EFFICACY AND SAFETY OF COMBINED SUBCISION AND AUTOLOGOUS PLATELET-RICH PLASMA THERAPY FOR ATROPHIC ACNE SCARS

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Abstract

Background: Atrophic acne scars constitute a prevalent sequela of acne vulgaris, exerting substantial psychosocial morbidity, particularly among individuals with Fitzpatrick skin phototypes III–V, which predominate in South Asian populations. Objective: This study aimed to evaluate the efficacy and safety profile of combined subcision and autologous platelet-rich plasma (PRP) therapy in patients with mild-to-moderate atrophic acne scars across one, three, and six treatment sessions. Methods: A prospective observational study with repeated-measures design enrolled 50 patients (approximately 150 assessment time-points). Treatments were administered at 4-week intervals. Standardized assessments included patient-perceived percentage improvement, dermatologist-assessed percentage improvement, Clinician and Patient Global Aesthetic Improvement Scale (GAIS) scores, skin texture and tone ratings, and overall satisfaction. Adverse events were prospectively documented. Results: A clear dose-dependent therapeutic response was observed. Mean patient-perceived improvement increased from 11.14% ± 3.39% (1 session) to 19.43% ± 8.19% (3 sessions) and 28.34% ± 7.09% (6 sessions). Corresponding dermatologist-assessed improvement from 20.92% ± 3.26% to 29.11% ± 7.79% and 41.91% ± 5.37%, respectively. Mean Clinician GAIS scores progressed from 3.06 to 4.00 and 4.02. Overall satisfaction improved from 3.90 ± 1.56 to 5.51 ± 0.85 and 8.10 ± 1.54 on a 10-point scale. Recommendation rate was 100%. Side effects were mild and transient, with no serious adverse events or recurrence noted at 6-month follow-up. Conclusion: Combined subcision and PRP represents an efficacious and safe modality for the management of atrophic acne scars in Fitzpatrick skin types III–V, demonstrating progressive benefit with increasing treatment sessions.

Keywords: Acne scarring; subcision; platelet-rich plasma; atrophic scars; Goodman and Baron scale; Global Aesthetic Improvement Scale

ЭФФЕКТИВНОСТЬ И БЕЗОПАСНОСТЬ КОМБИНИРОВАННОЙ СУБЦИЗИОННОЙ ТЕРАПИИ И ТЕРАПИИ АУТОЛОГИЧНОЙ БОГАТОЙ ТРОМБОЦИТАМИ ПЛАЗМОЙ ПРИ АТРОФИЧЕСКИХ РУБЦАХ ОТ УГРЕВОЙ СЫПИ

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Аннотация
Введение: Атрофические шрамы от угревой сыпи представляют собой распространенное последствие обыкновенных угрей, вызывая значительную психосоциальную заболеваемость, особенно среди людей с фототипами кожи III–V по Фитцпатрику, которые преобладают в популяциях Южной Азии. Цель: Целью исследования было оценить эффективность и профиль безопасности комбинированной субцизионной терапии и терапии аутологичной, богатой тромбоцитами плазмой (PRP) у пациентов с атрофическими рубцами от угревой сыпи легкой и средней степени тяжести в течение одного, трех и шести сеансов лечения. Методы: В проспективное обсервационное исследование с повторными измерениями было включено 50 пациентов (приблизительно 150 временных точек оценки). Лечение проводилось с 4-недельными интервалами. Стандартизированные оценки включали процентное улучшение по мнению пациентов, процентное улучшение по оценке дерматологов, баллы по шкале глобального эстетического улучшения клиницистов и пациентов (GAIS), оценки текстуры и тона кожи, а также общую удовлетворенность. Нежелательные явления были проспективно документированы. Результаты: Наблюдался четкий дозозависимый терапевтический ответ. Среднее улучшение по мнению пациентов увеличилось с 11,14% ± 3,39% (1 сеанс) до 19,43% ± 8,19% (3 сеанса) и 28,34% ± 7,09% (6 сеансов). Соответствующее улучшение по оценке дерматологов с 20,92% ± 3,26% до 29,11% ± 7,79% и 41,91% ± 5,37% соответственно. Средний балл клинициста по GAIS увеличился с 3,06 до 4,00 и 4,02. Общая удовлетворенность улучшилась с 3,90 ± 1,56 до 5,51 ± 0,85 и 8,10 ± 1,54 по 10-балльной шкале. Уровень рекомендаций составил 100%. Побочные эффекты были легкими и преходящими, при этом в течение 6 месяцев наблюдения не было отмечено серьезных нежелательных явлений или рецидивов. Заключение: Комбинация субцизии и PRP представляет собой эффективный и безопасный метод лечения атрофических рубцов от угревой сыпи при типах кожи III–V по Фитцпатрику, демонстрируя прогрессивный эффект по мере увеличения количества сеансов лечения.

Ключевые слова: рубцы от прыщей; субцизия; богатая тромбоцитами плазма; атрофические рубцы; шкала Гудмана и Барона; Глобальная шкала эстетического улучшения

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1. Introduction

Acne vulgaris is among the most prevalent dermatological conditions worldwide, affecting approximately 80% of adolescents and young adults, with atrophic scarring representing a frequent and permanent sequela.[1] Recent meta-analyses indicate that acne scars develop in 47% (95% CI: 38–56%) of patients with acne vulgaris, the vast majority being atrophic in morphology.[2] These scars exert profound psychosocial morbidity, including diminished self-esteem, anxiety, depression, and impaired quality of life, effects that are particularly pronounced in individuals with Fitzpatrick skin phototypes III–V, which predominate in

South Asian populations.[3] In such skin types, heightened melanogenic reactivity further exacerbates post-inflammatory hyperpigmentation and scar visibility.4 Current therapeutic approaches for atrophic acne scars include mechanical release of dermal tethering bands via subcision and biological stimulation of neocollagenesis through autologous platelet-rich plasma (PRP). Subcision disrupts fibrotic tracts anchoring the epidermis to the dermis, while PRP delivers supraphysiological concentrations of growth factors such as platelet-derived growth factor (PDGF), transforming growth factor-β (TGF-β), and vascular endothelial growth factor (VEGF) that promote fibroblast proliferation, extracellular matrix remodelling, and angiogenesis.[5,6] Multiple clinical investigations have demonstrated the synergistic efficacy of combining subcision with PRP compared with either modality alone.[7-15] For instance, split-face comparative studies have shown significantly greater scar reduction (32.08% vs 8.33%) when PRP is added to subcision.[7] Similar additive benefits have been reported when PRP is combined with subcision and microneedling in grade 4 atrophic scars.[8,9] Prospective trials in Indian and Egyptian cohorts with Fitzpatrick skin phototypes III–V have confirmed dose-dependent improvements and high patient satisfaction.[10-12] Systematic reviews and meta-analyses further support the superiority of PRP-augmented subcision over monotherapy in atrophic acne scars.[13-15] Nevertheless, robust prospective data evaluating dose-response relationships across multiple treatment sessions (1, 3, and 6), employing standardized validated instruments such as the Goodman and Baron qualitative global scarring grading system[16] and the Global Aesthetic Improvement Scale (GAIS),[17] remain limited particularly within Bangladeshi or broader South Asian populations.[18-20] The present prospective observational study with repeated-measures design was therefore conducted to address this evidentiary gap. It systematically evaluates the clinical efficacy, patient-reported outcomes, and safety profile of combined subcision and autologous PRP therapy for mild-to-moderate atrophic acne scars.

2. Methods

2.1 Study Design: Prospective observational study employing a repeated-measures design.

2.2 Study Setting and Duration: Conducted at Dr. Lina's Skin and Aesthetics Center from January to December 2025.

2.3 Study Population

Inclusion criteria: Adults aged 18–40 years; Fitzpatrick skin phototype III–V; clinical diagnosis of mild-to-moderate atrophic acne scars (predominantly mixed or boxcar); baseline patient severity score ⩾6/10 or Goodman and Baron grading of mild/moderate; provision of informed consent.

Exclusion criteria: Active inflammatory acne; keloidal or hypertrophic scarring; recent isotretinoin therapy (within 6 months); coagulopathy; pregnancy or lactation; or refusal to participate.

2.4 Sample Size and Sampling: Convenience sampling yielded 50 consecutive eligible participants (approximately 150 assessment points). Sample size was aligned with comparable observational dermatological trials.

2.5 Data Collection Instruments: A standardized questionnaire captured demographic variables, scar characteristics, treatment parameters, patient- and clinician-rated outcomes (including Goodman and Baron scale and GAIS), satisfaction metrics, and adverse-event reporting.

2.6 Data Collection Procedure: Written informed consent was secured. Baseline clinical photography and grading were performed. Subcision was executed under local anaesthesia using an 18–20-gauge needle to release tethering bands, immediately followed by intradermal injection of autologous PRP (prepared by double-spin centrifugation to achieve 4–6× baseline platelet concentration). Sessions were repeated at 4-week intervals. Assessments occurred following completion of 1, 3, and 6 sessions, with follow-up evaluations at 1, 3, and 6 months. All data were recorded in a structured Microsoft Excel database.

2.7 Variables: Independent variables comprised number of sessions and baseline characteristics. Dependent variables included percentage scar improvement (patient- and dermatologist-rated), GAIS scores, skin texture/tone improvement, satisfaction, and adverse events.

2.8 Statistical Analysis: Descriptive statistics (means ± standard deviations, frequencies, and percentages) were computed using Microsoft Excel. Trends across session numbers were examined. Inferential testing was not performed given the observational framework.

2.9 Ethical Considerations: The study adhered to the principles of the Declaration of Helsinki. Informed consent was obtained from all participants. Institutional ethical oversight was maintained at the clinic level.

3. Results

A clear dose-dependent therapeutic response was observed. Mean patient-perceived improvement increased from 11.14% ± 3.39% (1 session) to 19.43% ± 8.19% (3 sessions) and 28.34% ± 7.09% (6 sessions). Corresponding dermatologist-assessed improvement from 20.92% ± 3.26% to 29.11% ± 7.79% and 41.91% ± 5.37%, respectively. Mean Clinician GAIS scores progressed from 3.06 to 4.00 and 4.02. Overall satisfaction improved from 3.90 ± 1.56 to 5.51 ± 0.85 and 8.10 ± 1.54 on a 10-point scale. Recommendation rate was 100%. Side effects were mild and transient, with no serious adverse events or recurrence noted at 6-month follow-up.

3.1 Participant Characteristics

Fifty patients completed the protocol (mean age 22.7 years). Demographic and baseline characteristics are summarized in Table 1.

Table 1: Demographic and baseline characteristics of the study cohort (n = 50)

Characteristic	*Value*
Mean age, years	22.7
Gender distribution (Male/Female/Other)	29/20/1
Fitzpatrick skin phototype (III/IV/V)	8/34/8
Scar morphology (Mixed/Boxcar)	46/4
Mean scar duration, years	8.7
Previous treatments (Yes/No)	18/32
Mean baseline severity score (1–10)	7.1
Baseline grading (Mild/Moderate)	12/38

3.2 Efficacy Outcomes

Therapeutic response exhibited a pronounced dose-dependent pattern (Table 2).

Table 2: Mean outcome parameters stratified by number of treatment sessions

Parameter	1 Session (n≈50)	3 Sessions (n≈50)	6 Sessions (n≈47)
Patient-perceived % improvement (SD)	11.14 ± 3.39	19.43 ± 8.19	28.34 ± 7.09
Dermatologist-assessed % improvement (SD)	20.92 ± 3.26	29.11 ± 7.79	41.91 ± 5.37
Clinician GAIS (mean)	3.06	4.00	4.02
Patient GAIS (mean)	2.68	3.12	3.48
Overall satisfaction (1–10) (SD)	3.90 ± 1.56	5.51 ± 0.85	8.10 ± 1.54

Figure 1 showed mean outcome parameters stratified by number of treatment sessions in patients receiving combined subcision and autologous platelet-rich plasma therapy for atrophic acne scars.

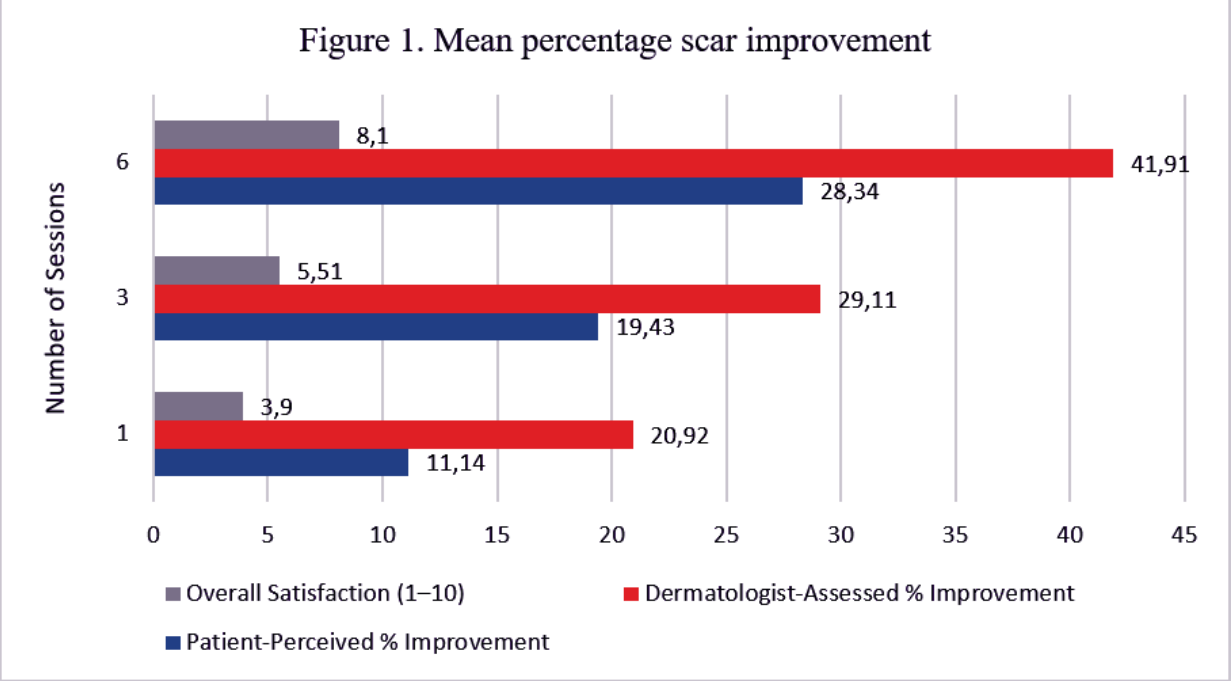

Figure 1. Mean percentage scar improvement (patient-perceived versus dermatologist-assessed) and overall satisfaction by number of treatment sessions. Error bars indicate standard deviation.

No instances of scar worsening were recorded. Recurrence or deterioration was absent at 6-month follow-up.

3.3 Safety Profile

Adverse effects were uniformly mild and self-limiting, consisting primarily of transient pain or bruising. Mean duration was 3–4 days. No infections, dyspigmentation, or serious adverse events occurred.

4. Discussion

Combined subcision and autologous PRP therapy demonstrated a clear dose-dependent improvement in mild-to-moderate atrophic acne scars in Fitzpatrick skin phototypes III–V. Patient-perceived improvement increased from 11.14% after one session to 28.34% after six sessions, with dermatologist-assessed improvement rising to 41.91%. Clinician GAIS scores reached 4.02 and overall satisfaction 8.10/10, with 100% recommendation. [5, 6] These findings align with prior studies showing superior outcomes when PRP is added to subcision. [7, 10] The combination was safe, with only mild transient adverse effects and no dyspigmentation or recurrence at 6 months, supporting its use in South Asian skin types. [3, 4, 13]

5. Conclusion

Combined subcision and autologous PRP constitutes an effective and well-tolerated intervention for atrophic acne scars in Fitzpatrick skin phototypes III–V. Incremental gains with up to six sessions support a staged treatment approach. Larger-scale controlled studies are recommended to further establish optimal protocols and durability.

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Conflict of Interest

The authors declare no conflicts of interest.

References

1. Leyden JJ. A review of the use of combination therapies for the treatment of acne vulgaris. J Am Acad Dermatol. 2003;49(3 Suppl): S200-S210.
2. Liu L, et al. Prevalence and risk factors of acne scars in patients with acne vulgaris: a systematic review and meta-analysis. Skin Res Technol. 2023;29(6): e13386.
3. Zip C. The impact of acne on quality of life. Skin therapy letter. 2026;12(10).
4. Pirunthan Pathmarajah, Peterknecht E, Cheung K, Sarak Elyoussfi, Muralidharan V, Bewley A. Acne Vulgaris in Skin of Color: A Systematic Review of the Effectiveness and Tolerability of Current Treatments. The Journal of Clinical and Aesthetic Dermatology. 2022 Nov;15(11):43.
5. Vashisht A, et al. PRP and its benefit as an adjunctive therapy with subcision and microneedling in atrophic acne scars. J Cutan Aesthet Surg. 2024;17(1):1-8.
6. Long T, et al. Platelet-rich plasma in noninvasive procedures for atrophic acne scars: a systematic review and meta-analysis. J Cosmet Dermatol. 2020;19(1):1-10.
7. Yadav MK, et al. Efficacy of autologous platelet rich plasma with subcision vs platelet rich plasma with microneedling in atrophic acne scars: a single-center prospective intra-individual split-face comparative study. J Cutan Aesthet Surg. 2024;17(1):9-15. (PMC11126223)
8. Bhargava S, et al. Subcision and microneedling as an inexpensive and safe combination to treat atrophic acne scars in skin of color. J Clin Aesthet Dermatol. 2019;12(8):34-39.
9. Gomaa NS, et al. Combined subcision with platelet rich plasma injection in the treatment of atrophic acne scars. J Egypt Womens Dermatol Soc. 2025;22(1):45-52.
10. Nandini AS, et al. Split-face comparative study of efficacy of platelet-rich plasma with microneedling versus microneedling alone in the treatment of acne scars. J Cutan Aesthet Surg. 2021;14(2):198-204. (PMC8149994)

11. Gandhi RN, et al. A split face study to compare the efficacy of platelet rich plasma with normal saline as an intradermal injectable in the treatment of atrophic acne scars. J Cutan Aesthet Surg. 2022;15(4):370-375.
12. Manishaa V, et al. Evaluation of the efficacy of platelet-rich plasma injections with and without microneedling for managing atrophic facial acne scars: a prospective comparative study. Cureus. 2024;16(5):e61234.
13. Ahramiyanpour N, et al. Subcision in acne scarring: a review of clinical trials. J Cosmet Dermatol. 2023;22(3):744-751.
14. Attia E, et al. Atrophic postacne scar treatment: narrative review. JMIR Dermatol. 2024;7:e49954.
15. Ahramiyanpour N, et al. Optimizing post-acne scar treatment: a pilot comparative study of Endo-RF subcision with and without PRP. J Cosmet Dermatol. 2025;24(1):e15678. (PMC12264461)
16. Goodman GJ, Baron JA. Postacne scarring: a qualitative global scarring grading system. Dermatol Surg. 2006;32(12):1458-1466.
17. Rullan PP, et al. A combination approach to treating acne scars in all skin types: chemical reconstruction of skin scars, subcision, and microneedling. J Clin Aesthet Dermatol. 2020;13(7):E56-E60. (PMC7380695)
18. Sharma S, et al. A split face comparative study to evaluate the efficacy of platelet rich plasma with microneedling versus microneedling alone in the treatment of acne scars. J Pak Assoc Dermatol. 2020;30(3):456-462.
19. Dhamale SS, et al. A study to evaluate various upcoming therapies for acne scars. Clin Dermatol Rev. 2020;5(1):45-50.
20. Sanad EMK, et al. Atrophic acne scars management: a systematic review. Benha Med J. 2025;42(1):1-12.

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