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Original Research Paper

Effect of prp on striae gravidarum: a case report

Anggrieni Wisni*, Sekar Sari Palupi
Medical Faculty, Universitas Aisyiyah Yogyakarta, Yogyakarta, Indonesia
anggrieniwisni@unisayogya.ac.id

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Abstract
Striae gravidarum is a common skin concern after pregnancy, characterized by dermal atrophy and changes in color, texture, and elasticity. Platelet Rich Plasma (PRP) is a regenerative treatment that has shown promise in improving skin quality affected by hormonal and mechanical changes postpartum. This case report presents a 26-year-old female patient with striae gravidarum across the abdominal region following her first pregnancy. The patient received a single session of intradermal PRP injection, followed by clinical evaluation one month later. Clinical improvement was noted through both qualitative and quantitative assessments. Visually, there was fading of striae color from dark brown to light brown, surface smoothing, and increased skin elasticity. The modified Sawetz score improved from 10 to 7, while the Davey distribution score remained unchanged at 8. Qualitative evaluation indicated significant aesthetic improvement. This happens because changes in clinical aspects often occur before changes in distribution. A patient satisfaction questionnaire completed after one month showed maximum scores across all domains, reflecting high acceptance and satisfaction with the procedure. No adverse effects were reported. In conclusion, PRP appears to be a safe, well-tolerated, and effective option for early improvement of striae gravidarum. Greater benefits may be expected with multiple sessions. Further studies are recommended to support these findings in broader populations

Keyword: striae gravidarum, PRP, Platelet Rich Plasma, Indonesia, case report, patient satisfaction

1. Introduction

Stretch marks are often associated with pregnancy, pregnancy, obesity, hormonal changes and other skin coloration. Although not dangerous, stretch marks can cause significant psychological distress on the patient. *Striae distensa*, also known as dermal atrophy scarring, is a common type of striae atrophy that appears on the skin. Over time, striae distensae change from pink (striae rubra) to white (*striae alba*) (El Nagdy et al., 2023) Stretch marks, also called stretch scars, are linear lesions on atrophied skin that are histologically characterized by epidermal atrophy, loss of flexibility and abnormalities in the connective tissue architecture. The exact pathophysiology of the striae is not yet understood, but there are some indications that excess hormones, mechanical stress, and genetic susceptibility all play a role in the formation of the disease. Several treatments have been explored, but none have shown significant benefits (Borrelli et al., 2021) Women are at higher risk for developing stretch marks due to hormonal changes during puberty, pregnancy, and obesity (2.5 times higher). The prevalence of stretch marks in pregnant women is between 43% and 88%, and in adolescents between 6% and 86%. A prevalence of 43% has been recorded among those with a BMI between 27 and 51, who are considered obese. There is also wide variation in reported prevalence among other patient populations, including adult men and women who are not pregnant (Borrelli et al., 2021)

Platelet Rich Plasma (PRP) is an exciting new treatment option in dermatology. PRP is an autologous serum with platelet content above the baseline concentration (150,000-350,000/uL). Many

dermatological diseases, including wound healing, inflammation reduction, and cosmetic purposes, have benefited from their application (Edelblute et al., 2015)

Platelet Rich Plasma (PRP) is a part of plasma from blood taken from the patient itself (autologous) with a fairly high platelet or platelet concentration content, which is 3 to 5 times greater than the concentration of platelets in the blood (Vladulescu et al., 2023). *Autologous Platelet Rich Plasma* (PRP) is a process of liquid fractions processed from autologous peripheral blood (taken from the patient's own) with platelet concentrations above the threshold. PRP therapy has been used for a variety of medical indications for more than 30 years, resulting in great interest in the potential of autologous PRP in regenerative medicine (Everts et al., 2020).

Platelets are cells with a size of 1.5-3 μm, shaped like a disc without a nucleus, produced in the bone marrow of megakaryocytes. The normal number of platelets in the blood ranges from 150,000 - 450,000 cells/μL. blood. PRP has an abundant *Growth Factor* (GF) content, including *Platelet Derived Growth Factor* (PDGF), *Transforming Growth Factor* (TGF), *Vascular Endothelial Growth Factor* (VEGF), *Epithelial Growth Factor* (EGF) and *Insulin-Like Growth Factor* (IGF). Because of this abundant GF content, the administration of PRP is considered more effective when compared to the administration of a single GF preparation. PRP is also known to contain leukocytes that function in synthesizing interleukins as part of a non-specific immune response. The content in PRP has fungi in accelerating endothelial, epithelium, and epidermal regeneration, stimulating angiogenesis, increasing collagen synthesis, tissue healing, reducing scarring in the skin, and can increase hemostatic response to injury (Pavlovic et al., 2016)

The preparation of Platelet Rich Plasma is carried out by centrifugation of the patient's blood. This can be done in a variety of ways. The methods differ in terms of duration, rotation speed, and how often the centrifuge is stopped and turned on. To prevent platelets from bursting and secreted proteins from being released prematurely, it is recommended to use low centrifugation speeds. When blood given anticoagulants is centrifugated, three different layers will accumulate: plasma, red blood cells, and white blood cells and platelets. Three different layers of plasma can be identified depending on the platelet concentration. The most, moderate, and least abundant portions are platelet-poor, moderate, and platelet-rich, respectively. With a pipette, we can divide the sample into parts of the component and store it in a separate sterile tube. PRP is activated by platelet activators such as calcium chloride or thrombin so that platelets degranulate and release growth factors and other bioactive substances (Wulandari & Oktariana, 2024).

PRP improves clinical appearance in striae distensae because the growth factors released by alpha PRP granules play an important role in mediating tissue repair. These growth factors can be used therapeutically to stimulate cell proliferation, migration, and differentiation, all of which contribute to the body's innate ability to repair. The wound-healing properties of Platelet Rich Plasma, which affect endothelial cells, erythrocytes, and collagen, may contribute to the resolution of local chronic inflammation that is hypothesized to have a role in the development of stretch marks. This synergistic treatment approach can also promote neogenesis and collagen redistribution (Pengcheng et al., 2020) At random, Ibrahim et al. divided 68 striae patients into three groups. Three groups of patients were studied: group I (23 patients) treated with intradermal injection of PRP; group II (34 patients treated with microdermabrasion); and group III (11 patients treated with intradermal injections of PRP and microdermabrasion in the same session). A recent study found that Platelet Rich Plasma (PRP) alone was more successful than microdermabrasion alone in treating stretch marks, and that the combination of the two was even more effective in the short term After 3 months, PRP injections caused the elastic fibers to grow long and thick, multiply, and rearrange themselves uniformly (Ibrahim et al., 2015)

Gamil et al. evaluated the efficacy and safety of intralesional injection of Platelet Rich Plasma (PRP) compared to topical tretinoin (0.05 percent) in the treatment of striae. All 30 patients who

participated in the study showed bilateral striae distensae. At the end of the study, it was concluded that the use of topical tretinoin and PRP was safe, but PRP had better results in the treatment of striae (Gamil et al., 2018).

Additionally, other research has shown that PRP injections can increase the production of collagen and elastin, which play an important role in the repair of skin tissue that experiences stretch marks (Sawetz et al., 2021) Nonetheless, PRP therapy is not completely free of side effects. Some commonly reported side effects include pain, redness, and swelling at the injection site, as well as bruising (Sawetz et al., 2021) A comparative study found that PRP therapy was more effective compared to topical application of tretinoin 0.1% in the management of striae gravidarum, with better results in improvement of skin texture and elasticity (Agarwal et al., 2024).

Various studies in the past decade have evaluated the effectiveness of Platelet Rich Plasma (PRP) in the treatment of *striae dystensae*, both as a single therapy and in combination. However, most of these studies did not group *striae* by etiology, so the specific effects of PRP on *striae gravidarum* as a pregnancy-related *form of striae* have not been explored in depth.

In our initial search using various scientific search engines such as PubMed, ScienceDirect, Google Scholar, as well as national journal repositories such as Garuda and Neliti, we did not find any scientific publications from Indonesia that specifically examined the use of PRP for *striae gravidarum*. Previous local studies, such as by Rohmah (2023), discussed PRP for atrophic acne scars using microneedling, while Juniantari (2024) reported PRP's effects on facial skin elasticity and hydration as a rejuvenation approach. Dewi (2021) highlighted the potential of PRP in female cosmetic skin treatment. Meanwhile, Yusrawati (2021) examined the legal and Islamic ethical perspectives on PRP therapy in Indonesia, affirming its high cultural and religious acceptance. In this context, the current study is a pioneer in applying PRP to address *striae gravidarum*, a common postpartum condition that remains underrepresented in Indonesia's scientific literature. Through a comprehensive clinical assessmentincluding quantitative scoring, qualitative visual evaluation, and patient satisfaction analysis this study offers a novel and relevant contribution to evidence-based aesthetic medical practice in Indonesia (Dewi, 2021; Juniantari et al., 2024; Rohmah, 2025; Yusrawati, 2022).

Thus, this study is present to fill the gap in the scientific literature through a structured case report approach that assesses intraindividually the effects of PRP on *striae gravidarum*, accompanied by visual documentation and subjective assessment of patients.

2. Research Methods

This study is a single-case clinical report using a descriptive qualitative and quantitative approach. The population included patients presenting to the Aesthetic Outpatient Clinic of RSU Rizki Amalia Medika with complaints of *striae gravidarum*. Sampling was carried out using accidental sampling, and in this report, one eligible participant who met the criteria and consented to the procedure and evaluation was included. In accordance with the nature of a case report, the use of a single sample was deemed sufficient to illustrate the observed clinical outcome. Detailed and systematic evaluation was performed at baseline and one month after the intervention, which provides sufficient depth and context for clinical interpretation and scientific insight.

Although this study only involved one subject, a comprehensive approach was employed, including intradermal PRP injection, clinical evaluation using both quantitative (Davey Score and modified Sawetz scoring) and qualitative (visual assessment by the physician) methods, along with a patient satisfaction questionnaire. The study period ran from January to December 2025 at RSU Rizki Amalia Medika.

This research was conducted following ethical principles for biomedical research involving human subjects. Ethical approval was obtained from the UNISA Reasearch Committee with letter number

No.4590/KEP-UNISA/VI/202. Written informed consent was obtained from the participant prior to the procedure, including consent for clinical documentation and publication of the anonymized case.

2.1.Tools:

- Vacutainer tube**:** For venous blood collection.
- Syringe**:** To draw and inject blood or PRP.
- Centrifuge**:** To separate blood components into Platelet Rich Plasma.
- Mesotherapy needle**:** A small (30-32G) fine needle for PRP injection.
- Microneedling tools are used to increase the penetration of PRP into the skin.
- Antiseptic devices**:** Including sterile cotton swabs, alcohol swabs, or povidone-iodine solution.

Materials:

- Patient's blood**:** Usually taken 10-20 ml.
- Stack EDTA with gel separator (PRP tube**):** Such as sodium citrate or EDTA in a vacutainer tube to prevent blood clotting. Gel separators are used in centrifuge tubes to separate blood components.
- Lidocaine or anesthetic cream**:** To reduce pain during injections.
- Physiological solution (saline): To clean the injection area.
- Sterile gauze**:** To clean or cover the procedure area.
- Antiseptic solution**:** To cleanse the skin area before and after injection

2.2.Inclusive Criteria:

- Women with striae gravidarum who have completed at least 6 months of pregnancy.
- Age 20-40 years.
- Have no active skin disease in the area to be treated.
- Have no history of blood clotting disorders or autoimmune diseases.

2.3.Exclusion Criteria:

- Pregnant women.
- Have an allergy to the ingredients used during the procedure.
- History of infection in the treatment area in the last 6 months.

2.4.Recruitment Process

The researcher obtained research subjects by *accidental sampling* through patients who visited the aesthetic polyclinic of Rizki Amalia Medika Hospital with complaints of striae gravidarum. Prospective research subjects are given an intuition about the research to be conducted. The information provided is the purpose, benefits, and risks of the research.

Subjects who meet the criteria and are willing to participate will sign a *letter of* willingness. This form includes:

- Research objectives.
- Procedures to be performed.
- Potential risks and benefits.
- Subject's right to resign at any time.
- The researcher ensures that the subject fully understands the contents of the form before the signature is made.

The method of making PRP for treatment application requires about 1,000,000 platelets/µL. If whole blood contains 200,000±75,000/µL, then PRP for treatment purposes has at least a percentage increase of about 400% of the total initial platelet count. The double centrifugal method is a method that can be used to produce PRP. The centrifuge is carried out in stages at different speeds. In the first stage, centrifugation is done with a slow spin *(soft spin)* to separate the erythrocytes and the plasma containing platelets, leukocytes and clotting factors. In the second stage, trifuguation is carried out by performing a quick spin *(hard spin)* to separate platelets, leukocytes and a small amount of residual erythrocytes from the plasma. There are a wide variety of PRP manufacturing procedures, with varying degrees of variation in centrifuge speed, temperature, and addition of platelet agonists, and there is still no research on this. Although there are many variations of the above procedures, they all follow the same stages of the process, namely blood draw, the first centrifugation to separate erythrocytes, the second centrifugation to concentrate platelets, and/or the addition of certain components. The initial process of making PRP is by taking venous blood from the patient and inserting it into an EDTA tube with an anticoagulant *acid citrate dextrose* (ACD). Then the blood is left at room temperature, both before and during separation. The blood in the tube is then first centrifugal at a rate of 400g for 10 minutes. After centrifus, there are 3 different layers of fluid, namely the bottom layer consists of erythrocytes (specific gravity=1.09), the middle layer is *the buffy coat* which is composed of platelets and leukocytes (specific gravity=1.06) and the top layer is plasma (specific gravity=1.03) composed of a mixture of PRP and *Platelet Poor Plasma* (PPP). The plasma and *buffy coat were* transferred to another sterilized tube, then centrifuged at a speed of 800g for 10 minutes. After the second centrifuge, platelet deposits and a small amount of erythrocyte at the bottom of the tube are obtained about 1/3 of the total plasma volume called PRP while 2/3 of the volume at the top is called *platelet poor plasma* (PPP). The PRP layer is taken and transferred to the test tube and stored at a temperature of -20 until the time of use (Wulandari & Oktariana, 2024).

PRP therapy process:

a) Preparation:

- Subjects are asked to rest and ensure the striae area is free of skincare products on the day of the procedure.
- The treatment area is cleaned with an antiseptic solution.

b) PRP Procedure

Platelet Rich Plasma (PRP) procedures for the treatment of striae distensae, including striae gravidarum, generally involve the following stages:

- Blood Draw: Approximately 10-20 ml of the patient's venous blood is taken using aseptic techniques.
- Blood Processing: The blood taken is then put into a special tube and processed using a centrifuge to separate the blood components. This process produces Platelet Rich Plasma (platelets), which contain a variety of growth factors essential for tissue regeneration.
- Preparation of the Treatment Area: The area of the skin to be treated is thoroughly cleaned with an antiseptic to prevent infection.
- Local Anesthesia: To reduce discomfort during the procedure, topical or local anesthesia may be applied to the area to be treated.
- PRP injection: The processed PRP is then injected intradermally into the striae area using a fine needle. Injection techniques can vary, including mesotherapy methods or with the help of microneedling tools to improve the penetration and effectiveness of PRP.

- Post-Procedure Treatment: After the injection, the treated area may be slightly reddened or swollen, but this is usually temporary. Patients are advised to avoid direct sun exposure and the use of harsh skin care products for a few days after the procedure.

c) PRP Injection:

- Anesthetic cream is applied to the area of the stretch marks and left for 20-30 minutes.
- PRP is injected intradermal into the striae area using a fine needle (32G).
- Injection techniques are performed in serial or mesotherapy to ensure an even distribution of PRP.

d) Micronedle the striae section evenly

e) Procedure completed

f) Assessment After 1 Month

- The subjects returned for an evaluation of the skin condition.
- Assessments include clinical examination (skin elasticity, color, and texture) and photographic documentation of the treatment area using standard cameras.

g) Subjects were asked to provide subjective assessments using a likert scale questionnaire (e.g., visual improvement, self-confidence).

3. Result and Discussion

3.1.Result

A 26-year-old woman came in with a complaint of stretch *marks* in the abdominal area that arose after her first pregnancy. The patient is G1P1A0 with the first child being 18 months old. The lesions appear to spread evenly throughout the abdominal region, including the periiumbilic, supraumbilic, and lateral abdomen. The color of the lesions is predominantly dark brown to blackish, with complaints of mild itching that appear intermittently. Patients have never received medical or cosmetic treatment before, and express a desire to fade the appearance of stretch marks for aesthetic and confidence reasons.

The nutritional status of the patient was classified as overweight (weight 70 kg, height 155 cm; BMI ≈ 29.1 kg/m²). No contraindications to PRP procedures were found, such as active infections, coagulation disorders, or a history of allergies. After being given a thorough explanation of the PRP procedure, including the benefits, risks, and other therapeutic alternatives, the patient expresses his/her consent in writing through informed consent.

The assessment is carried out by a dermatologist who is a member of the research team. Clinical Description (qualitative): The location *of stretch marks* is widespread in the abdominal region (supraumbilic, infraumbilic, and paraumbilical). Symmetrical, multiple, horizontal–oblique distribution.Lesions are linear in shape, varying in length ±5–15 cm, width ±0.3–0.7 cm. The tip is irregular yet firm. The majority of lesions are blackish-brown (*postinflammatory hyperpigmentation*), indicating a hyperpigmentative phase of striae alba**.** The skin in the lesion area appears to have epidermal atrophy, appears to be slightly concave, does not arise. The surface of the skin is smooth with decreased elasticity. There are no active erythema, excoria, or secondary infections. Patients complain of intermittent mild itching**,** without pressure pain, bleeding, or discharge. Clinical diagnosis of advanced phase striae gravidarum (hyperpigmentative alba type), post-gestational onset, exnsive and multiple.

Quantitative Assessment (Refers to the Scoring System)

1. **Davey Score (classification of the distribution of striae in the abdomen)(Davey, 1972)**

   Scores of 0–2 are given for each quadrant (top–bottom right–left):

   - None: 0
   - <50% quadrant surface: 1

- 50% quadrant surface: 2

Table 1. Davey Score Before PRP Tratment

Quadrant	Valuation (%)	Score
Top Left	>50	2
Top Right	>50	2
Bottom Left	>50	2
Bottom Right	>50	2
Total Score		**8/8**

Interpretation: 8/8 Davey Score mean severe striae gravidarum

2. Atrophy & Pigmentation Severity Index (Sawetz et al., 2021 modification) (Sawetz et al., 2021)

Table 2. Sawetz Atrophy and Pigmentation Severity Index Before PRP Treatment

Parameter	Scale	Score
Lesion Length	>10 cm	2
Lesion Width	>0.5 cm	2
Color	Dark Brown (hiperpigmentasi)	2
Atrofi	Clearly visible (fine concave)	2
Distribution	Diffuse of the entire abdomen	2
Total Score		10/10

Interpretation: 10/10 Sawetz Atrophy Severity Index mean advanced, extensive and cosmetically significant lesions.

Based on morphological criteria, distribution, and scoring assessments, patients were diagnosed with advanced hyperpigmentative alba-type striae gravidarum with widespread distribution and significant cosmetic impact. The lesion is not inflammatically active, but it shows the characteristics of chronic atrophy and hyperpigmentation.

The PRP procedure is performed once. The patient's venous blood as much as 30 ml was taken using aseptic techniques, then centrifugated to obtain a fraction of Platelet Rich Plasma (PRP). The abdominal area is cleaned using an antiseptic and given topical anesthesia in the form of lidocaine cream before injection. PRP was injected intradermal using a 32G needle into the entire area of the striae gravidarum lesion with a serial technique for even distribution. No serious complaints were found during or after the procedure; Patients only feel mild pain and local redness that subsides within 1–2 days.

The evaluation was carried out one month after the action. At the second meeting, a reassessment of the stria was carried out. The assessment is carried out by a dermatologist who is a member of the research team.

Figure 1. Front Side of the Belly

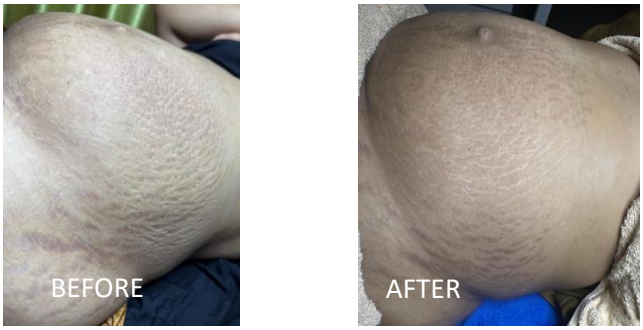

Figure 2. Right Side Of The Abdomen

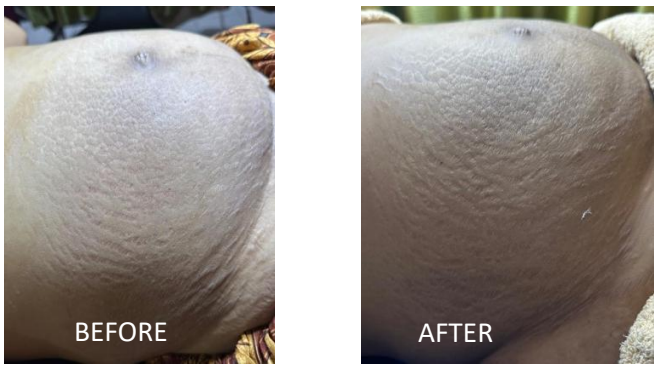

Figure 3. Left Side of The Abdomen

A physical examination one month after the Platelet Rich Plasma (PRP) action showed that the lesions *of the striae gravidarum* still appeared as multiple linear lines that spread symmetrically throughout the abdominal region. Lesions remain visible in the periumbilical, supraumbilic, infraumbilic, and right-left lateral regions. Morphologically, skin abnormalities show changes compared to before the action. The color of the lesions appears brighter, from previously dark brown-black to homogeneous light brown. The surface of the skin looks flatter visually and feels smoother on palpation. Skin atrophy that was previously deep, appears more superficial, although it is still clinically recognizable. The length of the lesion did not change significantly (±5–15 cm), but there was a narrowing of the width of the lesion in some areas from the previous ±0.7 cm to ±0.3–0.5 cm. Skin elasticity is improved, which is characterized by a more supple skin stretching response during dynamic inspection. The distribution of lesions remained thorough and wide, without any reduction in the number of quadrants involved. No new lesions or signs of post-action irritation were found. The skin in the injection site showed perfect healing, without erythema, scarring, or post-procedure hyperpigmentation. Patients do not complain of itching or other uncomfortable sensations. Visual evaluation is performed directly by the examining physician in the action room, by comparing the photo documentation before and after the procedure.

The results of the examination showed visual improvements in the appearance of the skin, especially a decrease in color intensity and an increase in elasticity in some areas. Here are the results of the comparison before and after PRP procedure therapy

Table 3. Clinical Parameters Before and After PRP Treatment

Clinical Parameters	Before PRP	After PRP
Lesion Color	Dark brown to blackish (*post-inflammatory hyperpigmentation*)	Becomes light brown, more resembling the surrounding skin tone (homogeneous pale)
Skin Texture	Rough surface, appears to be mild atrophy, such as thin indentations	Flatter and smoother surfaces visually and palpation
Skin Elasticity	Decreased elasticity, skin appears less supple when stretched	Improved, more supple skin during inspection and palpation
Distribution of Lesions	Thorough (diffuse) of the entire abdomen, transverse and symmetrical	Reduced appearance in the supraumbilical and lateral areas
Subjective complaints	Occasional mild itching	No subjective complaints
Clinical Conclusions	Striae gravidarum active, broad, atrophious appearance	Lesions are smoother, color decreased, do not appear active

Quantitative Assessment 1 month post-PRP

1. **Davey Score – Distribusi Striae Abdomen**

The assessment showed no significant change in the extent of lesion distribution.

Table 4. Davey Score Before and After PRP Treatment

Quadran Abdomen	Before PRP	After PRP
Top Left	2	2
Top Right	2	2
Bottom Left	2	2
Bottom Right	2	2
Total Score	**8**	**8**

Interpretation: The distribution and number of lesions have not changed. Davey's score remains high

2. **Clinical Scoring of Striae – Modified Sawetz et al. (2021)**

Table 5. Sawetz Atrophy and Pigmentation Severity Indext Before and After PRP Treatment

Parameter	Before PRP	After PRP	Note
Lesion Length	2	2	There has been no shortening
Lesion Width	2	1	Narrowing at some points
Color	2	1	Getting brighter
Atrophy	2	1	Flatter skin surface
Distribution of Lesions	2	2	Stays spread throughout the abdomen

Interpretation: A 3-point (30%) score decrease in 1 month showed a meaningful visual improvement**,** although it was not followed by a quantitative distribution improvement (Davey).

Satisfaction assessment of PRP therapy was conducted 1 month after PRP therapy using a closed questionnaire containing 9 statements, which included aspects of information, procedure comfort, therapy results, side effects, and desire to recommend therapy. The patient fills out a questionnaire one month after the procedure is performed. Results showed that patients gave a maximum score (5 = Strongly Agree) on all items assessed, including:

- Satisfaction with the information provided before the procedure (clear and adequate),
- Comfort during the action (minimal pain),

- The duration of therapy time that is considered acceptable,
- There is visual and textural improvement in the striae gravidarum,
- Increased skin elasticity,
- Satisfaction with the overall results,
- Absence of significant side effects,
- Tolerance to mild side effects (if any),
- Willingness to recommend PRP therapy to others with similar conditions.

The patient did not submit any additional comments or complaints in the open section of the questionnaire.

3.2.Discusion

A qualitative assessment of the *lesion of striae gravidarum* one month after PRP showed clinical improvement that could be observed visually and palpatively. The lesion that previously appeared dark brown to blackish has faded to light brown that is closer to the surrounding skin tone. These changes indicate a decrease in post-inflammatory hyperpigmentation that is often found in the *hyperpigmentative phase of striae alba*.

In addition to the discoloration, the skin surface that originally showed mild atrophy with noticeable surface indentations, appeared flatter and smoother after one month. Palpation shows an improvement in texture with a decrease in the depth of atrophy. Skin elasticity has also improved, as seen from the skin that is more flexible and not stiff when stretched or lightly pressed. Patients also no longer report subjective complaints such as itching, which previously often appeared intermittently, especially when sweating.

These findings are consistent with the results of studies by Gamil et al. (2018) and Sawetz et al. (2021) which showed that PRP provides regenerative effects on the skin through fibroblast stimulation, increased collagen synthesis, and dermal angiogenesis. These effects mainly impact early improvement of skin quality, such as color, texture, and elasticity, which are more easily observed clinically within 2–4 weeks after the procedure. This is in line with observations in these patients, where improvements occur visually even though the anatomically distribution of lesions has not changed.

Thus, the qualitative assessment of these patients provides an idea that a single PRP action is capable of producing a noticeable initial improvement in the morphological characteristics of the lesion, and can be used as a basis for consideration of follow-up therapy. Such clinical changes have significant aesthetic value for patients, especially in the context of post-pregnancy confidence enhancement.

Quantitative assessment of patients was carried out using two methods: Davey Score and Sawetz et al. modified clinical scoring.. Each provided a different picture of the therapeutic response one month after PRP action. The Davey Score is used to assess the extent of the distribution of striae gravidarum lesions based on abdominal quadrants. Scores are given from 0–2 for each quadrant, with a maximum total of 8. In these patients, the Davey Score remained 8 both before and one month after the procedure, indicating no change in the anatomical distribution of the striae. This indicates that PRP does not necessarily affect the number or location of lesions in a short period of time, and that the improvement in skin quality has not been accompanied by a decrease in the anatomical distribution of lesions.

In contrast, Sawetz et al.'s (2021) modified clinical scoring showed a decrease in scores from 10 to 7, indicating a quantitatively significant clinical improvement. Improvements mainly occur in the parameters of the lesion color (hyperpigmentation), the depth of atrophy, and the narrowing of the width of the lesion. Although the length and distribution of lesions remain constant, visual and palpatory changes to skin texture and tone provide clinically measurable positive aesthetic impacts.

These findings are consistent with the report of Za et al. (2015) which stated that dermal changes due to PRP occur early on microscopic aspects—such as collagen and elastin density—that appear clinically as improvements in color and texture, but lesion distribution or *striae* line length takes longer and repetitive interventions.

The study by Agarwal et al. (2024) also confirmed that distribution scores (such as Davey's) tend to settle within 4 weeks, while texture and color scores have improved significantly. Therefore, in the context of this study, the Sawetz modified score is more representative for assessing the short-term impact of PRP, whereas the Davey score is more appropriately used for the evaluation of long-term outcomes.

Thus, quantitative data support a significant clinical improvement one month after PRP treatment, especially in terms of lesion quality, although the extent of lesion distribution has not shown any change. This underscores the importance of using more than one quantitative assessment method to capture the overall therapeutic effects of PRP on *striae gravidarum*.

Patient satisfaction assessments one month after PRP showed maximum scores (5 out of 5) on all aspects—from understanding information, procedural comfort, aesthetic results, to willingness to recommend therapy to others. This perfect score confirms that patients feel the clinical and psychological benefits of a single session of PRP therapy. These findings are confirmed by various independent studies in the field of aesthetics dermatology and trichology which show that patients' satisfaction levels with PRP are generally high, even after just one or two therapy sessions.

In the context of other scars or scars, Colak and Ozer (2019) reported an average patient satisfaction score of 77 out of 100 (approximately very satisfied) on the FACEQ assessment after PRP treatment for acne scars, with improved quality of life without severe complications. (Colak & Ozer, 2019) PRP as a regenerative modality of dermatology has a consistently high satisfaction profile because the aesthetic results are visible early and there are minimal side effects (Pixley et al., 2023)

Furthermore, on other indications such as androgenetic alopecia, Hetz et al. (2022) reported an average patient satisfaction score of 7.29 out of 10 and readiness to recommend action of 80%, although the focus was not on the striae. (Hetz et al., 2022) Although the indications are different, the consensus is the same, PRP has a subjectively significant positive impact on patients.

The main points underlying maximum satisfaction in these patients include noticeable visual improvement (color and texture), the comfort of the procedure (minimal pain), the efficacy of the therapy is observed quickly, and the lack of side effects such as erythema or other complications. The autologous PRP procedure adds an aspect of high tolerance, as explained by scientific sources that mention the risk of allergic reactions is very low because it comes from the patient's own plasma (Colak & Ozer, 2019; Hetz et al., 2022).

4. Conclusion

Platelet Rich Plasma (PRP) therapy in a case of striae gravidarum in a 26-year-old female patient with a history of one pregnancy showed promising clinical results. One month after one PRP procedure, there was a qualitative improvement in the lesions, including color fading of hyperpigmentation, increased skin elasticity, and decreased surface atrophy. Quantitative assessments using Sawetz et al.'s clinical modification scores showed a decrease in scores from 10 to 7, while the distribution score based on Davey remained (8/8), indicating that lesion quality improved even though the distribution had not changed.

Subjectively, patient satisfaction was very high, with maximum scores on all questionnaire items, including aspects of comfort, visual results, and readiness to recommend procedures. No significant side effects were found, and the patient expressed a desire to continue therapy. These findings are in

line with the various scientific literature that confirms that PRP is safe, tolerable, and has a meaningful aesthetic impact even after a single session of action.

Thus, it can be concluded that PRP is an effective and well-accepted therapeutic option for the early improvement of striae gravidarum, and is potentially more optimal when given in several follow-up sessions. This study also emphasizes the need for multidimensional evaluations (clinical, subjective, and quantitative) in assessing the success of regenerative-based aesthetic therapies

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References

Agarwal, R., Chopra, A., Oberoi, A., Sharma, L., & Srinivasan, P. (2024). A Comparative Study of the Efficacy of Platelet-rich Plasma Therapy versus Topical Application of 0.1% Tretinoin Gel in the Management of Striae Gravidarum. *Journal of Marine Medical Society*, *26*(2), 283. https://doi.org/10.4103/jmms.jmms_92_23

Borrelli, M., Griffin, M., Ngaage, L., Longaker, M., & Lorenz, H. P. (2021). Striae Distensae: Scars without Wounds. *Plastic and Reconstructive Surgery*, *148*(1). https://doi.org/10.1097/PRS.0000000000008065

Colak, O., & Ozer, K. (2019). Patient perception, satisfaction and cosmetic results of platelet-rich plasma in the treatment of acne scars: A patient-reported outcome of a non-surgical management. *International Journal of Research in Dermatology*, *5*(2), 361. https://doi.org/10.18203/issn.2455-4529.IntJResDermatol20191002

Davey, C. M. (1972). Factors associated with the occurrence of striae gravidarum. *The Journal of Obstetrics and Gynaecology of the British Commonwealth*, *79*(12). https://doi.org/10.1111/j.1471-0528.1972.tb11896.x

Dewi, E. A. (2021). Potensi Platelet Rich Plasma (PRP) Untuk Kecantikan Alami Kulit Wanita. *Jurnal Tadris IPA Indonesia*, *1*(3), 385–393. https://doi.org/10.21154/jtii.v1i3.386

Edelblute, E., Donate, D., Hargrave, H., & Heller, H. (2015). Human platelet gel supernatant inactivates opportunistic wound pathogens on skin. *Platelets*, *26*(1). https://doi.org/10.3109/09537104.2013.863859

El Nagdy, H. A. A., Atwa, E. M., Morsi, H. M., & El Qishishi, K. A. (2023). Possible Role of Platelet -Rich Plasma for Striae Distensea Management: Review Article. *The Egyptian Journal of Hospital Medicine*, *90*(2), 2045–2048. https://doi.org/10.21608/ejhm.2023.285029

Everts, E., Onishi, O., Jayaram, J., Lana, L., & Mautner, M. (2020). Platelet-Rich Plasma: New Performance Understandings and Therapeutic Considerations in 2020. *International Journal of Molecular Sciences*, *21*(20). https://doi.org/10.3390/ijms21207794

Gamil, H. D., Ibrahim, S. A., Ebrahim, H. M., & Albalat, W. (2018). Platelet-Rich Plasma Versus Tretinoin in Treatment of Striae Distensae: A Comparative Study. *Dermatologic Surgery: Official Publication for American Society for Dermatologic Surgery [et Al.]*, *44*(5), 697–704. https://doi.org/10.1097/DSS.0000000000001408

Hetz, S. P., Martin, J., & Pototschnig, H. (2022). Patient Satisfaction and Clinical Effects of Platelet-Rich Plasma on Pattern Hair Loss in Male and Female Patients. *Cureus*, *14*(9), e28801. https://doi.org/10.7759/cureus.28801

Ibrahim, Z., El-Tatawy, R., El-Samongy, M., & Ali, D. (2015). Comparison between the efficacy and safety of platelet-rich plasma vs. microdermabrasion in the treatment of striae distensae: Clinical and histopathological study. *Journal of Cosmetic Dermatology*, *14*(4). https://doi.org/10.1111/jocd.12160

Juniantari, N. K. P., Yuliwar, R., & Sudiwati, N. L. P. E. (2024). Terobosan Kecantikan Melalui Darah: Terapi Platelet Rich Plasma (PRP). *National Conference on Blood Bank Technology*, *1*(01), 23–27.

Pavlovic, V., Ciric, M., Jovanovic, V., & Stojanovic, P. (2016). Platelet Rich Plasma: A short overview of certain bioactive components. *Open Medicine (Warsaw, Poland)*, *11*(1). https://doi.org/10.1515/med-2016-0048

Pengcheng, P., Yaguang, Y., Lina, L., Yang, Z., Xiaorong, X., Hu, X., Yang, J., Wang, M., Wang, B., Luo, G., He, W., & Cheng, B. (2020). Platelet-rich plasma accelerates skin wound healing by promoting re-epithelialization. *Burns & Trauma*, *8*, tkaa028. https://doi.org/10.1093/burnst/tkaa028

Pixley, J. N., Cook, M. K., Singh, R., Larrondo, J., & McMichael, A. J. (2023). A comprehensive review of platelet-rich plasma for the treatment of dermatologic disorders. *Journal of Dermatological Treatment*. https://www.tandfonline.com/doi/abs/10.1080/09546634.2022.2142035

Rohmah, R. (2025). (PDF) Microneedling dengan Platelet-rich Plasma (PRP) untuk Skar Akne Atrofi. *ResearchGate*. https://doi.org/10.55175/cdk.v48i9.135

Sawetz, I., Lebo, P. B., Nischwitz, S. P., Winter, R., Schaunig, C., Brinskelle, P., Kamolz, L. P., Gualdi, A., & Lumenta, D. B. (2021). Platelet-rich plasma for striae distensae: What do we know about processed autologous blood contents for treating skin stretchmarks?—A systematic review. *International Wound Journal*, *18*(3), 387–395. https://doi.org/10.1111/iwj.13541

Vladulescu, D., Scurtu, L., Simionescu, A., Scurtu, F., Popescu, P., & Simionescu, O. (2023). Platelet-Rich Plasma (PRP) in Dermatology: Cellular and Molecular Mechanisms of Action. *Biomedicines*, *12*(1). https://doi.org/10.3390/biomedicines12010007

Wulandari, S., & Oktariana, D. (2024). Potensi Growth Factor dalam Platelet Rich Plasma (PRP) sebagai Pengobatan Regeneratif: Tinjauan Pustaka. *JPP (Jurnal Kesehatan Poltekkes Palembang)*, *19*(1), 48–55. https://doi.org/10.36086/jpp.v19i1.2195

Yusrawati, Y. (2022). *Hukum Menggunakan Platelet Rich Plasma (PRP) untuk Perawatan Kecantikan*. https://repository.ar-raniry.ac.id/id/eprint/21880/1/Yusrawati,%2029173457,%20PS,%20IAI,%20085290742486.pdf?utm_source=chatgpt.com