ANTHEC
ACADEMY OF NON TRANSFUSIONAL HEMO-COMPONENTS

bti
Biotechnology Institute

silfradent

ANTHEC | ACADEMY OF NON TRANSFUSIONAL HEMO-COMPONENTS

ANTHEC Associazione medici, Accademia emocomponenti

Protocolli operativi con L-PRF nelle lesioni difficili

Dr. E. Rescigno

Aggiornamento sugli Emocomponenti a Uso Non Trasfusionale (EunT)

Milano - 25 Marzo 2023

NATURAL HEALING

2016

Cochrane Library

P R P

Platelets Rich Plasma

Cochrane Database Syst Rev. 2016 May 25;(5):CD006899. doi: 10.1002/14651858.CD006899.pub3.

Autologous platelet-rich plasma for treating chronic wounds.

Martinez-Zapata MJ[1], Martí-Carvajal AJ, Solà I, Expósito JA, Bolíbar I, Rodríguez L, Garcia J, Zaror C.

⊕ Author information

Abstract

BACKGROUND: Autologous platelet-rich plasma (PRP) is a treatment that contains fibrin and high concentrations of growth factors with the potential to improve the healing of chronic wounds. This is the first update of a review first published in 2012.

OBJECTIVES: To determine whether autologous PRP promotes the healing of chronic wounds.

AUTHORS' CONCLUSIONS: PRP may improve the healing of foot ulcers associated with diabetes, but this conclusion is based on low quality evidence from two small RCTs. It is unclear whether PRP influences the healing of other chronic wounds. The overall quality of evidence of autologous PRP for treating chronic wounds is low. There are very few RCTs evaluating PRP, they are underpowered to detect treatment effects, if they exist, and are generally at high or unclear risk of bias. Well designed and adequately powered clinical trials are needed.

NATURAL HEALING

P R P

2016

Journal of Vascular Surgery
Official Publication of the Society for Vascular Surgery

Platelets Rich Plasma

The management of diabetic foot: A clinical practice guideline by the Society for Vascular Surgery in collaboration with the American Podiatric Medical Association and the Society for Vascular Medicine

Anil Hingorani, MD,[a] Glenn M. LaMuraglia, MD,[b] Peter Henke, MD,[c] Mark H. Meissner, MD,[d]

Recommendation 5: For DFUs that fail to demonstrate improvement (>50% wound area reduction) after a minimum of 4 weeks of standard wound therapy, we recommend adjunctive wound therapy options. These include negative pressure therapy, biologics (platelet-derived growth factor [PDGF], living cellular therapy, extracellular matrix products, amnionic membrane products), and hyperbaric oxygen therapy. Choice of adjuvant therapy is based on clinical findings, availability of therapy, and cost-effectiveness; there is no recommendation on ordering of therapy choice. Re-evaluation of vascular status, infection control, and off-loading is recommended to ensure optimization before initiation of adjunctive wound therapy (Grade 1B).

Journal of vascular Surgery February 2016 Vol. 63, Issue 2, Supplement, Pages 3S–21S

NATURAL HEALING

Indicazioni terapeutiche sull'utilizzo appropriato degli emocomponenti per uso non trasfusionale

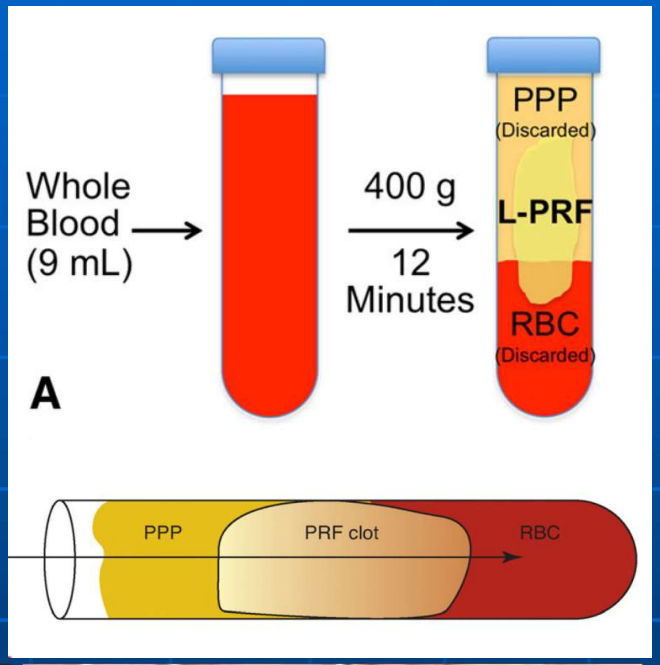
Prima edizione
ottobre 2019

TABELLA DELLE INDICAZIONI CON GRADO DI RACCOMANDAZIONE

PATOLOGIA	GRADO DI RACCOMANDAZIONE
ULCERE DIABETICHE (per ciclo di trattamento corrispondente a 12 applicazioni)	1B
ULCERE E FERITE DI DIFFICILE GUARIGIONE (per ciclo di trattamento corrispondente a 12 applicazioni)	1B
TRATTAMENTO DELLE OSTEOARTROSI (per ciclo di trattamento corrispondente a 3 applicazioni)	1B
RICOSTRUZIONE TENDINE CROCIATO ANTERIORE	2B
TRATTAMENTO DELLA PSEUDOARTROSI	2B
TRATTAMENTO DELLA TENDINOPATIA ROTULEA	2B
TRATTAMENTO INFILTRATIVO DELLE EPICONDILITI	2B
TRATTAMENTO DELLE LESIONI DEL LEGAMENTO CROCIATO ANTERIORE	2B
TRATTAMENTO DELLE LESIONI DEL TENDINE DI ACHILLE	2B
ALTRE PATOLOGIE OSTEO-MUSCOLARI LIGAMENTOSE	2B
SINDROME DELL'OCCHIO SECCO	2B
LESIONI, ULCERE DELLA SUPERFICIE CORNEALE	2B
USTIONI DELLA SUPERFICIE OCULARE	2B
TRATTAMENTO DEL RIALZO DEL SENO MASCELLARE	2B
RIGENERAZIONE PERIDONTALE	2B
TRATTAMENTO COADIUVANTE LA GUARIGIONE DELL'ALVEOLO POSTESTRATTIVO	2B
TRATTAMENTO COADIUVANTE I PROCESSI DI GUARIGIONE DOPO CHIRURGIA ESTRATTIVA E IMPLANTARE NEI PAZIENTI CON PATOLOGIE SISTEMICHE	2B
INTERVENTO DI CHIRURGIA ORALE (ESTRAZIONE DENTI INCLUSI, EXERESI LESIONI CISTICHE) PER PROMUOVERE L'EPITELIZZAZIONE DELLE FERITE E ACCELERARE LA FORMAZIONE DEL SIGILLO MUCOSO	2B
INTERVENTI DI CHIRURGIA ORALE IN PAZIENTI IN TERAPIA CON BIFOSFONATI ENDOVENA ED ANTIANGIOGENETICI	2B
EXERESI CHIRURGICA DI MRONJ	2B
INTERVENTI DI IMPLANTOLOGIA	2B
INTERVENTI DI INNESTI OSSEI E RIGENERAZIONE COME SUPPORTO ALLA GUARIGIONE DEI TESSUTI MOLLI E COADIUVANTE DEI MATERIALI DA INNESTO	2B
TRATTAMENTO DI CICATRICI PATOLOGICHE	2B

NATURAL HEALING

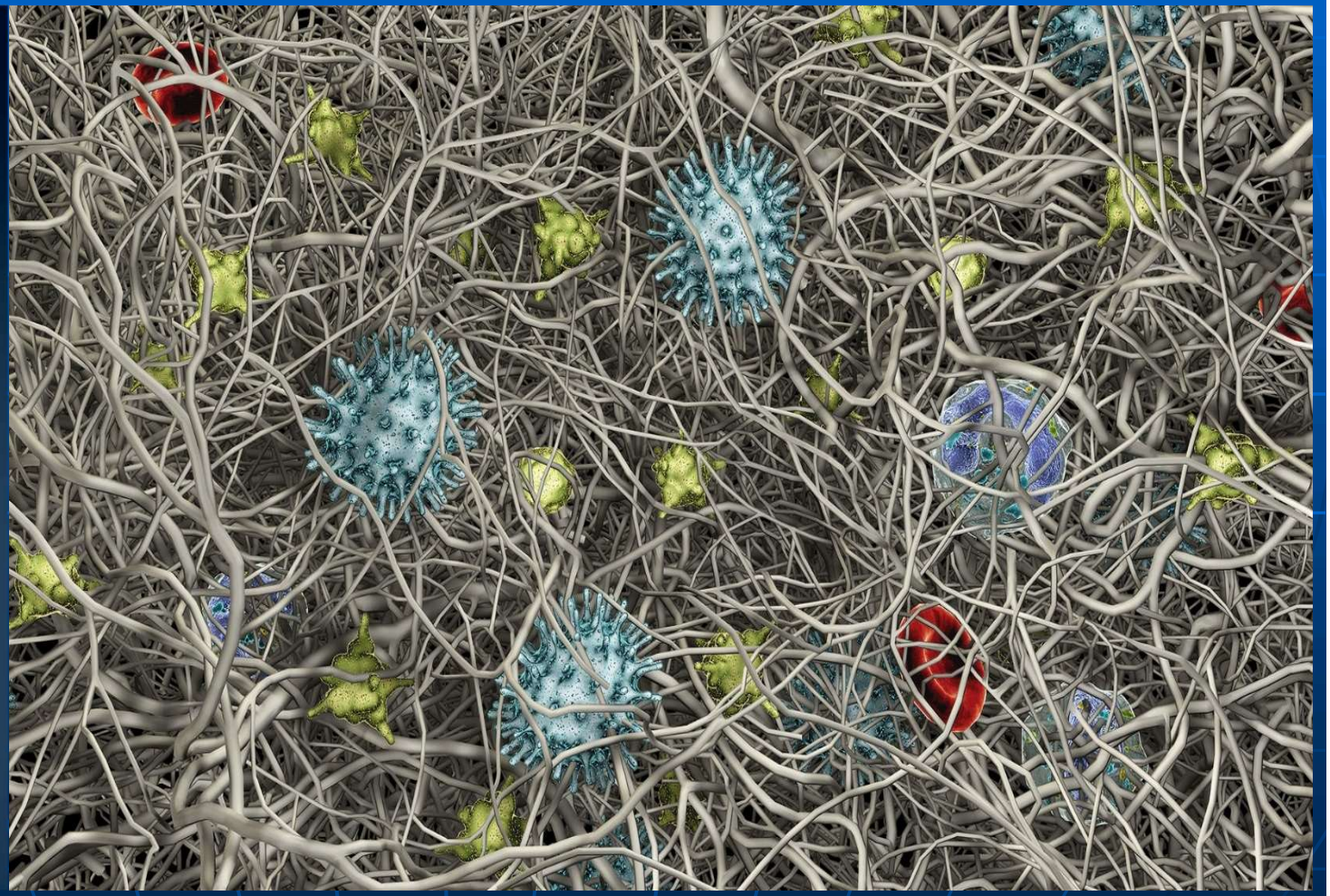
L-PRF Leukocyte - Platelet Rich Fibrin



L-PRF Leukocyte and Platelet Rich Fibrin

FGF Fibroblast EGF Epidermal PDGF Platelet-Derived

TGF Transforming VEGF Vascular Endothelial



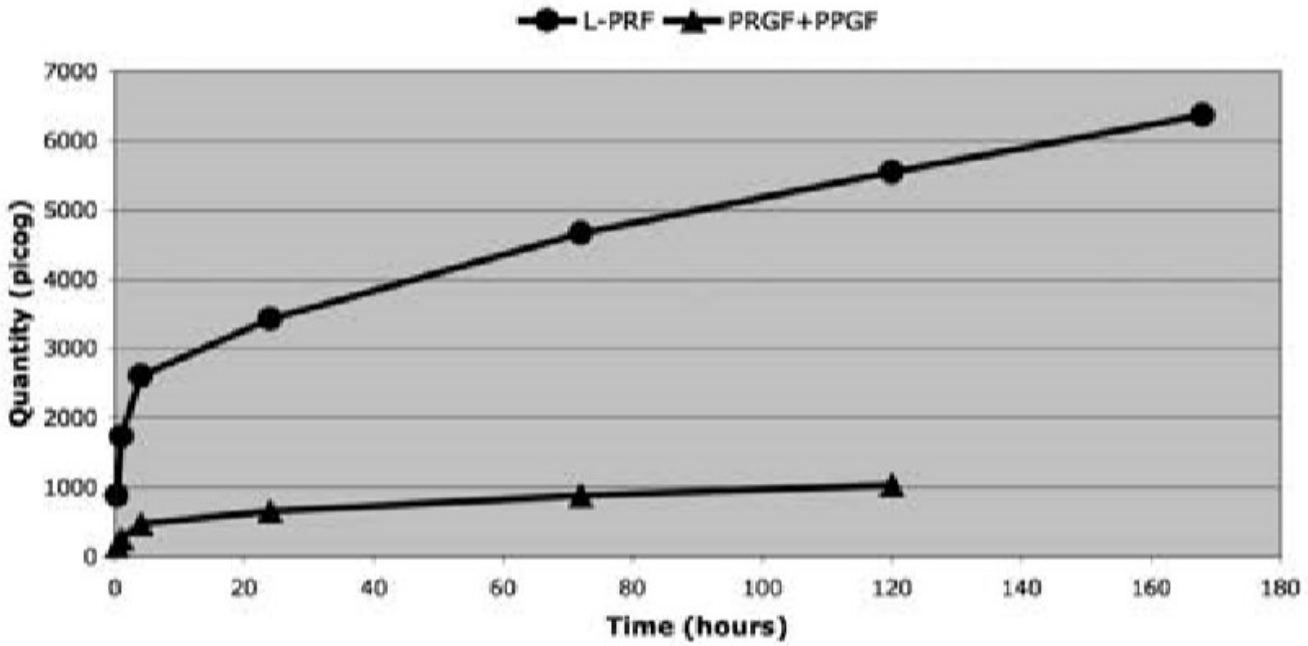
L-PRF Leukocyte and Platelet Rich Fibrin

Curr Pharm Biotechnol. 2012 Jun;13(7):1145-52.

Do the fibrin architecture and leukocyte content influence the growth factor release of platelet concentrates? An evidence-based answer comparing a pure platelet-rich plasma (P-PRP) gel and a leukocyte- and platelet-rich fibrin (L-PRF).

Dohan Ehrenfest DM[1], Bielecki T, Jimbo R, Barbé G, Del Corso M, Inchingolo F, Sammartino G.

(b) **Slow release of VEGF from L-PRF and PRGF+PPGF membranes**



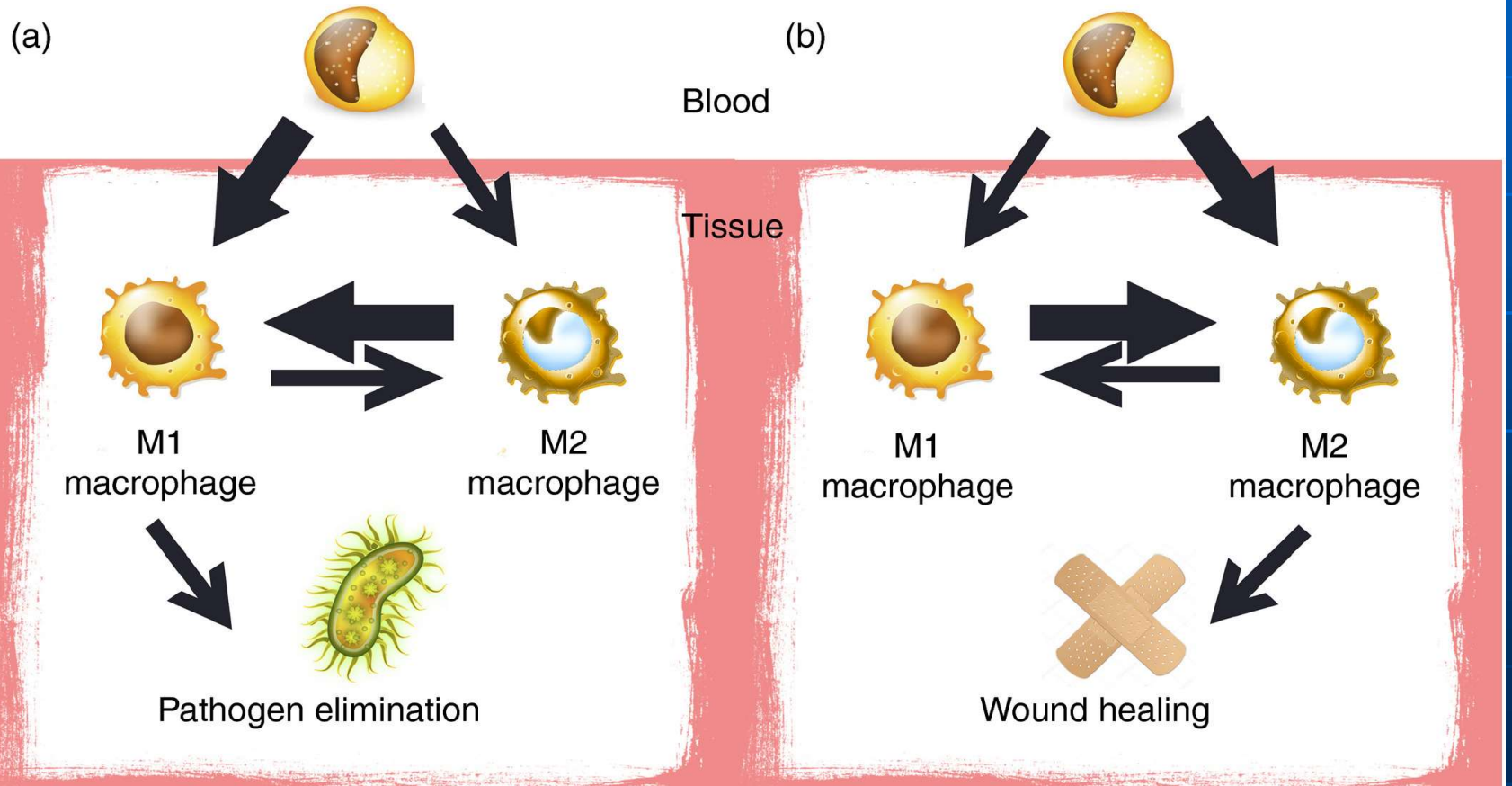
NATURAL HEALING

M1

Pro-inflammatory cytokines
(IL12, IL8)
Interferon gamma

M2

Anti-inflammatory cytokines
(IL4, IL-10 and IL-13)
Opioid peptides
(Bendorphins, metencefaline and dynorphin-A)



Immunology, Volume: 154, Issue: 2, Pages: 186-195, First published: 18 February 2018

NATURAL HEALING

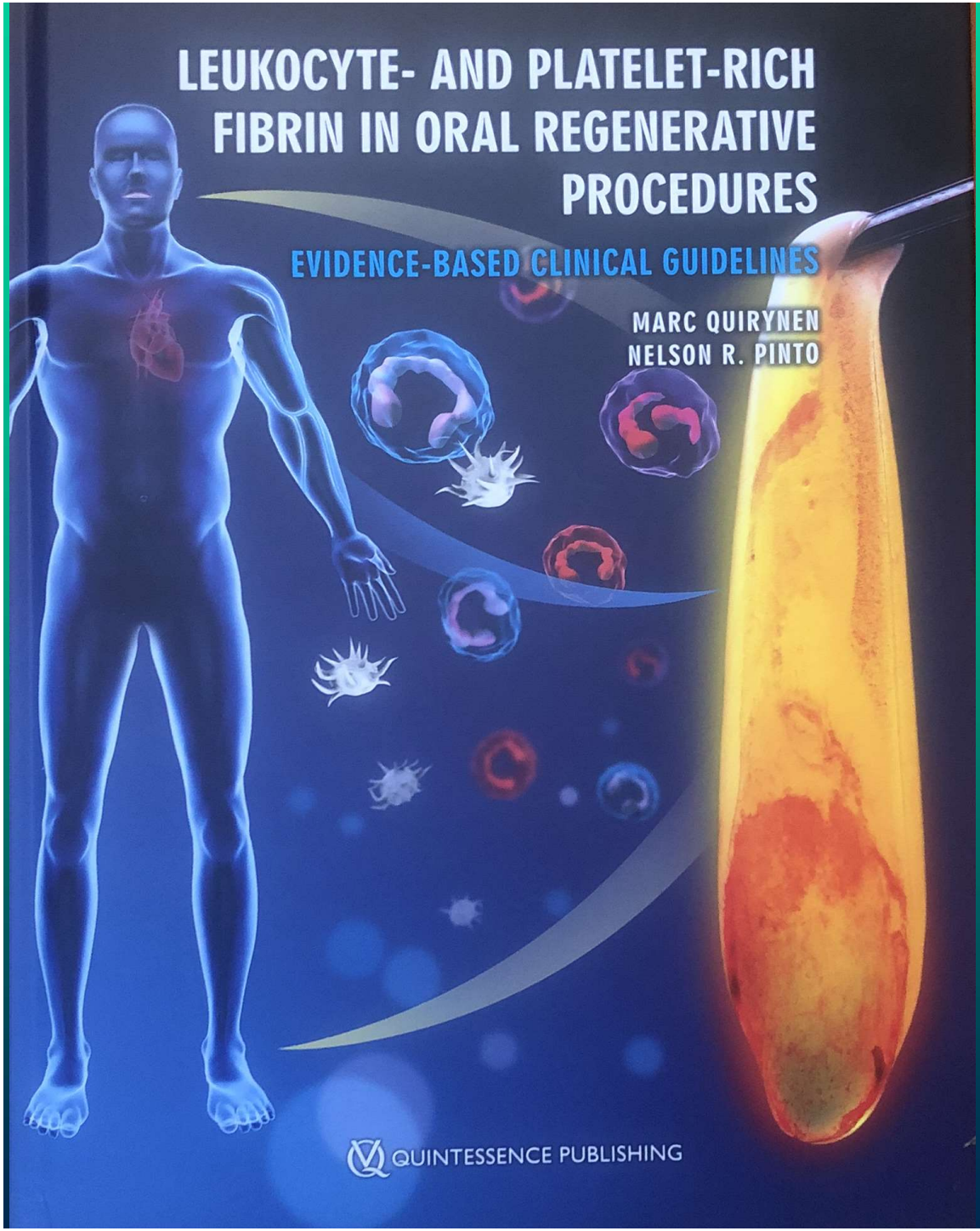
European Review for Medical and Pharmacological Sciences 2015; 19: 927-930

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

S. GIANNINI[1], A. CIELO[1], L. BONANOME[1], C. RASTELLI[2], C. DERLA[1], F. CORPACI[1], G. FALISI[2]

[1]Private Practice, Rome, Italy
[2]Department of Life, Health and Environmental Sciences, School of Dentistry, University of L'Aquila, L'Aquila, Italy

Blood products	PRF (2004)	PRP (1998)
Protocol	Easy	Very complex
Speed-rate	Fast	Slow
Reproducibility	No Bias	Possible Bias
Use of anticoagulants	No	Yes
Amount obtainable	Good	Enough
Costs of the protocol	Low	Moderate
Amount of fibrin obtainable	High	Low
Speed of fibrin formation	Physiological	High
Fibrin morphology	Trimolecular	Tetramolecular
Leukocytes amount	65%	0-50%
Immunomodulatory properties	Yes	Poor
Neo-angiogenic potential	+++++	+
Osteoconductive potential (scaffolding)	High	Poor
Mechanical properties (sol-gel-membrane)	Good	Enough
Presence of MSCs	Yes	Yes


LEUKOCYTE- AND PLATELET-RICH FIBRIN IN ORAL REGENERATIVE PROCEDURES
EVIDENCE-BASED CLINICAL GUIDELINES
MARC QUIRYNEN
NELSON R. PINTO
QUINTESSENCE PUBLISHING

L-PRF Leukocyte and Platelet Rich Fibrin

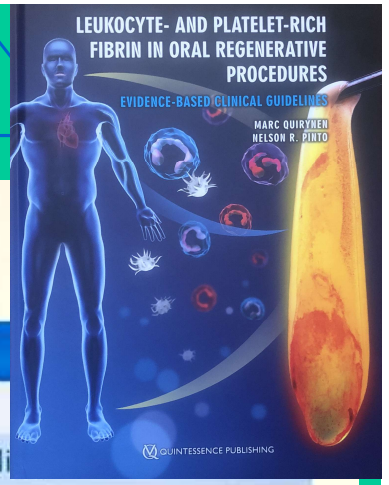


Table 17-1 Recent clinical trials confirming the benefits of L-PRF in extraoral wound healing

Authors	Year	Journal	Indication
Bhattacharjee et al[11]	2019	J Am Acad Dermatol	Nonhealing leg ulcers
Crisci et al[7]	2018	Diseases	Diabetic foot ulcer with osteomyeli
Chignon-Sicard et al[16]	2012	Plast Reconstr Surg	Wound healing
Fredes et al[20]	2017	Int J Otolaryngol	Bone healing of skull base
Goda[8]	2018	Egypt J Surg	Venous leg ulcer
Guinot et al[18]	2014	J Pediatr Urol	Urethroplasty coverage in distal hypospadias surgery
Lundquist et al[2]	2013	Wound Repair Regen	Recalcitrant wounds
Ozer and Colak[13]	2019	Burns Trauma	Complex wounds of the lower extremities
Pinto et al[6]	2018	Platelets	Refractory leg ulcers
Pravin et al[9]	2016	J Evolution Med Dent Sci	Chronic nonhealing leg ulcers
Rescigno et al[5]	2016	Acta Phlebologica	Skin lesions
Soyer et al[17]	2013	Int Wound J	Urethracutaneous fistula repair
Soldatova et al[19]	2017	J Neurol Surg B Skull Base	Endoscopic endonasal skull base surgery defects
Somani and Rai[10]	2017	J Cutan Aesthet Surg	Chronic venous leg ulcers
Theys et al[22]	2018	Acta Neurochir (Wien)	Neurosurgery
Rasmussen et al[21]	2018	World Neurosurg	Reconstruction of sphenoidal mucosal plane
Zhang et al[12]	2019	Burns	Tendon-exposed wound healing
Napit et al[23]	2019	World Health Organization	Trophic leprosy ulcers

ACTA PHLEBOLOGICA

Rivista sulle Malattie delle Vene e dei Linfatici

Official Journal of the **Italian College of Phlebology**
Indexed/Abstracted in: EMBASE, Scopus, Emerging Sources Citation Index

eTOC

ORIGINAL ARTICLE

Acta Phlebologica 2016 Dicembre;17(3):91-100

lingua: inglese

Leukocytes and platelets rich fibrin in the treatment of skin lesions

Enrico RESCIGNO [1], Giulia SAN ROMÉ [2], Giorgio ROSA [1]

[1] *Department of Vascular Surgery, Leonardi e Riboli Hospital, Lavagna, Genoa, Italy;* [2] *Private Practitioner, Lavagna, Genoa, Italy*

PDF

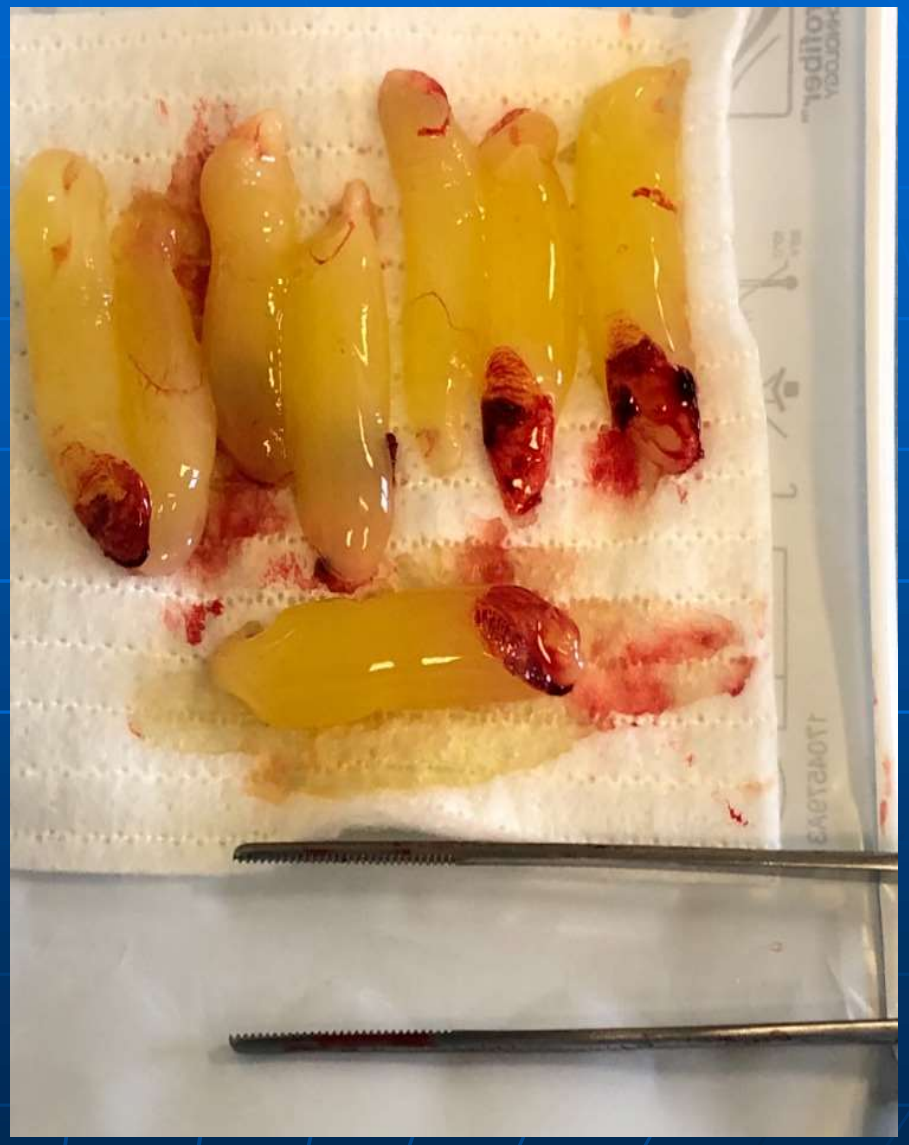
ARTICLE TOOLS

Estratti

BACKGROUND: The aim of this study was to determine whether the use of leukocyte-platelet rich fibrin (L-PRF) improved outcome in the treatment of skin ulcers.
METHODS: Seventeen patients with 22 skin ulcers of various types (10 post-traumatic, 6 diabetic, 2 venous stasis, 1 mixed arteriovenous, 1 pressure, 1 peristomal, 1 rheumatoid), some already treated unsuccessfully with advanced dressings, were treated with L-PRF: Blood was collected with certified 10 mL tubes (Intra-Lock) and immediately centrifuged (with an IntraSpin™ centrifuge, Intra-Lock), with the result that red blood cells were separated from coagulated plasma. The latter was applied, once a week, directly onto lesions presenting with granulation tissue or those previously treated with surgical or enzyme debridement.
RESULTS: Nineteen lesions (86.4%) healed completely. One diabetic patient with comorbidity and skin allergy, after initial improvement, worsened resulting in interruption of L-PRF application. Another diabetic patient died during treatment because of acute renal failure caused by urinary tract infection. Another one was transferred to another institution before ending the treatment. L-PRF application led to the formation of highly vascularized and regenerated new tissue in 21 lesions (95.4%), as well as a reduction in pain, in the need for analgesics and in healing time.
CONCLUSIONS: L-PRF is easy to prepare and inexpensive. When used topically, it could have an important role on the healing of skin wounds with remarkable repercussions on quality of life.

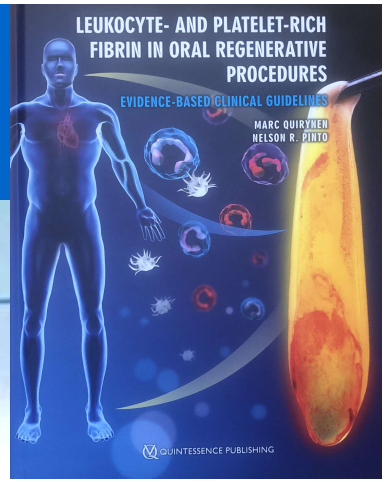
Protocollo Operativo Centrifuga

L-PRF Leukocyte and Platelet Rich Fibrin



Protocollo Operativo Centrifuga

L-PRF Leukocyte and Platelet Rich Fibrin



Basic Science and Preparation of L-PRF

Table 3-2 Protocol for the preparation of the original L-PRF with recent modifications

PRF variant	RCF[a] (g)	Time (min)	Speed (rpm)	Publication first introducing concept
Clots/plugs/membranes				
L-PRF	408	12	2,700[b]	Choukroun, 2001[5]
A-PRF	194	14	1,500[c]	Ghanaati et al, 2014[9]
A-PRF+	145	8	1,300[c]	Fujioka-Kobayashi et al, 2017[10]
Liquid forms[d]				
Liquid fibrinogen	408	3	2,700[b]	Cortellini et al, 2018[11]
i-PRF	60	3	700[c]	Miron et al, 2017[12]
C-PRF	408	12	2,700[b]	Miron et al, 2020[1]

A-PRF, advanced platelet-rich fibrin; A-PRF+, advanced plus platelet-rich fibrin; i-PRF, injectable platelet-rich fibrin; C-PRF, concentrated platelet-rich fibrin.

[a]Measured at the area where the L-PRF clot will form; for A-PRF often 276 g is indicated, but this represents the maximum g-force in the tube, not the g-force in the area where the clot is formed.

[b]For IntraSpin (Intra-Lock) centrifuge.

[c]For Duo Quattro (Dr. Choukroun) centrifuge.

[d]These variants are prepared in plastic tubes without a glass coating in order to delay the coagulation process.

Protocollo Operativo Centrifuga

i-PRF injectable-Platelet Rich Fibrin

i-PRF

L-PRF

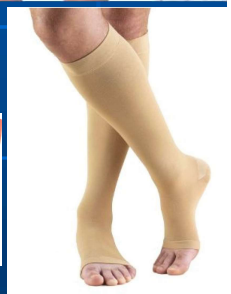
L-PRF

In order not to invalidate the L-PRF treatment

For vascular ulcers of the lower limbs is necessary:

- specific expertise in angiology/ vascular medicine

- accurate clinical and diagnostic evaluation (Doppler Ultrasound)



- personalized management that includes pharmaco therapy, compression stocking, phisical therapy, surgical or radiologic intervention

- to modify the wrong behavioral hygiene habits

L-PRF

In order not to invalidate the L-PRF treatment

The use of L-PRF on lesions without granulated tissue not cleared by necrosis and infection can worsening the ulcer for releasing pro-inflammatory cytokines

L-PRF

In order not to invalidate the L-PRF treatment

The use of L-PRF on lesions without granulated tissue not cleared by necrosis and infection can worsening the ulcer for releasing pro-inflammatory cytokines

31/7/15

31/7/15

L-PRF

In order not to invalidate the L-PRF treatment

The use of L-PRF on lesions without granulated tissue not cleared by necrosis and infection can worsening the ulcer for releasing pro-inflammatory cytokines

7/8/15

11/8/15

L-PRF

In order not to invalidate the L-PRF treatment

Non-healing wounds treated for a long times with many local antiseptic or cicatrizing gel can induce skin irritation or contact dermatitis able to trigger an allergic reaction with enlargement of the lesion and inflammation of the surrounding skin.

Mixed (arterovenous) Ulcer

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

-Il tessuto del ricevente deve essere vitale >>> granuleggiante bonificato da necrosi e privo di segni clinici di infezione

-Detersione della ferita con fisiologica prima di applicare le membrane

-Disinfezione cute locoregionale

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

-Il tessuto del ricevente deve essere vitale >>> granuleggiante bonificato da necrosi e privo di segni clinici di infezione

-Detersione della ferita con fisiologica prima di applicare le membrane

-Disinfezione cute locoregionale

-I coaguli devono coprire i margini e riempire la lesione

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

-Il tessuto del ricevente deve essere vitale >>> granuleggiante bonificato da necrosi e privo di segni clinici di infezione

-Detersione della ferita con fisiologica prima di applicare le membrane

-Disinfezione cute locoregionale

-I coaguli devono coprire i margini e riempire la lesione

-Coprire con carbossimetilcellulosa CMC o garza grassa imbevuta di fisiologica o del siero del coagulo per preservare ambiente umido

-Coprire con garza asciutta

-Bendaggio +/- compressivo secondo patologia

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

-Il tessuto del ricevente deve essere vitale >>> granuleggiante bonificato da necrosi e privo di segni clinici di infezione

-Detersione della ferita con fisiologica prima di applicare le membrane

-Disinfezione cute locoregionale

-I coaguli devono coprire i margini e riempire la lesione

-Coprire con carbossimetilcellulosa CMC o garza grassa imbevuta di fisiologica o del siero del coagulo per preservare ambiente umido

-Coprire con garza asciutta

-Bendaggio +/- compressivo secondo patologia

-Dopo circa 7 giorni ripetizione del protocollo

-Rimozione atraumatica della fibrina non vitale

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

CMC
Carbossimetilcellulosa

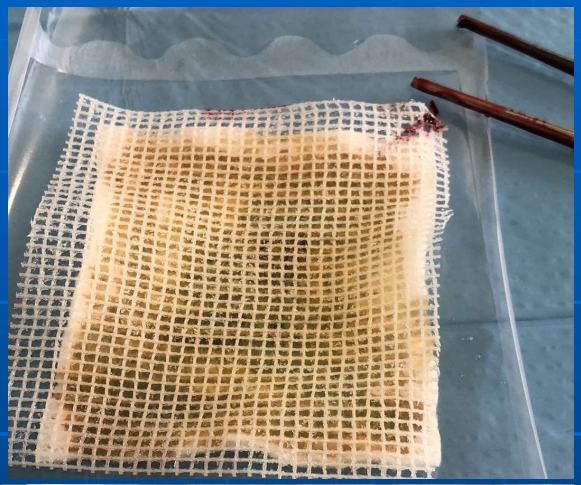
Protocollo Operativo Wound Treatment

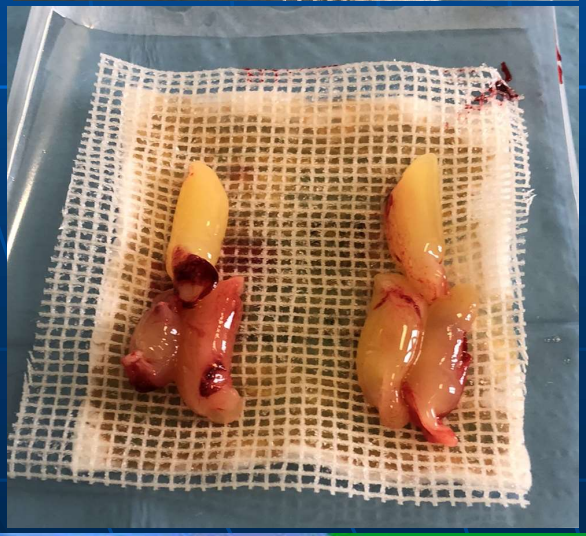
L-PRF Leukocyte and Platelet Rich Fibrin

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Garza Grassa / Fitostimoline





Contents lists available at ScienceDirect

Current Problems in Surgery

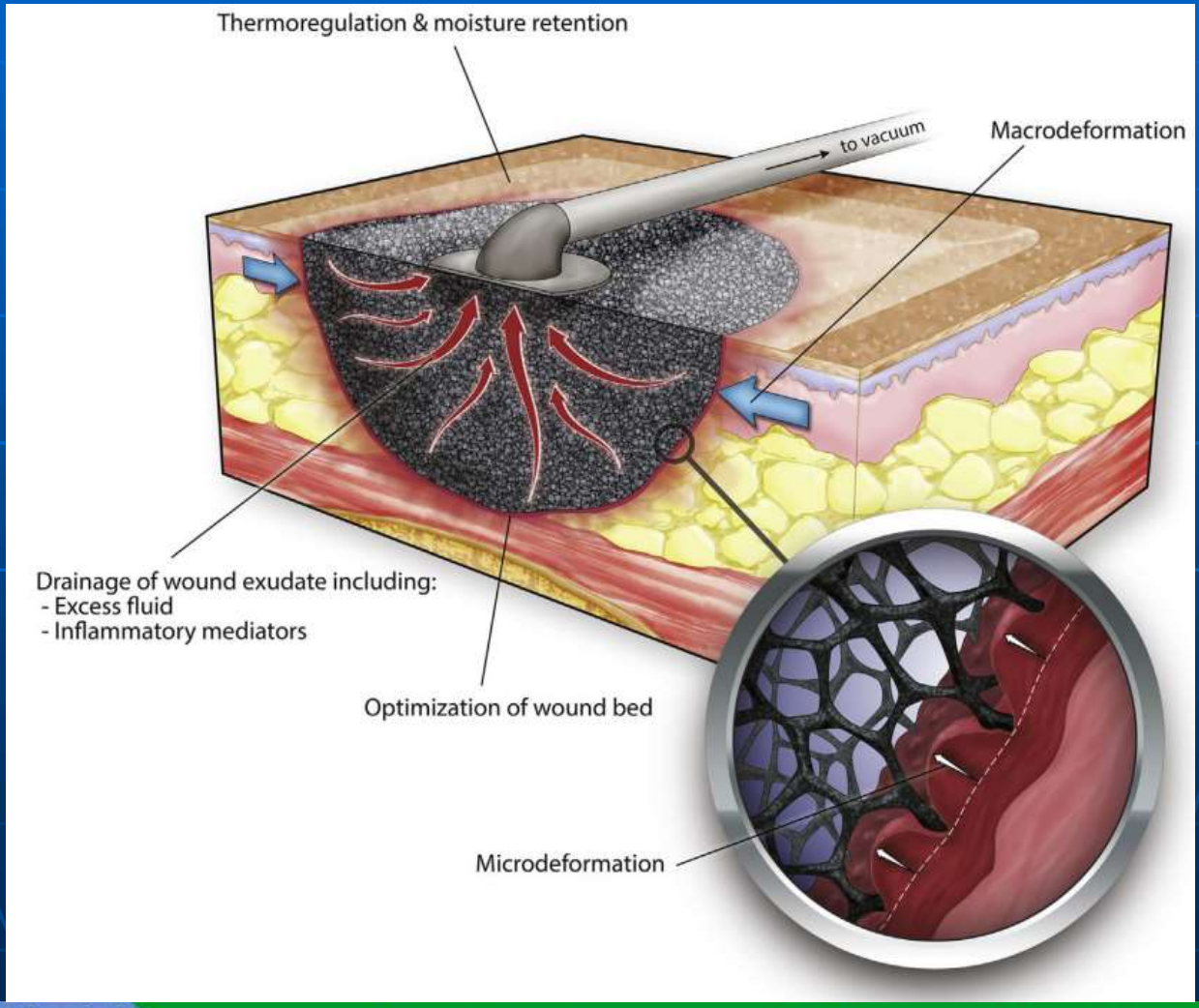
journal homepage: www.elsevier.com/locate/cpsurg

Effect of negative pressure wound therapy on wound healing

Protocollo Operativo Wound Treatment

Negative Pressure Wound Therapy

NPWT



Contents lists available at ScienceDirect

Current Problems in Surgery

journal homepage: www.elsevier.com/locate/cpsurg

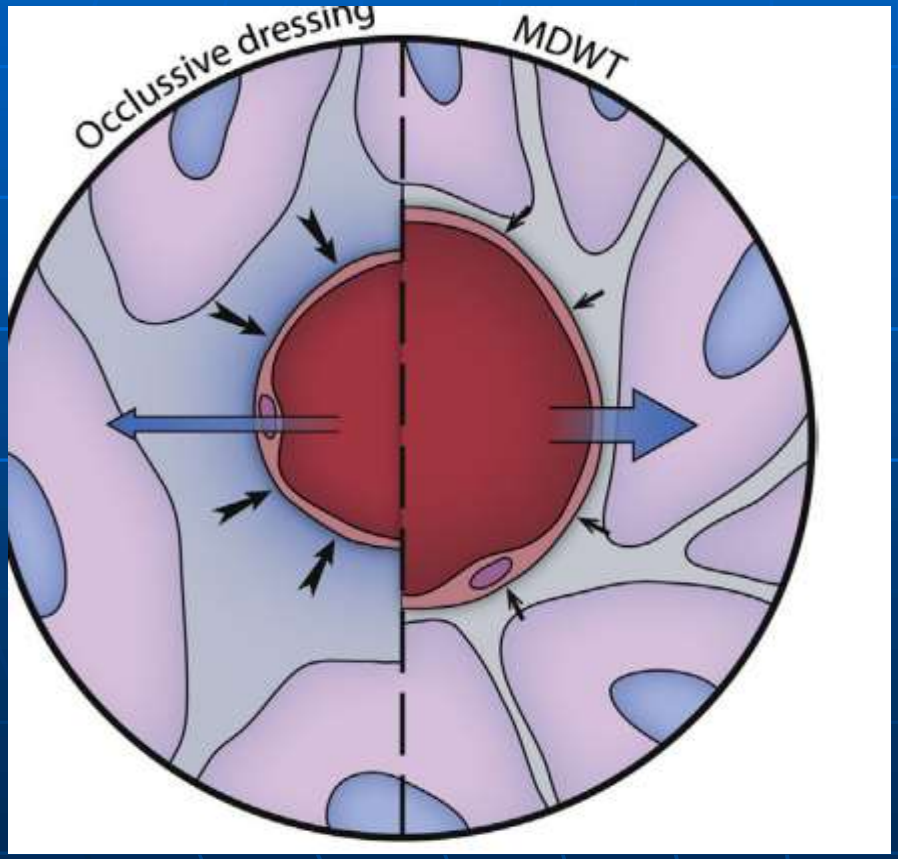
Effect of negative pressure wound therapy on wound healing

Protocollo Operativo Wound Treatment

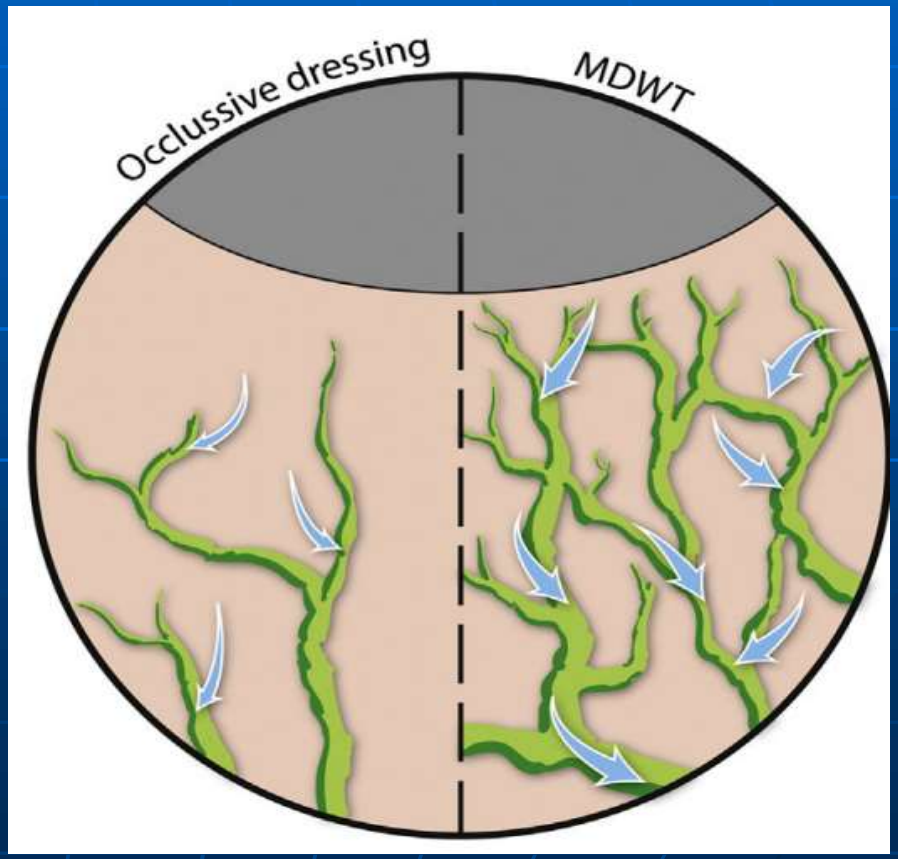
Negative Pressure Wound Therapy

NPWT

Capillari



Vasi Linfatici



Protocollo Operativo Wound Treatment

Negative Pressure Wound Therapy

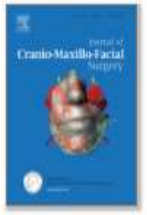
NPWT

2019

ELSEVIER

Journal of Cranio-Maxillofacial Surgery

Volume 47, Issue 3, March 2019, Pages 389-393



Antiseptic negative pressure instillation therapy for the treatment of septic wound healing deficits in oral and maxillofacial surgery

Fabian Matthias Eckstein [a], Valesca Pinsel [a], Matthias Christian Wurm [a]

Protocollo Operativo Wound Treatment

Negative Pressure Wound Therapy

PRF + NPWT

2021

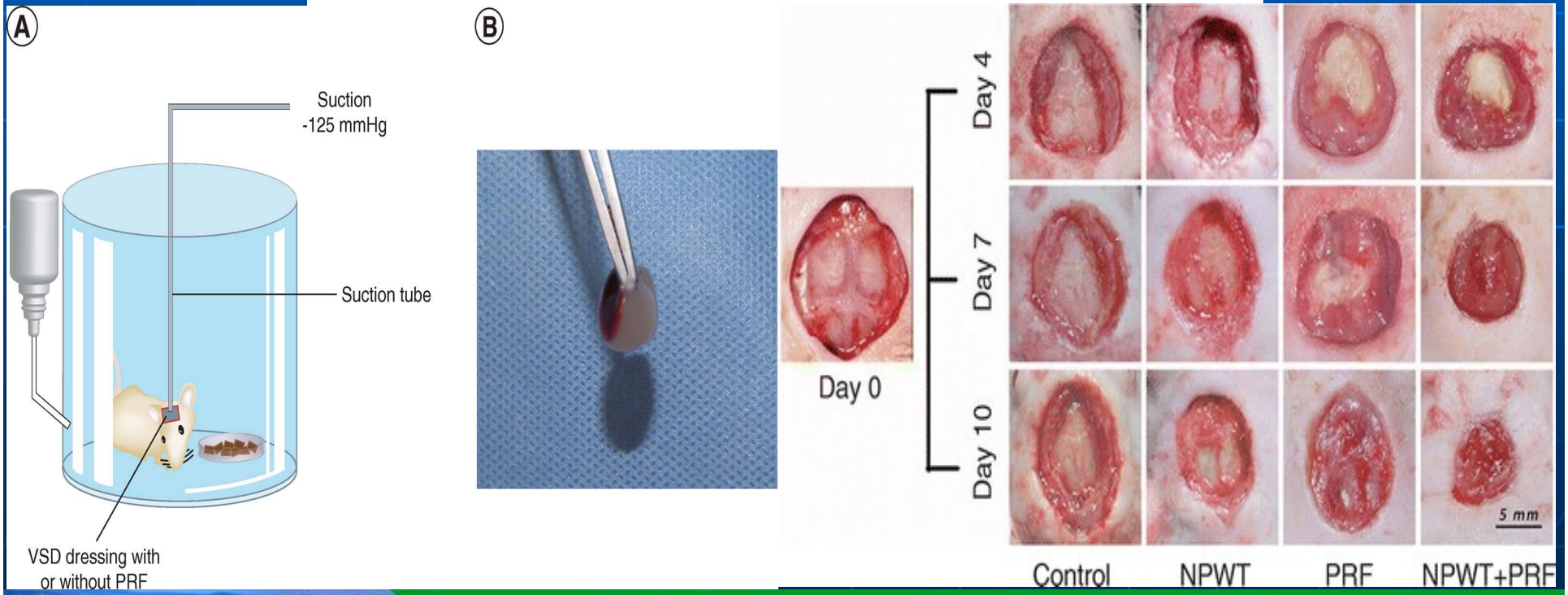
REGENERATIVE MEDICINE, VOL. 17, NO. 1 | RESEARCH ARTICLE

Open Access

Experimental study of negative pressure wound therapy combined with platelet-rich fibrin for bone-exposed wounds

Hong Zhang‡, Songyu Wang‡, Chen Lei, Guanmin Li & Biao Wang

Published Online: 15 Dec 2021 | https://doi.org/10.2217/rme-2021-0043



Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Protocollo Operativo Wound Treatment

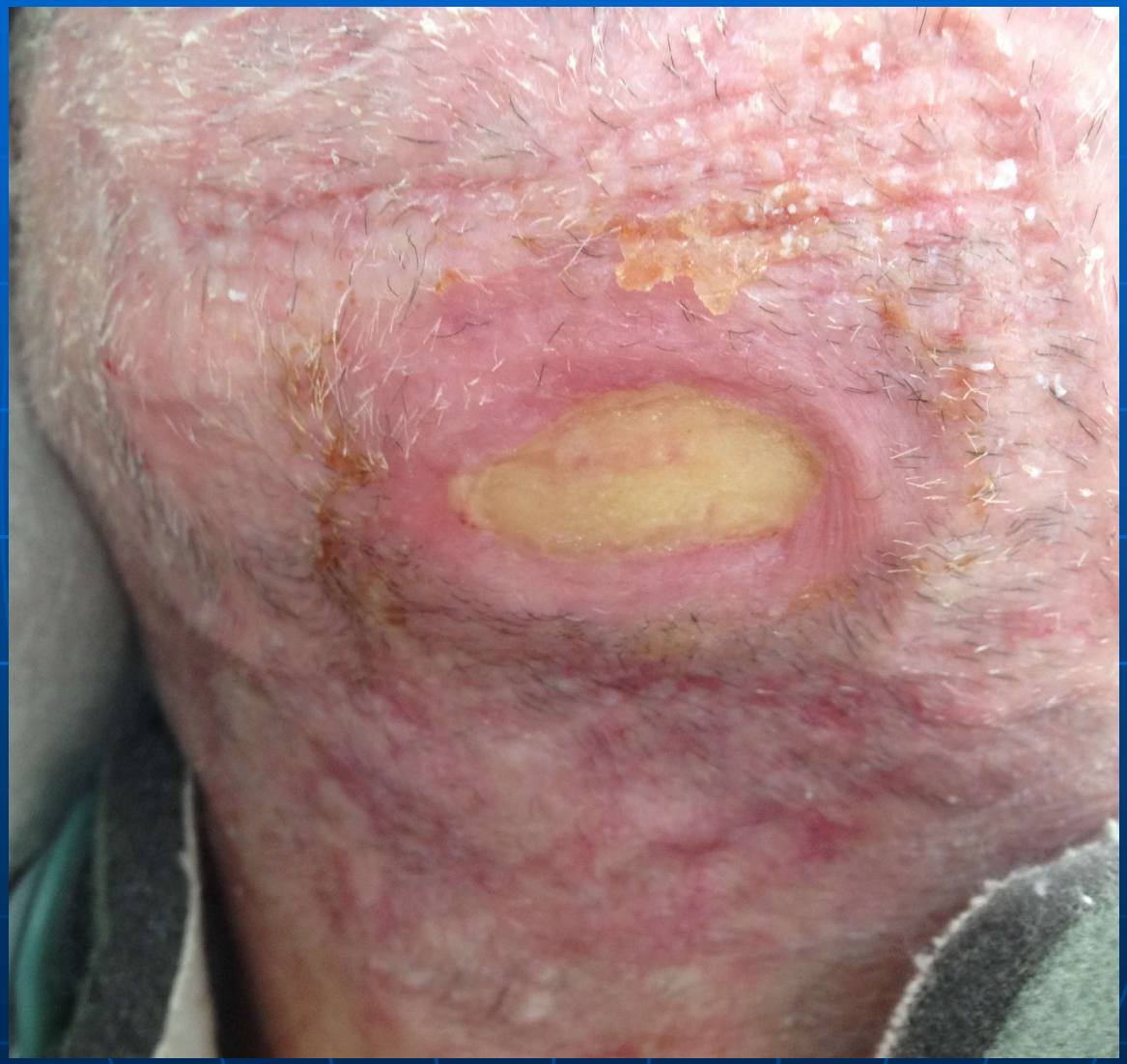
L-PRF Leukocyte and Platelet Rich Fibrin

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin



Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Protocollo Operativo Wound Treatment

Negative Pressure Wound Therapy

i-PRF + NPWT

2022

frontiers in Bioengineering and Biotechnology

Evaluation of injectable platelet-rich fibrin produced by a simple twice-centrifugation method combined with vacuum sealing drainage technology in the treatment of chronic refractory wounds

Xin Xue[1†], Yuling Bian[2†], Meng Yang[1], Wei Wei[1], Lingmin Meng[1],

Index	Study group (n = 34)	Control group (n = 34)	t	p Value
Wound healing time (days)	31.19 ± 3.12	41.29 ± 4.09	−11.448	<0.001[a]
Time of hospitalization (days)	28.98 ± 3.02	40.91 ± 3.23	−15.731	<0.001[a]
Wound healing rate (%)				
14th day after treatment	71.29 ± 7.38	65.33 ± 7.31	3.346	0.001[a]
28th day after treatment	90.12 ± 7.56	78.91 ± 7.83	6.006	<0.001[a]

[a]Compared with the Control group, $p < 0.05$.

Conclusion: The i-PRF produced by simple twice-centrifugation method combined with VSD could reduce wound inflammation and improve scar formation in patients with CRW.

Protocollo Operativo Wound Treatment

Negative Pressure Wound Therapy

L-PRF + NPWT

Protocollo Operativo Wound Treatment

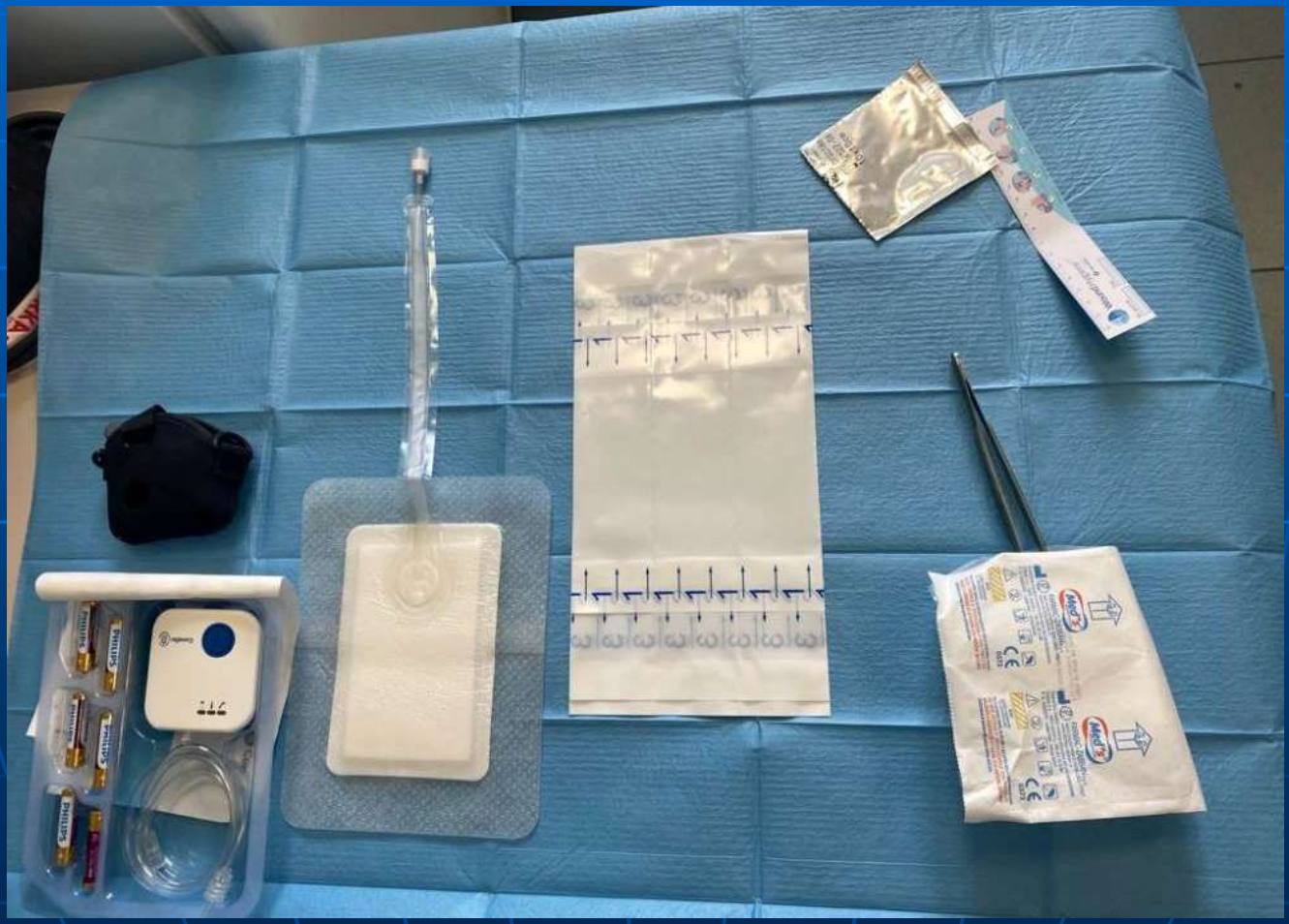
Negative Pressure Wound Therapy

L-PRF + NPWT

Protocollo Operativo Wound Treatment

Negative Pressure Wound Therapy

L-PRF + NPWT



Protocollo Operativo Wound Treatment

Negative Pressure Wound Therapy

L-PRF + NPWT

Journal of
Clinical Medicine

Protocollo Operativo Wound Treatment

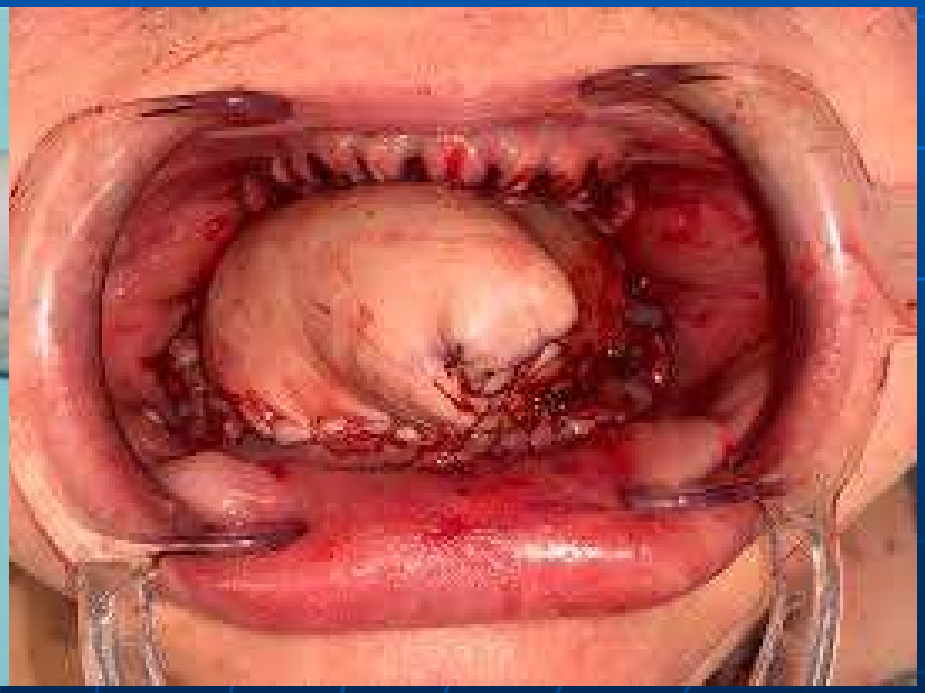
L-PRF Leukocyte and Platelet Rich Fibrin

2022

Article

Free Skin Grafting to Reconstruct Donor Sites after Radial Forearm Flap Harvesting: A Prospective Study with Platelet-Rich Fibrin (PRF)

Anton Straub [1,*], Roman Brands [1], Anna Borgmann [1], Andreas Vollmer [1], Julian Hohm [1], Christian Linz [1],



Journal of
Clinical Medicine

Protocollo Operativo Wound Treatment

Negative Pressure Wound Therapy

L-PRF + NPWT

2022

Article

Free Skin Grafting to Reconstruct Donor Sites after Radial Forearm Flap Harvesting: A Prospective Study with Platelet-Rich Fibrin (PRF)

Anton Straub [1,*], Roman Brands [1], Anna Borgmann [1], Andreas Vollmer [1], Julian Hohm [1], Christian Linz [1],

1. Defect on the left forearm after radialis flap harvest

2. PRF membranes on the wound bed prior to skin graft transplantatior

Journal of
Clinical Medicine

Protocollo Operativo Wound Treatment

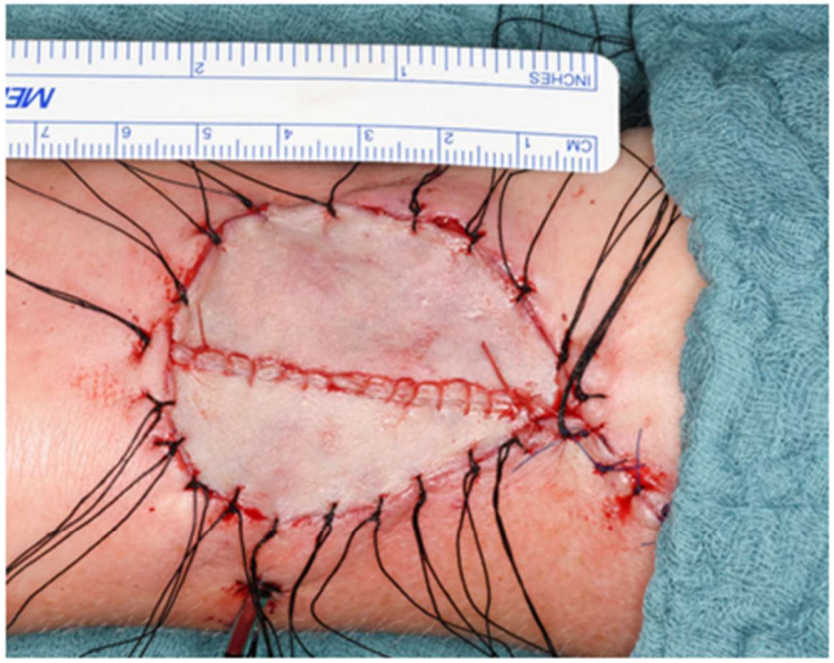
L-PRF Leukocyte and Platelet Rich Fibrin

2022

Article

Free Skin Grafting to Reconstruct Donor Sites after Radial Forearm Flap Harvesting: A Prospective Study with Platelet-Rich Fibrin (PRF)

Anton Straub [1,*], Roman Brands [1], Anna Borgmann [1], Andreas Vollmer [1], Julian Hohm [1], Christian Linz [1],



3. Skin graft transplantation with central suture

4. Pressure bandage with foam and plastic cover

Journal of
Clinical Medicine

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

2022

Article

Free Skin Grafting to Reconstruct Donor Sites after Radial Forearm Flap Harvesting: A Prospective Study with Platelet-Rich Fibrin (PRF)

Anton Straub [1,*], Roman Brands [1], Anna Borgmann [1], Andreas Vollmer [1], Julian Hohm [1], Christian Linz [1],

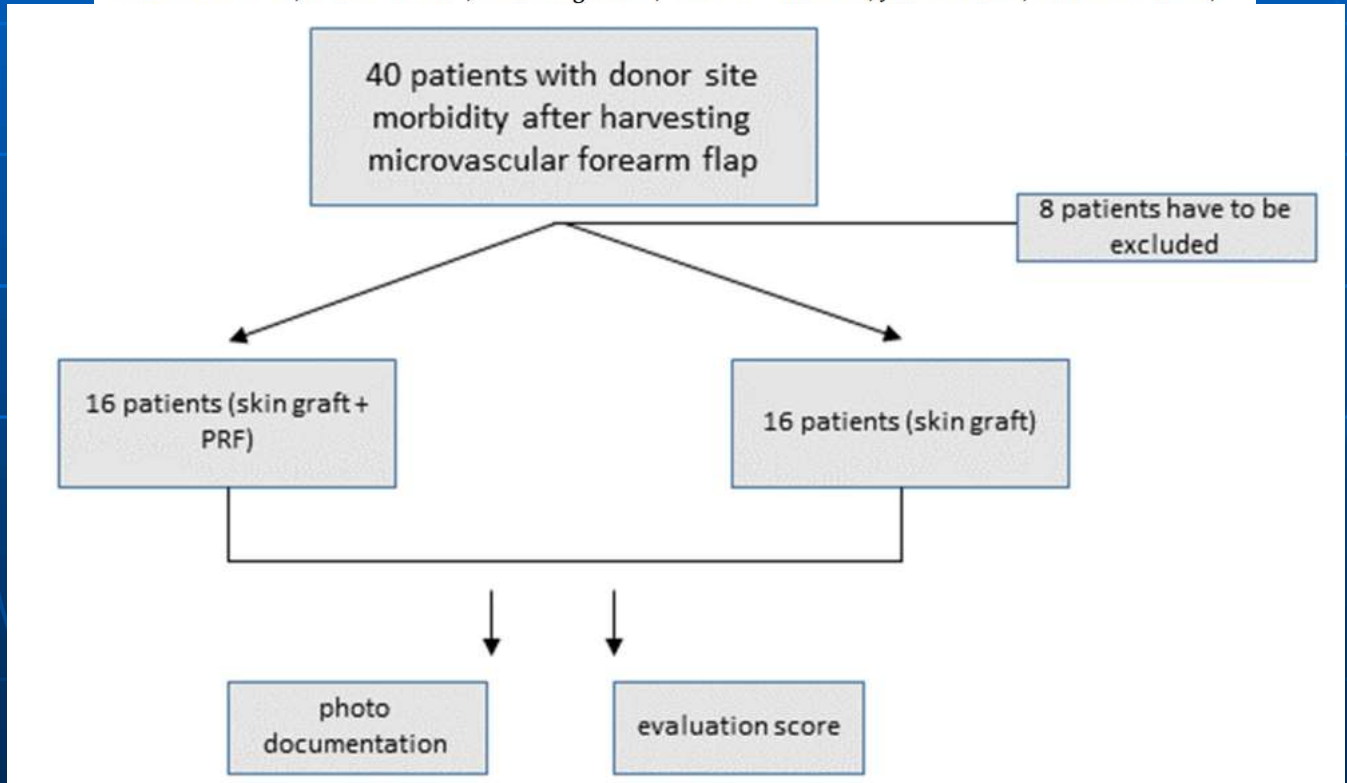


Figure 1. Flowchart depicting patient selection and study design.

Journal of
Clinical Medicine

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

2022

Article

Free Skin Grafting to Reconstruct Donor Sites after Radial Forearm Flap Harvesting: A Prospective Study with Platelet-Rich Fibrin (PRF)

Anton Straub [1,*], Roman Brands [1], Anna Borgmann [1], Andreas Vollmer [1], Julian Hohm [1], Christian Linz [1],

Table 5. Detailed comparison of the evaluation scores in the PRF and non-PRF groups.

	PRF	Non-PRF	Difference	*p*-Value
Mean total score	1.5	2.688	1.188	0.0458
Infection	0	1	1	0.1627
Inflammation	0	2	2	0.0768
Necrosis	7	9	2	0.2477
Visible tendon	3	4	1	0.3405
Tendon exposure	2	4	2	0.1907
>10% dehiscence	2	8	6	0.0108

Journal of
Clinical Medicine

Protocollo Operativo Wound Treatment

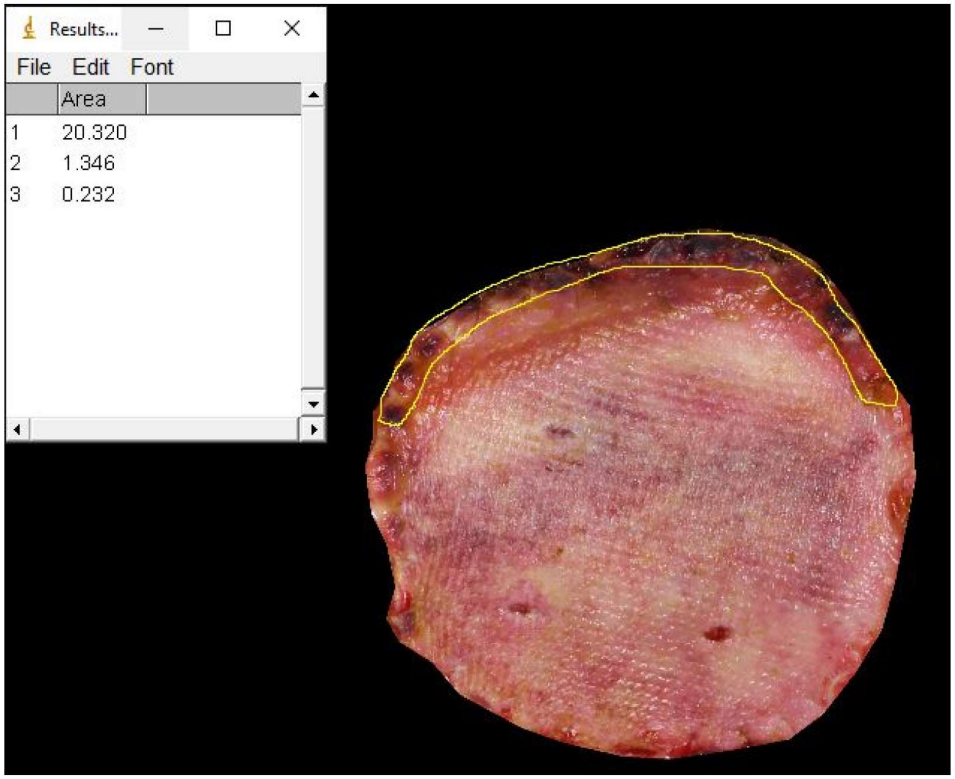
L-PRF Leukocyte and Platelet Rich Fibrin

2022

Article

Free Skin Grafting to Reconstruct Donor Sites after Radial Forearm Flap Harvesting: A Prospective Study with Platelet-Rich Fibrin (PRF)

Anton Straub [1,*], Roman Brands [1], Anna Borgmann [1], Andreas Vollmer [1], Julian Hohm [1], Christian Linz [1],



Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Necrosi cute post trauma in TAO 16/1/19

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Necrosi cute post trauma in TAO

23/1/2019 30/01/2019 13/02/2019

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Necrosi cute post trauma in TAO

27/2/2019 27/02/2019 13/04/2019

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Necrosi cute post trauma in TAO

16/1/2019

8/06/2019

08/07/2019

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Necrosi cute post trauma in TAO

16/01/2019 08/07/2019

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

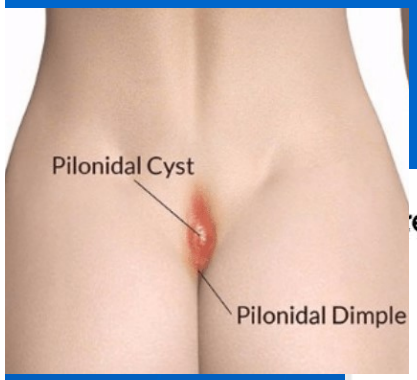
Enhanced Natural Healing in Coloproctology

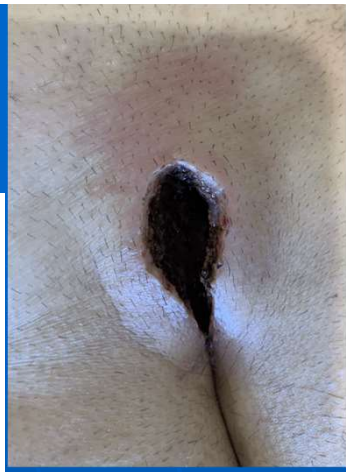
Cisti Pilonidale
Ulcera Peristomale

Relatore E. Rescigno

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin





Open Access Review Article

DOI: 10.7759/cureus.27777

The Effect of Platelet-Rich Plasma on Healing Time in Patients Following Pilonidal Sinus Surgery: A Systematic Review

Qaisar I. Khan [1], Hassan Baig [1], Abdulaziz Al Failakawi [2,3], Saad Majeed [4], Mujahid Khan [1,5], James Lucocq [6]

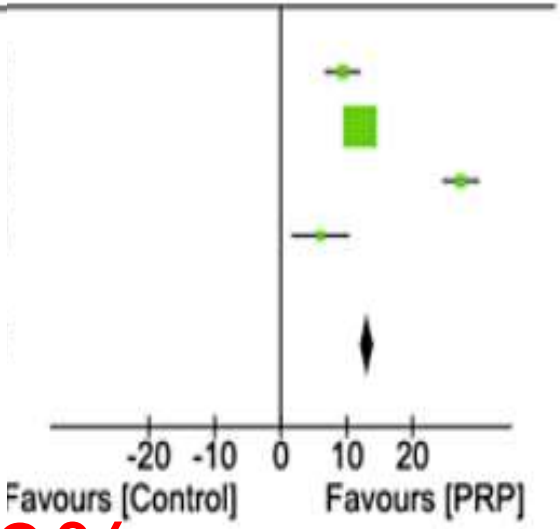
Review began 08/02/2022
Review ended 08/07/2022
Published 08/08/2022

Study or Subgroup	Control Mean [days]	Control SD [days]	Control Total	PRP Mean [days]	PRP SD [days]	PRP Total
Bahar et al. 2013 (1)	34.892	4.52	37	25.513	6.617	37
Gohar et al. 2020	57	2.4	50	45	2.6	50
Mohammadi et al. 2016	60.83	8.26	55	33.46	6.09	55
Spyridakis et al. 2009	30	7.98	30	24	7.98	22
Total (95% CI)			172			164

Heterogeneity: Chi² = 129.16, df = 3 (P < 0.00001); I² = 98%

Test for overall effect: Z = 29.92 (P < 0.00001)

Test for subgroup differences: Not applicable



Footnotes

(1) SD was calculated using online calculator of Cochrane book using p < 0.01

Healing time - 40%

JWOCN
Journal of Wound, Ostomy, and Continence Nursing

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

OSTOMY CARE

A Cost-Utility Model of Care for Peristomal Skin Complications

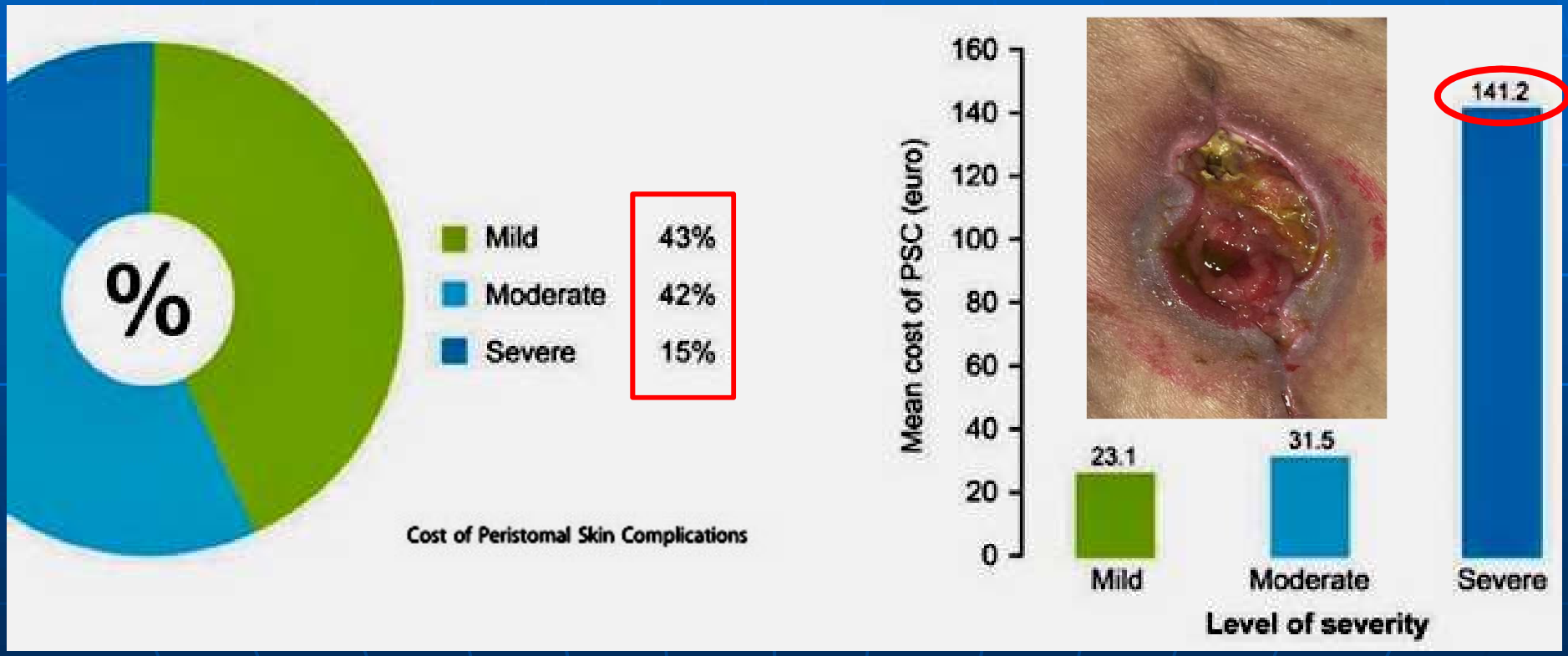
Neil, Nancy; Inglese, Gary; Manson, Andrea; Townshend, Arden

Author Information

Journal of Wound, Ostomy and Continence Nursing: January/February 2016 - Volume 43 - Issue 1 - p 62-68

Peristomal Skin Complication

Skin Irritation 30-40%



Healing Time Peristomal Ulcer > 3 mesi 76%

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Casistica

75 pz (2015 – 2022)

Piede Diabetico 48 pz

Vulnologia Varia 27 pz

3 Cisti Pilonidali — Healing Time

- esordiente 4 sett.
- 1a recidiva 2 mesi
- plurirecidiva 3 mesi

3 Ulcere Peristomali

- 1 Colostomica doppia 3 mesi
- 2 Ileostomiche 3 sett.

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Cisti Sacrococcigea

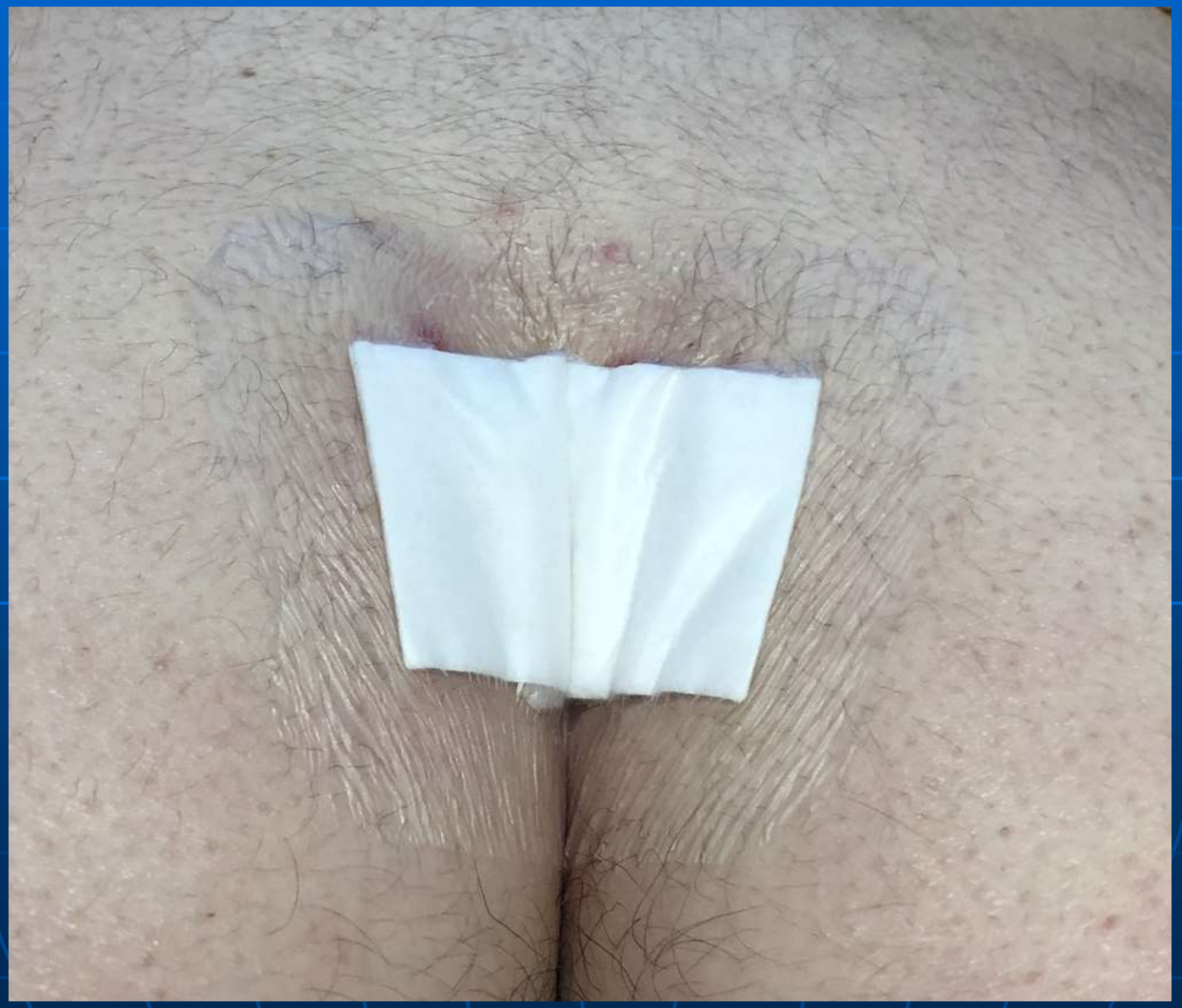
11/12/18

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Cisti Sacrococcigea

11/12/18



Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Cisti Sacrococcigea

17/12/18

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Cisti Sacrococcigea

17/12/18

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Cisti Sacrococcigea

24/12/18

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Cisti Sacrococcigea

04/01/19

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Cisti Sacrococcigea

13/02/19

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Cisti Sacrococcigea

11/12/18

13/02/19

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Ulcera Post Colostomia

15/10/2015

www.asl4.liguria.it
Azienda Sanitaria Locale n. 4 Chiavarese
Regione Liguria

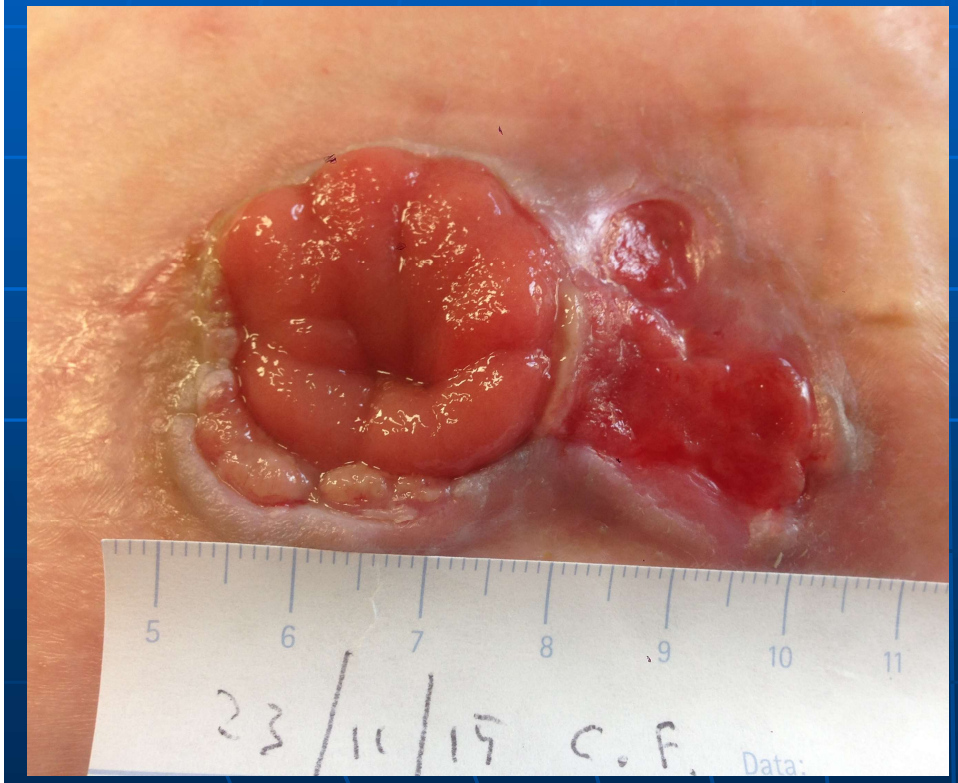
Dr. E. Rescigno S.S. Chirurgia Vascolare Lavagna (Ge)

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Ulcera Post Colostomia

23/11/2015



29/11/2015

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Ulcera Post Colostomia

22/12/2015

60 gg

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Ulcera Post Colostomia

22/12/2015

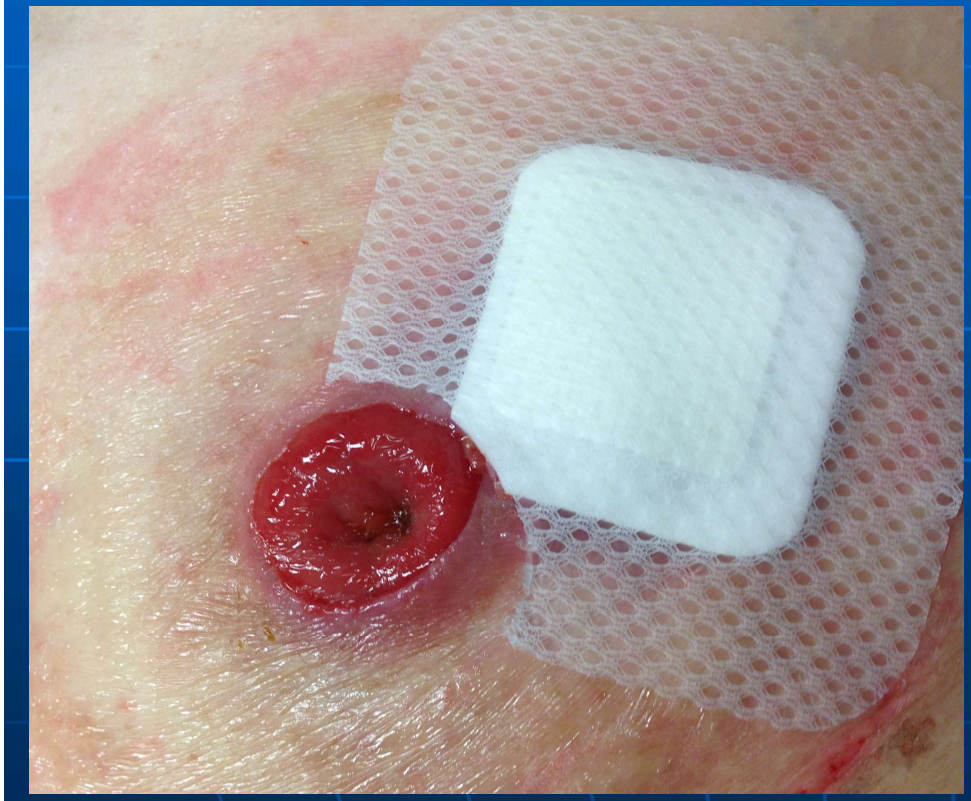
60 gg

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Ulcera Post Colostomia

30/12/2015



Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Ulcera Post Colostomia

15/01/2016

90 gg

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Ulcera Post Colostomia

15/10/2015

15/01/2016

90 gg

Protocollo Operativo Wound Treatment

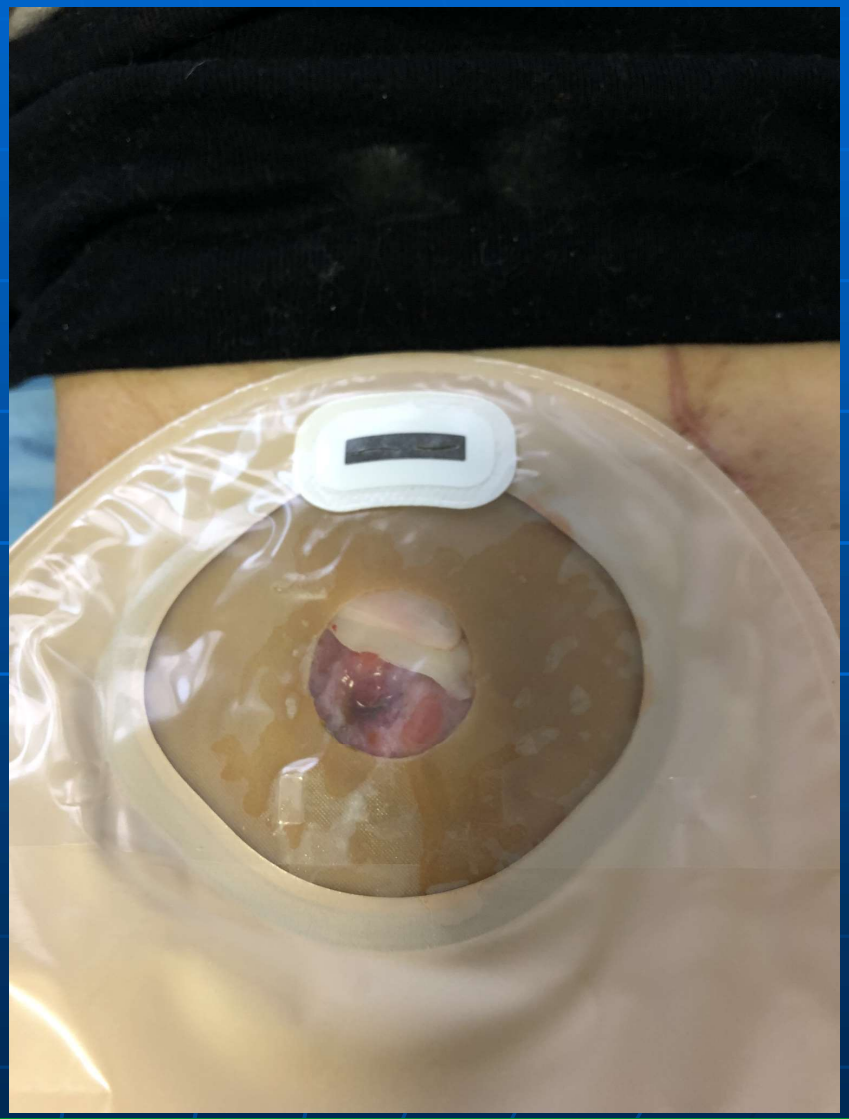
L-PRF Leukocyte and Platelet Rich Fibrin

Ulcera Post Ileostomia 1/4/19

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Ulcera Post Ileostomia 1/4/19



Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Ulcera Post Ileostomia 3/4/19

Protocollo Operativo Wound Treatment

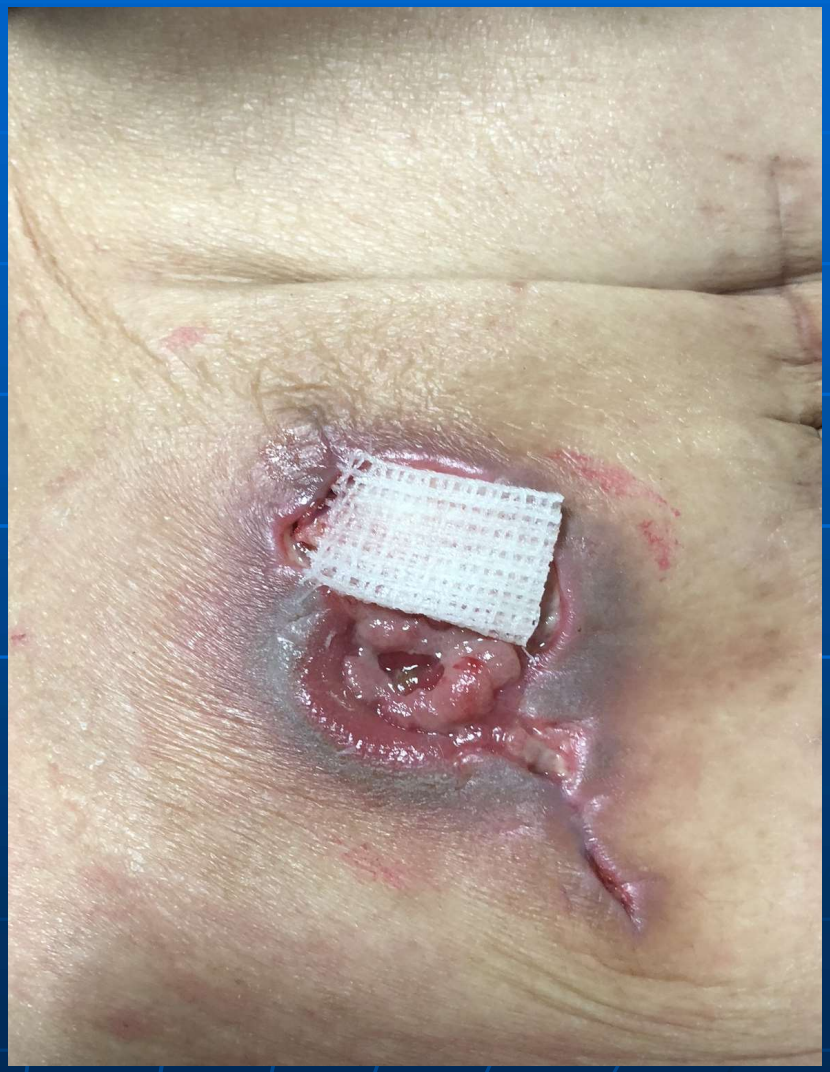
L-PRF Leukocyte and Platelet Rich Fibrin

Ulcera Post Ileostomia 5/4/19

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Ulcera Post Ileostomia 5/4/19



Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Ulcera Post Ileostomia

16/4/19

25/4/2019

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Ulcera Post Ileostomia

1/4/19

25/4/2019

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Prolasso Uterino IV grado con eversione della vagina

Protocollo Operativo Wound Treatment

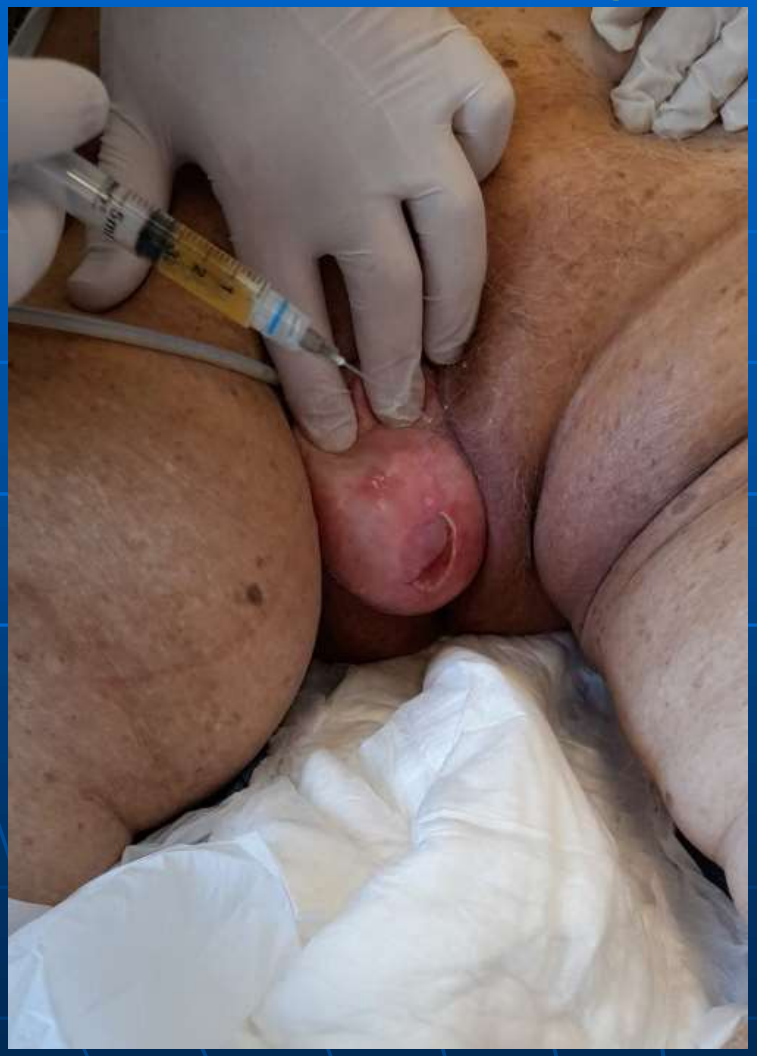
L-PRF Leukocyte and Platelet Rich Fibrin

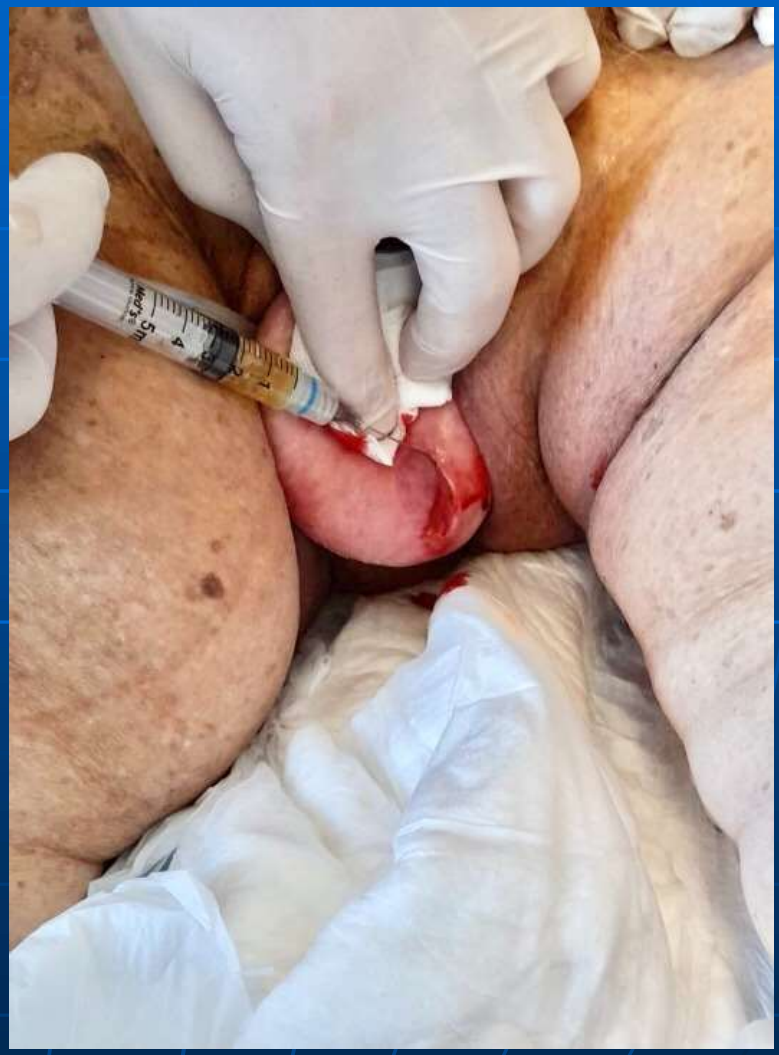
Prolasso Uterino IV grado con eversione della vagina

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Prolasso Uterino IV grado con eversione della vagina





Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Prolasso Uterino IV grado con eversione della vagina

Protocollo Operativo Wound Treatment

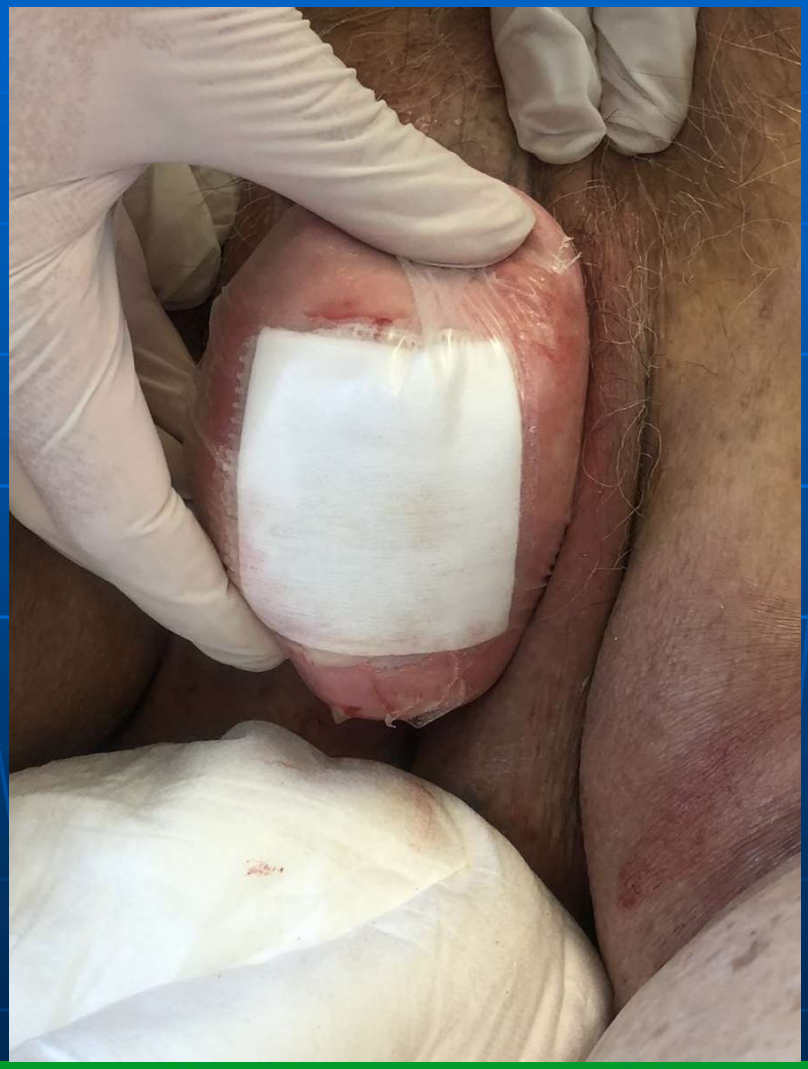
L-PRF Leukocyte and Platelet Rich Fibrin

Prolasso Uterino IV grado con eversione della vagina

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Prolasso Uterino IV grado con eversione della vagina



Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Prolasso Uterino IV grado con eversione della vagina

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Prolasso Uterino IV grado con eversione della vagina

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Prolasso Uterino IV grado con eversione della vagina

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Prolasso Uterino IV grado con eversione della vagina

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Prolasso Uterino IV grado con eversione della vagina

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Prolasso Uterino IV grado con eversione della vagina

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Prolasso Uterino IV grado con eversione della vagina

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Prolasso Uterino IV grado con eversione della vagina

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Prolasso Uterino IV grado con eversione della vagina

Protocollo Operativo Wound Treatment

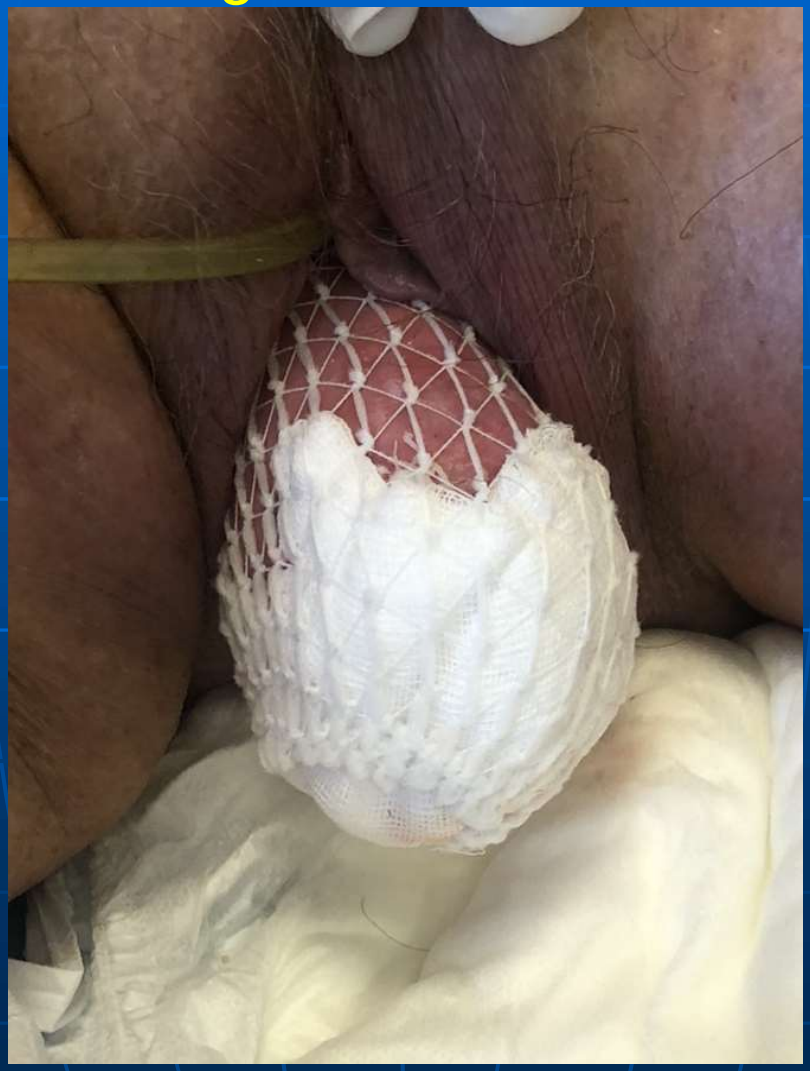
L-PRF Leukocyte and Platelet Rich Fibrin

Prolasso Uterino IV grado con eversione della vagina

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Prolasso Uterino IV grado con eversione della vagina



Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Prolasso Uterino IV grado con eversione della vagina

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Prolasso Uterino IV grado con eversione della vagina

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Prolasso Uterino IV grado con eversione della vagina

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Prolasso Uterino IV grado con eversione della vagina

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Diabetic Foot Ulcer

23/5/2017


SIAPAV
Società I
Italian So
4
varese
Ordi
dei M
e DEG
G E
SABATO 11 MAGGIO 2019
RIGENERAZIONE GUIDATA N
UTILIZZO DELL'L-PRF IN IMP
E PARADONTOLOGIA. STATO
SALA CONVEGNI
PALAZZO DEL PRINCIPE
GENOVA
Animal Research
successful Human Clinical
illofacial Surgery and Traumatology
tic Surgery - Neurosurgery
tal Implantology
& Hard Tissue Regeneration
betic Foot
ssure Ulcers - Venous Ulcers - Lepra
cers
hers in experimental phase
11/5/2019
Nelson Pinto
Carmen Mortellar
ano Piattelli
EC
MY
NTS

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

11/6/2022

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Diabetic Foot

Leucocyte- and platelet-rich fibrin (L-PRF) as a regenerative medicine strategy for the treatment of refractory leg ulcers: a prospective cohort study

Nelson R. Pinto, Matias Ubilla, Yelka Zamora, Verónica Del Rio, David M. Dohan Ehrenfest & Marc Quirynen

Published online: 20 Jul 2017.

44 pz / 49 ulcere

		Ulcer size	VLUs $n = 32$	DFUs $n = 10$	PUs $n = 5$	Complex $n = 2$
Ulcer area (cm^2) Mean ± S.D.	Initial	All	15.7 ± 17.0	6.7 ± 8.2	5.4 ± 4.8	3.5 ± 1.6
	After L-PRF		2.9 ± 10.1	0.0	3.5 ± 4.6	0.0
	Initial	≤10 cm^2	4.9 ± 2.9	2.6 ± 1.7	3.6 ± 3,1	3.5 ± 1.6
	After L-PRF		0.0	0.0	1.6 ± 2.2	0.0
	Initial	>10 cm^2	27.9 ± 18.2	20.9 ± 0.8	12.4	–
	After L-PRF		6.2 ± 14.2	0.0	10.9	–
Proportion full wound closure		All	27/32	10/10	2/5	2/2
		≤10 cm^2	17/17	8/8	2/4	2/2
		>10 cm^2	10/15	2/2	0/1	–
Number of L-PRF applications		All	9.3	6.8	3.8	12.5
		≤10 cm^2	6.3	5.8	4.3	12.5
		Range	2–15	2–16	1–7	10–15
		>10 cm^2	12.6	11	2	–
		Range	6–25	10–12	–	–

ORIGINAL ARTICLE

Acta Phlebologica 2016 December;17(3):91-100

Leukocytes and platelets rich fibrin in the treatment of skin lesions

Enrico RESCIGNO, Giulia SAN ROMÉ, Giorgio ROSA

Materials and Methods

17 pt. (6 m. e 12 f.) 78.8 aa median age (range 32-99)

8 patients with diabetes mellitus

22 Skin Lesions

10 ml blood immediatly

centrifugated 12 min. at 2700 rpm

L-PRF

Diabetic Foot

2018

Lancet Diabetes Endocrinol. 2018 Nov;6(11):870-878. doi: 10.1016/S2213-8587(18)30240-7. Epub 2018 Sep 19.

LeucoPatch system for the management of hard-to-heal diabetic foot ulcers in the UK, Denmark, and Sweden: an observer-masked, randomised controlled trial.

Game F[1], Jeffcoate W[2], Tarnow L[3], Jacobsen JL[4], Whitham DJ[5], Harrison EF[5], Ellender SJ[5], Fitzsimmons D[6], Löndahl M[7]; LeucoPatch II trial team.

Fig. 1 A LeucoPatch® post centrifugation

32 Cliniche specializzate nel piede diabetico

Inghilterra, Danimarca e Svezia

hard-to-heal Diabetic Foot Ulcers

fibrina preparata "bedside" vs medicazioni avanzate

132 vs 137 pz.

numero di guarigioni dopo 20 settimane

34% vs 22% **p= 0,0235**

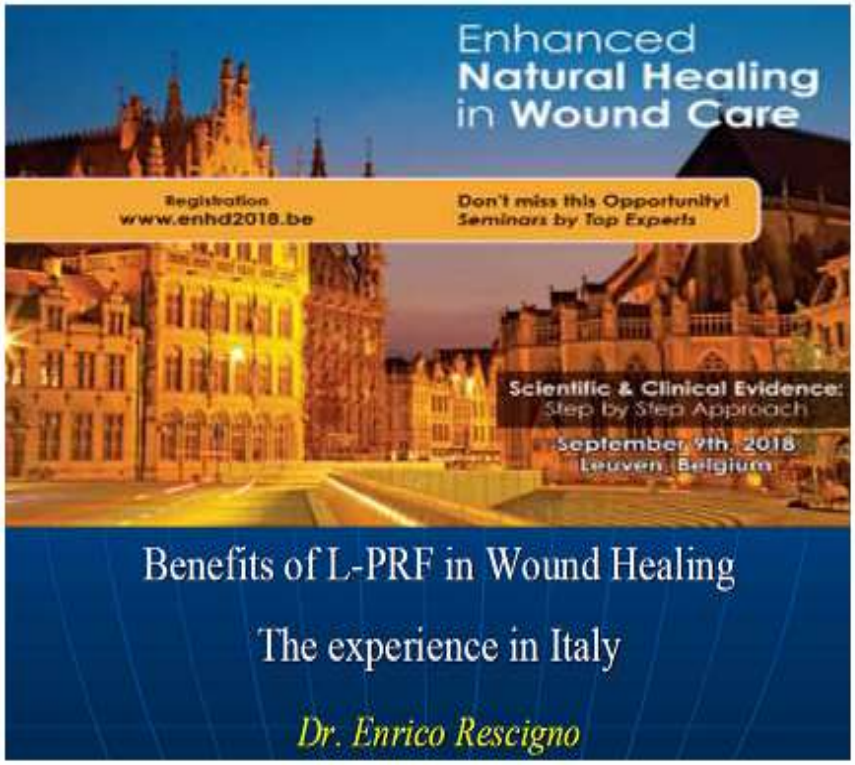
> 50%

Alisa
Sistema Sanitario Regione Liguria

HTA

Allegato 1
alla delibera n._43__ del _20/02/2019_

mini-HTA delle Tecnologie (AdHopHTA)



L-PRF

Diabetic Foot

arsl_ge.alisa.REGISTRO UFFICIALE.U.0012946.03-06-2019

Alisa
Sistema Sanitario Regione Liguria

IL COMMISSARIO STRAORDINARIO
AREA SANITARIA

Allegati n. 1

AZIENDA SOCIOSANITARIA LIGURE N°4
Cod IPA asl4_chi
Data 04/06/2019 Prot GEN
Prot N° 29445 All 1/1
PG/2019/029445

Responsabile del procedimento
Ing. Gabriella Paoli
Tel. 010 548 5614
E-mail: gabriella.paoli@regione.liguria.it

Dott. Francesco Cardinale
E-mail: fcardinale@asl4.liguria.it

A.S.L. N° 4 CHIAVARESE
Comp.: OMPO
Con. : 99
Titolario: 07/01/03

Genova, data del protocollo

Direttore Generale
ASL 4

p.c. S.C. Chirurgia – Ospedale di Lavagna
ASL 4

Loro sedi

Oggetto: **Trasmissione parere Segreteria Scientifica della Rete Ligure HTA**

In seguito alla Vs. richiesta di parere del 10 maggio 2019 relativamente alla tecnologia **L-PRF** si inoltra la risposta della Segreteria Scientifica della Rete Ligure HTA.

Cordiali saluti

IL COMMISSARIO STRAORDINARIO
Dott. G. Walter Locatelli

A.Li.Sa. - Azienda Ligure Sanitaria della Regione Liguria
C.F. / P. IVA 02421770997
Sede legale Piazza della Vittoria, n. 15, 16121 Genova (GE) - Tel. 010 548 4162
MAIL: direzione.alisa@regione.liguria.it PEC: protocollo@pec.alisa.liguria.it

Odontostomatologia ed Implantologia nonché in Chirurgia maxillofacciale, con evidenze di livello sperimentale, sembrerebbe, grazie ad alcune evidenze ad oggi emergenti, di poter disporre di un quadro delle conoscenze maggiormente delineato. Sebbene una recente revisione Cochrane (Ref.1) avesse sollevato più di un dubbio circa l'efficacia di tali allestiti, è stata rilevata la presenza di un recentissimo RCT che di fatto comincia a portare dati dirimenti in merito alla tecnologia in oggetto di valutazione. Per quanto infatti riportato nello studio di Game et al. (Ref.2), specificatamente focalizzato all'allestito in oggetto di valutazione, sembrerebbe delinearsi una certa efficacia nei casi in cui non si ottiene una guarigione nonostante il miglior standard di cura :*" This study has shown the apparent effectiveness of this new intervention in the management of people with hard-to-heal diabetic foot ulcers";* con un certo impatto sul processo di guarigione in termini di tempo *"this new bedside treatment has the potential to significantly accelerate wound healing."* piuttosto che su altri outcomes: *"no difference was seen between the two groups in the apparent incidence of episodes of wound infection "* e ancora *"The incidence of major or minor amputation and of any adverse events or serious adverse events did not differ between the two groups" ; "The incidence of either the number of episodes of clinical infection or of antibiotic use also did not differ between the two groups".*

Conclusioni

A fronte dei dati provenienti dallo studio di Game et al, dai quali non emergono dati preoccupanti in merito alla sicurezza, si ritiene ragionevolmente di poter desumere una possibile accelerazione nei tempi di guarigione. Si esprime pertanto parere positivo all'utilizzo, facendo tuttavia alcune considerazioni finali:

- L'RCT di Game risulta essere l'unico RCT a sostegno dell'utilizzo della tecnologia
- Non è adeguatamente ponderabile la costo-efficacia della tecnologia ne l'eventuale curva di apprendimento della metodica
- I dati provenienti dall'RCT sostengono l'uso nelle lesioni difficili di piede diabetico e non in altri contesti ed in tal senso andrà posta massima attenzione ai criteri di selezione dei Pazienti candidabili (la popolazione in studio è infatti ben definita : *"population of people with hard-to-heal diabetic foot ulcers." " It is possible that this treatment might also be of benefit in other types of diabetic foot ulcer but this theory has not yet been studied."*)

In considerazione di ciò si ritiene innanzitutto che non si possa parlare di evidenze scientifiche consolidate e pertanto si ritiene doveroso che il Richiedente ponga massima attenzione a nuove evidenze eventualmente emergenti onde valutare cambiamenti della pratica clinica. Inoltre si ritiene imprescindibile, vista la presenza in letteratura di un unico studio a sostegno di adeguata metodologia, vengano messe in atto misure di governo clinico (audit e consenso informato) volte all'appropriatezza d'uso e all'informazione del Paziente. Si demanda infine alla Direzione Sanitaria Aziendale il controllo del rispetto delle norme circa l'allestimento di preparati da materiale autologo ed una valutazione dell'eventuale apporto del Servizio Trasfusionale Aziendale nell'allestimento del preparato stesso.

La Segreteria Scientifica della Rete Ligure HTA

Efficacy of Plasma-Rich Growth Factor in the Healing of Postextraction Sockets in Patients Affected by Insulin-Dependent Diabetes Mellitus

Marco Mozzati, DDS, Giorgia Gallesio, DDS,† Sara di Romana, DDS,‡ Laura Bergamasco, PhD,§ and Renato Pol, DDS‖*

Purpose: To evaluate the efficacy of plasma-rich growth factor (PRGF) in improving socket healing after tooth extraction in diabetic patients.

Materials and Methods: This was a split-mouth study in which each patient also served as the control: the study socket was treated with PRGF, whereas the control socket underwent natural healing. The postoperative comparison showed that PRGF resulted in significantly smaller residual socket volumes and better Healing Indices from days 3 to 14. The patients' questionnaire outcomes were unanimously in favor of PRGF treatment. The small sample of patients with glycemia values of at least 240 mg/dL showed worse Healing Index and minor socket decreases.

Conclusion: PRGF application after extraction improved the healing process in diabetic patients by accelerating socket closure (epithelialization) and tissue maturation, proving the association between PRGF use and improved wound healing in diabetic patients.

Conclusion: PRGF application after extraction improved the healing process in diabetic patients by accelerating socket closure (epithelialization) and tissue maturation, proving the association between PRGF use and improved wound healing in diabetic patients.

J Oral Maxillofac Surg 72:456-462, 2014

© 2014 American Association of Oral and Maxillofacial Surgeons

J Oral Maxillofac Surg 72:456-462, 2014

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Diabetic Foot Ulcer

7 gg

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Diabetic Foot Ulcer

6 months

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Diabetic Foot Ulcer

19 months

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Diabetic Foot Ulcer

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Diabetic Foot Ulcer

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Diabetic Foot Ulcer

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

7 gg

Diabetic Foot Ulcer

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

14 gg

Diabetic Foot Ulcer

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

21 gg

Diabetic Foot Ulcer

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

28 gg

Diabetic Foot Ulcer

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

35 gg

Diabetic Foot Ulcer

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

42 gg

Diabetic Foot Ulcer

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

49 gg

Diabetic Foot Ulcer

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Diabetic Foot Ulcer

49 gg

L-PRF Leukocytes-Platelet Rich Plasma in Diabetic Foot Ulcers

Casistica 2015 – 2022

Trauma	5 pz	
Vulnologia Varia	22 pz	75 pz
Piede Diabetico non-healing	48 pz	
Età media	74 aa	(range 42 – 89)
Sintomatici (dolore)	10 pz	
Risoluzione post 1° applicaz	7 pz	
Guarigione completa	40 pz	(84%)
'' parziale	5 pz	(10%)
Amputazioni (osteomielite)	3 pz	(6%)

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Ulcera Lebbra Guarita

Wound Healing & Tissue Regeneration Society - Nepal

L-PRF

punyaarjan FOUNDATION

www.asl4.liguria.it
Azienda Sanitaria Locale n. 4 Chiavarese
Regione Liguria

Dr. E. Rescigno S.S. Chirurgia Vascolare Lavagna (Ge)

NATURAL GUIDED REGENERATION THERAPY WITH L-PRF IN THE TREATMENT OF CHRONIC WOUNDS FROM DIFFERENT ETHIOLOGY REFRACTORY TO STANDARD TREATMENT

Authors: *Nelson R. Pinto, Yelka Zamora, Diego A. Pinto, Gregor E. Pinto, Catalina Carvajal, Sushil Koirala, Indra B.Napit, Enrico Rescigno, Marc Quirynen.*

1,136 pts suffering from chronic wounds refractory to standard therapy:

Venous ulcers n= 680,
Diabetic Foot n= 325,
Post-Surgical Complications n=71,
Leprosy Ulcers n=30,
Pressure Ulcers n=25,
Arterial Ulcers n=5

L-PRF not only promote wound closure but also improves quality of the regenerated tissue which may explain the low recurrence.
NGR-T Improves wound healing and quality of life by reducing pain and healing time.
This new open-access therapy is simple, safe and inexpensive.

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Ulcera Flebo Linfatica

26/6/15

17/7/15

31/7/15

19/11/15

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Ulcera Cicatriziale

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Ulcera Cicatriziale

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Ulcera Cicatriziale

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Ulcera Cicatriziale

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Ulcera Cicatriziale

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Ulcera Cicatriziale

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Ulcera Cicatriziale

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Rheumatoid Ulcer

21/2/16

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Rheumatoid Ulcer

21/2/16

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Rheumatoid Ulcer

21/2/16

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Rheumatoid Ulcer

25/2/16

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

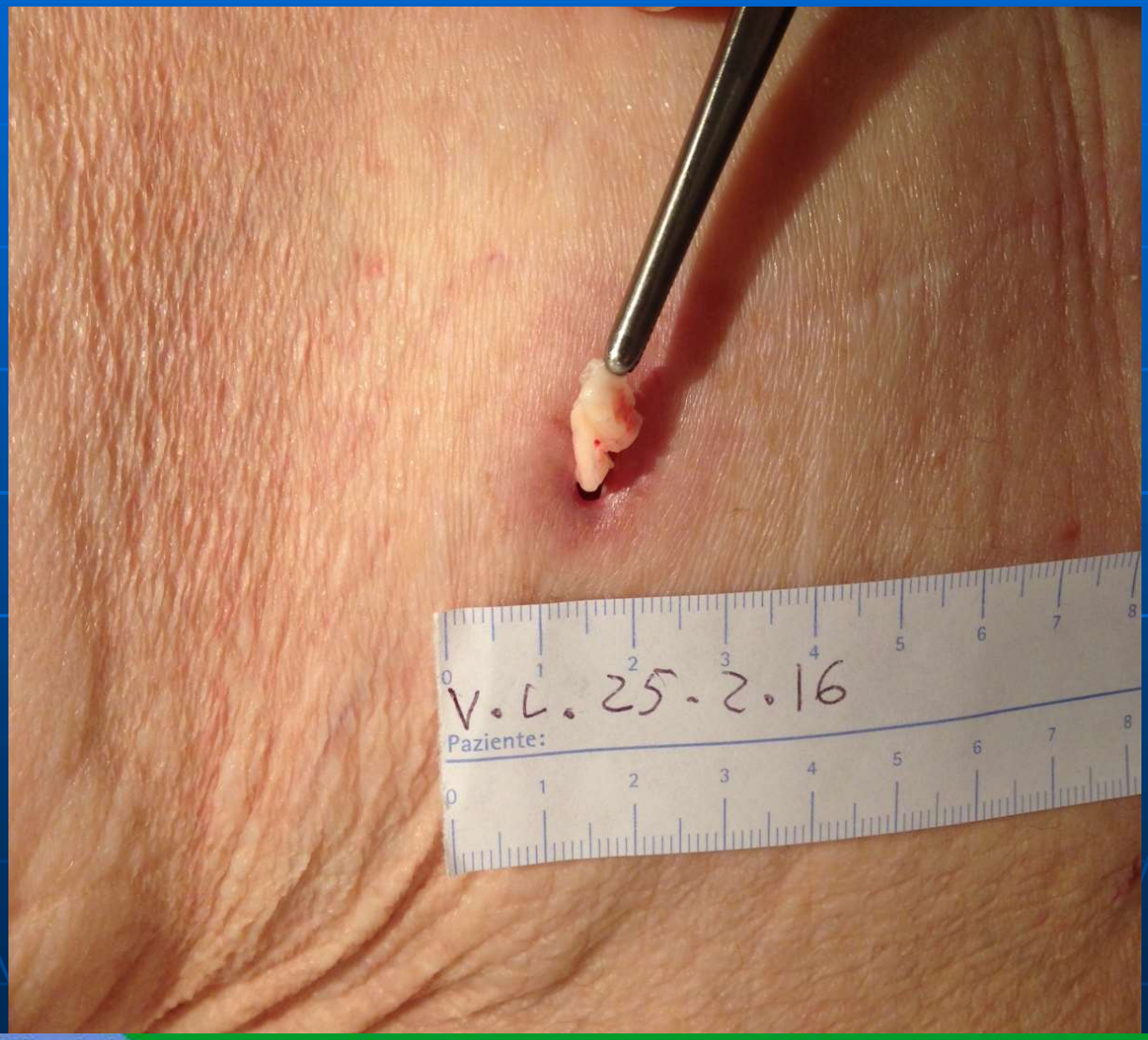
21/2/16 **Rheumatoid Ulcer** 25/2/16

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Rheumatoid Ulcer

25/2/16

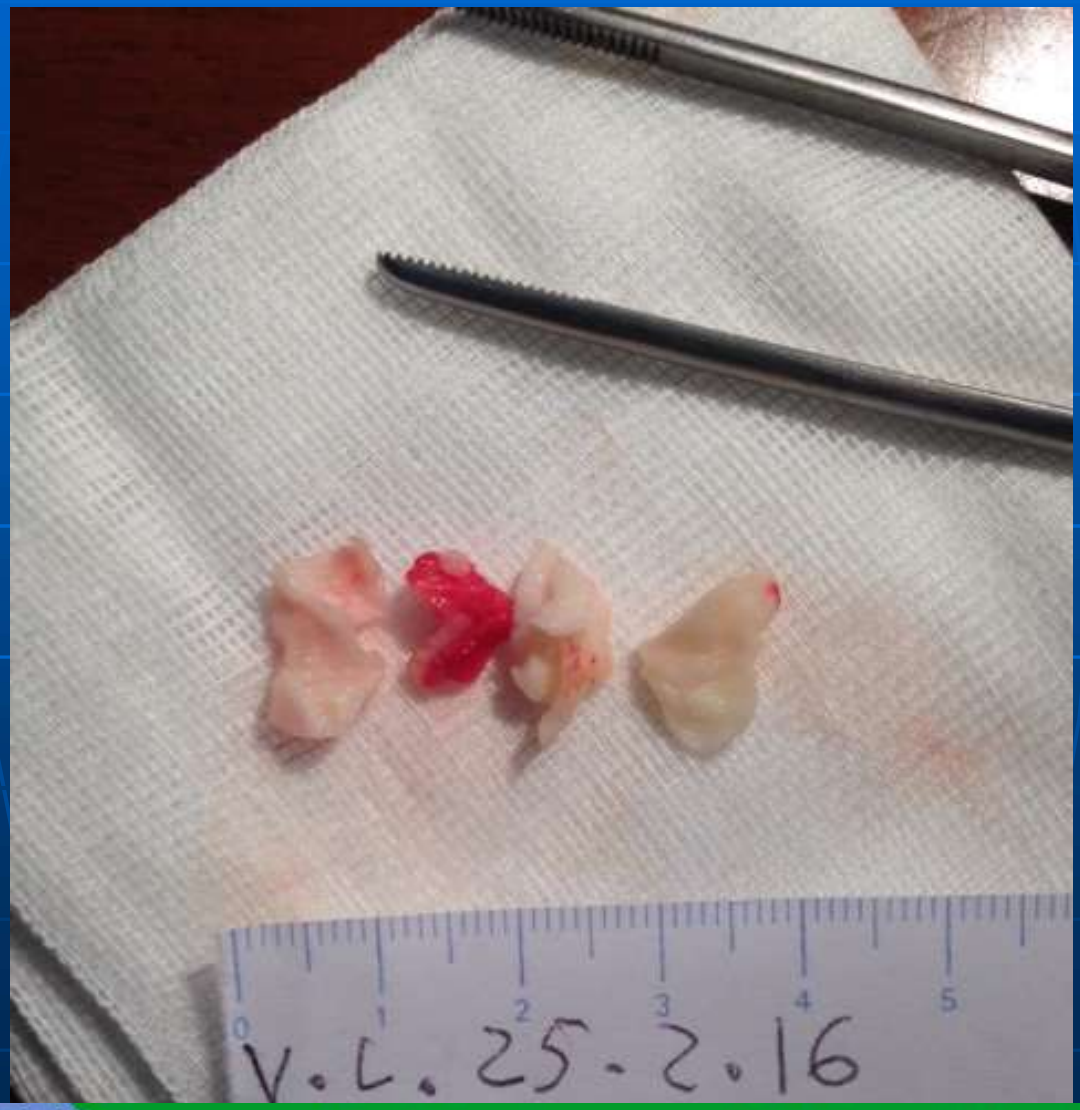


Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Rheumatoid Ulcer

25/2/16



Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Rheumatoid Ulcer

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Rheumatoid Ulcer

14 d.

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Rheumatoid Ulcer

25 d. 35 d. 45 d.

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Rheumatoid Ulcer

21/2/16

09/4/16

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

2014

Deiscenza Sutura Gastrica

Journal of Laparoendoscopic & Advanced Surgical Techniques, VOL. 25, NO. 3 | Technical Reports normal

Figures References Related

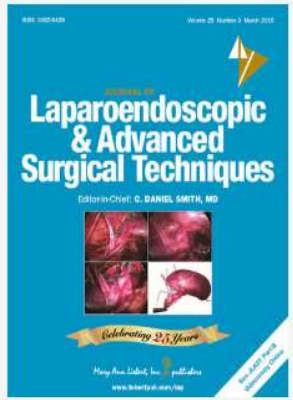
Use of Platelet-Rich Plasma to Reinforce the Staple Line During Laparoscopic Sleeve Gastrectomy: Feasibility Study and Preliminary Outcome

Giovanni Casella, Emanuele Soricelli, Alfredo Genco, Giancarlo Ferrazza, Nicola Basso, and Adriano Redler

lap.2014.0329

Department of Surgical Sciences, "Sapienza" University of Rome, Rome, Italy.

Tools Share

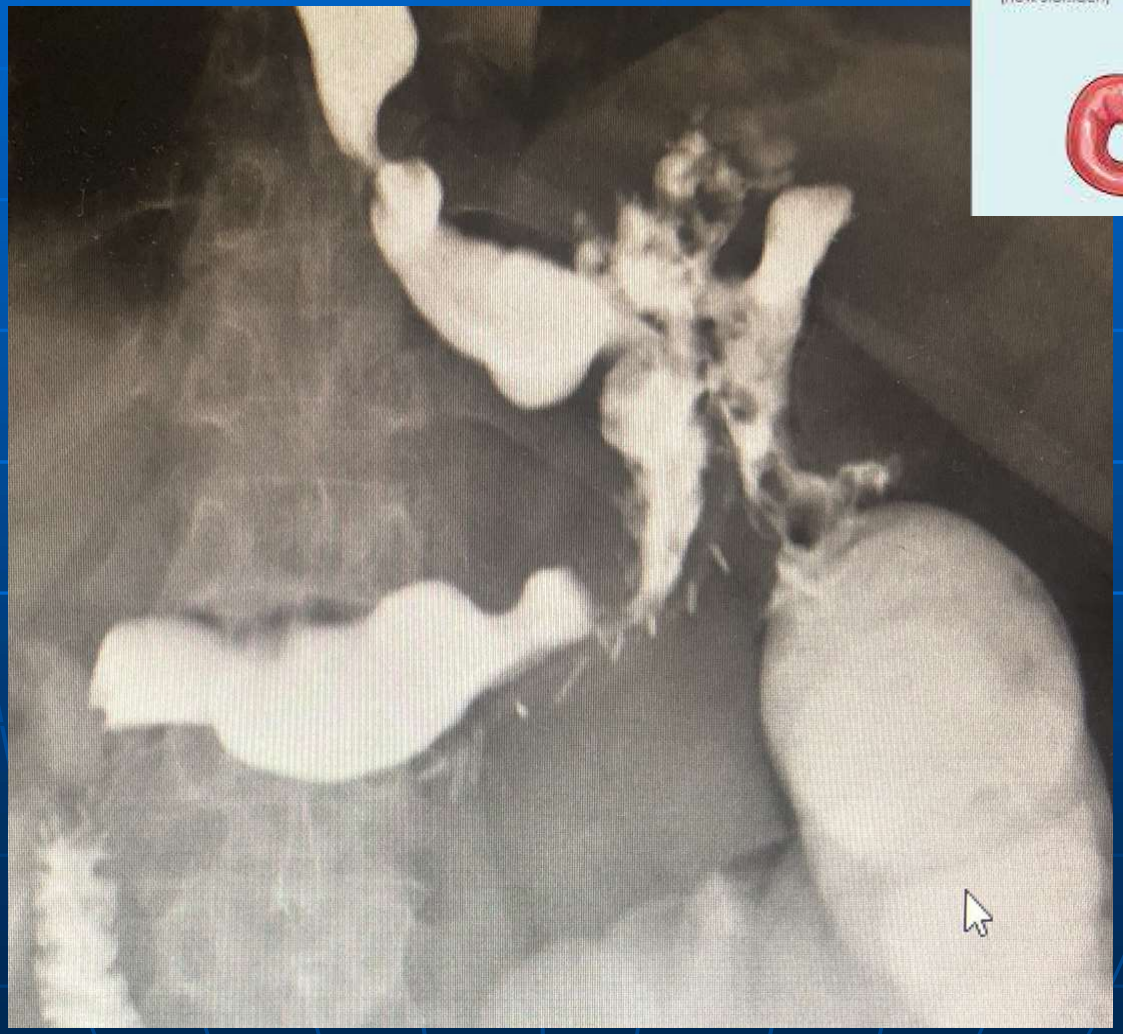


VOLUME 25, ISSUE 3
MAR 2015

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Deiscenza Sutura Gastrica



Protocollo Operativo Wound Treatment

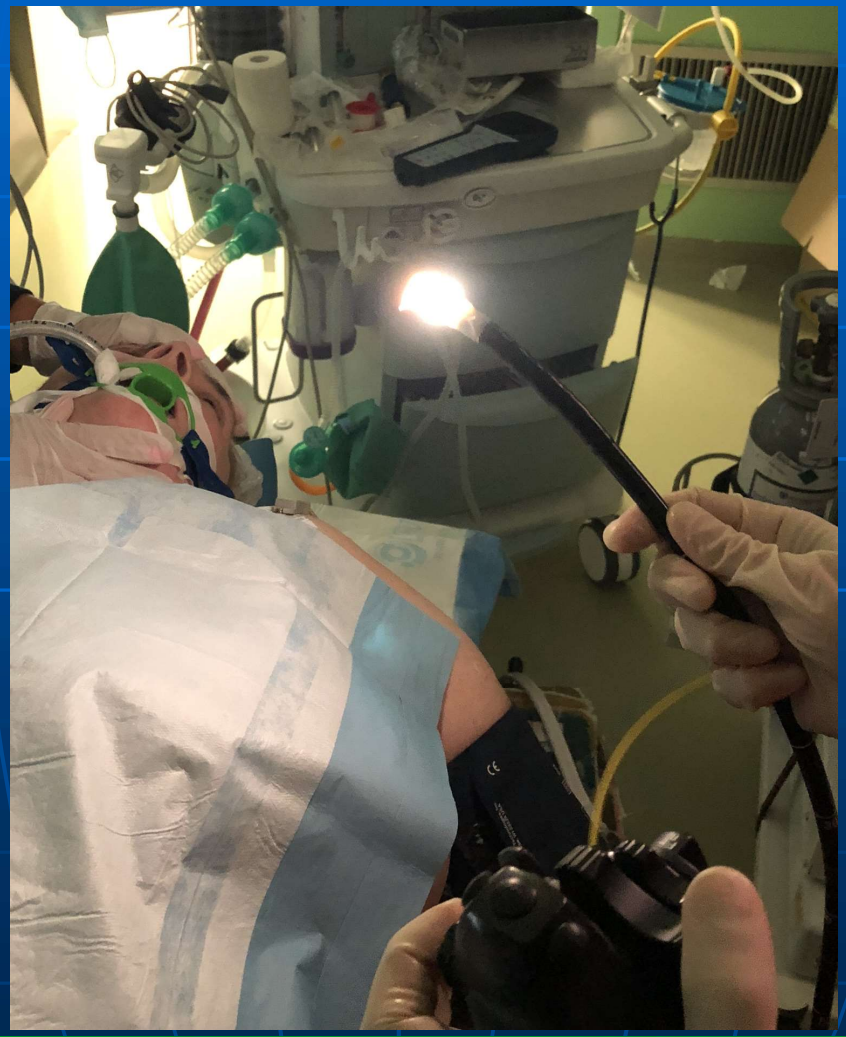
L-PRF Leukocyte and Platelet Rich Fibrin

Deiscenza Sutura Gastrica

Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

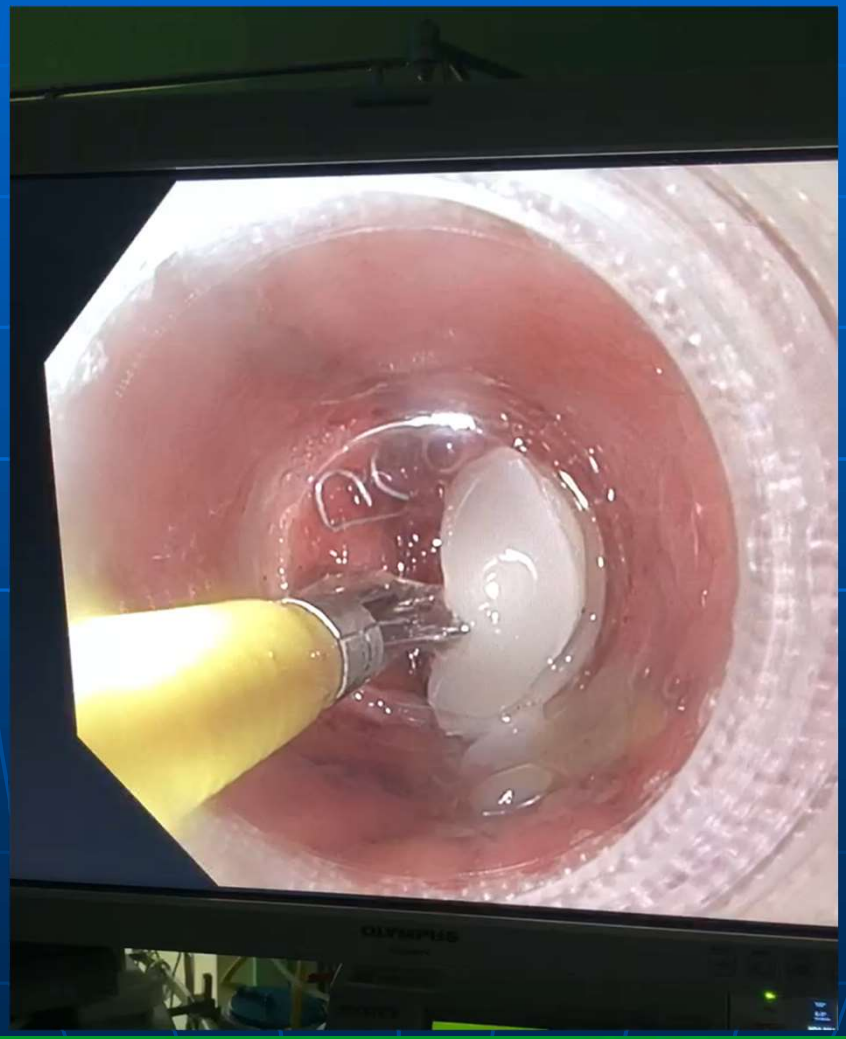
Deiscenza Sutura Gastrica



Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

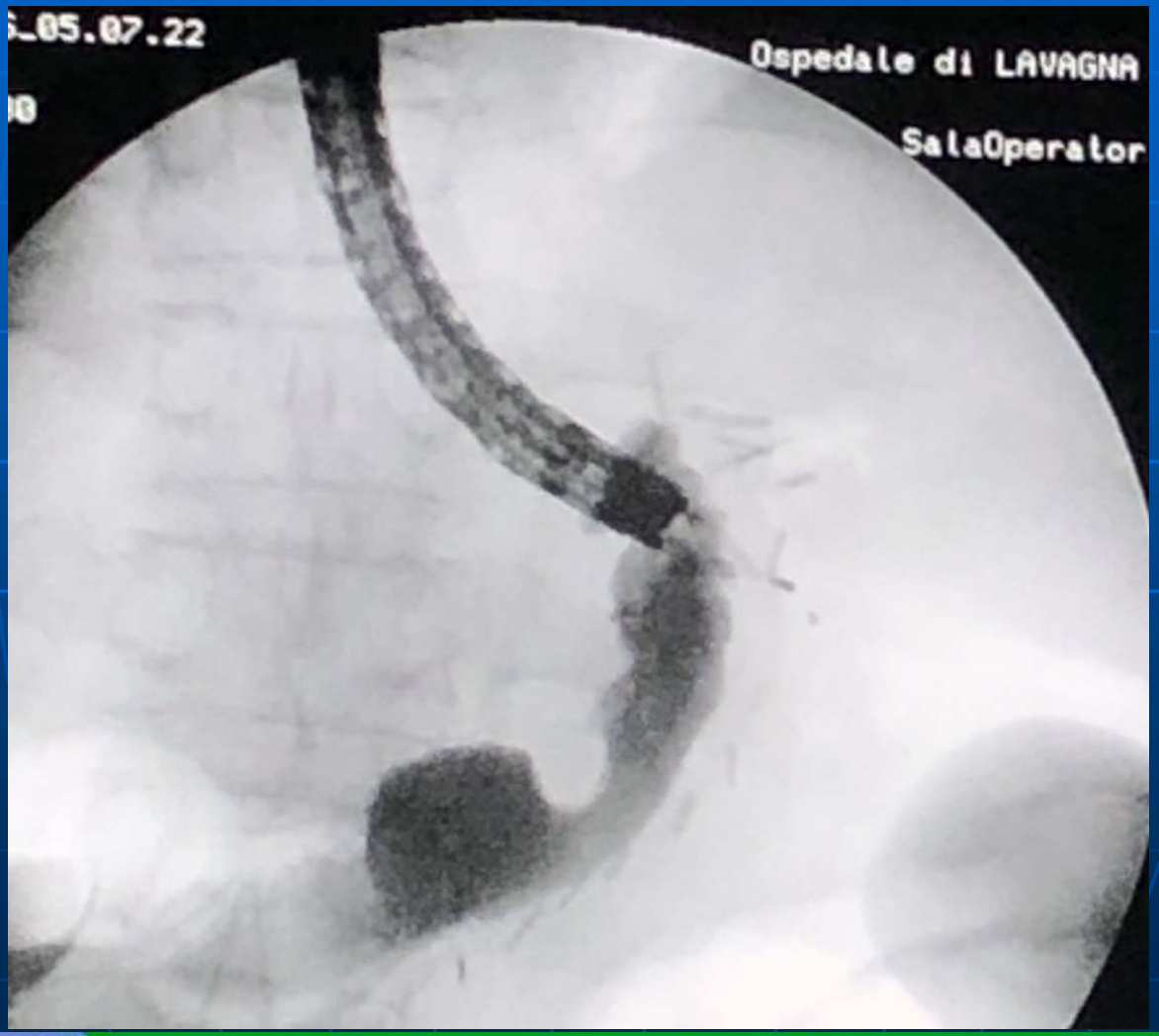
Deiscenza Sutura Gastrica



Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

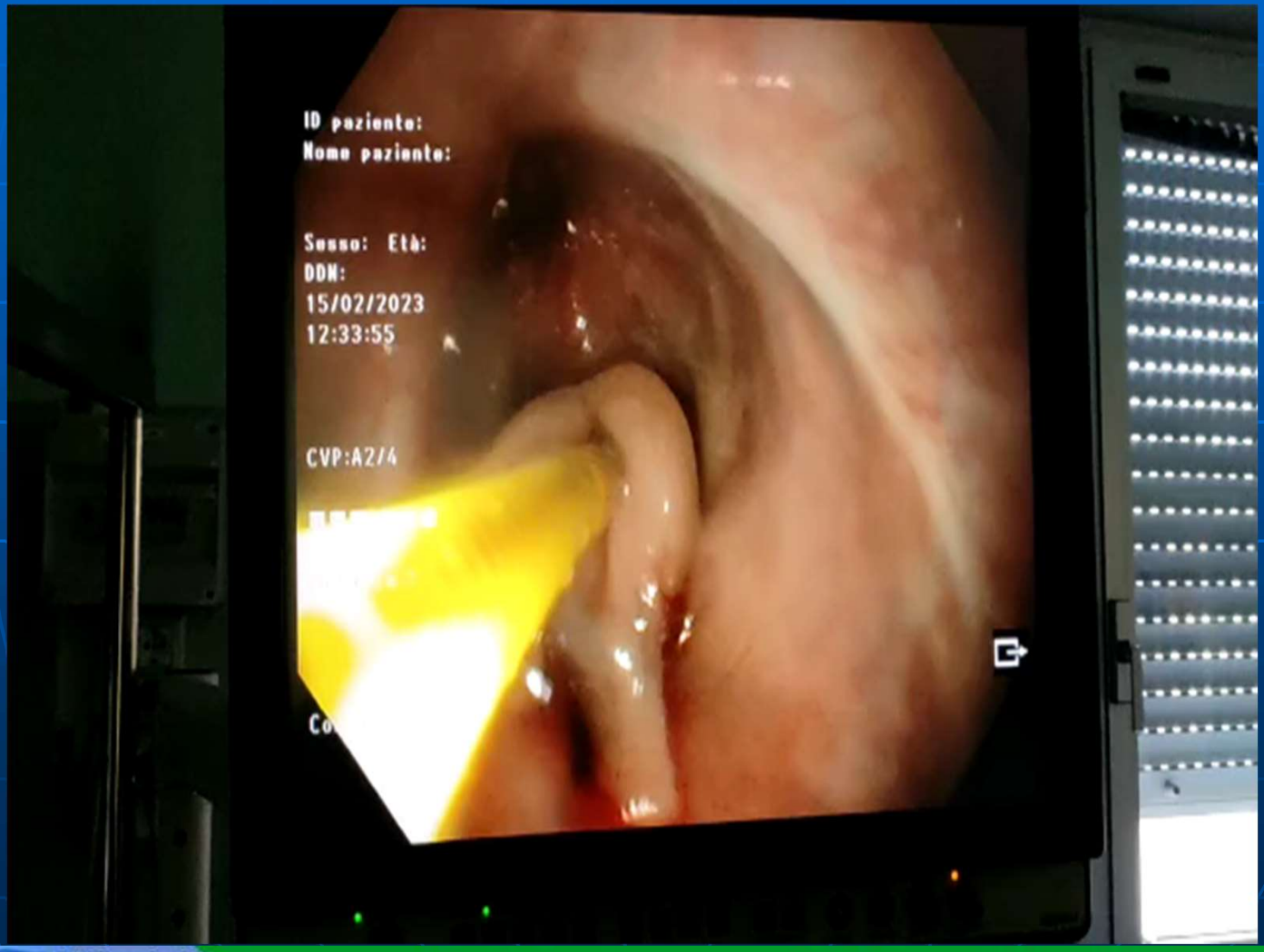
Deiscenza Sutura Gastrica



Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

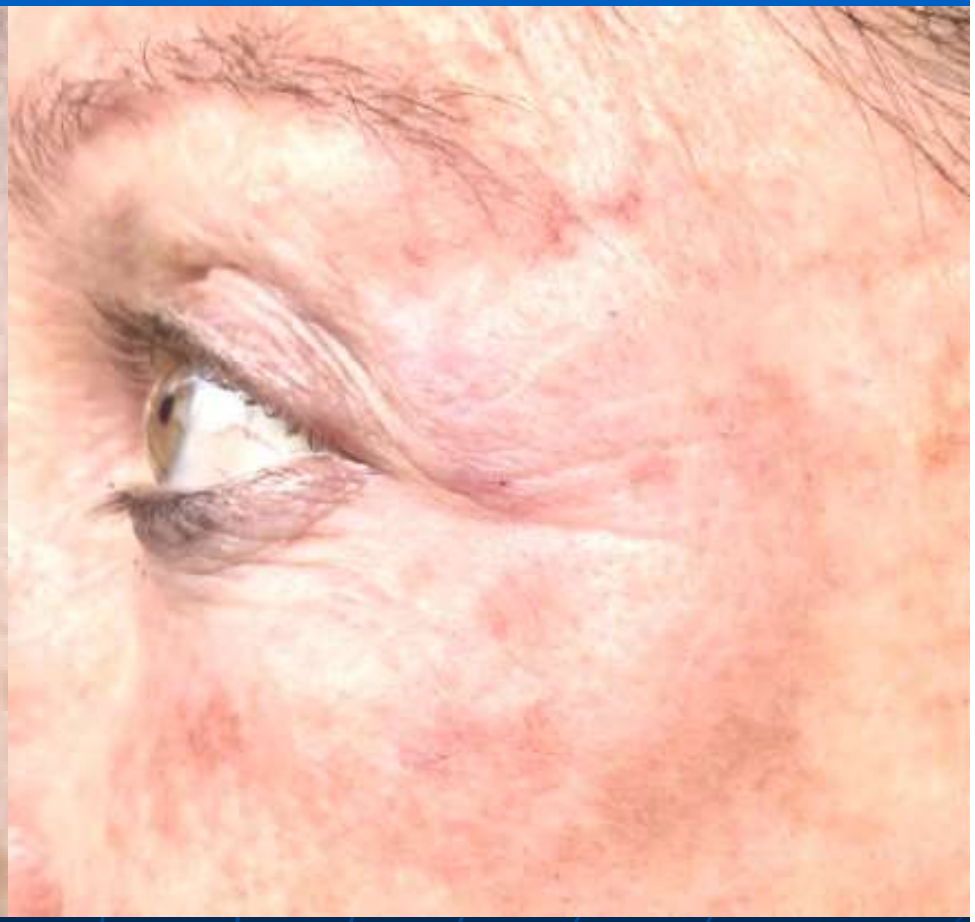
Fistola Anastomosi Coloretale



Protocollo Operativo Wound Treatment

L-PRF Leukocyte and Platelet Rich Fibrin

Skin Rejuvenation




Grazie per l’attenzione