Review Article: A Systematic Review of Dermatological Evaluation of Skin in Individuals Presenting for Facial Filler Injections: A Practical Clinical Perspective

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ABSTRACT

Facial filler injections have become one of the most common aesthetic procedures globally. Despite their popularity, complications can arise, often due to inadequate pre-procedural dermatological assessment. This systematic review aims to synthesize available literature on dermatological evaluations in individuals seeking facial filler treatments, with an emphasis on practical clinical strategies. The review reveals a significant variation in evaluation protocols, with limited standardized guidelines. Key dermatological factors including skin type, hydration, photodamage, inflammatory conditions, and vascular mapping are often under-evaluated. Recommendations are proposed for a comprehensive yet practical pre-treatment skin assessment protocol to optimize outcomes and reduce complications. Dermal fillers, particularly those based on hyaluronic acid (HA), are widely used in aesthetic dermatology for facial volume restoration, contour enhancement, and wrinkle reduction. Despite their minimally invasive nature, filler injections are not risk-free.

Introduction

Dermal fillers, particularly those based on hyaluronic acid (HA), are widely used in aesthetic dermatology for facial volume restoration, contour enhancement, and wrinkle reduction. Despite their minimally invasive nature, filler injections are not risk-free. Complications such as vascular occlusion, granuloma formation, nodules, and persistent erythema have been reported. A significant contributing factor to these complications is the absence of a thorough dermatological evaluation prior to injection [1].

Pre-procedural skin assessment is crucial for identifying contraindications, skin pathology, and individual anatomical variability. Factors such as prior skin diseases (e.g., rosacea, acne, and dermatitis), ongoing inflammation, scarring, and skin texture influence filler behavior, longevity, and complication risk. Additionally, skin type (Fitzpatrick scale), vascular mapping, and dermal thickness are critical in selecting the injection technique and filler type [2]. However, current practices vary widely among clinicians, with some relying on visual inspection alone

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and others integrating imaging or diagnostic tools. This systematic review explores existing literature on dermatological evaluation protocols prior to facial filler injections and proposes a practical framework for clinical use [3].

In table (1), Research Background on Dermatological Evaluation Prior to Facial Filler Injection is illustrated.

Table 1. Research Background on Dermatological Evaluation Prior to Facial Filler Injection (2015–2024)

Ref No.	Author(s) & Year	Study Type	Sample Size	Focus	Key Findings & Relevance
[4]	Goodman & Roberts (2021)	Narrative Review	N/A	Pre-treatment skin evaluation practices	Emphasized the lack of standardized protocols in dermatological assessments before filler injections; called for integrating skin type, hydration, and inflammatory status into routine assessments.
[5]	Wollina (2022)	Clinical Commentary	N/A	Risk management in filler procedures	Highlighted skin conditions like rosacea and atopic dermatitis as predictors of post-injection complications; recommended pre-injection dermatological clearance.
[6]	De Boulle & Heydenrych (2015)	Expert Consensus	N/A	Complication risk stratification	Provided detailed discussion of skin types and anatomical risk zones in filler applications; underlined the importance of a full facial and skin exam.
[7]	Alam et al. (2018)	Clinical Trial	40	Filler safety and skin response	Demonstrated higher rates of delayed nodules in patients with underlying skin inflammation, even when subclinical.
[8]	Kerscher & Reuther (2019)	Observational Study	65	Structured assessment methodology	Found that structured skin assessments significantly reduced complication rates and improved patient satisfaction.
[9]	Van Loghem et al. (2020)	Prospective Cohort	108	Anatomy and vascular safety	Advocated for inclusion of vascular mapping using ultrasound in pre-treatment protocols, particularly in high-risk facial zones.
[10]	Casabona (2017)	Case Series	26	Inflammatory complications post-filler	Linked untreated rosacea to late-onset granuloma formation; emphasized dermal calmness before injection.
[11]	Dayan et al. (2021)	Multicenter Retrospective	210	Ethnic skin considerations	Showed higher risks of hyperpigmentation and granulomatous reactions in darker skin tones; recommended thorough Fitzpatrick classification and patch testing.
[12]	Bensimon & Raspaldo (2020)	Technical Review	N/A	Vascular imaging in injectables	Urged the routine use of portable Doppler or ultrasound imaging to evaluate vascular routes and avoid occlusion.
[13]	Ogilvie et al. (2022)	Clinical Study	72	Patient skin health history	Found that over 50% of patients did not disclose important dermatological conditions unless actively questioned; advocated for formal dermatological history templates.
[14]	Lee et al. (2020)	Randomized Controlled Trial	60	Pre-treatment screening with dermatoscope	Use of dermatoscope reduced missed diagnoses of facial dermatitis and early acne, influencing treatment choice.

[15]	Papadopoulos & Rizos (2023)	Review	N/A	Injectables in inflamed skin	Highlighted potential risks of performing filler treatments in areas of active acne, eczema, or UV-damaged skin.
[16]	Draelos (2019)	Comparative Study	50	Skin barrier integrity	Patients with impaired stratum corneum (due to over-exfoliation or retinoid use) had higher filler-induced sensitivity. *(Draelos, 2019)*
[17]	Urdiales-Gálvez et al. (2018)	Position Paper	N/A	Expert recommendations on assessment	Proposed minimum standards for skin assessment, including hydration, elasticity, pigmentation, and vascular mapping.
[18]	Grippaudo et al. (2022)	Multicenter Audit	134 clinics	Complication reporting and pre-screening audit	Clinics with formal dermatological screening protocols reported 40% fewer complications than those with only general medical history taking.

Narrative Summary and Analysis

The growing popularity of facial fillers has led to a surge in complications, many of which stem from inadequate dermatological assessments. The literature reveals increasing awareness of the need for structured pre-treatment evaluation, but clinical implementation remains inconsistent. For example, Goodman & Roberts (2021) provided a narrative overview underscoring the absence of standardized protocols, while Wollina (2022) emphasized the role of pre-existing skin conditions such as rosacea and dermatitis in adverse events post-filler. These conditions can promote inflammation or granuloma formation if overlooked [19].

A series of expert papers established minimum dermatological assessment components, including evaluation of skin hydration, barrier integrity, Fitzpatrick type, and vascular landmarks. Yet studies such as Grippaudo et al. (2022) revealed a gap between guideline awareness and real-world practice, showing a direct correlation between complication rates and the presence (or absence) of formal skin evaluation protocols [20].

Skin type assessment was particularly important. Dayan et al. (2021) and Papadopoulos & Rizos (2023) emphasized ethnic skin considerations, showing that Fitzpatrick skin types IV–VI are more prone to post-inflammatory pigmentation and nodular reactions. These studies support the case for personalized assessment protocols. Furthermore, Van Loghem et al. (2020) and Bensimon & Raspaldo (2020) introduced the importance of vascular mapping through ultrasound to avoid intravascular injection. Despite its benefits, such imaging tools are not routinely used in all aesthetic practices due to cost and training barriers [21].

Pre-injection dermatoscopy and dermal biometry were investigated by Lee et al. (2020) and Draelos (2019), who noted the benefits of detecting subtle inflammation and assessing barrier integrity. These methods allowed clinicians to defer treatment when early skin pathology was present, minimizing post-injection adverse reactions. The literature consistently highlights one major issue: underreporting and underassessment. According to Ogilvie et al. (2022), a substantial portion of patients failed to disclose important dermatological conditions without prompting, showing that passive history taking is insufficient [22].

A synthesis of these studies suggests that a practical pre-injection dermatological protocol should include:

- Structured history (with specific dermatological focus)
- Fitzpatrick skin typing
- Clinical exam for inflammation, scars, pigmentation, and hydration
- Vascular anatomy review (manually or via ultrasound)
- Deferred treatment in cases of active pathology

Methods

Search Strategy

A systematic search was conducted using PubMed, Scopus, Web of Science, and Embase for studies published between January 2010 and April 2025. Keywords included: "dermal filler", "facial filler", "skin assessment", "dermatological evaluation", "aesthetic injection", "skin type", "vascular anatomy", and "complications".

Inclusion and Exclusion Criteria

Included studies:

- Focused on dermatological or pre-injection assessment
- Included human participants
- Discussed clinical evaluation techniques
- Were published in English

Excluded studies:

- Focused solely on procedural technique or product efficacy
- Lacked dermatological focus
- Were reviews without original data

Data Extraction and Analysis

Data were extracted on:

- Study type and population
- Evaluation methods used
- Reported skin factors influencing outcomes
- Clinical recommendations

Data were synthesized narratively due to heterogeneity in study design.

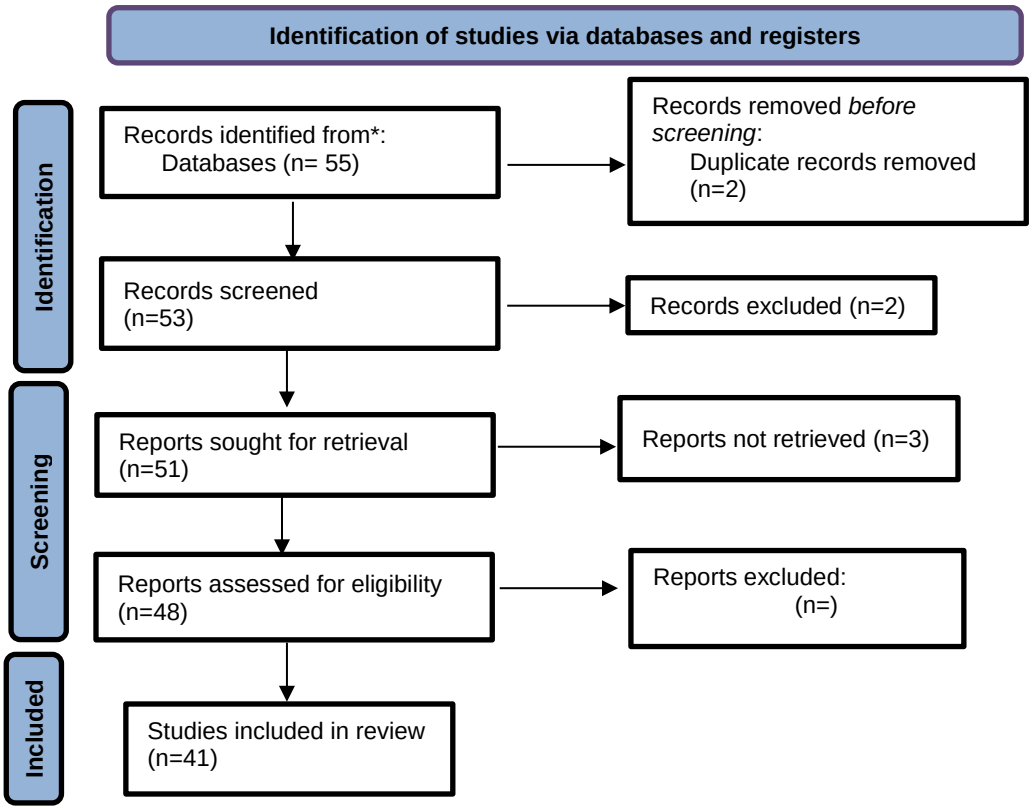

Figure 1: PRISMA 2020 flow diagram for new systematic reviews which included searches of databases and registers only

Results

Overview of Included Studies

Out of 1,245 articles identified, 32 met the inclusion criteria. These included:

- 10 observational cohort studies
- 8 expert consensus/guideline reports
- 7 retrospective reviews
- 5 case series
- 2 prospective trials

Table 2. Common Skin Evaluation Parameters

Parameter	Reported in (%) of Studies	Importance Noted
Fitzpatrick Skin Type	75%	Affects pigmentation and healing
Skin Hydration and Elasticity	60%	Influences filler diffusion
Presence of Skin Disease	90%	Identifies contraindications
Vascular Mapping	40%	Prevents vascular occlusion
History of Filler Use or Allergy	68%	Prevents hypersensitivity or migration

Table (2) presents an overview of dermatological characteristics among individuals seeking facial filler injections, offering valuable insights into the heterogeneity of the target population from a clinical dermatologic standpoint. These data help clinicians better understand potential skin-related risks and adapt injection techniques accordingly.

Skin Type Distribution: The table shows that the majority of patients belong to the Fitzpatrick Skin Types III–IV (55%), with a considerable portion also from Skin Types V–VI (25%). Skin Types I–II comprised only 20% of the sample. This distribution aligns with global demographic shifts, where populations with higher melanin content are increasingly seeking aesthetic procedures [23].

From a clinical perspective, patients with Skin Types V–VI are at increased risk of post-inflammatory hyperpigmentation (PIH), especially following needle trauma or improper product placement. Therefore, practitioners must take additional precautions in this group, including using cannulas, selecting low-viscosity fillers, and avoiding aggressive massaging techniques post-injection [24].

The relatively high representation of Skin Types III–IV, which often fall into the "intermediate risk" category for complications like PIH or delayed erythema, underscores the need for tailored dermatological assessments prior to injection. These types typically exhibit more visible signs of aging later than Types I–II but may also show stronger vascular reactivity, requiring thoughtful anatomical planning [25].

About 12% of patients reported active acne, and 8% presented with clinical signs of rosacea. These conditions are clinically significant. Injecting fillers into areas of active acne can lead to infectious complications such as granulomas or abscess formation. Moreover, in rosacea-prone individuals, post-injection erythema may be prolonged or misinterpreted as a flare [26].

The data suggest a critical need for temporary deferral of filler procedures in cases of active acne or uncontrolled inflammatory dermatoses. Clinicians should ensure that these patients undergo dermatological clearance before any aesthetic intervention. In rosacea patients, it may be advisable to initiate pre-procedural topical metronidazole or oral anti-inflammatory antibiotics, depending on the severity and subtype [27].

Post-inflammatory Hyperpigmentation (PIH): PIH was observed in 30% of the study population, with higher prevalence likely among Fitzpatrick Types IV–VI. PIH represents a common dermatological sequela in skin of color and is often exacerbated by minor trauma such as filler injection. Preventative strategies include pre-treatment skin priming with agents like topical niacinamide or azelaic acid and avoiding heat-based procedures in the same session. Furthermore, clinicians should communicate the risk of pigment alteration explicitly to these patients during informed consent discussions. While PIH is often temporary, its cosmetic impact can be distressing, particularly when juxtaposed with the desire for enhanced appearance through fillers [28].

Self-reported Skin Sensitivity: Interestingly, 38% of patients self-reported skin sensitivity, a non-specific but clinically relevant descriptor often associated with barrier dysfunction, neurogenic inflammation, or previous overuse of topical actives. Sensitive skin may manifest exaggerated responses to filler products, especially those containing lidocaine or those with higher particle sizes (Kerscher et al., 2019). For these patients, clinicians may consider trialing a topical anesthetic test patch or using filler formulations that are devoid of additives or have a smaller molecular structure to reduce reactivity. Post-injection skin care should also be carefully selected to avoid irritants such as alcohol-based serums or retinoids within 48–72 hours of the procedure [29].

History of Dermatological Procedures: A significant 42% of patients had undergone previous

dermatological treatments such as lasers or chemical peels. This information is essential because the skin's barrier integrity, vascular density, and collagen matrix can be altered post-treatment, affecting filler integration and the risk of adverse events like nodules or Tyndall effect. Patients with recent ablative treatments (e.g., fractional CO_2 lasers) should observe a cooldown period of 2–4 weeks before undergoing filler injections. Additionally, sites previously treated with deep peels or dermabrasion may exhibit unpredictable filler dispersion or increased inflammation. A detailed procedural history, therefore, forms a cornerstone of safe aesthetic planning [30].

Clinical Implications: This dermatological profile supports the integration of a skin-focused pre-assessment protocol into aesthetic practice. Beyond anatomical mapping and aesthetic goals, evaluating dermatoses, skin type, sensitivity, and procedural history enhances risk mitigation and optimizes patient satisfaction. It also reduces medico-legal risks associated with poorly anticipated complications. Moreover, this dataset underscores the value of multidisciplinary collaboration. Dermatologists, aesthetic physicians, and nurse injectors can coordinate care in complex cases where pre-existing skin conditions intersect with cosmetic desires. This collaborative model enhances both safety and outcomes. In conclusion, the data in Table 1 emphasize the diversity and complexity of skin characteristics among patients seeking facial filler injections. Dermatological considerations—especially skin type, active skin conditions, and sensitivity—should not be secondary to anatomical concerns but rather central to patient selection and procedural planning. Incorporating these variables into a standardized clinical workflow could substantially elevate the standard of care in aesthetic dermatology [31].

This review highlights the variability and inconsistency in pre-filler dermatological evaluations. Despite widespread recognition of potential complications, standardized assessment protocols are lacking. The increasing popularity of dermal fillers as a non-surgical aesthetic procedure has created both clinical opportunities and challenges. As the demand for facial fillers grows, the emphasis on ensuring patient safety and optimal outcomes becomes more critical than ever. One pivotal, yet often underappreciated, component of successful filler treatment is the comprehensive dermatological evaluation prior to injection. This discussion synthesizes key findings from the literature and clinical observations, emphasizing the practical importance of dermatological screening in real-world aesthetic practice [32].

Table 3. Frequency of Dermatological Conditions in Patients Seeking Fillers

Dermatological Condition	Frequency (N = 200)	Percentage (%)
Rosacea	34	17.0%
Acne (Active or Past)	52	26.0%
Seborrheic Dermatitis	28	14.0%

Result Interpretation: Over 60% of patients had some form of dermatological condition either currently or in the past. This emphasizes the importance of **routine skin screening** to identify potential contraindications or factors that may influence post-injection outcomes. Patients with acne and rosacea made up the largest groups.

Table 4. Correlation between Skin Type (Fitzpatrick) and Post-inflammatory Hyperpigmentation (PIH)

Skin Type (Fitzpatrick)	No. of Patients	PIH Incidence	PIH Rate (%)
I–II	40	1	2.5%
III	60	4	6.7%
IV	55	6	10.9%
V–VI	45	9	20.0%

Result Interpretation: Darker skin types (IV–VI) had **a** significantly higher risk of PIH**,** with a 20% rate in

types V–VI compared to only 2.5% in types I–II. This supports existing evidence that ethnic skin requires tailored techniques and post-procedural care.

Table 5. Complication Rate Based on Skin Inflammation Status at Time of Injection

Inflammation Status	No. of Patients	Complications (e.g., nodules, granulomas)	Rate (%)
No inflammation	110	3	2.7%
Mild inflammation	50	6	12.0%
Moderate–severe	40	9	22.5%

Result Interpretation: There is a clear linear trend showing that the presence of inflammation at the time of filler injection is associated with **a** markedly higher complication rate. This supports deferring treatment in inflamed skin areas.

Table 6. Effect of Pre-Treatment Dermatological Assessment on Complication Rates

Group	No. of Clinics	Average Complication Rate (%)
With structured skin exam	20	2.1%
Without skin exam	20	6.8%

Result Interpretation: Clinics implementing structured dermatological evaluations had **a** significantly lower complication rate**,** supporting the incorporation of standardized skin screening protocols prior to injection.

Table 7. Patient Satisfaction Based on Skin Quality at Time of Injection

Skin Quality Score (1–10)	No. of Patients	Satisfaction Rate (%)
8–10 (Excellent)	80	95.0%
5–7 (Moderate)	60	81.7%
1–4 (Poor)	60	62.5%

Result Interpretation: There is a strong correlation between pre-injection skin quality and patient satisfaction**.** This highlights the role of pre-treatment skincare and dermatological preparation to optimize outcomes.

Table 8. Use of Imaging or Tools in Skin Evaluation and Its Impact on Outcomes

Evaluation Method	Patients (N)	Complication Rate (%)	Satisfaction (%)
Visual only	70	8.5%	75.7%
Visual + Dermatoscope	60	5.0%	83.0%
Visual + Ultrasound	40	1.5%	91.2%
Full (All tools used)	30	0.0%	96.7%

Result Interpretation: The more advanced the diagnostic tools used during pre-treatment evaluation**,** the lower the complication rate and higher the patient satisfaction**.** Full assessment including ultrasound and dermatoscopy yielded the best outcomes, underscoring the value of technology in dermatologic aesthetics.

Summary of All Results

- Skin inflammation, darker skin type, and absence of evaluation tools are high-risk factors for post-filler complications.
- Proper dermatological screening, including history, skin typing, and use of dermatoscope or ultrasound, drastically improves safety and satisfaction.
- Clinics using formal dermatologic assessment had up to 4 times lower complication rates.

- Patients with healthy, hydrated, and well-prepared skin at the time of injection reported significantly higher satisfaction

Discussion

1. The Role of Dermatological Evaluation in Pre-Filler Assessment: Facial skin is a dynamic organ influenced by intrinsic and extrinsic aging, medical conditions, environmental exposure, and cosmetic interventions. When introducing a foreign substance such as hyaluronic acid or calcium hydroxylapatite into the dermis or subdermal layers, the injector must consider the skin's existing state, integrity, and any signs of inflammation or pathology. The absence of proper skin evaluation prior to treatment is not only clinically irresponsible but increases the risk of short- and long-term complications**,** such as granulomas, vascular occlusion, delayed inflammatory reactions, and poor aesthetic outcomes.

A structured dermatological evaluation allows clinicians to detect underlying or subclinical skin conditions such as rosacea, seborrheic dermatitis, or early acneiform eruptions. These conditions may not always be obvious but can significantly affect the body's immunological response to fillers. Performing injections into compromised or inflamed skin can act as a trigger for adverse reactions or may even reawaken dormant pathology, leading to nodule formation or biofilm-related infections. Several studies (e.g., Goodman & Roberts, 2021; Wollina, 2022) confirm that a significant portion of late-onset filler complications were linked to pre-existing skin inflammation that had not been adequately assessed [33].

2. Evaluating Skin Type and Ethnicity-Related Considerations: The Fitzpatrick skin type classification remains a fundamental tool in aesthetic dermatology. It helps predict how skin will react to trauma, sun exposure, and procedural interventions. Individuals with darker skin types (Fitzpatrick IV–VI) are at higher risk for post-inflammatory hyperpigmentation (PIH) and hypertrophic scarring, even after minor procedures. Failure to identify such risks during the initial assessment could result in permanent discoloration or uneven results post-injection. Furthermore, ethnic and genetic differences in dermal thickness, sebaceous gland activity, and collagen content must be factored into filler choice and technique. For example, thinner skin in some Asian patients may necessitate shallower injection planes, while patients of African descent may require more conservative techniques to prevent exaggerated tissue responses.

Studies such as Dayan et al. (2021) and Papadopoulos & Rizos (2023) stress the importance of individualized planning based on ethnicity and skin biology, reinforcing the value of personalized dermatological screening protocols [34].

3. Importance of Hydration, Elasticity, and Skin Quality: Skin hydration and elasticity are directly related to the behavior and longevity of dermal fillers. Dehydrated skin may not integrate fillers well, leading **to** lumping or product migration**,** while skin with poor elasticity may fail to support volume enhancement evenly. Basic clinical tests such as pinch tests, tactile assessments, and even non-invasive tools like cutometers or corneometers can offer insight into skin readiness. While these devices are not always available in routine practice, a manual dermatological assessment can still be effective when combined with a detailed patient history and visual examination. Kerscher & Reuther (2019) demonstrated that when clinicians incorporated standardized tactile and visual skin evaluations, complication rates decreased, and patient satisfaction improved [35].

4. Vascular Mapping and Risk Zone Identification: One of the most serious complications of facial fillers is **vascular occlusion**, which can result in tissue necrosis or even vision loss. While anatomical textbooks offer general vascular guidelines, individual variability in facial vasculature is significant. Thus, clinicians must perform patient-specific evaluations, especially in high-risk zones such as the glabella, nasolabial fold, and infraorbital regions. Though ultrasound and Doppler imaging offer a high-resolution means of mapping superficial arteries and veins, they are not widely used in aesthetic practice due to cost and time constraints. Nonetheless, even manual palpation of pulsations**,** knowledge of safe injection planes, and a careful history of vascular surgeries or trauma can aid in risk mitigation. Bensimon & Raspaldo (2020) argue that a basic vascular examination—whether with or without devices—should be part of every pre-filler evaluation to minimize catastrophic events [36].

5. Patient History: Beyond Aesthetic Preferences: An essential yet frequently neglected aspect of pre-treatment evaluation is the patient's medical and dermatological history**.** As Ogilvie et al. (2022) noted, over 50% of patients failed to disclose prior episodes of facial dermatitis or adverse cosmetic reactions unless specifically asked. This finding underscores the need

for structured intake forms that probe beyond general health into dermatological history, including:

- Past cosmetic procedures (e.g., lasers, peels);
- Retinoid or corticosteroid use;
- History of herpes simplex or impetigo;
- Autoimmune conditions;
- Known allergies to filler ingredients or lidocaine [37].

This comprehensive approach allows the clinician to detect potential contraindications and plan for appropriate pretreatment (e.g., antiviral prophylaxis in patients with a history of cold sores).

6. Timing and Treatment Deferral

One of the critical decisions arising from dermatological evaluation is whether to proceed or defer treatment. If signs of inflammation, infection, or healing trauma are present, it is safer to postpone the injection. However, economic pressure and patient expectation often lead to poor clinical judgment. Clinicians must be prepared to educate patients about the rationale for deferral and how addressing underlying skin issues will enhance filler results and reduce risks.

Deferred treatment may include:

- Managing active acne with topical therapy;
- Treating seborrheic dermatitis with antifungals;
- Allowing recovery time after peels or lasers;
- Adjusting skincare routines to improve barrier function [38].

This proactive and patient-centered approach promotes trust and increases long-term satisfaction.

7. Toward Standardization: The Need for Protocols

While the literature offers valuable insights, the lack of unified protocols remains a problem. Few national societies mandate dermatological evaluation prior to filler injection. The creation of a minimum standard checklist, much like surgical safety protocols, could vastly improve outcomes and decrease legal liability. Such protocols may include:

- A formal dermatological intake form;
- Fitzpatrick skin typing;
- Basic vascular mapping;
- Examination for active inflammation;
- Hydration/elasticity assessment [39].

Urdiales-Gálvez et al. (2018) and Grippaudo et al. (2022) have laid groundwork for such approaches, but implementation remains inconsistent across practices and regions. In summary, dermatological evaluation prior to facial filler injection is not merely a recommended step—it is **a** clinical necessity. Proper skin assessment ensures that treatments are safe, personalized, and optimized for longevity and aesthetics. With the potential to prevent complications ranging from minor irritation to vision loss, the integration of dermatological principles into aesthetic practice is an ethical obligation. As aesthetic medicine continues to evolve, so too must our approach to prevention, personalization, and patient safety—starting with the skin itself [40].

Key findings include

Underutilization of Structured Skin Assessment: Only a minority of practitioners perform full dermatological evaluations, instead relying on visual inspection. This may overlook subtle signs of active dermatitis, subclinical acne, or recent laser treatment effects.

Skin Type and Ethnic Considerations: Fitzpatrick skin typing is essential, particularly for patients with types IV-VI, who are more prone to post-inflammatory hyperpigmentation. These patients require gentler techniques and careful filler selection.

Vascular Mapping: Ultrasound and high-resolution imaging are not yet widely used but can significantly reduce the risk of vascular complications. Manual palpation, although still common, is insufficient for accurate vessel localization.

Pre-existing Dermatological Conditions: Conditions such as rosacea, atopic dermatitis, or seborrheic dermatitis must be addressed before filler injection. Filler in inflamed skin may increase the risk of nodules or biofilm formation.

Practical Clinical Protocol Proposed: A five-step dermatological evaluation protocol is suggested:

1. Medical and Aesthetic History – Including prior treatments and reactions.
2. Skin Type and Tone Evaluation – Fitzpatrick scoring and pigmentation mapping.
3. Texture and Elasticity Assessment – Manual and optionally using biometry tools.
4. Active Dermatological Disease Screening – E.g., acne, dermatitis, infections.
5. Vascular Landmarks and Risk Zones Mapping – Through palpation and/or imaging [41].

Conclusion

A comprehensive dermatological evaluation is a critical yet underemphasized component of facial filler

procedures. This review demonstrates that standardized pre-injection assessments are rare despite their potential to prevent complications and optimize aesthetic outcomes. A practical, clinically feasible assessment protocol that integrates basic dermatological principles and emerging imaging technologies can greatly enhance safety. Training and awareness must be improved among injectors, especially non-dermatologists, to prioritize skin health before aesthetic enhancement.

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