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ORAL ISOTRETINOIN IN AESTHETIC RHINOPLASTY FOR PATIENTS WITH THICK SKIN: EVIDENCE, SAFETY, DOSE, AND OPTIMAL TIMING OF USE

ISOTRETINOÍNA ORAL EM RINOPLASTIA ESTÉTICA PARA PACIENTES COM PELE ESPESSA: EVIDÊNCIAS, SEGURANÇA, DOSE E MOMENTO IDEAL DE USO

ISOTRETINOÍNA ORAL EN RINOPLASTIA ESTÉTICA PARA PACIENTES CON PIEL GRUESA: EVIDENCIA, SEGURIDAD, DOSIS Y MOMENTO ÓPTIMO DE USO

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ABSTRACT

Introduction: Thick nasal skin remains one of the main determinants of limited tip definition, prolonged postoperative edema, and delayed aesthetic refinement after rhinoplasty. Oral isotretinoin has been proposed as an adjuvant therapy because of its effects on sebaceous gland activity, keratinization, dermal behavior, and nasal skin thickness, but concerns persist regarding wound healing, mucosal dryness, scarring, and optimal perioperative timing. Objective: The main objective of this systematic review was to evaluate the efficacy and safety of oral isotretinoin in aesthetic rhinoplasty patients with thick nasal skin. Secondary objectives were to assess its effects on postoperative edema, nasal skin thickness, skin quality, tip definition, patient satisfaction, dose strategies, timing of initiation, adverse events, and certainty of evidence. Methods: PubMed, Scopus, Web of Science, Cochrane Library, LILACS, ClinicalTrials.gov, and the International Clinical Trials Registry Platform were searched using terms related to rhinoplasty, isotretinoin, thick nasal skin, nasal skin thickness, postoperative edema, wound healing, and aesthetic outcomes. The primary eligibility window was five years, expanded to ten years for direct clinical studies because fewer than 10 primary rhinoplasty studies were available. Direct studies of isotretinoin in rhinoplasty patients and supportive human evidence on nasal skin thickness, retinoid procedural safety, wound healing, and isotretinoin monitoring were included in a qualitative synthesis. Results and Discussion: Twelve studies were included in the final qualitative synthesis. Direct rhinoplasty studies suggested that oral isotretinoin may improve early postoperative appearance, skin quality, sebaceous activity, nasal skin thickness, and patient satisfaction in selected thick-skinned patients. The most consistent benefit was observed

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during the first postoperative months, whereas evidence for superior final aesthetic outcomes at 12 months or longer remained limited. Supportive literature challenged the traditional absolute avoidance of procedures during or soon after isotretinoin therapy, but rhinoplasty-specific safety data remained underpowered for uncommon complications. The certainty of evidence was low for early cosmetic improvement and nasal skin thinning, and very low to low for optimal dose, timing, duration, and long-term aesthetic superiority. Conclusion: Oral isotretinoin may be considered a selective adjuvant in thick-skinned rhinoplasty patients, especially when sebaceous activity, prolonged edema, or skin thickness is expected to limit early refinement. Its use should be individualized, preferably low dose, delayed until early epithelial stability when clinically appropriate, and monitored jointly by the surgeon and dermatologist. Current evidence supports cautious, multidisciplinary use rather than routine prescription for all thick-skinned rhinoplasty patients.

Keywords: Isotretinoin. Rhinoplasty. Wound Healing. Skin.

RESUMO

Introdução: A pele nasal espessa permanece um dos principais determinantes de definição limitada da ponta, edema pós-operatório prolongado e refinamento estético tardio após rinoplastia. A isotretinoína oral tem sido proposta como terapia adjuvante devido a seus efeitos sobre a atividade das glândulas sebáceas, queratinização, comportamento dérmico e espessura da pele nasal, mas persistem preocupações quanto à cicatrização de feridas, ressecamento mucoso, formação de cicatrizes e momento perioperatório ideal. Objetivo: O objetivo principal desta revisão sistemática foi avaliar a eficácia e a segurança da isotretinoína oral em pacientes de rinoplastia estética com pele nasal espessa. Os objetivos secundários foram avaliar seus efeitos sobre edema pós-operatório, espessura da pele nasal, qualidade da pele, definição da ponta, satisfação do paciente, estratégias de dose, momento de início, eventos adversos e certeza da evidência. Métodos: PubMed, Scopus, Web of Science, Cochrane Library, LILACS, ClinicalTrials.gov e a International Clinical Trials Registry Platform foram pesquisados usando termos relacionados a rinoplastia, isotretinoína, pele nasal espessa, espessura da pele nasal, edema pós-operatório, cicatrização de feridas e desfechos estéticos. A janela primária de elegibilidade foi de cinco anos, expandida para dez anos para estudos clínicos diretos porque menos de 10 estudos primários de rinoplastia estavam disponíveis. Estudos diretos de isotretinoína em pacientes de rinoplastia e evidências humanas de apoio sobre espessura da pele nasal, segurança procedimental de retinoides, cicatrização de feridas e monitoramento da isotretinoína foram incluídos em uma síntese qualitativa. Resultados e Discussão: Doze estudos foram incluídos na síntese qualitativa final. Estudos diretos de rinoplastia sugeriram que a isotretinoína oral pode melhorar a aparência pós-operatória precoce, a qualidade da pele, a atividade sebácea, a espessura da pele nasal e a satisfação do paciente em pacientes selecionados com pele espessa. O benefício mais consistente foi observado durante os primeiros meses pós-operatórios, enquanto a evidência de desfechos estéticos finais superiores aos 12 meses ou mais permaneceu limitada. A literatura de apoio desafiou a tradicional evitação absoluta de procedimentos durante ou logo após a terapia com isotretinoína, mas os dados de segurança específicos da rinoplastia permaneceram subdimensionados para complicações incomuns. A certeza da evidência foi baixa para melhora cosmética precoce e afinamento da pele nasal, e muito baixa a baixa para dose ideal, momento, duração e superioridade estética de longo prazo. Conclusão: A isotretinoína oral pode ser considerada um adjuvante seletivo em pacientes de rinoplastia com pele espessa, especialmente quando se espera que atividade sebácea, edema prolongado ou espessura da pele limitem o refinamento precoce. Seu uso deve ser individualizado, preferencialmente em baixa dose, adiado até a estabilidade epitelial precoce quando clinicamente apropriado, e monitorado conjuntamente pelo cirurgião e dermatologista. A evidência atual apoia o uso cauteloso e multidisciplinar em vez da prescrição rotineira para todos os pacientes de rinoplastia com pele espessa.

Palavras-chave: Isotretinoína. Rinoplastia. Cicatrização de Feridas. Pele.

RESUMEN

Introducción: La piel nasal gruesa sigue siendo uno de los principales determinantes de definición limitada de la punta, edema posoperatorio prolongado y refinamiento estético tardío tras la rinoplastia. La isotretinoína oral se ha propuesto como terapia adyuvante debido a sus efectos sobre la actividad de las glándulas sebáceas, la queratinización, el comportamiento dérmico y el grosor de la piel nasal, pero persisten preocupaciones respecto a la cicatrización de heridas, la sequedad mucosa, las cicatrices y el momento perioperatorio óptimo. Objetivo: El objetivo principal de esta revisión sistemática fue evaluar la eficacia y la seguridad de la isotretinoína oral en pacientes de rinoplastia estética con piel nasal gruesa. Los objetivos secundarios fueron evaluar sus efectos sobre el edema posoperatorio, el grosor de la piel nasal, la calidad de la piel, la definición de la punta, la satisfacción del paciente, las estrategias de dosis, el momento de inicio, los eventos adversos y la certeza de la evidencia. Métodos: Se realizaron búsquedas en PubMed, Scopus, Web of Science, Cochrane Library, LILACS, ClinicalTrials.gov y la International Clinical Trials Registry Platform utilizando términos relacionados con rinoplastia, isotretinoína, piel nasal gruesa, grosor de la piel nasal, edema posoperatorio, cicatrización de heridas y resultados estéticos. La ventana primaria de elegibilidad fue de cinco años, ampliada a diez años para los estudios clínicos directos porque había menos de 10 estudios primarios de rinoplastia disponibles. Se incluyeron en una síntesis cualitativa estudios directos de isotretinoína en pacientes de rinoplastia y evidencia humana de apoyo sobre el grosor de la piel nasal, la seguridad procedimental de los retinoides, la cicatrización de heridas y el monitoreo de la isotretinoína. Resultados y Discusión: Doce estudios se incluyeron en la síntesis cualitativa final. Los estudios directos de rinoplastia sugirieron que la isotretinoína oral puede mejorar la apariencia posoperatoria temprana, la calidad de la piel, la actividad sebácea, el grosor de la piel nasal y la satisfacción del paciente en pacientes seleccionados con piel gruesa. El beneficio más consistente se observó durante los primeros meses posoperatorios, mientras que la evidencia de resultados estéticos finales superiores a los 12 meses o más permaneció limitada. La literatura de apoyo desafió la tradicional evitación absoluta de procedimientos durante o poco después de la terapia con isotretinoína, pero los datos de seguridad específicos de la rinoplastia permanecieron subdimensionados para complicaciones poco comunes. La certeza de la evidencia fue baja para la mejora cosmética temprana y el adelgazamiento de la piel nasal, y muy baja a baja para la dosis óptima, el momento, la duración y la superioridad estética a largo plazo. Conclusión: La isotretinoína oral puede considerarse un adyuvante selectivo en pacientes de rinoplastia con piel gruesa, especialmente cuando se espera que la actividad sebácea, el edema prolongado o el grosor de la piel limiten el refinamiento temprano. Su uso debe ser individualizado, preferiblemente en dosis bajas, retrasado hasta la estabilidad epitelial temprana cuando sea clínicamente apropiado, y monitoreado conjuntamente por el cirujano y el dermatólogo. La evidencia actual respalda un uso cauteloso y multidisciplinario en lugar de la prescripción rutinaria para todos los pacientes de rinoplastia con piel gruesa.

Palabras clave: Isotretinoína. Rinoplastia. Cicatrización de Heridas. Piel.

1 INTRODUCTION

Aesthetic rhinoplasty is a technically demanding procedure in which skeletal reshaping alone does not determine the final contour, because the skin–soft tissue envelope acts as the visible interface through which cartilaginous and osseous modifications are expressed.[1] In patients with thick nasal skin, sebaceous hypertrophy, dermal density, subcutaneous fibrofatty tissue, and prolonged postoperative edema may blunt tip definition even after structurally adequate surgery.[1] This phenotype is particularly relevant in ethnic rhinoplasty, revision surgery, and bulbous-tip deformities, where the surgeon must balance projection, support, scar control, and the limitations imposed by a less contractile soft tissue envelope.[1]

The thick-skinned nose is not a single anatomical category, but rather a spectrum that includes sebaceous skin, edematous skin, fibrotic skin, and structurally heavy envelopes with variable responsiveness to surgical refinement.[2] Preoperative evaluation therefore requires more than visual inspection, because palpation, sebaceous activity, acne history, rosacea-like changes, and the expected degree of postoperative contraction may influence both operative strategy and postoperative management.[2] In this setting, the concept of pharmacologic modulation of the nasal envelope has emerged as an adjunct to structural rhinoplasty rather than a substitute for precise surgical planning.[2]

Oral isotretinoin is a systemic retinoid with well-established effects on sebaceous gland activity, keratinization, follicular obstruction, and inflammatory pathways in acne-prone skin.[3] These mechanisms are biologically plausible in thick-skinned rhinoplasty because sebaceous reduction and dermal remodeling may theoretically decrease nasal skin thickness, improve texture, and allow clearer expression of the nasal framework.[3] However, transferring dermatologic pharmacology into aesthetic facial surgery requires caution, because surgical healing depends on epithelial integrity, dermal repair, collagen organization, mucosal recovery, and patient-specific systemic risk.[3]

Historically, concern about isotretinoin and wound healing led many surgeons to avoid elective procedures during treatment or shortly after discontinuation.[4] More recent dermatologic and procedural literature has challenged the universality of this restriction, suggesting that the relationship between isotretinoin, scarring, and procedural risk is more nuanced than previously assumed.[4] Rhinoplasty remains a distinctive surgical context, however, because it involves external skin incisions, internal mucosal incisions, osteocartilaginous manipulation, graft healing, postoperative edema, and prolonged soft tissue remodeling.[4]

The postoperative course after rhinoplasty is unusually long when compared with many cutaneous procedures, and the aesthetic result may continue to evolve for 12 months

or longer.[5] In thick-skinned patients, early edema and persistent sebaceous thickness can obscure nasal tip definition, delay satisfaction, and create the impression of undercorrection despite adequate support and grafting.[5] This temporal mismatch between early postoperative appearance and final structural result is one of the main reasons why oral isotretinoin has been investigated as a possible adjuvant during the remodeling phase.[5]

The available clinical studies suggest that oral isotretinoin may improve early postoperative appearance, patient satisfaction, skin texture, and nasal tip definition in selected thick-skinned patients.[6] Nevertheless, the magnitude and durability of benefit remain uncertain, because several reports indicate that early differences may diminish over time as the untreated postoperative envelope continues to remodel.[6] This distinction is clinically important, since an intervention that accelerates early refinement may still be valuable for selected patients, but should not be presented as a guarantee of superior final rhinoplasty outcomes.[6]

Dose and timing remain among the most controversial aspects of oral isotretinoin use in aesthetic rhinoplasty.[7] Published protocols have varied from low-dose postoperative regimens to broader dermatologic dosing strategies, and initiation has generally been delayed until early wound healing is established rather than started immediately after surgery.[7] These variations make it difficult to define a universal regimen, especially because the ideal approach may depend on skin phenotype, acne activity, sex, reproductive risk, hepatic profile, lipid profile, surgeon preference, and the degree of postoperative edema.[7]

Safety assessment is central to this topic because isotretinoin is associated with mucocutaneous dryness, cheilitis, epistaxis, laboratory abnormalities, psychiatric warnings, teratogenicity, and strict pregnancy-prevention requirements.[8] In rhinoplasty patients, nasal dryness and epistaxis may be particularly relevant because the operated nose is already vulnerable to crusting, mucosal irritation, and altered airflow during recovery.[8] Therefore, any proposed postoperative regimen must be framed within multidisciplinary monitoring, shared decision-making, and careful exclusion of patients in whom the risk profile outweighs the expected aesthetic benefit.[8]

The evidence base is also limited by small samples, heterogeneous designs, variable definitions of thick skin, inconsistent outcome measures, and the frequent use of subjective aesthetic scales.[9] Some studies focus on postoperative edema and cosmetic satisfaction, whereas others evaluate nasal skin thickness or recovery in patients exposed to isotretinoin before or after rhinoplasty.[9] This heterogeneity prevents strong pooled inference and reinforces the need for a systematic review that separates efficacy, safety, timing, dosage,

and certainty of evidence instead of treating isotretinoin as a uniformly beneficial or uniformly contraindicated intervention.[9]

A systematic synthesis is clinically justified because facial plastic surgeons, dermatologists, and patients increasingly encounter the question of whether oral isotretinoin should be used before or after rhinoplasty in thick-skinned individuals.[10] The decision is not merely cosmetic, since postoperative dissatisfaction, prolonged edema, revision consideration, acne activity, and adverse-event surveillance all intersect in this population.[10] By organizing the available evidence according to study design, population, intervention timing, dose, outcomes, adverse events, and methodological quality, this review seeks to clarify what can be recommended, what remains uncertain, and which future studies are required.[10]

2 OBJECTIVES

The main objective of this systematic review is to evaluate the evidence regarding the efficacy and safety of oral isotretinoin as an adjunctive therapy in aesthetic rhinoplasty for patients with thick nasal skin. The secondary objectives are: to assess whether oral isotretinoin improves postoperative edema, nasal skin thickness, skin texture, tip definition, and patient or surgeon satisfaction; to compare reported preoperative and postoperative timing strategies, including initiation after early wound healing; to summarize dose regimens, treatment duration, monitoring strategies, and discontinuation criteria used in the available studies; to evaluate adverse events, including mucocutaneous effects, epistaxis, laboratory abnormalities, wound-healing complications, scarring, and systemic safety concerns; and to determine the certainty of evidence and the main methodological limitations that restrict clinical recommendations for routine practice.

3 METHODOLOGY

This systematic review was designed according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework. The search strategy included PubMed, Scopus, Web of Science, Cochrane Library, LILACS, ClinicalTrials.gov, and the International Clinical Trials Registry Platform (ICTRP). The search combined controlled vocabulary and free-text terms related to rhinoplasty, thick skin, nasal skin thickness, isotretinoin, oral retinoids, postoperative edema, wound healing, cosmetic outcomes, and patient satisfaction. No language restriction was applied.

Eligible studies included randomized clinical trials, nonrandomized comparative studies, prospective cohorts, retrospective cohorts, case series, and clinically relevant

observational studies evaluating oral isotretinoin before or after aesthetic rhinoplasty in patients with thick nasal skin or related phenotypes. The primary time window was the last five years; however, because fewer than 10 eligible clinical studies were expected in this narrow field, the eligibility window was expanded to 10 years for primary studies directly addressing oral isotretinoin and rhinoplasty. Human studies were prioritized, while animal or in vitro studies were considered only for mechanistic discussion and would be reported separately if relevant. Reviews, editorials, letters, and narrative syntheses were used only for background or citation tracking, not as primary evidence in the results table.

Two reviewers independently screened titles and abstracts, reviewed full texts, and extracted data using a standardized form. Extracted variables included author, year, country, study design, population characteristics, skin phenotype, rhinoplasty type, isotretinoin timing, dose, duration, comparator, outcome measures, follow-up, adverse events, and main conclusions. Disagreements were resolved by consensus, and duplicate records were removed before full-text assessment. The PRISMA flow process was planned to report the number of records identified, screened, excluded, and included in the final synthesis.

Risk of bias was assessed according to study design. Randomized trials were evaluated with the revised Cochrane Risk of Bias tool for randomized trials (RoB 2), nonrandomized studies with the Risk Of Bias In Non-randomized Studies of Interventions (ROBINS-I), and diagnostic or measurement-focused studies with the Quality Assessment of Diagnostic Accuracy Studies 2 (QUADAS-2) when applicable. The certainty of evidence for each major outcome was graded using the Grading of Recommendations Assessment, Development and Evaluation (GRADE) approach. Because clinical heterogeneity was expected in dose, timing, study design, outcome measurement, and follow-up duration, a narrative synthesis was planned, with meta-analysis performed only if sufficiently homogeneous data were available.

4 RESULTS

Primary clinical evidence included studies evaluating oral isotretinoin before, during, or after rhinoplasty. Supportive evidence included human studies and consensus-based systematic reviews evaluating isotretinoin-related wound healing, procedural safety, nasal skin thickness, sebaceous activity, and cutaneous surgical outcomes when directly relevant to rhinoplasty planning or postoperative recovery.

Tabela 1

Studies included in the qualitative synthesis: population/intervention/comparison, outcomes, and main conclusions.

Reference	**Population / Intervention / Comparison**	**Outcomes**	**Main conclusions**
Allen and Rhee, 2005	The study described rhinoplasty patients who received isotretinoin after surgery and subsequently developed postoperative nasal soft tissue deformities.	The study assessed nasal tip asymmetry, soft tissue atrophy, deformity progression, and temporal association with postoperative isotretinoin exposure.	The authors concluded that postoperative isotretinoin might be associated with unfavorable nasal soft tissue remodeling in selected patients, although the evidence was limited by case-based design and inability to establish causality.
Cobo and Vitery, 2016	The study evaluated thick-skinned rhinoplasty patients treated with monitored oral isotretinoin after surgery, with clinical follow-up focused on sebaceous activity and the behavior of the skin–soft tissue envelope.	The study assessed postoperative skin quality, sebaceous gland control, thinning of the skin–subcutaneous tissue envelope, aesthetic refinement, and safety during clinical monitoring.	The authors concluded that oral isotretinoin, when carefully monitored and preferably supervised with dermatologic collaboration, could reduce sebaceous activity and improve the thick nasal envelope without clinically evident compromise of the underlying bony or cartilaginous framework.
Sazgar *et al.*, 2019	The randomized placebo-controlled clinical trial evaluated thick-skinned rhinoplasty patients receiving postoperative oral isotretinoin compared with placebo.	The study assessed postoperative edema, cosmetic improvement, patient or surgeon-rated aesthetic outcomes, adverse effects, and final results after follow-up extending to 12 months.	The authors concluded that postoperative oral isotretinoin accelerated cosmetic improvement during the early postoperative months but did not significantly change the final aesthetic result at 12 months.
Yahyavi *et al.*, 2020	The prospective cohort study evaluated rhinoplasty	The study assessed skin oiliness, acne, incision healing,	The authors concluded that isotretinoin was not

	patients with thick and oily nasal skin who received isotretinoin before, during, and after surgery compared with controls.	cartilage deformity, hypertrophic tissue formation, keloid formation, patient satisfaction, and postoperative safety.	associated with impaired rhinoplasty recovery and was associated with fewer skin problems and higher patient satisfaction.
Yigit *et al.*, 2022	The prospective ultrasonography and elastography study evaluated acne vulgaris patients receiving oral isotretinoin at 0.25 mg/kg/day or 0.5 mg/kg/day, with outcomes interpreted in relation to rhinoplasty planning and nasal skin behavior.	The study assessed nasal skin thickness, nasal skin elasticity, dose-related changes, duration-related changes, and imaging-based implications for rhinoplasty candidates.	The authors concluded that oral isotretinoin reduced nasal skin thickness and modified elasticity parameters, supporting biological plausibility for its use in selected thick-skinned rhinoplasty candidates, although the population was not composed exclusively of postoperative rhinoplasty patients.
Silveira *et al.*, 2024	The randomized clinical imaging study evaluated rhinoplasty patients who received oral isotretinoin as an adjuvant before and after surgery compared with controls.	The study assessed epidermal and dermal thickness at the nasal dorsum, nasal tip, and nasal wing, as well as satisfaction and adverse effects.	The authors concluded that isotretinoin reduced nasal skin thickness at multiple nasal regions and was associated with improved satisfaction, supporting its role as an adjuvant in selected thick-skinned rhinoplasty patients.
Baser *et al.*, 2024	The retrospective study evaluated thick-skinned rhinoplasty patients treated with isotretinoin in association with surgical management.	The study assessed aesthetic improvement, patient satisfaction, Rhinoplasty Outcomes Evaluation Index scores, nasal tip definition, and postoperative outcomes.	The authors concluded that isotretinoin was associated with improved subjective and objective rhinoplasty outcomes, although the absence of a control group limited causal inference.
Rastiboroujeni *et al.*, 2024	The prospective cohort study evaluated thick and oily-skinned rhinoplasty patients receiving postoperative retinoid-based therapy	The study assessed patient satisfaction, surgeon evaluation, dermatologist evaluation, early postoperative appearance, and final cosmetic outcomes.	The authors concluded that retinoid-based postoperative therapy improved early satisfaction and dermatologist-rated appearance but did

	compared with controls.		not clearly improve final surgeon-rated cosmetic outcomes.
Spring *et al.*, 2017	The systematic review with consensus recommendations evaluated the safety of isotretinoin in patients undergoing dermatologic procedures, including cutaneous surgery, lasers, dermabrasion, and related interventions.	The study assessed abnormal scarring, delayed wound healing, keloid formation, hypertrophic scarring, and procedural safety during or soon after isotretinoin therapy.	The authors concluded that the traditional requirement to delay many cutaneous procedures after isotretinoin lacked strong evidence, supporting a more individualized approach to procedural timing.
Waldman *et al.*, 2017	The systematic review evaluated the association between isotretinoin exposure and procedural complications across dermatologic and aesthetic interventions.	The study assessed wound healing, scarring, procedural adverse events, and the evidence basis for delaying surgery or resurfacing procedures after isotretinoin.	The authors concluded that evidence supporting universal procedural delay after isotretinoin was weak, although procedure type, depth of injury, and patient risk factors remained important considerations.
Rademaker, 2016	The clinical review evaluated adverse effects and dose-related tolerability of isotretinoin in dermatologic practice.	The study assessed mucocutaneous adverse effects, laboratory abnormalities, dose-related toxicity, discontinuation, and practical safety monitoring.	The author concluded that isotretinoin adverse effects are often dose-related and manageable with monitoring, which supports the preference for low-dose regimens when isotretinoin is used as an adjunct rather than as full acne therapy.
Barbieri *et al.*, 2020	The dermatology guideline-oriented evidence synthesis evaluated isotretinoin use, monitoring, adverse effects, pregnancy prevention, and laboratory surveillance in acne patients.	The study assessed systemic safety, teratogenicity, laboratory monitoring, psychiatric warnings, mucocutaneous toxicity, and practical prescribing considerations.	The authors concluded that isotretinoin requires structured monitoring and strict pregnancy prevention, principles that remain essential when the drug is used adjunctively in aesthetic surgery patients.

5 RESULTS AND DISCUSSION

The early case-based literature raised the initial concern that oral isotretinoin might alter postoperative nasal soft tissue behavior after rhinoplasty, particularly when used during the remodeling phase of the skin–soft tissue envelope.[11] Although this signal was clinically important, it was based on limited observations and could not establish whether isotretinoin itself, baseline skin phenotype, surgical technique, scar biology, or postoperative inflammation was the dominant causal factor.[11] The main contribution of this early evidence was not to contraindicate isotretinoin universally, but to show that the operated nose represents a unique anatomical site in which dermal thinning, sebaceous suppression, and scar remodeling may have visible aesthetic consequences.[11]

Cobo and Vitery provided one of the first clinically relevant reports supporting monitored postoperative oral isotretinoin in thick-skinned rhinoplasty patients.[12] Their observations suggested that isotretinoin could reduce sebaceous gland activity and produce a more uniform thinning of the nasal skin–subcutaneous tissue envelope without evident compromise of the osteocartilaginous framework.[12] The study is clinically useful because it reflects real-world facial plastic surgery practice, although its observational structure, limited control over confounding, and subjective assessment of aesthetic refinement restrict the strength of inference.[12]

The randomized placebo-controlled trial by Sazgar *et al.* remains one of the strongest direct sources of evidence because it specifically evaluated postoperative oral isotretinoin in patients with thick nasal skin after rhinoplasty.[13] The main finding was that isotretinoin accelerated improvement in cosmetic outcomes during the early postoperative months, particularly when edema and skin thickness were most likely to obscure surgical definition.[13] However, the absence of a significant difference in the final cosmetic result at 12 months suggests that isotretinoin may act more as an accelerator of visible recovery than as a determinant of the definitive structural outcome.[13]

Yahyavi *et al.* expanded the clinical perspective by evaluating isotretinoin exposure before, during, and after rhinoplasty in patients with thick and oily skin.[14] Their findings suggested that isotretinoin did not produce evident disturbance of external incision healing, internal nasal recovery, cartilage configuration, hypertrophic tissue formation, or keloid formation.[14] This study is particularly relevant for safety, because it challenges the traditional assumption that perioperative isotretinoin necessarily impairs surgical healing, although its conclusions remain limited by design heterogeneity and the difficulty of standardizing rhinoplasty technique across patients.[14]

The prospective imaging study by Yigit *et al.* is not a postoperative rhinoplasty trial, but it is highly relevant because it objectively evaluated the effect of oral isotretinoin on nasal skin thickness and elasticity.[15] The authors demonstrated measurable changes in nasal skin parameters during isotretinoin therapy, supporting the biological plausibility that the drug may improve the behavior of a thick sebaceous nasal envelope before or after aesthetic surgery.[15] The main limitation is indirectness, since acne patients receiving isotretinoin are not identical to rhinoplasty patients undergoing skeletal remodeling, but the study strengthens the mechanistic rationale for patient selection and timing.[15]

Silveira *et al.* provided additional imaging-based evidence by evaluating oral isotretinoin as an adjuvant in rhinoplasty patients and measuring nasal skin thickness across defined anatomical sites.[16] The study showed reduction in the thickness of the skin covering the evaluated nasal regions, which is clinically meaningful because thick skin over the nasal tip, dorsum, and alar region can mask subtle structural refinements.[16] This work supports the use of ultrasonography as an objective tool for future trials, although the relationship between millimetric reduction in skin thickness and long-term patient-centered satisfaction still requires more rigorous evaluation.[16]

Baser *et al.* contributed to the literature by proposing a broader systematic approach to thick-skinned rhinoplasty patients, integrating surgical planning, postoperative management, and adjuvant strategies.[17] The value of this study lies in recognizing that thick skin is not only a dermatologic problem, but also a surgical planning variable that influences framework strength, projection, tip support, edema control, and patient counseling.[17] Although isotretinoin may improve skin quality in selected patients, this evidence reinforces that medication cannot compensate for inadequate structural support, insufficient tip projection, or imprecise management of the nasal soft tissue envelope.[17]

The study by Rastiboroujeni *et al.* on topical tretinoin in thick-skinned rhinoplasty is not direct evidence for oral isotretinoin, but it is relevant as supportive evidence for retinoid-based modulation of postoperative nasal skin.[18] Its findings suggest that retinoid therapy may improve early postoperative skin quality and satisfaction, although definitive surgeon-rated final outcomes may not differ substantially from controls.[18] This pattern is consistent with the oral isotretinoin literature, in which the clearest benefit appears to occur during the early inflammatory and edematous phase rather than as a guaranteed improvement in final rhinoplasty architecture.[18]

The procedural safety literature from dermatology is important because historical avoidance of procedures during isotretinoin therapy was based more on caution and case reports than on robust comparative evidence.[19] Consensus-based and systematic reviews

have suggested that many cutaneous procedures do not necessarily require prolonged delay after isotretinoin, especially when procedures are superficial or when patient-specific risks are carefully considered.[19] Nevertheless, rhinoplasty cannot be treated as equivalent to a minor dermatologic procedure, because it combines mucosal incisions, osteotomies, grafting, scar contraction, edema evolution, and long-term remodeling of a highly visible aesthetic unit.[19]

Dose selection remains unresolved, but the available rhinoplasty literature generally favors low-dose regimens rather than full acne-dose strategies when isotretinoin is used as an aesthetic adjunct.[20] This approach is pharmacologically reasonable because the goal is not necessarily complete acne suppression, but reduction of sebaceous activity, dermal thickness, and prolonged postoperative swelling while minimizing adverse effects.[20] Low-dose therapy may also be more acceptable in rhinoplasty patients because mucocutaneous dryness, nasal crusting, epistaxis, cheilitis, laboratory abnormalities, and treatment discontinuation become especially relevant during nasal recovery.[20]

The optimal timing of oral isotretinoin remains one of the most clinically important unanswered questions.[21] Initiation immediately after surgery may theoretically increase mucosal dryness and crusting during the early inflammatory phase, whereas delayed initiation after epithelial stability may preserve safety while still influencing edema, sebaceous activity, and skin remodeling.[21] Based on the available evidence, the most defensible practical strategy is individualized postoperative initiation after early wound healing, with dermatologic collaboration, laboratory monitoring, pregnancy prevention when applicable, and explicit counseling that the expected benefit is mainly early improvement rather than guaranteed final superiority.[21]

Overall, the certainty of evidence remains low because the studies are small, heterogeneous, and inconsistent in outcome definitions, dose regimens, timing, skin classification, follow-up duration, and aesthetic assessment tools.[22] The evidence is strongest for short-term improvement in postoperative appearance, patient satisfaction, skin quality, and objective nasal skin thickness, but weaker for durable improvement in final rhinoplasty outcomes at 12 months or beyond.[22] Future research should prioritize multicenter randomized trials using standardized thick-skin classification, ultrasonographic measurements, validated rhinoplasty outcome instruments, adverse-event reporting, dose comparisons, and stratification by acne activity, sebaceous phenotype, sex, ethnicity, and primary versus revision rhinoplasty.[22]

6 CONCLUSION

Oral isotretinoin may be a useful adjunct in selected aesthetic rhinoplasty patients with thick, sebaceous, or oily nasal skin, particularly when the expected limitation of surgery is related to the behavior of the skin–soft tissue envelope rather than to insufficient skeletal or cartilaginous reshaping. The available evidence suggests that its most consistent benefit is acceleration of early postoperative refinement, reduction of sebaceous activity, improvement in skin quality, and measurable reduction in nasal skin thickness. However, current data do not prove that isotretinoin consistently improves the final rhinoplasty result after long-term follow-up.

The clinical relevance of these findings lies in patient selection and expectation management. In thick-skinned rhinoplasty, oral isotretinoin should not be presented as a substitute for strong structural support, adequate tip projection, precise grafting, or meticulous soft tissue handling. Its role is best understood as an adjuvant option for patients in whom sebaceous skin, postoperative edema, acneiform activity, or persistent soft tissue thickness may compromise early aesthetic definition. When used, the decision should involve careful discussion between the facial plastic surgeon, dermatologist, and patient.

The main limitations of the literature include small sample sizes, heterogeneous study designs, variable isotretinoin regimens, inconsistent definitions of thick skin, subjective outcome assessment, and limited long-term follow-up. Direct comparative evidence remains scarce, and several supportive studies are indirect because they address nasal skin thickness, retinoid effects, or procedural safety rather than rhinoplasty outcomes specifically. Safety reporting is reassuring but incomplete, particularly for uncommon wound-healing complications, mucosal adverse effects, laboratory abnormalities, psychiatric warnings, teratogenic risk, and revision rhinoplasty populations.

Future research should prioritize multicenter randomized controlled trials with standardized inclusion criteria, objective measurement of nasal skin thickness, validated aesthetic and patient-reported outcome instruments, and predefined adverse-event monitoring. Comparative studies should evaluate different doses, treatment durations, and initiation times, especially preoperative use, early postoperative use, and delayed postoperative initiation after epithelial stability. Future investigations should also stratify patients by sex, ethnicity, acne activity, sebaceous phenotype, primary versus revision rhinoplasty, and baseline skin thickness measured by ultrasonography or other reproducible imaging techniques.

In conclusion, oral isotretinoin appears to be a promising but not universally indicated adjunct in aesthetic rhinoplasty for patients with thick skin. The current evidence supports

individualized use in carefully selected patients, preferably at low doses and with appropriate clinical and laboratory monitoring. Evidence-based practice requires that surgeons avoid both exaggerated enthusiasm and outdated absolute contraindications. The best approach remains multidisciplinary, individualized, and grounded in realistic counseling about the distinction between faster early refinement and proven long-term aesthetic superiority.

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