VAI TRÒ PRP TRONG ĐIỀU TRỊ SẸO LÕM DO MỤN

BS CK II PHẠM THỊ THANH GIANG

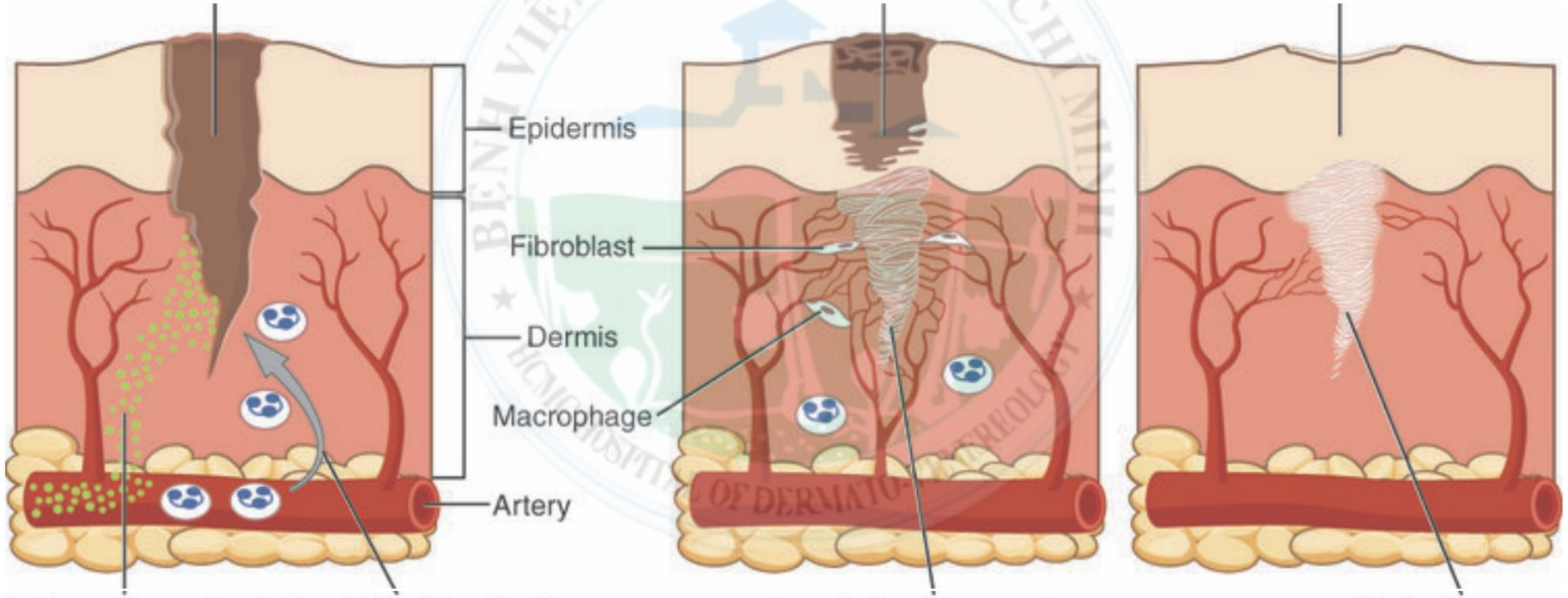
TỔNG QUAN

- Mụn trứng cá là một bệnh lý phổ biến, mụn trứng cá ở mức độ nào cũng có khả năng để lại sẹo mụn.
- Sẹo mụn có nhiều dạng: sẹo lõm (90%), sẹo lồi (10%), sẹo tăng sắc tố, sẹo đỏ.
- Mặc dù hiện nay có nhiều phương pháp điều trị sẹo lõm do mụn, nhưng đơn trị liệu thường không đem đến hiệu quả cao.

Inflammation

Granulation tissue formation

Matrix remodeling



Inflammatory chemicals are released from injury

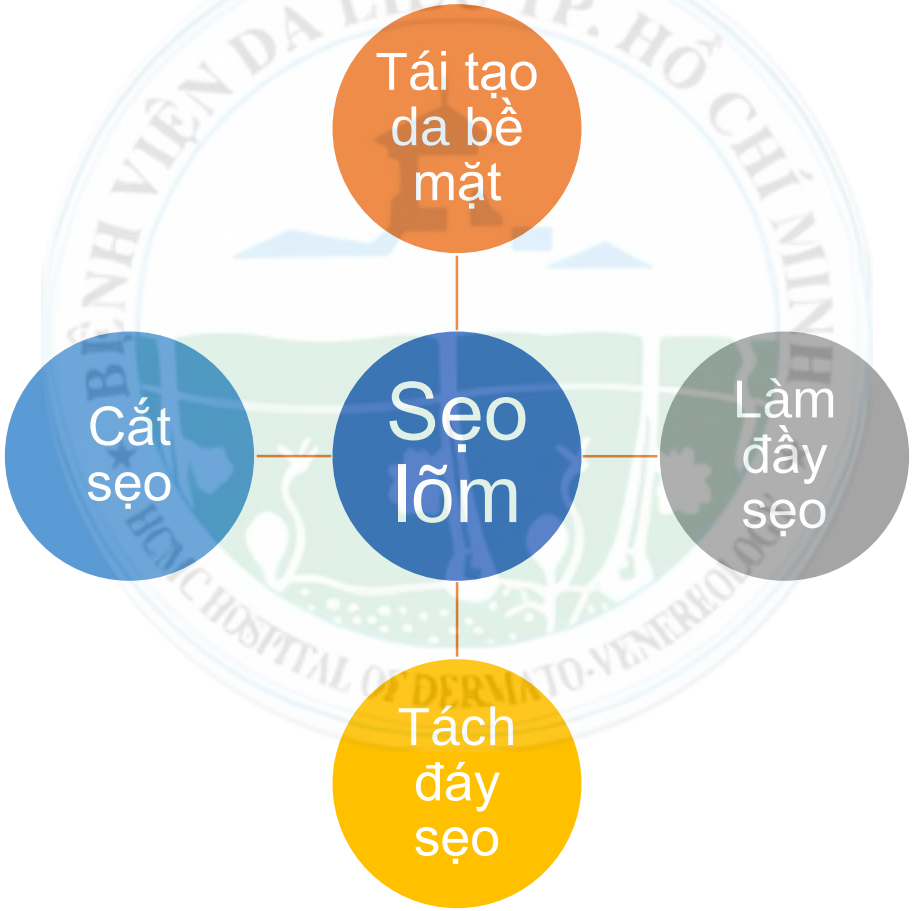
White blood cells seep into the injured area

Granulation tissue restores the vascular supply

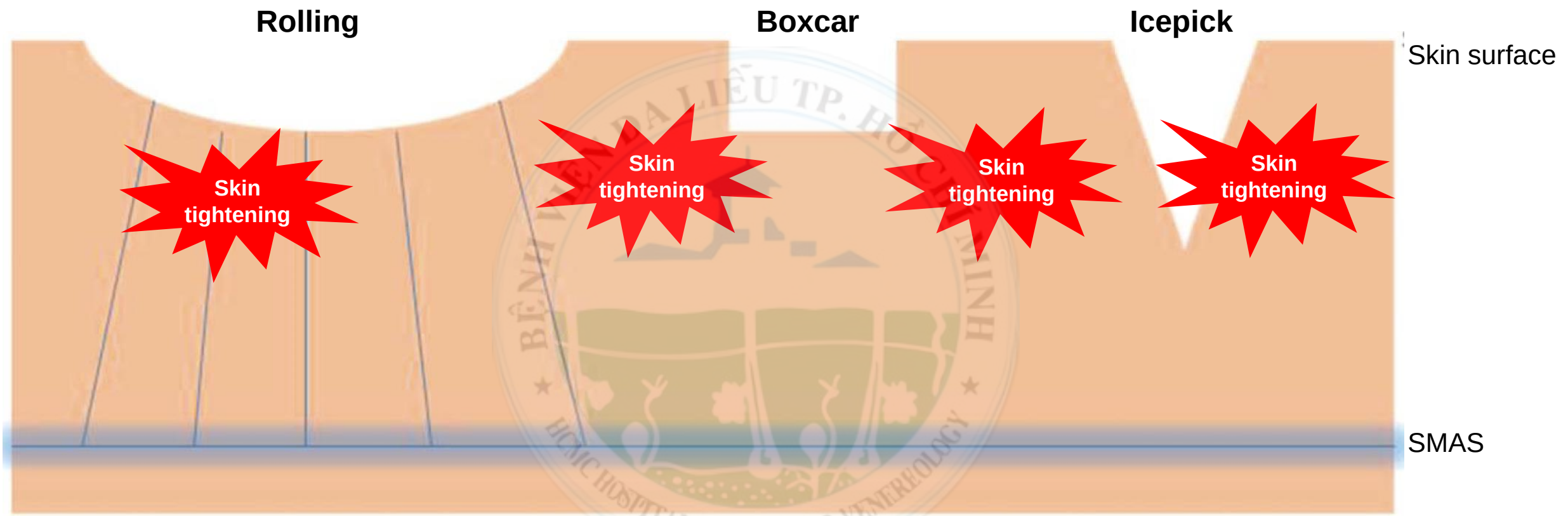
Underlying area of scar tissue

Fabbrocini G,et al. Dermatol Res Pract. 2010;2010:893080. doi: 10.1155/2010/893080

ĐIỀU TRỊ SẸO LÕM



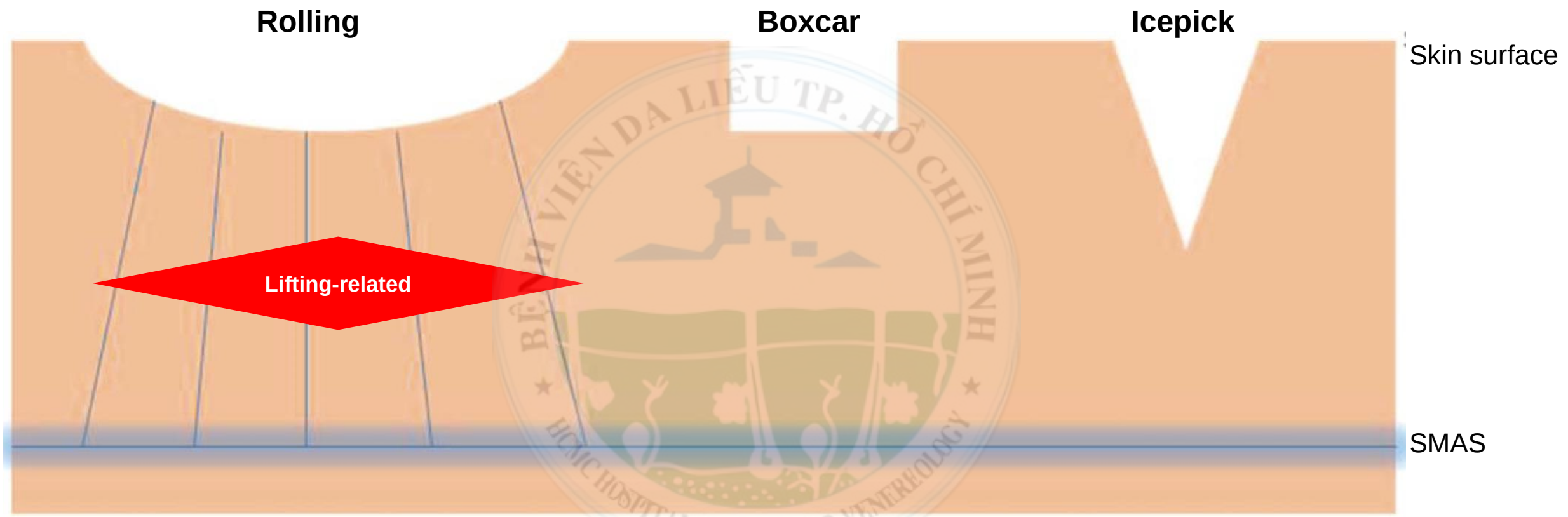
SKIN TIGHTENING



Fractional/nonablative lasers, fractional radiofrequency

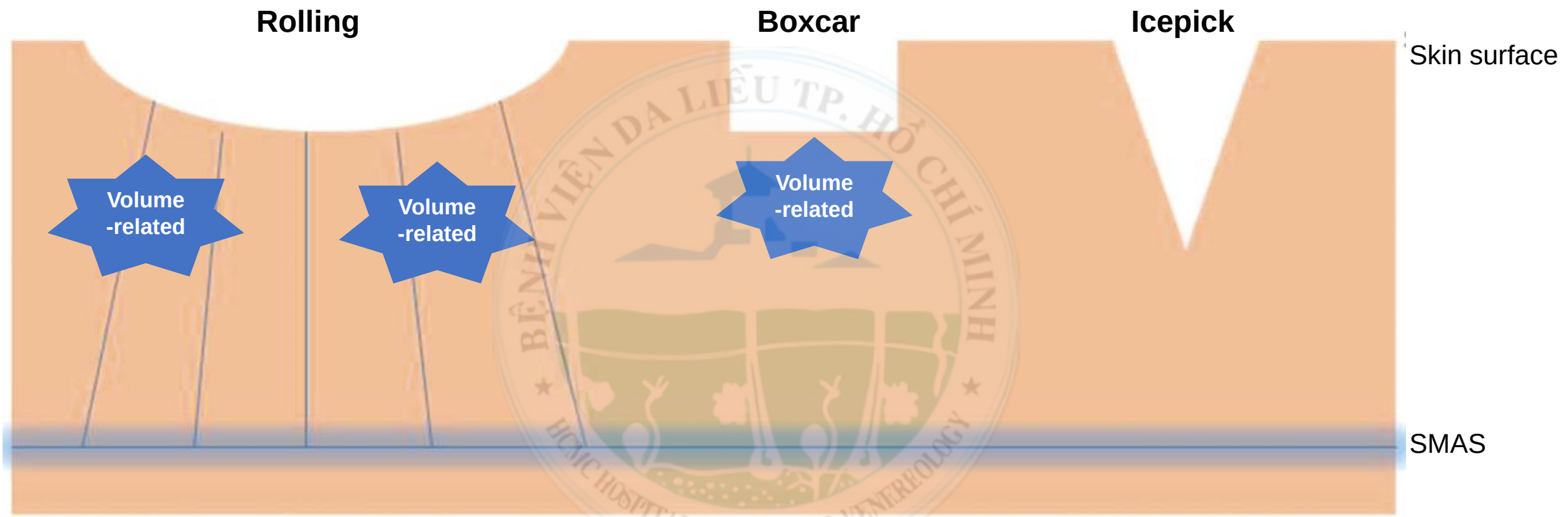
Fabbrocini G,et al. Dermatol Res Pract. 2010;2010:893080. doi: 10.1155/2010/893080

Lifting modalities



Fabbrocini G,et al. Dermatol Res Pract. 2010;2010:893080. doi: 10.1155/2010/893080

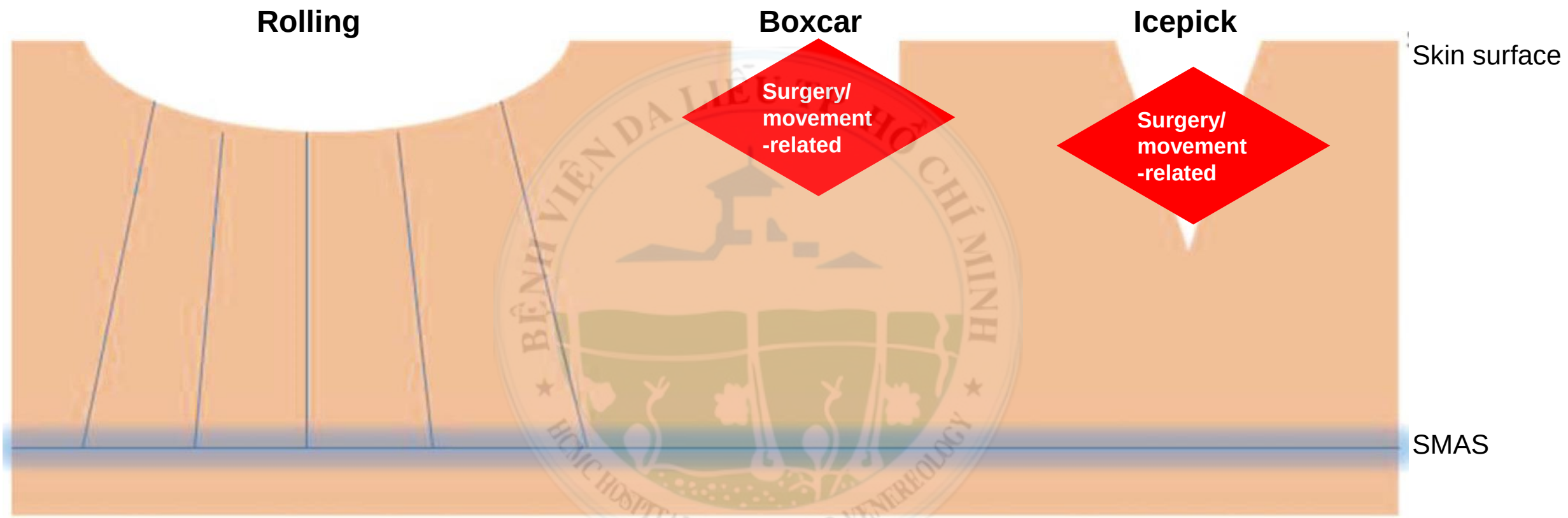
Volume-related modalities



Soft tissue augmentation, dermal grafting, fat transplant, platelet-rich plasma

Fabbrocini G,et al. Dermatol Res Pract. 2010;2010:893080. doi: 10.1155/2010/893080

Surgery/movement-related modalities



Punch elevation, punch excision

Fabbrocini G,et al. Dermatol Res Pract. 2010;2010:893080. doi: 10.1155/2010/893080

PRP TRONG ĐIỀU TRỊ SẸO LÕM

- PRP: là huyết tương với nồng độ tiểu cầu cao gấp 3 - 7 lần so với máu bình thường.
- PRP có nguồn gốc tự thân, có khả năng dị ứng thấp.
- PRP có nhiều yếu tố tăng trưởng quan trọng, thúc đẩy cho quá trình lành thương được tốt hơn.

Contents of platelet rich plasma

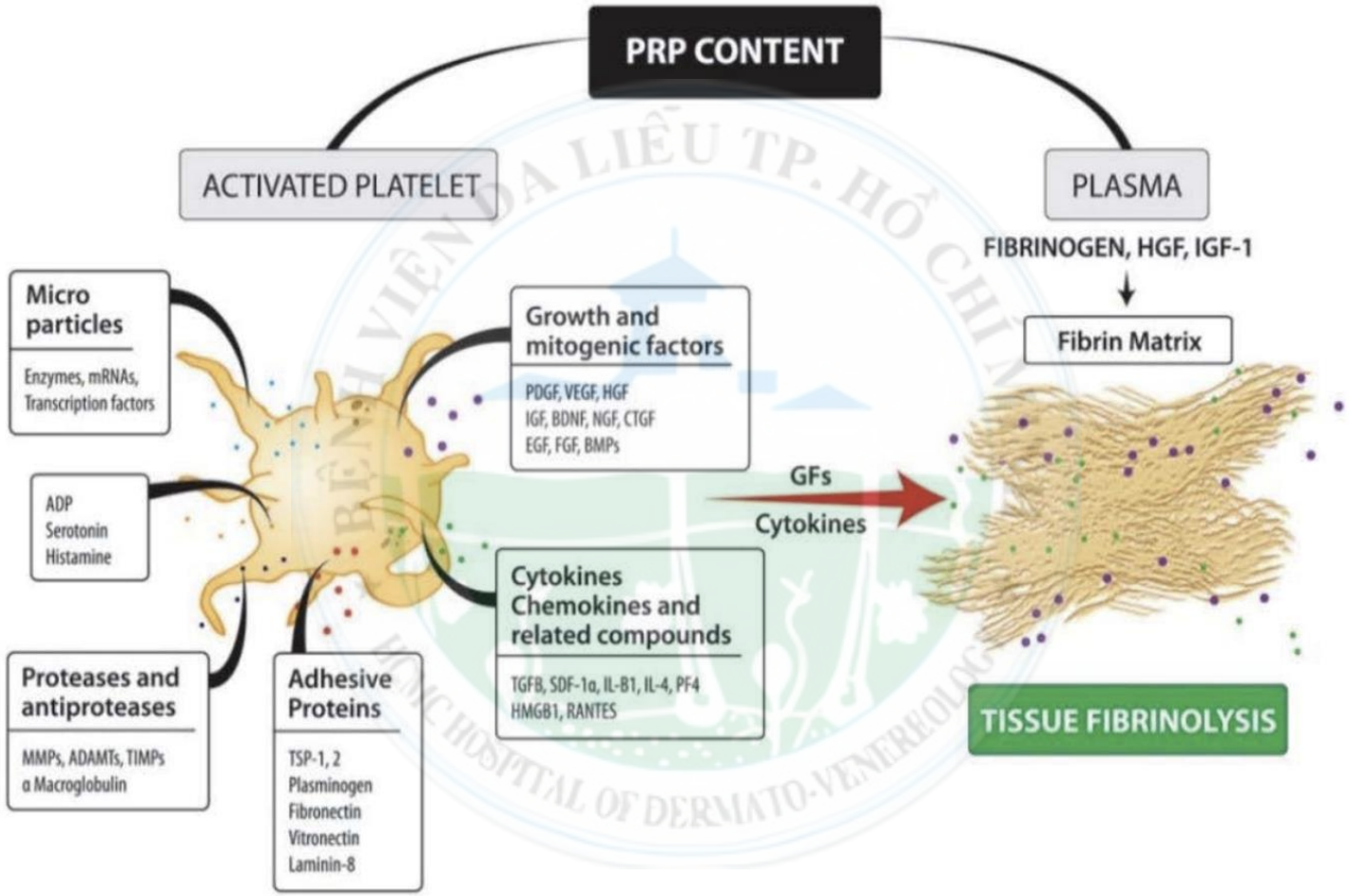


Figure 3: Contents of platelet rich plasma.

REVIEW

Platelet-rich plasma and its utility in the treatment of acne scars: A systematic review

Michael J. Hesseler, MD,[a] and Nikhil Shyam, MD[b]
Ann Arbor, Michigan, and Baltimore, Maryland

Efficacy of Platelet-Rich Plasma in Acne Scars

Anirudha D Gulanikar, Renu Vidholkar

Department of Dermatology, MGM Medical College and Hospital, Aurangabad, Maharashtra, India

Abstract

Background: Platelet-rich plasma (PRP) is an autologous preparation which contains a large amount of platelets concentrated into a small volume of plasma. PRP provides various growth factors which aid in quick wound healing. It is used as an adjuvant therapy for acne scars. Thus, in this prospective study, the efficacy of PRP as single modality of treatment for acne scars was evaluated. **Methods:** Thirty patients of Grade 2 and 3 acne scars according to the Goodman and Baron's qualitative acne scar grading system and Fitzpatrick Skin Type IV and V received six sittings of PRP at an interval of 1 month and followed up for 3 months after the completion of six sittings. Patients were assessed for the improvement in the scar grade, 1 month after the last sitting. Pre- and post-treatment comparative photographs and patient's and physician's satisfaction score were used to assess the results. **Results:** All the types of scars showed response in terms of reduction in size. Rolling scars responded better to PRP as compared to boxcar and ice pick scars. Estimation of improvement with Goodman and Baron's global qualitative acne scarring system showed that out of 30 patients with Grade 2 and 3 acne scars, 50% showed improvement in terms of acne scar grading at the end of the treatment. Among 25 patients with Grade 3 scars, 15 patients (60%) showed improvement by one grade. Adverse effects were mild being limited to transient pain, erythema, edema, and hyperpigmentation. **Conclusion:** The current study introduces autologous PRP as a cost-effective, well-tolerated office procedure in the treatment of acne scars without serious side effects. Further studies are needed to be carried out to compare the results of this present study.

Keywords: *Acne, acne scars, platelet-rich plasma*

PRP ĐƠN TRỊ LIỆU TRONG SẸO LÕM

- NC trên 30 mẫu
- Tiêm PRP mỗi tháng 1 lần trong 6 tháng
- Theo dõi 6 tháng sau điều trị

Table 4: Global acne scar grading comparison

Grade	Before treatment	Percent before treatment	At the end of the study	At the end of the study
1	0	0%	0	0%
2	5	16.7%	20	66.7%
3	25	83.3%	10	33.3%
4	0	0%	0	0%
Total	30	100%	30	100%

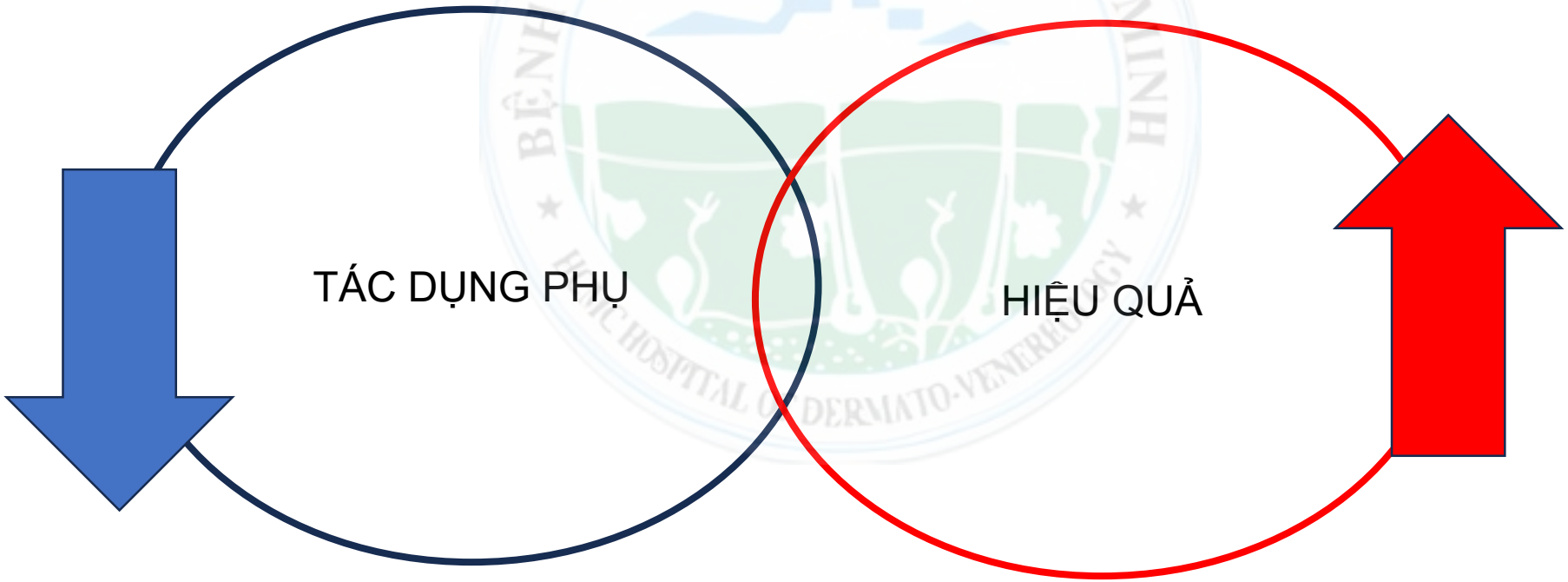
Table I. PRP with microneedling

Study design	Study groups	PRP preparation	Outcomes and follow-up	Level of evidence and adverse events
Asif et al (2016)[32] Prospective, placebo-controlled, split-face study 50 patients (mean age, 25.7 y) with Fitzpatrick skin types III-V and Goodman severity 2-4	3 monthly sessions of microneedling with intradermal injection and topical application: (1) AA-L-PRP on the right side of the face (2) Distilled water on the left side of the face	- 17 mL of blood was collected in a 20-mL syringe containing 3 mL of acid-citrate-dextrose - First spin, 293.8 $g \times 5$ min - Second spin, 690.94 $g \times 17$ min - Activator, 10% calcium chloride (0.2 mL with 2 mL of PRP) - Full-face microneedling to 1.5 mm - 1 mL of AA-L-PRP was injected intradermally, 0.1 mL/cm^2 into the right half of the face; the remaining 1 mL of PRP was allowed to form a platelet gel, and the supernatant fluid and gel were applied topically - The left side of the face was injected with distilled water intradermally - Mean PRP platelet concentration, 1.17 $\times$ 10^6/μL, 5-fold higher than the concentration from whole blood	3 mo after treatment, - The halves treated with PRP and distilled water showed 62.20% and 45.84% improvement, respectively, on the Goodman quantitative scale ($P < .00001$) - According to the Goodman qualitative scale, the PRP-treated side showed excellent response in 20 patients (40%) and good response in 30 (60%), whereas the distilled water—treated half of the face showed excellent response in 5 patients (10%), good response in 42 patients (6%), and poor response in 3 patients ($P < .00001$) Subjectively, almost all patients claimed that PRP provided greater reduction in visibility of scars than did distilled water at study completion ($P < .00001$) Follow-up, 3 mo	4 Acne flare rate, 4% PIH rate, 8% Milia rate, 2% Persistent erythema rate 2% Bruising rate, 4%

Table II. PRP with laser ablation

Study design	Study groups	PRP preparation	Outcomes and follow-up	Level of evidence and adverse events
Faghihi et al (2016)[38] Randomized, single-blinded, placebo controlled, split-face study 16 patients (mean age, 36.8) with Fitzpatrick skin types II-IV with moderate-to-severe facial atrophic acne scars, predominantly rolling and boxcar types with <20% of the icepick type	2 treatments, 1 mo apart: Both cheeks treated with ablative CO_2 laser (Q-ray; energy, 30 mJ, pixel pitch, 1; and depth, 600 μm) After the ablation, each side of the face was randomly assigned to either (1) intradermal AA-L-PRP or (2) Saline	- 20 mL of blood was collected in a tube with 2.4 mL of citrate-phosphate-dextrose - First spin, 2000 $g \times 3$ min - Second spin, 5000 $g \times 5$ min - Platelet pellet mixed with 4 mL of supernatant producing 4 mL of L-PRP - Activator, 3% CaCl, which was added to make 4 mL of AA-L-PRP - Intradermal injections of 0.2 mL were made within 2-cm intervals	Serial photography was evaluated by 2 blinded dermatologists on a quartile grading scale: - At 1 mo, a fair or good response was noted at a rate of 68% with PRP treatment and 50% on the saline-treated side ($P = .15$) - Patients noted being satisfied or very satisfied with the PRP treatment in 50% of cases and with saline in 31.2% of cases ($P = .18$) - At 5 mo, a fair or good response with PRP was seen in 87.5% of cases and with saline in 68.8% of cases ($P = .23$); no patients had an excellent outcome - Patients noted being satisfied or very satisfied with the PRP treatment in 56.2% of cases and with the saline treatment in 43.8% of cases ($P = .12$) Follow-up, 5 mo	2b More erythema with PRP on d 0, d 2, and d 4 ($P = .003$, $P = .007$, $P = .004$, respectively) More edema with PRP on d 0, d 2, and d 8 ($P = .003$, $P = .004$, $P = .004$, respectively) No other side effects

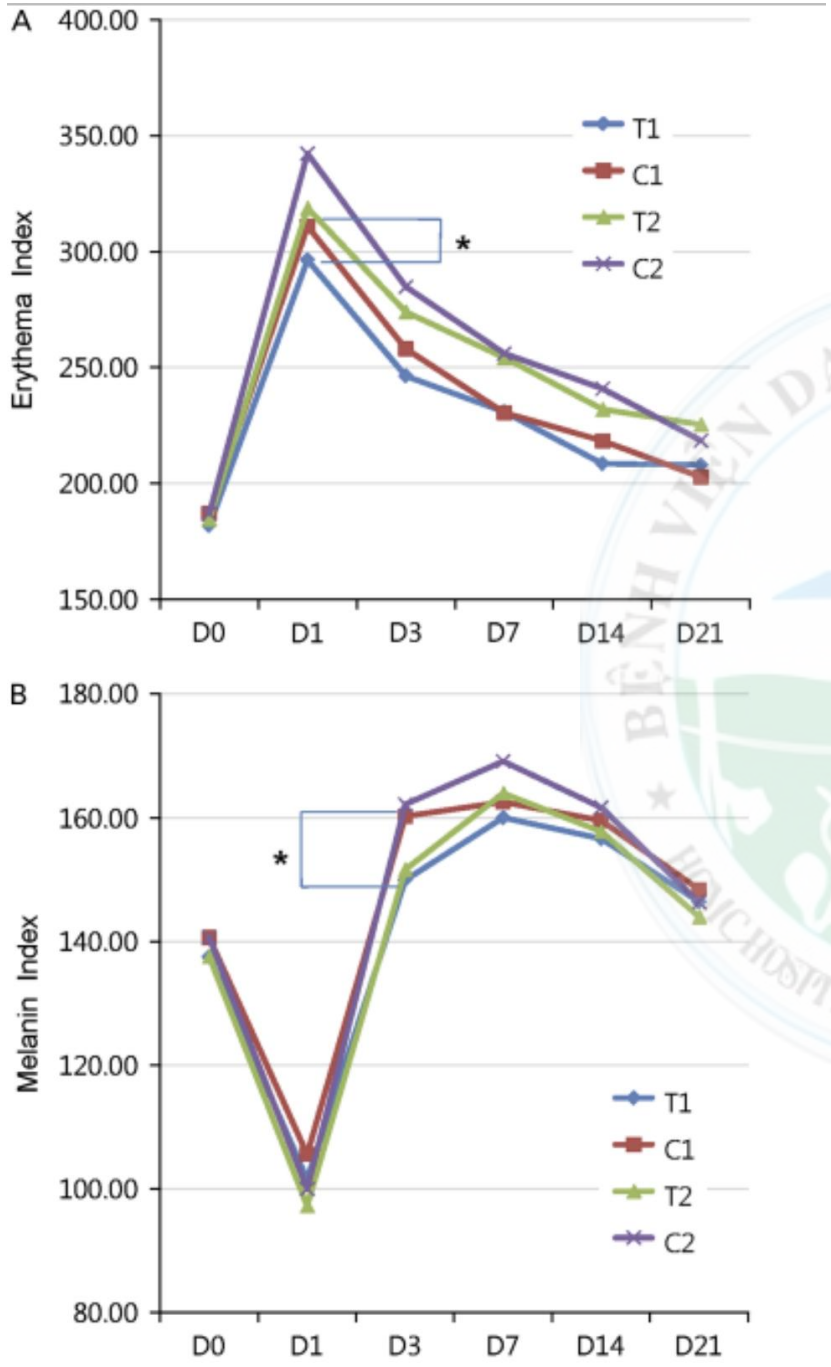
VAI TRÒ PRP TRONG ĐIỀU TRỊ SẸO LÕM



TRONG GIẢM ĐỎ VÀ SƯNG

Rapid Healing and Reduced Erythema after Ablative Fractional Carbon Dioxide Laser Resurfacing Combined with the Application of Autologous Platelet-Rich Plasma

JUNG-IM NA, MD, JEE-WOONG CHOI, MD, HYE-RYUNG CHOI, PHD, JEONG-BOK JEONG, MSC, KYOUNG-CHAN PARK, MD, PHD, SANG-WOONG YOUN, MD, PHD, AND CHANG-HUN HUH, MD, PHD*



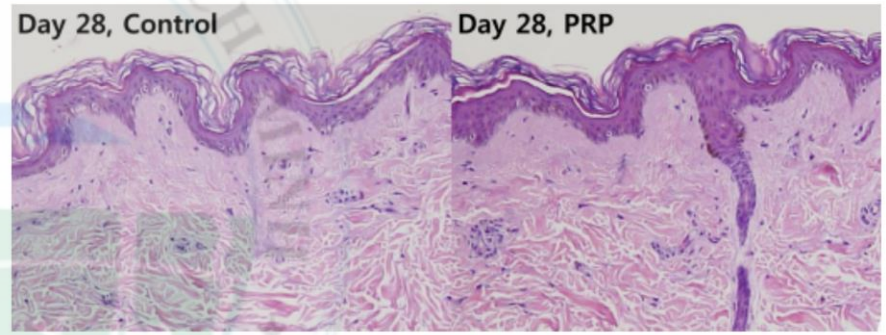


Figure 4. Hematoxylin and eosin stain of biopsy specimen from fractional carbon dioxide laser-treated sites on day 28. A thicker epidermis with a better-organized stratum corneum is observed in the platelet-rich plasma (PRP)-treated side, together with thicker bundles of dermal collagen fibers.

CƠ CHẾ GIẢM ĐỎ CỦA PRP

- Yếu tố tăng tưởng: PDGF, TGF, VEGF => kích thích tăng sinh collagen, tế bào thượng bì.
- TGF β kích thích tăng sinh nhanh màng đáy, giảm quá trình sản sinh melanin => giảm (PIH)

LÀM ĐẦY SẸO

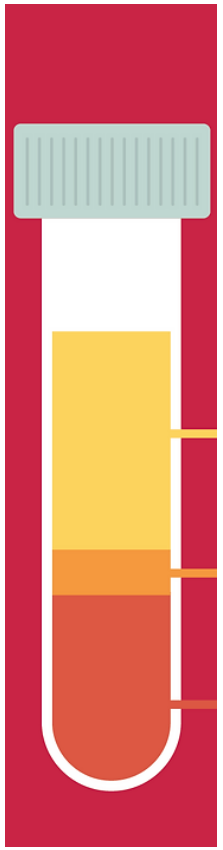
International Journal of Dermatology

Dermatologic surgery

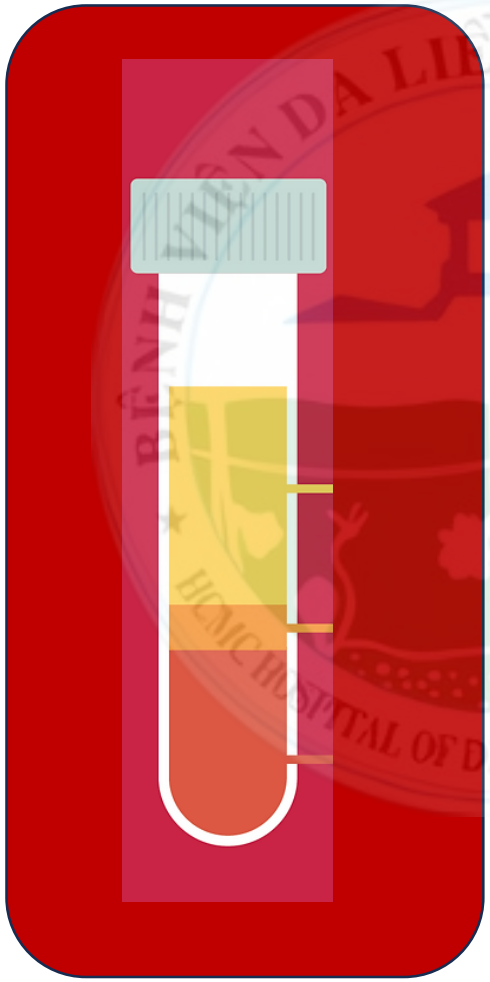
Efficacy and safety of plasma gel as a new modality in treatment of atrophic acne scars

Nashwa N. Elfar[1], MD and Eiman A. Hasby[2], MD

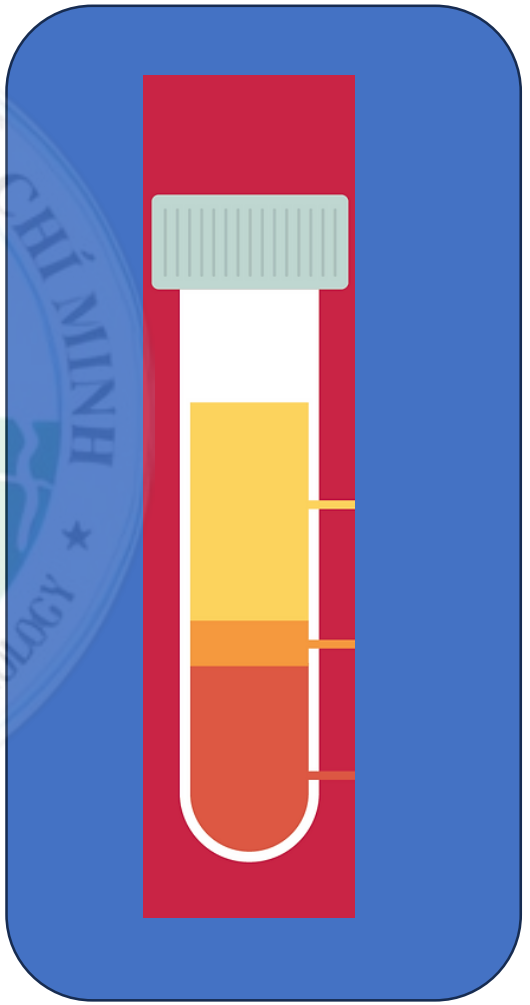
PRP GEL



1 phút – 100°C



1 phút – 8°C



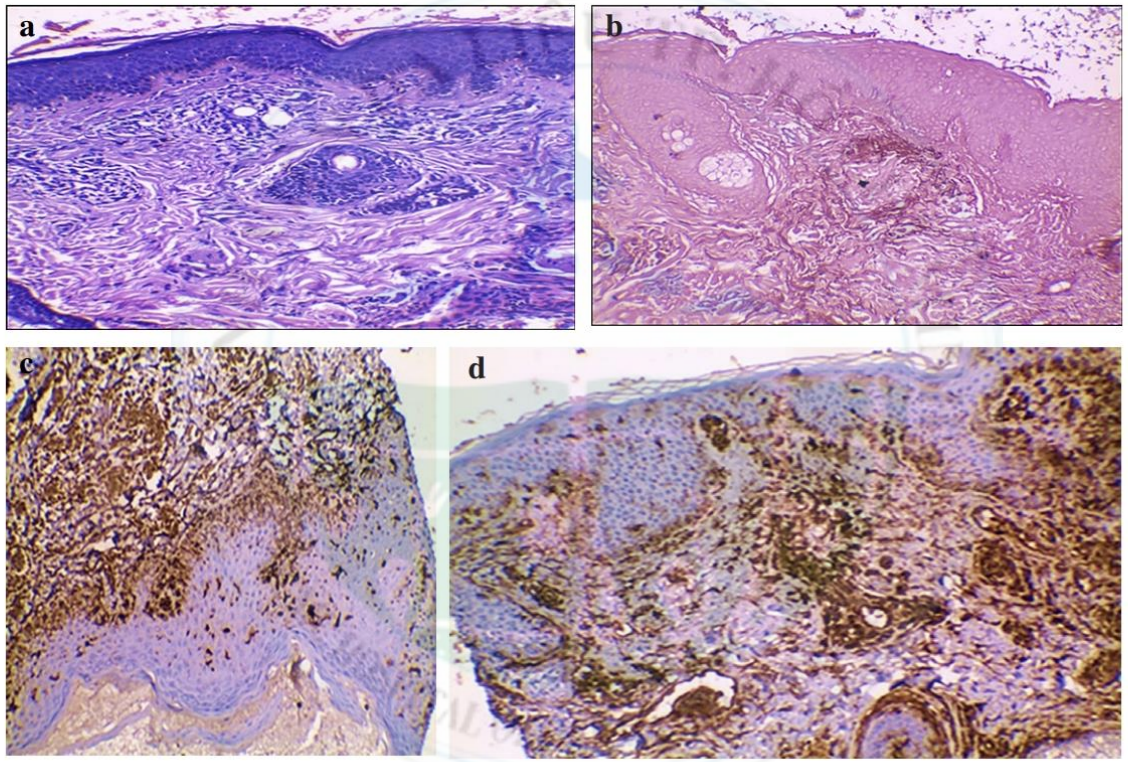
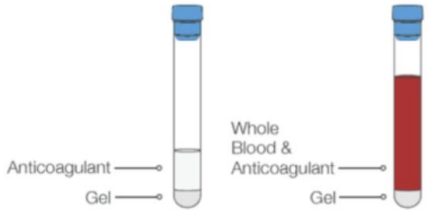


Figure 3 (a) Before treatment, perivascular inflammatory cell infiltrates mixed with fragmented collagen bundles in the whole dermis (H&E, ×200). (b) After combined technique, there was a decrease in the perivascular inflammatory cell (+1) and condensed collagen fibers (H&E, ×200). (c) Before treatment, positively stained subepithelial connective tissue with an OD of 0.307 and mean area percentage of 22.4% (Vimentin, ×200). (d) After combined technique, there was an increase in OD and decrease in the mean area of staining (Vimentin, ×200)

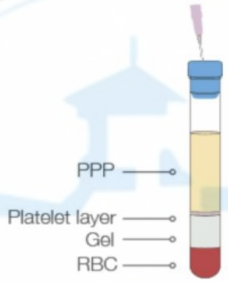
QUY TRÌNH

❶ Thu nhận máu

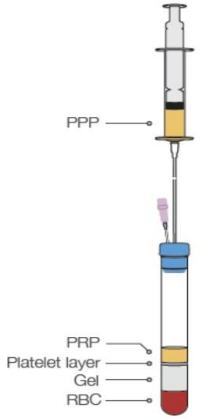


❷ Ly tâm1500g, 10'

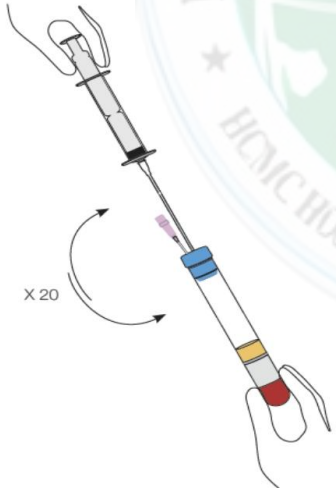
❸ Lấy ống ra khỏi máy



❹ Loại bỏ bớt PPP



❺ Đảo ống 20 lần



❻ Thu nhận PRP

Tropocells® PRP	
Platelet concentration fold*	3.2x
RBC (10^6/ul)	0.0
WBC (10^3/ul)	0.2
Granulocytes %	8.5
Mononuclear cells %	86.2
PDGF (pg/ml)	2048
VEGF (pg/ml)	220
EGF (pg/ml)	269

*STD DEV. Mean concentration using 22ml tube, removing 6-7ml of platelet poor plasma (PPP) in patients with whole blood platelet counts ranging from 169,000 to 356,000 per microliter.

KẾT LUẬN

PRP là một phương pháp an toàn hiệu quả trong điều trị sẹo lõm nhờ vào:

- Các yếu tố tăng trưởng nồng độ cao: giúp kích thích phục hồi sẹo
- Giảm tác dụng phụ của các phương pháp tái tạo da bề mặt
- Rút ngắn thời gian nghỉ dưỡng
- Nâng cao hiệu quả làm đầy sẹo lõm khi sử dụng dạng PRP gel