CASE REPORT
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Clinical and patient – reported improvement after metabolic optimization and autologous platelet - based facial rejuvenation: a case report

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Abstract

Response to autologous platelet-based facial rejuvenation is variable, and patient-related factors may contribute to this heterogeneity. In this paper is reported a caase of a patient with repeated poor response to previous platelet-rich plasma (PRP) procedures which improved after correction of selected nutritional and metabolic abnormalities and subsequent multimodal platelet-based treatment. A 61-year-old postmenopausal woman, smoker, with arterial hypertension and a history of breast cancer, had undergone five PRP procedures and several chemical peels without satisfactory benefit. Examination showed xerotic, atrophic, photoaged facial skin with solar elastosis, dermal laxity and rhytides. Laboratory assessment revealed borderline thrombocytopenia, low ferritin, vitamin D, vitamin B12, zinc and albumin, with elevated thyroid-stimulating hormone and C-reactive protein. After six weeks of supportive correction, two sessions combining injectable platelet-rich fibrin, PRP, microneedling and albumin-PRF were performed. At three months, clinical improvement was accompanied by FACE-Q score increases for Satisfaction with Skin (42–81), Satisfaction with Facial Appearance (48–79), Psychological Function (55–76) and Social Function (68–80). Clinical and patient-reported improvement followed correction of identified abnormalities and multimodal autologous platelet treatment. Because several interventions were combined, causality cannot be assigned to any single component.

Keywords: platelet-rich plasma; platelet-rich fibrin; facial rejuvenation; FACE-Q; case report

1. Introduction

Platelet-rich plasma (PRP) and platelet-rich fibrin (PRF) are increasingly used for facial rejuvenation. Their proposed effects relate to autologous platelets, fibrin and biologically active mediators involved in tissue repair and extracellular-matrix remodeling [1–3]. Clinical outcomes remain heterogeneous, and systematic reviews emphasize variability in treatment protocols and outcome assessment [1,2].

Randomized studies have also produced mixed findings. Improvement in selected aspects of photoaged facial skin has been reported following PRP injection [4], whereas

a recent randomized study combining PRP with microneedling found no clear macroscopic advantage over saline [5]. PRF has likewise been investigated as an autologous platelet preparation for facial rejuvenation [6,7].

We describe a patient with repeated unsatisfactory response to previous PRP who subsequently underwent broader laboratory assessment, correction of selected abnormalities and a multimodal platelet-based treatment course. Outcomes were evaluated clinically and using the FACE-Q Aesthetics patient-reported outcome measure.

2. Case presentation

2.1. Patient information and clinical findings

A 61-year-old postmenopausal woman presented for facial rejuvenation and requested a natural, minimally invasive approach. She declined treatment with botulinum toxin, dermal fillers, collagen-stimulating injectables and laser-based procedures.

Her medical history included arterial hypertension, active smoking and breast cancer diagnosed eight years previously.

The patient reported five previous PRP procedures and several chemical peeling procedures without satisfactory subjective or visible improvement.

Dermatologic examination demonstrated xerosis, cutaneous atrophy and thinning, solar elastosis, dermal laxity, mild yellowish discoloration and predominantly vertical facial rhytides. The clinical diagnosis was cutis laxa senilis (ICD-10 L57.4).

2.2. Diagnostic assessment and supportive management

Because of the repeated unsatisfactory response to previous regenerative procedures, laboratory assessment was undertaken.

Laboratory testing demonstrated borderline thrombocytopenia together with reduced ferritin, vitamin D, vitamin B12, zinc and albumin levels. Thyroid stimulating hormone and C-reactive protein were elevated.

These findings were considered potentially relevant to the patient's overall hematologic, nutritional and metabolic status; however, no individual abnormality was regarded as a proven explanation for the previous treatment failure.

Baseline platelet count has been shown to influence the final platelet concentration obtained in autologous PRP preparations [8]. In addition, substantial variability in preparation protocols and final PRP composition has been reported between different systems [9].

During the following six weeks, supportive management included increased dietary protein intake and supplementation with vitamin D, vitamin C, methylcobalamin (vitamin B12), ferrous sulfate, zinc gluconate, selenium and L-tyrosine.

2.3. Therapeutic intervention

Following the six-week optimization period, the patient underwent two facial treatment sessions combining injectable platelet-rich fibrin (i-PRF), PRP and micro-needling.

Albumin-PRF was additionally applied to the infraorbital areas and marionette lines.

The multimodal approach was selected in accordance with the patient's preference for autologous and minimally invasive treatment. Combination approaches to platelet-based facial rejuvenation have previously been described, although preparation and treatment protocols remain heterogeneous and non-standardized [10, 11, 12].

2.4. Follow-up and patient-reported outcomes

At the three-month follow-up, clinical assessment demonstrated improved overall skin texture and brightness, reduced prominence of facial rhytides and visible improvement of the infraorbital area.

The patient also reported feeling considerably better regarding her facial appearance following treatment.

Patient-reported outcomes were assessed using four independently functioning scales from the **FACE-Q Aesthetics** module:

- Satisfaction with Skin
- Satisfaction with Facial Appearance
- Psychological Function
- Social Function

The FACE-Q Aesthetics module is a validated patient-reported outcome instrument designed specifically for facial aesthetic interventions [13–16].

Assessments were performed at three predefined time points: immediately before treatment (**T0**), one month after treatment (**T1**) and three months after treatment (**T2**).

Scores were converted according to the standardized FACE-Q methodology to a 0–100 scale, with higher scores indicating greater satisfaction or better psychosocial functioning. Because this was a single-patient case report, no inferential statistical analysis was performed.

Table 1. Clinical timeline

Time point	Clinical event
Previous history	Five PRP procedures and several chemical peels without satisfactory improvement
Baseline	Dermatologic examination, laboratory assessment and FACE-Q T0
Following 6 weeks	Supportive nutritional and metabolic management
Treatment course	Two sessions combining i-PRF, PRP and microneedling; albumin-PRF applied to selected facial areas
T1 – 1 month	FACE-Q reassessment
T2 – 3 months	Clinical assessment and FACE-Q reassessment

Table 2. FACE-Q Aesthetics outcomes

FACE-Q scale	Baseline T0	1 month T1	3 months T2	Change T0–T2
Satisfaction with Skin	42	66	81	+39
Satisfaction with Facial Appearance	48	65	79	+31
Psychological Function	55	67	76	+21
Social Function	68	74	80	+12

All four FACE-Q domains demonstrated progressive numerical improvement.

The greatest change was observed in Satisfaction with Skin, which increased from 42 at baseline to 66 at one month and 81 at three months, representing a 39-point increase.

Satisfaction with Facial Appearance increased from 48 to 65 and subsequently to 79, corresponding to a 31-point overall improvement.

Psychological Function increased from 55 at baseline to 67 at one month and 76 at three months, while Social Function increased from 68 to 74 and subsequently to 80.

Patient-reported improvement was therefore already evident at the one-month assessment and continued through the three-month follow-up. Similar FACE-Q domains have been used to demonstrate changes in psychological and social functioning following facial aesthetic interventions [17].

3. Discussion

This case illustrates the heterogeneous clinical response that may occur with autologous platelet-based facial rejuvenation. Current systematic reviews suggest potential benefits of PRP and PRF for selected features of facial aging; however, the evidence remains heterogeneous and strongly influenced by differences in patient populations, platelet preparation protocols, treatment techniques and outcome measures [1–3,11,12].

The contrasting results reported in randomized studies also argue against assuming uniform efficacy of PRP for facial rejuvenation [4,5].

An additional consideration is the autologous nature of platelet-derived preparations. Rossi et al. demonstrated that baseline circulating platelet count can influence the final platelet concentration of PRP preparations [8]. In the present patient, borderline thrombocytopenia coexisted with several nutritional and metabolic abnormalities.

Clinical improvement occurred after these abnormalities were addressed and after initiation of a new multimodal treatment course. This temporal relationship is clinically noteworthy but does not establish that correction of the laboratory abnormalities caused the improved treatment response.

A relevant strength of this case is the incorporation of a validated patient-reported outcome measure. FACE-Q scales are independently functioning instruments developed specifically for facial aesthetic patients, and standardized converted scores are preferred to raw ordinal scores when reporting outcomes [13–16].

In the present case, improvement in appearance-related satisfaction occurred in parallel with increases in Psychological Function and Social Function. This finding supports the patient's direct report that she felt better following treatment and is consistent with previous evidence demonstrating that aesthetic facial interventions may be accompanied by improvements in patient-reported psychosocial functioning [17].

Several limitations must be considered. First, this is a single-patient observation without a control condition. Second, the therapeutic intervention was multimodal and included i-PRF, PRP, micro-needling and albumin-PRF; therefore, the contribution of each individual treatment component cannot be distinguished. Third, nutritional supplementation and other systemic changes occurred during the same treatment period. Fourth, detailed technical information regarding the patient's five previous PRP procedures was unavailable, preventing direct comparison between the earlier and current protocols.

Expectation effects, natural temporal variation and regression to the mean also cannot be excluded. Consequently, this case should be interpreted as a hypothesis-generating clinical observation rather than evidence that metabolic optimization itself increases PRP or PRF efficacy.

4. Conclusion

In a patient with repeated unsatisfactory response to previous PRP procedures, clinical and patient-reported improvement was observed following correction of selected hematologic, nutritional and metabolic abnormalities and subsequent multimodal autologous platelet-based facial rejuvenation.

FACE-Q assessment demonstrated progressive improvement through three months in Satisfaction with Skin, Satisfaction with Facial Appearance, Psychological Function and Social Function.

The findings highlight the potential value of comprehensive patient assessment and standardized patient-reported outcome measurement in regenerative aesthetic practice. Controlled studies are required to determine whether specific hematologic, nutritional or metabolic factors modify clinical response to PRP or PRF treatment.

ETHICS AND PATIENT CONSENT

The case was managed and reported in accordance with the principles of the Declaration of Helsinki. Written informed consent was obtained from the patient for publication of the clinical information and accompanying clinical photographs.

Reporting of this case was prepared with reference to the CARE principles for clinical case reports [18].

CONFLICT OF INTEREST

The authors declare no conflicts of interest.

FIGURE LEGEND

Figure 1. Standardized clinical photographs obtained at baseline and three months after treatment, demonstrating changes in overall facial skin texture, infraorbital appearance and facial rhytides.

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