periodontitis' OR 'periodontally involved tooth' OR 'periodontally hopeless tooth') AND ('intentional replantation' OR 'intentional reimplant' OR 'tooth autotransplantation')	53
SCOPUS (KEY WORD PLUS)	((TITLE-ABS-KEY (chronic AND periodontitis) OR TITLE-ABS-KEY (periodontitis AND chronica) OR TITLE-ABS-KEY (periodontal AND infection) OR TITLE-ABS-KEY (periodontium AND disease) OR TITLE-ABS-KEY (hopeless AND tooth) OR TITLE-ABS-KEY (aggressive AND periodontitis) AND TITLE-ABS-KEY (periodontally AND involved AND tooth) OR TITLE-ABS-KEY (periodontally AND hopeless AND tooth) OR TITLE-ABS-KEY (dental AND loss) OR TITLE-ABS-KEY (furcation AND defects)) AND (TITLE-ABS-KEY (intentional AND replantation) OR TITLE-ABS-KEY (intentional AND reimplant) OR TITLE-ABS-KEY (tooth AND autotransplantation)))	33
PUBMED (MESH TERMS)	(chronic periodontitis OR periodontitis chronica OR periodontal disease OR periodontal infection OR periodontium disease OR hopeless tooth OR aggressive periodontitis OR aggressive periodontitis OR periodontally involved tooth OR periodontally hopeless tooth AND dental loss OR furcation defects) AND (intentional replantation OR intentional reimplant OR tooth autotransplantation)	146
		280
		228
		52 Duplicados

PROCEDIMIENTO



DIAGRAMA DE FLUJO DE LA LITERATURA (PRISMA)



PROCEDIMIENTO

Análisis de riesgo de sesgo con la herramienta **Newcastle-Ottawa**

Evaluación de la calidad de la evidencia con la herramienta del **National Heart, Lung, and Blood Institute (NHLBI)**

RESULTADOS

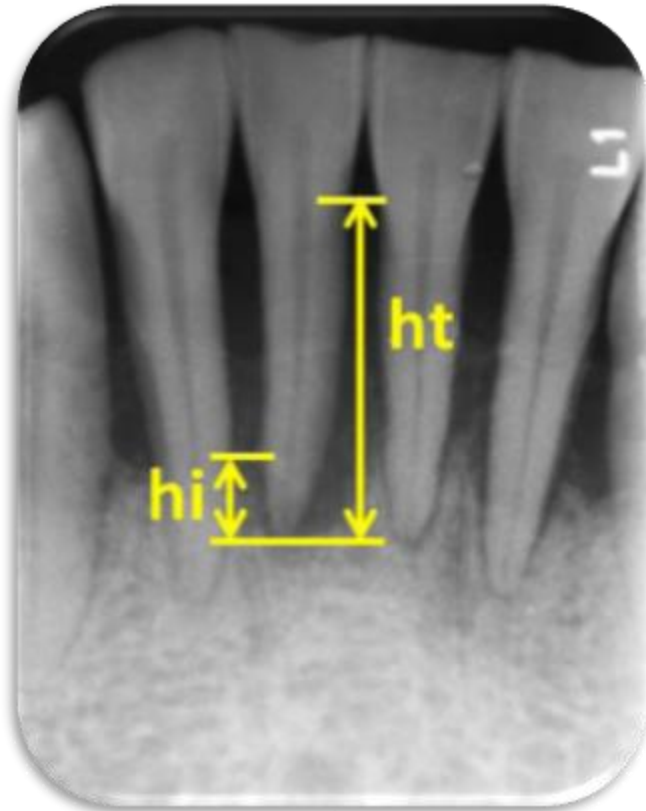
EVALUATION ACCORDING TO THE NEWCASTLE - OTTAWA QUALITY ASSESSMENT SCALE

ESTUDIO	SELECCIÓN	COMPARABILIDAD	RESULTADO	CONCLUSION
CROSS-SECTIONAL STUDIES				
Cho SY, et al.	★★	★	★★★	MODERADO RIESGO
Zhang J, et al.	★★	★	★★★	MODERADO RIESGO
Hou GL et al.	★★	★	★★★	MODERADO RIESGO
Demiralp B, et al.	★★	★	★★★	MODERADO RIESGO
Lee EU, et al.	★★	★	★★★	MODERADO RIESGO
Baltacioglu E, et al.	★★	★	★★★	MODERADO RIESGO
Saida H, et al.	★★	★	★★★	MODERADO RIESGO

Quality Assessment Tool for Before-After (Pre-Post) Studies With No Control Group

Criteria	Study Author	Cho SY, et al.	Zhang J, et al.	Hou GL, et al	Demiralp B, et al	Lee EU, et al.	Baltacioglu E, et al.	Saida H, et al.
1. Was the study question or objective clearly stated?		Y	Y	Y	Y	Y	Y	Y
2. Were eligibility/selection criteria for the study population prespecified and clearly described?		Y	Y	NR	Y	Y	Y	Y
3. Were the participants in the study representative of those who would be eligible for the test/service/intervention in the general or clinical population of interest?		N	N	N	N	N	N	N
4. Were all eligible participants that met the prespecified entry criteria enrolled?		Y	Y	NR	NR	Y	Y	Y
5. Was the sample size sufficiently large to provide confidence in the findings?		Y	Y	NR	NR	NR	NR	NR
6. Was the test/service/intervention clearly described and delivered consistently across the study population?		Y	Y	N	Y	Y	Y	Y
7. Were the outcome measures prespecified, clearly defined, valid, reliable, and assessed consistently across all study participants?		Y	Y	Y	Y	Y	Y	Y
8. Were the people assessing the outcomes blinded to the participants' exposures/interventions?		N	N	N	N	N	N	Y
9. Was the loss to follow-up after baseline 20% or less? Were those lost to follow-up accounted for in the analysis?		Y	Y	Y	NR	Y	NR	Y
10. Did the statistical methods examine changes in outcome measures from before to after the intervention? Were statistical tests done that provided p values for the pre-to-post changes?		Y	Y	N	Y	Y	Y	Y
11. Were outcome measures of interest taken multiple times before the intervention and multiple times after the intervention (i.e., did they use an interrupted time-series design)?		Y	Y	Y	N	Y	N	Y
12. If the intervention was conducted at a group level (e.g., a whole hospital, a community, etc.) did the statistical analysis take into account the use of individual-level data to determine effects at the group level?		NA	NA	NA	NA	NA	NA	NA
Total yes answers		9	9	4	5	8	6	9
Qualification		Good	Good	Unsatisfactory	Satisfactory	Satisfactory	Satisfactory	Good

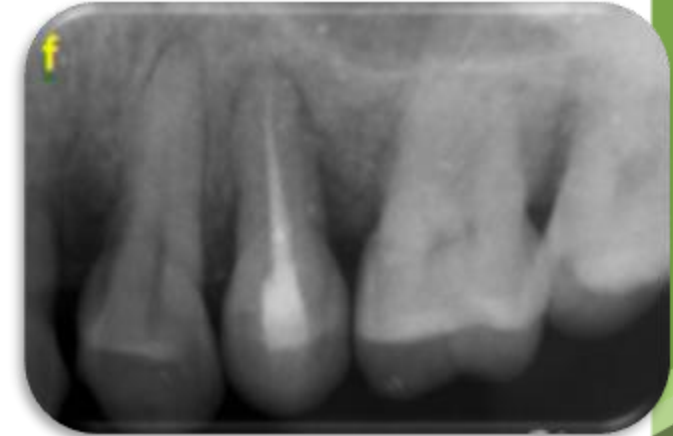
Identificación Del Porcentaje (%) De Perdida Ósea (BL)



$$BL(\%) = [1 - hi / (ht - 1.5)] \times 100$$

Schulte W, d'Hoedt B, Lukas D, Maunz M, Steppeler M. Periotest for measuring periodontal characteristics--correlation with periodontal bone loss. J Periodontal Res. 1992 May;27(3):184-90. doi: 10.1111/j.1600-0765.1992.tb01667.x. PMID: 1608031.

Saida et al.
17 dientes, 3 casos de fumadores
Supervivencia 94,12%



Tratamiento de la superficie
con EDTA y matriz derivada
de esmalte

Disminución de la pérdida
ósea (48.2% - 26.1 %)

Reducción de la profundidad
de sondaje (6.4mm – 2.6 mm)

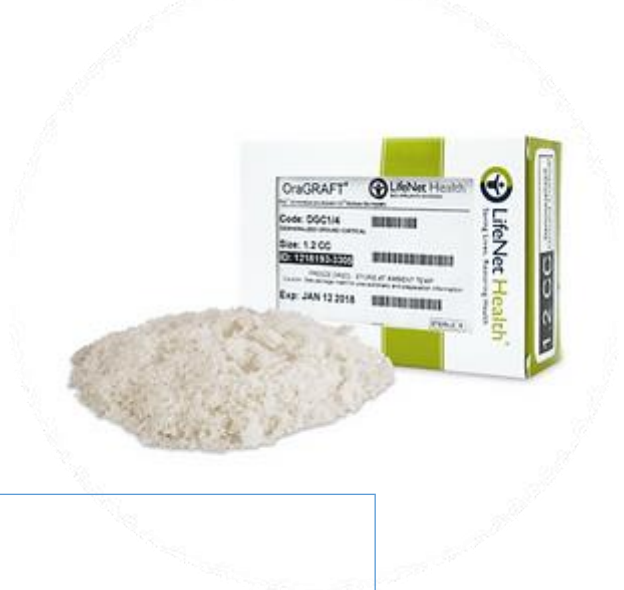
Ganancia de nivel de inserción (5.9mm – 2.5 mm)

Saida H, Fukuba S, Miron RJ, Shirakata Y. Efficacy of flapless intentional replantation with enamel matrix derivative in the treatment of hopeless teeth associated with endodontic-periodontal lesions: A 2-year prospective case series. Quintessence Int. 2018;49(9):699-707.



**Baltacioglu et al. 12 dientes
Supervivencia 100%**

**Matriz derivada de esmalte y
aloinjerto óseo liofilizado
desmineralizado**



**Ganancia ósea
(40.42%)**

**Profundidad al sondaje
(7.80 ± 0.71mm - 2.98 ± 0.25mm)**

**Niveles de inserción
(9.19 ± 0.61mm - 4.85 ± 0.86mm)**

**Ausencia de anquilosis y
reabsorción radicular externa
100%**

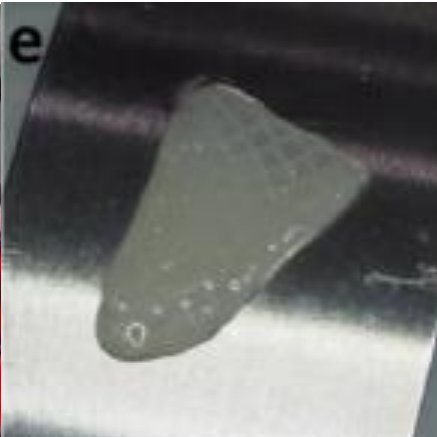
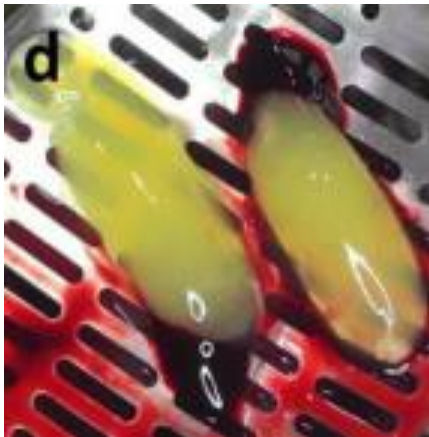
Baltacioglu E, Tasdemir T, Yuva P, Celik D, Sukuroglu E. Intentional replantation of periodontally hopeless teeth using a combination of enamel matrix derivative and demineralized freeze-dried bone allograft. Int J Periodontics Restorative Dent [Internet]. 2011;31(1):75–81. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/21365029>

Zhang et al.
48 dientes, 6 casos de fumadores
Supervivencia 91.7%

Profundidad al sondaje
(7.12 +- 1.15 mm – 3.05+-1.04 mm)

Pérdida ósea
(0.89+-0.25% - 0.56+-0.21%)

Recesiones gingivales
(1.46+-1.17 mm – 2.23+-1.10 mm)



Se perdieron 4 dientes, 3 de ellos de fumadores (75%)

Anquilosis en 24 dientes (77.3%)

Zhang J, Luo N, Miao D, Ying X, Chen Y. Intentional replantation of periodontally involved hopeless teeth: a case series study. Clin Oral Investig. 2020;24(5):1769–77.

**Demiralp et al. 15 dientes
Supervivencia 100%**

**Tetraciclina por 5 minutos en
superficie radicular**

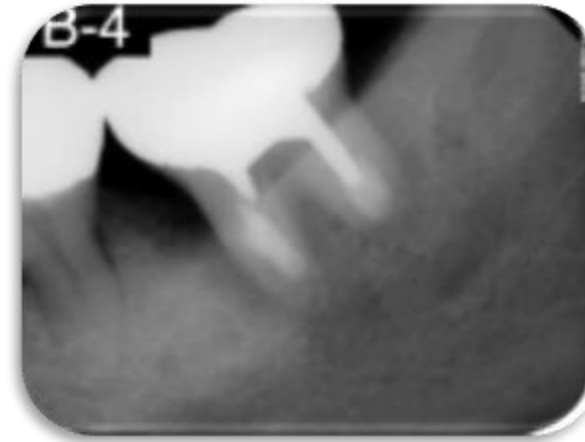
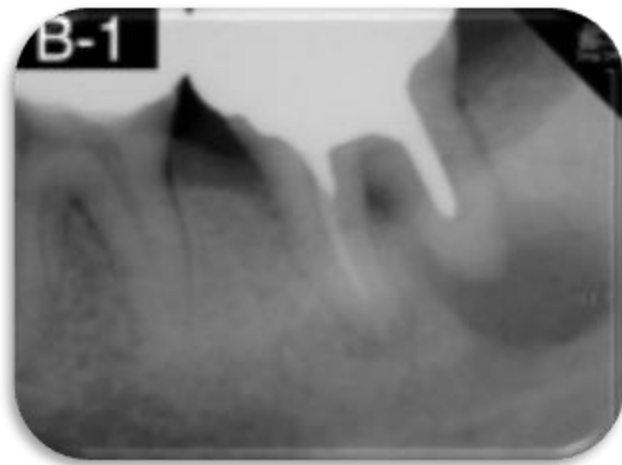
**Profundidad al sondaje
(5.25 – 2.36mm)**

**Perdida ósea
(73.2% - 56.86%)**

**Recesiones gingivales
(3.73mm - 4.00mm)**

**No hubo evidencia de
reabsorción ni anquilosis 100%**

Demiralp B, Nohutçu RM, Tepe DI, Eratalay K. Intentional replantation for periodontally involved hopeless teeth. Dent Traumatol. 2003;19(1):45–51



Cho et al. 103
dientes
**Supervivencia
68%**

**Únicamente
raspaje manual y
apicectomía**

**Reducción
Profundidad al
sondaje
(68%)**

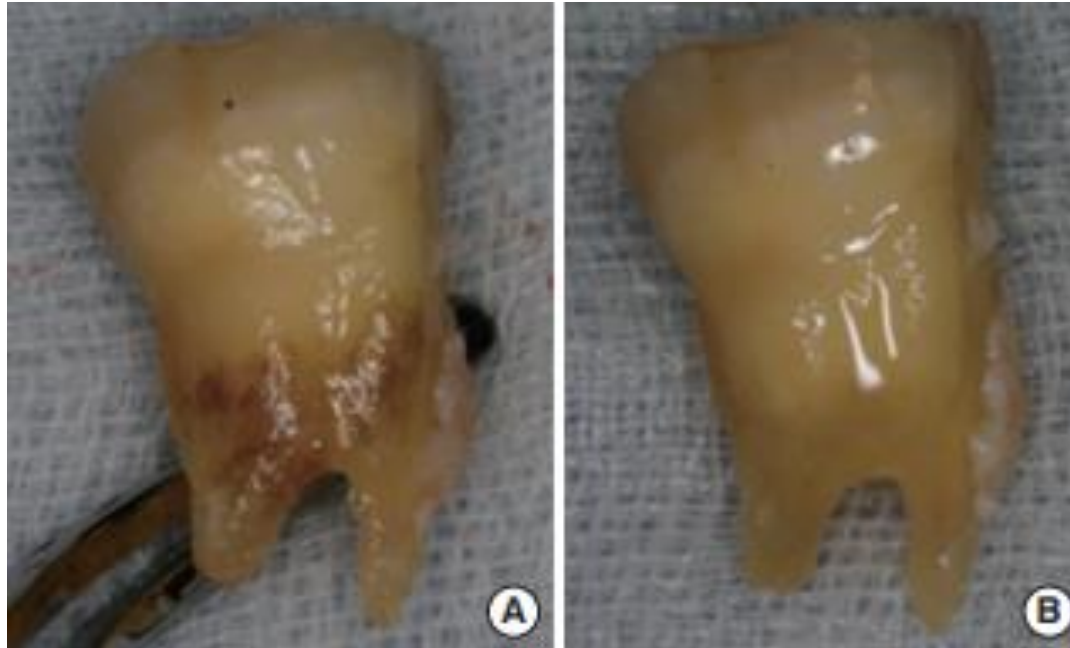
**No hubo evidencia de reabsorción
ni anquilosis 100%**

Cho SY, Lee SJ, Kim E. Clinical Outcomes after Intentional Replantation of Periodontally Involved Teeth. J Endod [Internet]. 2017;43(4):550–5. Available from: <http://dx.doi.org/10.1016/j.joen.2016.11.024>.

Lee et al. 27 dientes
Supervivencia 66.4%

RI tardío (10-14 días) en un
medio de dexametasona

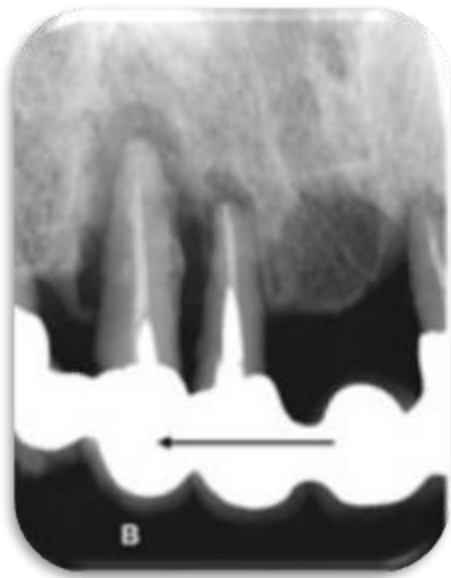
Perdida ósea
(68.45% - 34.66%)



Ganancia ósea
(45.02%)

Anquilosis en 5 dientes

Lee EU, Lim HC, Lee JS, Jung UW, Kim US, Lee SJ, et al. Delayed intentional replantation of periodontally hopeless teeth: A retrospective study. J Periodontal Implant Sci. 2014;44(1):13-9.



**Lin-Hou et al. 17 dientes
Supervivencia 88.2%**

**Inmersión en solución de
tetraciclina durante 5 minutos**



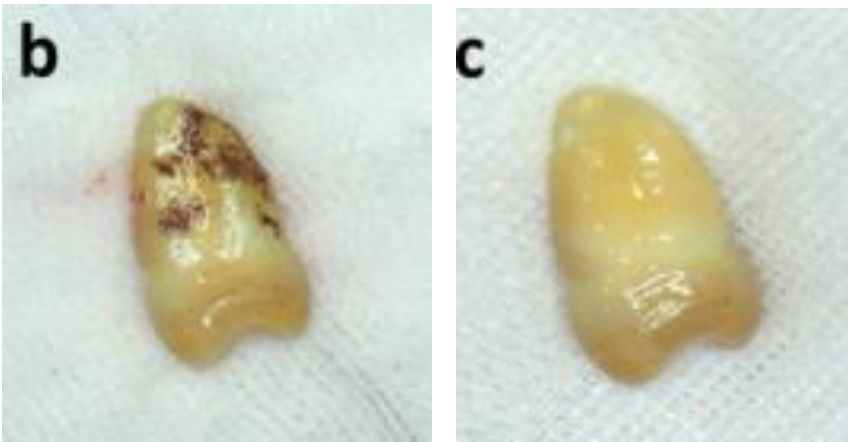
**Perdida ósea
(88.5% ± 13.3% - 12.7 ± 2.1%)**

**Profundidad al sondaje
(7.80 ± 0.71mm - 2.98 ± 0.25mm)**

**Niveles de inserción
(9.19 ± 0.61mm - 4.85 ± 0.86mm)**

Ausencia de anquilosis 100%

Hou GL, Hou LT, Weisgold A. Survival rate of teeth with periodontally hopeless prognosis after therapies with intentional replantation and perioprosthetic procedures - a study of case series for 5–12 years. Clin Exp Dent Res. 2016;2(2):85–95.



De 239 dientes reportados en los 7 artículos solo se reporto un caso de reabsorción después de 12 años

Todos los autores en el tratamiento de las superficies radiculares reportaron la necesidad de realizar desbridamiento manual y ultrasónico



De igual forma recomendaron enjuague con digluconato de clorhexidina al 0.12% durante 2 semanas como tratamiento postoperatorio

Saida H, Fukuba S, Miron RJ, Shirakata Y. Efficacy of flapless intentional replantation with enamel matrix derivative in the treatment of hopeless teeth associated with endodontic-periodontal lesions: A 2-year prospective case series. *Quintessence Int.* 2018;49(9):699–707.

Zhang J, Luo N, Miao D, Ying X, Chen Y. Intentional replantation of periodontally involved hopeless teeth: a case series study. *Clin Oral Investig.* 2020;24(5):1769–77.

Hou GL, Hou LT, Weisgold A. Survival rate of teeth with periodontally hopeless prognosis after therapies with intentional replantation and perioprosthetic procedures - a study of case series for 5–12 years. *Clin Exp Dent Res.* 2016;2(2):85–95.

Demiralp B, Nohutçu RM, Tepe DI, Eratalay K. Intentional replantation for periodontally involved hopeless teeth. *Dent Traumatol.* 2003;19(1):45–51.

Baltacıoğlu E, Tasdemir T, Yuva P, Çelik D, Sukuroğlu E. Intentional replantation of periodontally hopeless teeth using a combination of enamel matrix derivative and demineralized freeze-dried bone allograft. *Int J Periodontics Restorative Dent* [Internet]. 2011;31(1):75–81. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/21365029>

Lee EU, Lim HC, Lee JS, Jung UW, Kim US, Lee SJ, et al. Delayed intentional replantation of periodontally hopeless teeth: A retrospective study. *J Periodontal Implant Sci.* 2014;44(1):13–9.

Cho SY, Lee SJ, Kim E. Clinical Outcomes after Intentional Replantation of Periodontally Involved Teeth. *J Endod* [Internet]. 2017;43(4):550–5. Available from: <http://dx.doi.org/10.1016/j.joen.2016.11.024>.

DISCUSIÓN

Es posible considerar el RI como un tratamiento en dientes con compromiso periodontal avanzado y pronóstico reservado

Al eliminar el factor etiológico se controla la respuesta inflamatoria para proporcionar un ambiente ideal de cicatrización

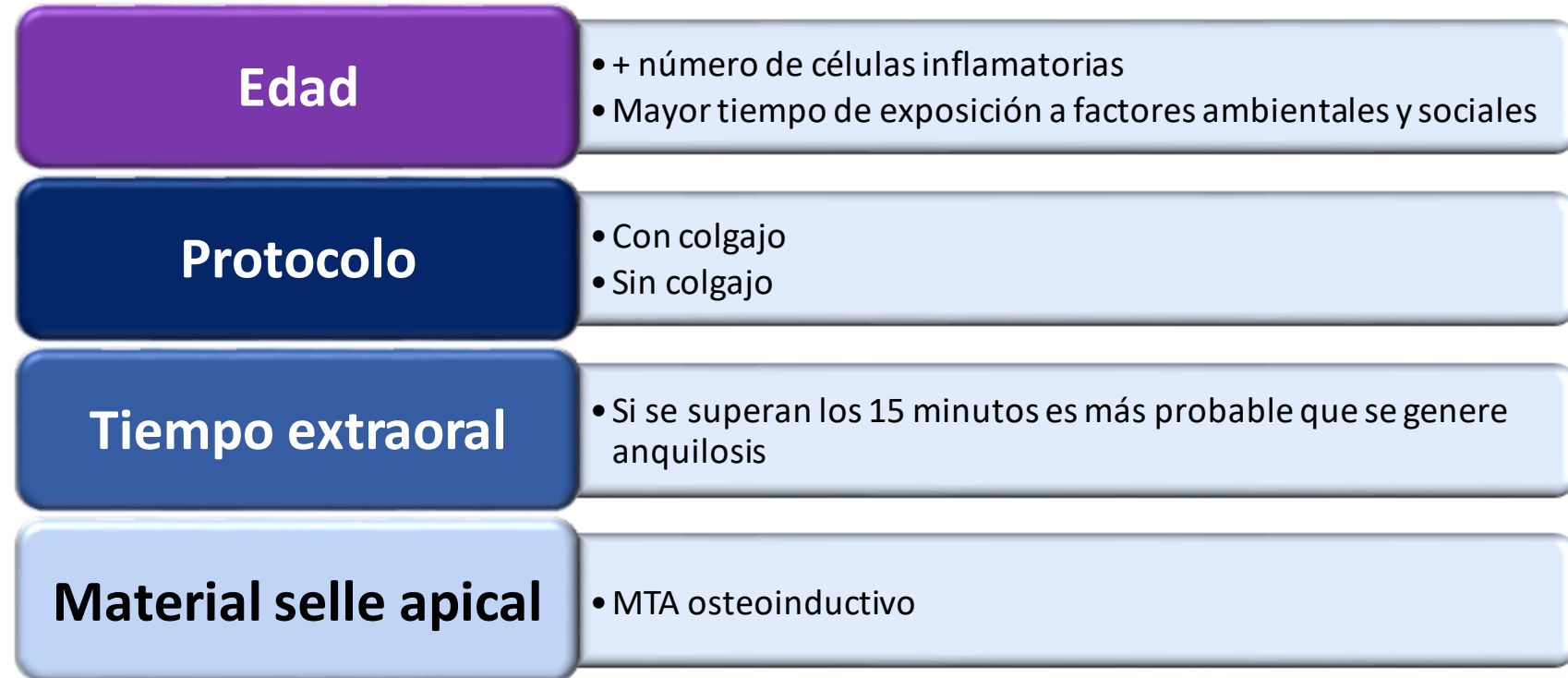
No se alcanzará un estado de cicatrización completa

Se busca un estado de supervivencia, como se evalúan los implantes dentales

Lograr una mejoría y una relativa estabilidad

L. Y, B. X, B. W. Treatment of combined endodontic-periodontic lesions by intentional replantation and application of hydroxyapatites. Dent Traumatol [Internet]. 2003;19(1):60-3. Available from: <http://ovidsp.ovid.com/ovidweb.cgi?T=JS&PAGE=reference&D=emed6&NEWS=N&AN=12656858>
Demiralp B, Nohutçu RM, Tepe DI, Eratalay K. Intentional replantation for periodontally involved hopeless teeth. Dent Traumatol. 2003;19(1):45-51.

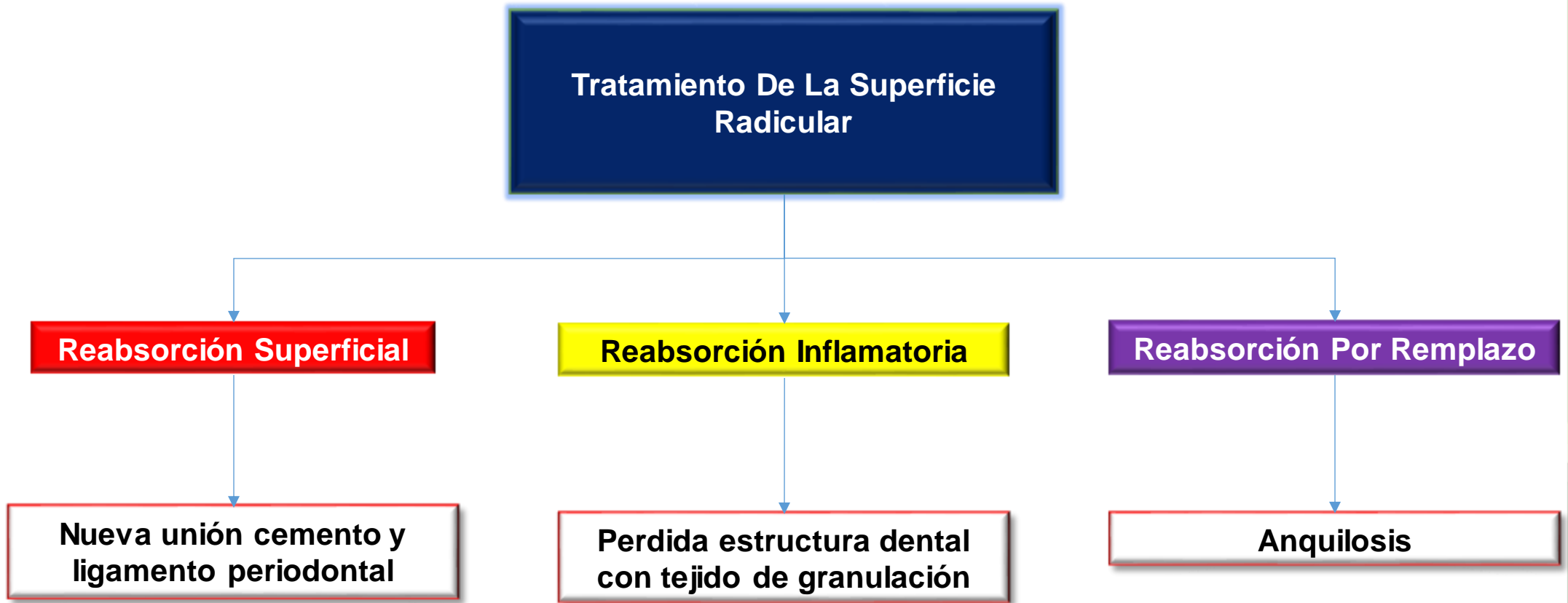
Evaluación De Viabilidad Previa De RI



Becker BD. Intentional Replantation Techniques: A Critical Review. Journal of endodontics [Internet]. 2018 Jan 1 [cited 2022 Mar 22];44(1):14–21. Available from: <https://pubmed.ncbi.nlm.nih.gov/29033086/>

Clark D, Levin L. In the dental implant era, why do we still bother saving teeth? Dental traumatology : official publication of International Association for Dental Traumatology [Internet]. 2019 Dec 1 [cited 2022 Mar 22];35(6):368–75. Available from: <https://pubmed.ncbi.nlm.nih.gov/31132200/>

Curtis DA, Lin GH, Rajendran Y, Gessese T, Suryadevara J, Kapila YL. Treatment planning considerations in the older adult with periodontal disease. Periodontology 2000 [Internet]. 2021 Oct 1 [cited 2022 Mar 22];87(1):157–65. Available from: <https://pubmed.ncbi.nlm.nih.gov/34463978/>



Jitaru S, Hodisan I, Timis L, Lucian A, Bud M. The use of bioceramics in endodontics - literature review. Clujul medical (1957) [Internet]. 2016 [cited 2022 Mar 22];89(4):470–3. Available from: <https://pubmed.ncbi.nlm.nih.gov/27857514/>

Ali MRW, Mustafa M, Bårdsen A, Bletsa A. Tricalcium silicate cements: osteogenic and angiogenic responses of human bone marrow stem cells. European journal of oral sciences [Internet]. 2019 Jun 1 [cited 2022 Mar 22];127(3):261–8. Available from: <https://pubmed.ncbi.nlm.nih.gov/30958908/>

Gault PC, Warocquier-Clerout R. Tooth auto-transplantation with double periodontal ligament stimulation to replace periodontally compromised teeth. Journal of periodontology [Internet]. 2002 May [cited 2022 Mar 22];73(5):575–83. Available from: <https://pubmed.ncbi.nlm.nih.gov/12027263/>

Plasma Rico En Fibrina

- Factores de crecimiento

Matriz Derivada De Esmalte

- Migración y proliferación
- Limitar crecimiento de células epiteliales

Tetraciclina

- Inhibición de osteoclastos y colagenasas
- Mejora la unión de proteínas de matriz a cemento

Saida H, Fukuba S, Miron RJ, Shirakata Y. Efficacy of flapless intentional replantation with enamel matrix derivative in the treatment of hopeless teeth associated with endodontic-periodontal lesions: A 2-year prospective case series. *Quintessence Int.* 2018;49(9):699–707.

Zhang J, Luo N, Miao D, Ying X, Chen Y. Intentional replantation of periodontally involved hopeless teeth: a case series study. *Clin Oral Investig.* 2020;24(5):1769–77.

Hou GL, Hou LT, Weisgold A. Survival rate of teeth with periodontally hopeless prognosis after therapies with intentional replantation and perioprosthodontic procedures - a study of case series for 5–12 years. *Clin Exp Dent Res.* 2016;2(2):85–95.

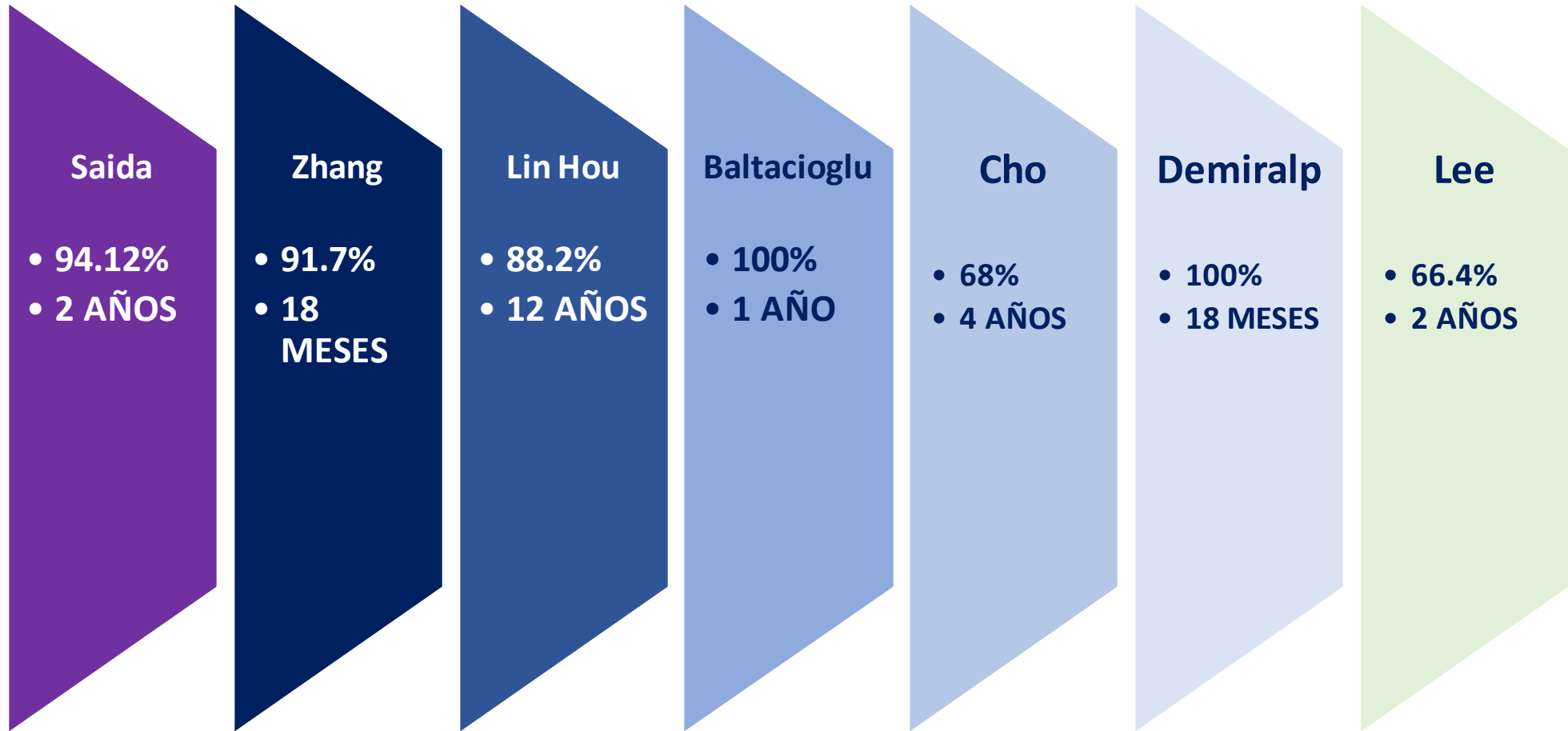
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Supervivencia



Promedio: 86.9%

CONCLUSIONES

De acuerdo con la literatura es posible considerar el reimplante intencional como un posible tratamiento de último recurso en dientes con compromiso periodontal avanzado y pronóstico reservado, con el objetivo de eliminar el origen de la patología periodontal.



GRACIAS