



(RESEARCH ARTICLE)



Platelet-Rich Plasma (PRP) and skin healing experience of the plastic and reconstructive surgery department at CHU Tanger-Tétouan-Al Hoceima

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Abstract

Platelet-rich plasma is an autologous product that has shown utility in various specialties, such as plastic and reconstructive surgery, orthopedics, and orthodontics. However, studies on its clinical efficacy remain inconclusive. One of the main reasons for this is the use of different preparation protocols, resulting in varying responses that cannot be compared.

We present a prospective comparative study involving 10 patients with facial skin scars. Half of the patients underwent surgical scar revision, while the other half received, in addition to surgery, an injection of platelet-rich plasma. This study was conducted within the plastic and reconstructive surgery department of CHU Tanger over a 4-year period from May 2020 to September 2024. Our series included all consenting patients with facial scars that were painful, reddish, inflammatory, hard, hyperpigmented, depressed, tethered, or presenting as chronic ulcers.

We excluded unstable scars, keloids, infected or suspicious scars, and those of tumoral origin. We analyzed scar characteristics, including dimensions, sensitivity, shape, location, and the Vancouver Scar Scale (VSS). After PRP injection, the VSS score improved to 2.8, with 90% of scars showing no inflammation, 80% achieving normal skin coloration, and all scars becoming supple. The average length, width, and thickness were reduced to 55mm, 3.25mm, and 0.75mm, respectively.

In conclusion, PRP injection is a novel and promising modality that we recommend for treating facial scars and chronic wounds, with no risk of adverse side effects.

Keywords: Plasma 1; Platelet P2; Hyperpermented3; Skin 4; Healing5; Scars 6

1. Introduction

Platelet-rich plasma (PRP) is a therapeutic technique garnering increasing interest in the medical field, particularly for its applications in skin healing. This method relies on the regenerative properties of platelets, which are key blood components involved in the healing process. This article examines the mechanism of PRP, its clinical applications, as well as its advantages and limitations in skin wound healing.

PRP injections are increasingly utilized in aesthetic and regenerative medicine, especially to stimulate skin healing, accelerate cellular regeneration, and reduce inflammation, thereby providing remarkable therapeutic outcomes. This

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natural, minimally invasive approach holds significant potential for treating chronic wounds, skin lesions, and post-surgical recovery, making PRP a preferred solution in modern medicine.

PRP, containing a high concentration of platelets, is prepared from the patient's own blood, making it a natural option with no risk of rejection (1).

Objectives

This article aims to explore what PRP is, how it works, and why it is particularly relevant for skin healing.

2. Materials and methods

This study focused on a prospective series of 45 patients with facial scars and chronic ulcers, of whom 35 received platelet-rich plasma (PRP) injections at the Plastic and Reconstructive Surgery Department of the Mohamed VI University Hospital in Tangier. The study covered a period of four years, from May 2020 to September 2024.

- **Inclusion Criteria** All consenting patients with unsightly facial scars or chronic wounds.
- **Exclusion Criteria** Patients who had undergone other healing methods were excluded.
- **Group 1: Treatment** PRP sessions.
- **Indication:** Applied to patients with unsightly scars and chronic wounds.
- **Group 2: Treatment** Directed healing without PRP, serving as a comparison sample.
- **Intervention**
- **Sample Collection** A 10ml blood sample is drawn from the basilic vein at the anterior aspect of the elbow through a routine venipuncture. The blood is collected in a VACUETTE® tube containing citrate as an anticoagulant and immediately placed in a centrifuge.
- **Centrifugation** A single centrifugation is performed for 10 minutes at 3000 rpm, yielding three distinct phases (Figure 1)
- **Bottom layer** Consisting of red blood cells, making up 55% of the tube's volume.
- **"Buffy coat"** The platelet-rich plasma (PRP).
- **Upper layer** Acellular plasma, also known as platelet-poor plasma (40% of the volume).

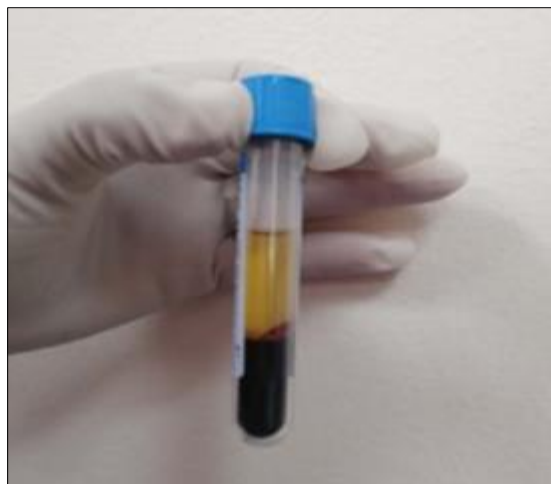


Figure 1 VACUETTE tube after centrifugation

2.1. Collection of Platelet-Rich Plasma (PRP)

Using a sterile syringe, PRP is directly extracted from the tube. This process yields 3 to 5ml of PRP per tube, depending on the extent of the scar.

2.2. Materials Used

The following materials were utilized

- Two to four VACUETTE® tubes containing citrate as an anticoagulant, depending on the size of each patient's scar.

- Transfer devices and sterile disposable syringes.
- A pre-programmed WorldPRP TD5 centrifuge (Figure 2).



Figure 2 World PRP TD5 Centrifuge

3. Results

3.1. Patient Recruitment

A total of 35 patients underwent six PRP sessions, five of which followed surgical revision of facial scars over a four-year period, from May 2020 to September 2024.

3.2. Age

The patients' ages ranged from 15 to 55 years, with a mean age of 30.4 years. The average age of the scars was 5 years.

3.3. Sex

The study showed a clear male predominance. Of the 35 patients with scars, 24 were male (68.57%) and 11 were female (31.42%), yielding a male-to-female ratio of 24:11, or 2.3.

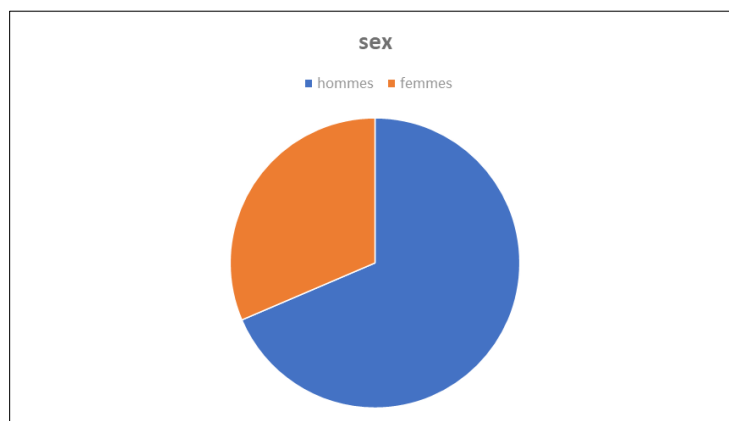


Figure 3 Distribution by gender

3.4. Socio-economic level

The socio-economic level was low in 80% of the patients, of which 40% were unemployed.

3.5. Alcohol and tobacco habits

40% of the patients have alcohol and tobacco habits, all of whom are male.

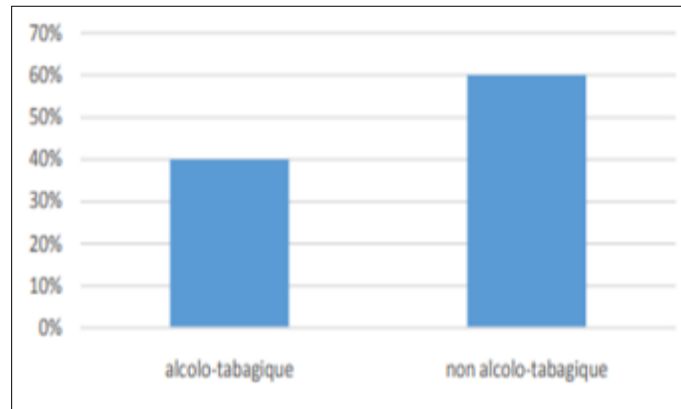


Figure 4 Alcoholic-smoking habits in patients

3.6. Etiologies

In our series of 45 patients, 22 presented with knife wounds, accounting for 48.88% of cases, five patients with road traffic accidents, accounting for 11% of cases, and 18 with chronic ulcers, accounting for 40% of cases.

4. Clinical cases

4.1. Clinical case no. 1



Figure 5 Frontal scar involving the right eyebrow, depressed and widened before/after surgical revision and intraoperative PRP injection

A 16-year-old patient presenting with a depressed and widened frontal scar that occurred in childhood following a domestic accident, untreated and unsutured. The patient underwent a surgical revision of the scar following the lines of tension with the injection of 3cc of PRP during the surgical procedure.

4.2. Clinical case no. 2

This is a 28-year-old female patient who was a victim of a road traffic accident. She presented with a jugal scar, depressed, hyperchromic, and oblique relative to the lines of low tension. The patient underwent 5 sessions of PRP injection only.



Figure 6 Enlarged scar on the right cheek before/after PRP alone

A 17-year-old female patient presents with a widened, hyperchromic scar on the right cheek, which dates back 7 years following a domestic accident, untreated and managed with traditional methods. The patient underwent a surgical revision of the scar with the injection of 4cc of PRP during the procedure.



Figure 7 Left cheek scar revised by excision, simple suturing with intraoperative PRP injection

4.3. Clinical case no. 3

A 27-year-old male patient, a victim of a road traffic accident at the age of 12. He presented with a scar on the left cheek, initially treated with adhesive strips. Clinical examination revealed a linear, hyperpigmented brownish scar, 15mm in length, 2mm in width, and 1mm in thickness. It was firm in consistency and poorly extensible. After 5 sessions of PRP, a significant improvement in the scar was observed. It became lighter, blending with the patient's normal skin color. The dimensions remained unchanged, and the scar became soft with normal extensibility.



Figure 8 Result obtained on the scar of patient 2

4.4. Clinical case no. 4

A 32-year-old female patient suffering from an open bimalleolar fracture, treated with an internal fixation system using plates and screws. (b) Healing process after 4 applications of PRP. (c) Final result after complete healing.



Figure 9 Before/After of a patient presenting an open leg fracture with tissue loss treated by an internal fixation with plates and screws (b) and 4 sessions of PRP (c) Final result after complete healing

4.5. Clinical case no. 5

A 55-year-old diabetic female patient presents for a consultation for chronic ulcers, treated with directed healing using only advanced-generation dressings.



Figure 10 Patient with a chronic wound left for directed healing before and 8 months after

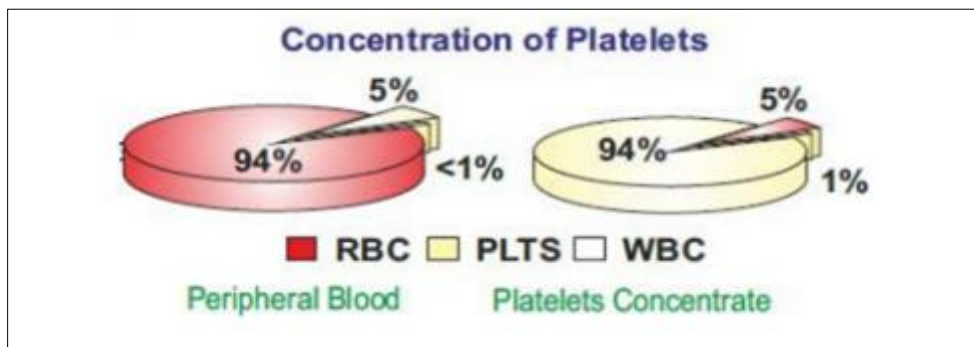


Figure 11 Difference in platelet concentration between whole blood and PRP

5. Discussion

5.1. Definition

Platelet-rich plasma (PRP) is an autologous product that contains a higher concentration of platelets compared to whole blood (figure 12), typically 3 to 7 times the average platelet concentration of whole blood. (2)

When used extemporaneously in local application or injection of PRP, the platelets, once activated at the site, release growth factors contained in alpha granules and dense granules (Table 1).

- The alpha granules contain seven fundamental growth factors: platelet-derived growth factors (PDGF α , PDGF β , and PDGF γ), transforming growth factor beta (TGF β 1 and TGF β 2), epidermal growth factor (EGF), and vascular endothelial growth factor (VEGF). These growth factors modulate cell proliferation, differentiation, angiogenesis, and chemotaxis.

- The dense granules contain bioactive factors, including serotonin, histamine, dopamine, calcium, and adenosine. These bioactive factors have the ability to increase membrane permeability and modulate the inflammatory process. (1)

Table 1 PRP constituents and their actions

Facteurs	Cellules sources	Activites
TGF beta	Palatet, macrophages, lymphocytes, fibroblasts	Fibroblast and endothelial cell proliferation, ECM synthesis
PDGF	Platelets, keratinocytes, endothelial cells, fibroblasts	Fibroblast migration and proliferation, collagen synthesis, chemotactics for neutrophils and monocytes
BFGF	Keratincytes, macrophages, platelets	Angiogenesis
KGF	Fibroblasts	Migration and proliferation of keratinocytes
EGF	Migration and proliferation of keratinocytes	Migration and proliferation of endothelial cells and fibroblasts

In addition to its proliferative properties, PRP is an immediate hemostatic agent, biocompatible, safe, and effective. It enhances collagen synthesis and promotes soft tissue healing. It also reduces dermal scars and reverses the inhibition of healing caused by corticosteroids. The high concentration of leukocytes in PRP adds an antimicrobial effect. (4)

There are theoretically four subsets of platelet-rich plasma: pure PRP, leukocyte-rich PRP (L-PRP), platelet-rich fibrin matrix (PRFM), and leukocyte- and platelet-rich fibrin matrix. Most studies have been conducted with pure PRP and L-PRP. Pure PRP is the most commonly used form, consisting of a chamois-like layer with a large number of platelets and few collected leukocytes. (1)

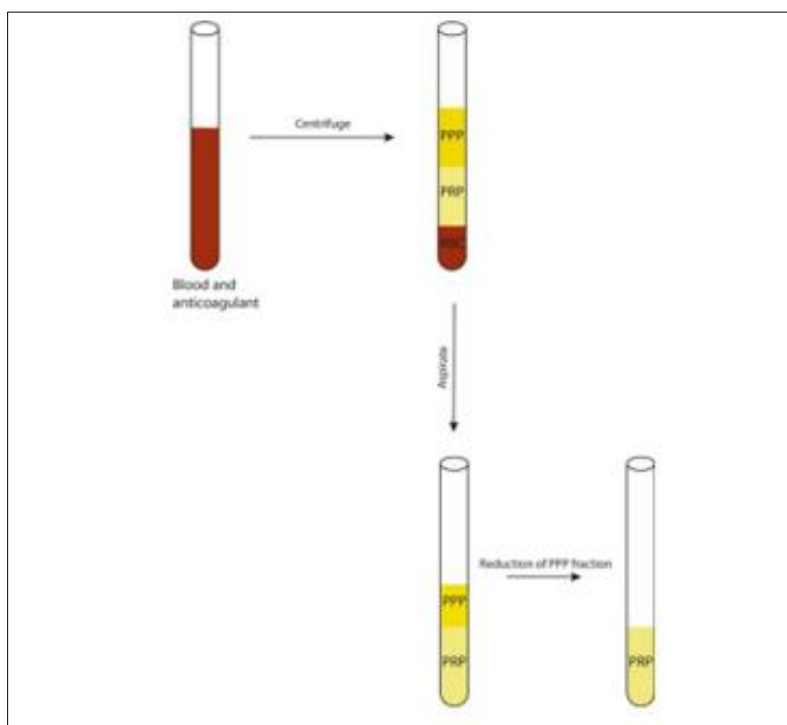


Figure 12 After blood centrifugation

5.2. Precautions for use

Before considering PRP treatment, a clinical and paraclinical diagnosis must be established beforehand. (5), (6)

Before any handling, it is essential to have a good understanding of the product and its effects, the administration protocol, the frequency, and the timing of injections. (7) A systematic search for contraindications must be performed.

The therapy should involve formal oral and written informed consent, signed by the patient. It is necessary to remind the patient of certain precautions: (8) Before the session, the patient must report any fever, infection, skin lesions, medication intake (aspirin, anticoagulants, NSAIDs, platelet aggregation inhibitors), pregnancy, or allergies. (9)

The patient must stop taking anti-inflammatory drugs or aspirin at least 10 days before the injection and 3 weeks after.

Chewing releases pro-inflammatory components into the bloodstream, and platelet activation is reduced postprandially: it is therefore preferable for the patient to be fasting before PRP preparation. (10)

During the injection, pain may be observed. Although studies by Carofino (11) in 2015, Bausset (12) in 2013, and Kaux (13) in 2015 report that local anesthesia reduces the beneficial effects of PRP, most practitioners use and recommend it. For example, Driver (14) in the treatment of diabetic ulcers, Andia (15) in knee arthritis treatment, and Kozarev (16) in acne scars. In our study, we used intradermal injection of local anesthetic at the incision site. Thus, the EVA score shifted from being troublesome and highly painful to being minimal or non-troublesome for 100% of the treated patients.

5.3. Contraindications of PRP

Although PRP use does not have significant side effects, there are certain contraindications to its use (16). Absolute contraindications include:

- Platelet dysfunction syndrome,
- Hemodynamic instability,
- Chronic liver disease,
- Local infection at the procedure site,
- Septicemia,
- Hypofibrinogenemia,
- Use of anticoagulants.

5.4. Relative contraindications include

- Use of non-steroidal anti-inflammatory drugs within 48 hours before the procedure,
- Corticosteroid injections in the treatment area within the month preceding the procedure,
- Systemic corticosteroids,
- Smoking,
- Recent illness and fever,
- Anemia below 10 g/dl,
- Thrombocytopenia with a platelet count lower than 10^5 /ml,
- Immune deficiency not associated with thrombocytopenia.

In general, in outpatient settings, most of these contraindications are rare due to the overall health of patients requesting this procedure. However, it is important to ask about platelet dysfunction, bleeding issues, recent illnesses, and localized infections.

5.5. PRP and Scarring

5.5.1. Immediate bioavailability

The sudden activation of platelets within PRP intensely and immediately releases growth factors. These are therefore immediately available and in high concentration at the site of injury. The study of the effect of PRP on rat osteoblast proliferation in vivo by Ling et al. (17) confirms this: they measured the presence of two growth factors (PDGF-AB and TGF β 1) in PRP exudates at different times (measured on days 1, 7, 14, 21, and 28). It was observed that the maximal release of PDGF-AB and TGF- β 1 occurred on day 1 and then gradually decreased over time, proving rapid degradation. After activation, 70% of platelet growth factors are released within the first 10 minutes, and the total is released within an hour, showing immediate action. (18) Other cells, particularly leukocytes, then take over after being recruited and activated.

5.5.2. Concentrated delivery

A study conducted by Amable and his team in 2013 (19) quantified certain growth factors and cytokines. Different PRP preparations were made by varying centrifuge strength, time, and temperature. The yield and platelet concentration were obtained, and the selected PRP was the one that maximized these two criteria.

Based on the results, they found that a high concentration of both pro- and anti-inflammatory growth factors and cytokines is secreted by activated PRP. These concentrations are, for the most part, higher than those found in non-centrifuged blood.

5.5.3. Control of inflammation and pain

The study conducted by Zhang, Wang, Middleton et al. (20) aimed to evaluate the anti-inflammatory effect of PRP through the release of HGF. They conducted an in vitro experiment on rabbit tendon cells and an in vivo experiment on a mouse model with an Achilles tendon injury. When tissues are injured, the healing process goes through an inflammatory phase. During this phase, inflammatory mediators like IL-1 are produced, leading to the overexpression of cyclooxygenases 1 and 2 (COX-1 and COX-2) and prostaglandin synthase (PGE2 synthase)—three enzymes involved in the production of prostaglandins (PGE2), causing vasodilation and hyperalgesia. These experiments assessed the expression of COX-1 and COX-2 and PGE2 synthase, quantifying the production of PGE2 depending on the presence of PRP or HGF. Results: PRP and HGF injection did not significantly reduce PGE2 levels immediately after the injection on day 0, but these levels significantly decreased on days 1, 3, and 5. Similarly, according to the study, the expression of COX-1 and COX-2 drastically dropped three days after the injection of PRP or HGF. In conclusion, PRP exerts anti-inflammatory effects through the secretion of HGF, and the presence of HGF in the plasma. This study provides scientific evidence of PRP's anti-inflammatory nature, which may reduce pain related to injury. (13)

The results of our study support these effects of PRP described in these studies, with a reduction or disappearance of inflammation in 90% of our patients.

5.5.4. Enhanced cellular stimulation

Knowing the influence of growth factors on cell migration and proliferation, it is reasonable to assume that the addition of autologous PRP optimizes regeneration. In an in vitro study by Sanchez (23), it was demonstrated that in the presence of PRP, the number of cells doubled within 24 hours compared to the control group (figure 13). This confirmed that PRP stimulates cell proliferation.

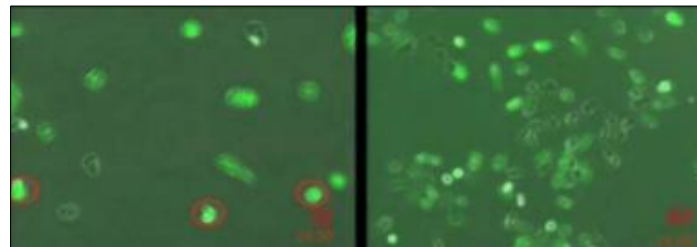


Figure 13 Enhanced cellular stimulation

Similarly, it was observed that cells migrated much more rapidly and extensively in the presence of PRP (figure 14), highlighting the role of PRP in cell migration.

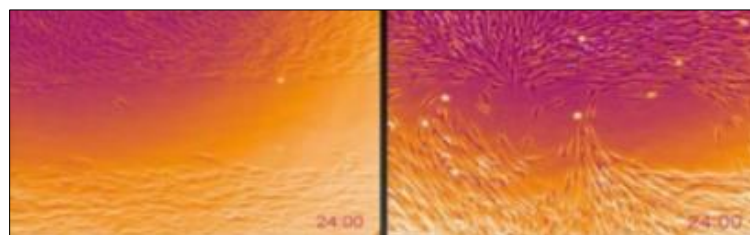


Figure 14 Comparison of cell numbers

On the other hand, Anitua in 2006-2007 and Kajikawa in 2008 demonstrate, through experimental studies, that PRP allows the differentiation of cells derived from circulation, leading to an improvement in the early stages of healing. (24) Migration, proliferation, and cellular differentiation being three major phenomena essential to the healing response, PRP logically is the subject of numerous speculations. 4.5 A true angiogenic character: Lyras and his colleagues (25) conducted a study in 2016 on the influence of PRP during angiogenesis in the early phase of tendon repair. Forty-eight New Zealand white rabbits were used, with their Achilles tendon being transversely sectioned. 0.5 ml of PRP was injected into the tendon mass on each side of the incision. The injection in the control group consisted of a saline solution. Angiogenesis was then evaluated through microscopic examination and imaging, every week for four weeks. Results: The newly formed vascular network was much more abundant during the first two weeks of healing for the PRP group compared to the control group. Then, the results reversed during the last two weeks, indicating a shortened healing time for the PRP group. (26) In conclusion, PRP stimulates neo-vascularization, accelerates, and improves the healing process. It thus finds its utility in poorly vascularized tissues. 4.6 A strong anabolic power: Kaux and his team researched the current scientific data on PRP and gathered several recent experimental studies. (27) Thus, Kashikawa in 2008 and Mishra in 2009 observed a stimulation of type I collagen synthesis by PRP. (28) De Mos in 2008 states that PRP increases the expression of metalloproteinases, thus inducing extracellular matrix remodeling. Finally, Bosch in 2010 found that the amounts of DNA, glycosaminoglycans, and especially collagen were higher in the presence of PRP: he concluded to a superior metabolic activity. (29) PRP thus stimulates cellular metabolism, essential for tissue remodeling. For this reason, during our study, any suspicious lesion or tumor-derived scar was excluded. 4.7. PRP, a complete therapy: PRP therefore seems to bring together all the necessary elements for optimal accelerated healing: platelets, cytokines and growth factors, leukocytes, and other plasmatic contributions. However, reliable and reproducible studies are lacking to determine its actual effectiveness. (30)

6. Analysis of results

6.1. Age

The majority of our patients are young. Their average age is 28 years (± 16 years), which aligns with the data in the literature (34). (Table 2)

Table 2 Comparison of patient age with other studies

	0-10 years	10-20 years	20-30 years	30-40 years	40-50 years	50-60 years	60-70 years	Over 70 years old
Our study	0	2	4	3	1	-	-	-
Zhu	-	2	10	10				
Study amine and khalfi	11	15	23	16	13	9	6	5
Study of bougulia								
Study of jerome	3	5	25	20	13	15	5	13
Study of Lebau								
Study of pons	1	39	53	5	2			
Study H.M Hussaini	11	24	34	18	9	3	1	-

The age of the patients is an important factor; the tissue of young patients is subjected to higher tension, and the release of this tension must be taken into consideration. (31).

6.2. Sex

Discussing the sex of the scar is equivalent to discussing the sex of the wound that caused it. Thus, in the total of 45 cases of scars, and regardless of age, men are affected about 1.2 times more often than women, with a sex ratio of 1.2, close to a French series by Thomas. (32) This ratio is in agreement with the average of the statistical data found. (33) Thus, the involvement of women in cases of scars can vary from a ratio of 2 men for 1 woman to a ratio of 12 men for 1 woman depending on the country, with a variation in sex ratio ranging from 2/1 to 12/1. (Table 3)

Table 3 Comparison of our study's sex ratio with other studies

Different studies	Country of origin	Sexe ratio
Our study	Morocco	2.3
Study of A. El khlifi (23)	Morocco	1/4
Study of J. bouguial (24)	Tunisia	6/1
Study of jerome (25)	france	2.7/1
Study of thomas(35)	France	2,2/1
Study of Y. pons (27)	France	51,9/1
Study of lebeau J (26)	France	2,7
study of H.M Hussaini(28)	Malaysia	4/1
Study of BraseleiroBF (43)	Brazil	3.13/1
Study of CM Pereiral (33)	Brazil	4/1

6.3. Smoking and Healing

Tobacco smoke affects various types of cells and different stages of the healing process. More than 4000 substances have been identified in tobacco smoke, some of which have shown a negative role in healing, particularly carbon monoxide and nicotine. Carbon monoxide causes a decrease in tissue oxygenation and poor blood microcirculation. (34) The vasoconstrictive and thrombogenic action of nicotine results in reduced blood flow and decreased supply of nutrients necessary for tissue healing. (35) Smoking a single cigarette has a vasoconstrictive effect lasting an hour and a half, while a whole pack causes hypoxia for an entire day. Another component of tobacco smoke that impacts healing is hydrogen cyanide. It alters the cellular metabolism of oxygen. (36) The decrease in cutaneous microcirculation and hypoxia are the main causes of the harmful effect of smoking on skin healing and deep tissue healing.

These healing disturbances have been demonstrated in many specialties, particularly in plastic and reconstructive surgery, where cases of flap necrosis, poor skin healing, and surgical wound complications have been observed. (36) Cessation of smoking before and after surgery is therefore extremely important. The literature has shown that the preoperative period is the best time to propose a smoking cessation program. The use of nicotine patches during the abstinence period does not result in adverse effects on wounds and healing. (36) One study even showed that the use of a nicotine transdermal patch could increase type 1 collagen synthesis in wounds. (37) In our series, we counted that one-third of our patients, four patients, were active smokers, all of whom were male. None of our smokers adhered to the study protocol, and we noted that non-smokers had faster and more efficient healing.

6.2.1. Socioeconomic Level

The socioeconomic level in Morocco significantly influences the outcome of wounds and, consequently, scars, especially facial scars. Thus, a low socioeconomic level is directly correlated with lack of access to care. This has a significant impact on scars due to lack of or inadequate care in some healthcare facilities, particularly in rural areas, or simple negligence by the patient in regard to treatment or adherence to it.

6.2.2. Etiologies

The etiologies of facial scars are those of facial wounds, most of which are related to aggression, road accidents, domestic accidents, falls, or related to sports or work accidents. These etiologies vary according to the age and sex of the victims and depend on socioeconomic, cultural, and religious factors.

6.2.3. Aggression

Acts of violence are the leading cause of facial trauma in several series (38) and have become increasingly the dominant etiology of facial wounds due to their rise in urban areas, similar to our study, where aggression was the most frequent cause with a rate of 50%.— Stab Wounds: Stab wounds are the most frequent cause of penetrating wounds, occurring primarily after an aggression, and their severity depends on the superficial or penetrating nature of the wound and its location. (38)

6.2.4. Domestic Accidents

In children, falls and everyday accidents are most often the cause. However, if there is an inconsistency between the appearance of the scars and the explanations given regarding the cause of the trauma, one should suspect abuse. The precise description of the lesions can have medico-legal importance, and resorting to a medico-legal consultation is sometimes necessary. In our series, domestic accidents ranked second with a rate of 30%, most of which were children or occurred during childhood.

6.2.5. Road Accidents

Road accidents represent a real public health problem in Morocco as well as the rest of the world. The mortality and morbidity caused by traffic accidents should prompt authorities to reflect more on the issue. A strict regime, such as speed limits and increased controls, along with screening for alcohol levels while driving, can undoubtedly lead to a significant reduction in morbidity and mortality from road traffic accidents. Road traffic accidents represent 20% of our etiologies, thus occupying third place, which deviates from the literature data where they are ranked as the leading cause of facial wounds. What differentiates the epidemiology of scars from that of facial wounds is the weight of aesthetic, social, and psychological damage caused by scars from aggression, which motivates consultation for potential repair.

6.2.6. Analysis of Therapeutic Results

Numerous studies have been conducted to highlight the contribution of PRP in the management of various types of wounds and skin scars. All of them have proven the effectiveness of this therapy in tissue regeneration. (Table 4).

Table 4 Comparison of the therapeutic results of the different techniques used

Autor	Country	Goal of the study	Success	Conclusion
Kozarev 2012	Serbia	Prp combined with fractional laser for post-traumatic scars	86.8%	Combined treatment is more effective than laser alone in improving post-traumatic scars
Cheng B 2013	China	Combined fractional erbium laser treatment of facial acne scars	90.9% improvement 50% No inflammation observed	Prp combined with fractional erbium laser therapy is a safe approach to treating acne scars
Motolese 2015	Italy	Prp for the treatment of recalcitrant skin ulcers associated with diabetic lipolytic necrosis	100 No effect	Prp appears to be an effective treatment for the activation of chronic wounds
Asid 2016	India	Prp combined with microneedling in the treatment of atrophic acne scars	40%: excellent response 54%:good reply 6% :bad reply	Effective treatment in the management of atrophic scars
Dounia azizi berrada 2017	Morocco,	Prp in facial skin scar sequelae	74.3% of success Clear, fine, supple, non-inflammatory and painless scar	A safe and effective treatment for the after-effects of facial skin scars
Our study 2024	Morocco	Scar revision surgery with intraoperative injection of prp and prp alone	85% of success	Safe and effective therapy

The results obtained from the PRP injection in most studies, including ours, are consistent and very satisfactory. It is a safe and effective therapy that we recommend for the management of facial skin scars.

7. Conclusion

- Facial scars are a permanent stigma causing notable physical and psychosocial consequences, often leading to a request for scar revision to improve them.
- Many methods are available to attempt to correct or improve these scars, using all aesthetic techniques, whether surgical, medical, or combined.
- At the end of our work, we were able to demonstrate that the injection of PRP combined with facial scar revision remains a safe and effective therapy in the treatment of facial skin scars with minimal or even nonexistent side effects.
- PRP is a promising product due to its autologous origin, ease of extraction, and mechanism of action. However, further studies on the injection of PRP in the treatment of facial skin scars are needed with a larger number of patients to confirm its effectiveness and safety.

Summary Platelet-rich plasma is an autologous product that has demonstrated its usefulness in various specialties, such as plastic and reconstructive surgery, orthopedics, and orthodontics. Studies on its clinical efficacy are still inconclusive. One of the main reasons for this is the use of different preparation protocols, which result in varying responses that cannot be compared.

Thus, we present a comparative prospective study on a series of 10 patients with facial skin scars, half of whom underwent surgical revision of the scar, while the other half received, in addition to the surgical procedure, an injection of platelet-rich plasma within the plastic and reconstructive surgery department of CHU Tanger over a period of 4 years from May 2020 to September 2024. We included in our series all consenting patients with facial scars that were painful, reddish, inflammatory, hard, hyperchromic, depressed, or with scar contracture and chronic ulcers.

We excluded all unstable, keloid, infected, suspicious, or tumor-related scars. We analyzed the characteristics of the scars, including their dimensions, sensitivity, shape, location, and the Vancouver scale. After PRP injection, the Vancouver score became 2.8, with 90% of scars being non-inflammatory, 80% having normal skin color, and all scars becoming soft. The average length, width, and thickness became 55mm, 3.25mm, and 0.75mm, respectively.

In conclusion, PRP injection is a new and promising modality that we recommend for the treatment of facial scars with no risk of harmful side effects.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of informed consent

Written Informed consent was obtained from the patient for publication of this case report and accompanying images.

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