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Review Article

Rhinophyma: A Literature Review

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Abstract: Rhinophyma is a rare, severe manifestation of rosacea marked by progressive nasal thickening due to sebaceous gland hyperplasia and fibrosis. It predominantly affects older men and may cause significant cosmetic and functional impairment. Diagnosis is clinical but may require biopsy to exclude malignancy. Treatment depends on severity and ranges from isotretinoin in mild cases to surgical or laser interventions in advanced disease. This review summarizes the current understanding of its pathogenesis, clinical features, and therapeutic options.

Keywords: Rhinophyma, rosacea, laser.

INTRODUCTION

Rhinophyma is defined as a progressive cutaneous disease that affects the nose and is characterized by hypertrophy and excessive growth of sebaceous glands and nasal connective tissue, resulting in thickening, deformity, and in advanced cases, a bulbous appearance of the nose. It is considered a severe phenotypic manifestation of rosacea, although cases may occur without clear antecedents of prior rosacea [1-5].

Epidemiology

It is an uncommon condition that predominantly affects middle-aged and elderly men, especially between the fifth and seventh decades of life, with a marked predilection for individuals of Caucasian descent [6, 7]. Clinical series report a male-to-female ratio ranging from 6:1 to 7:1, with female presentations being exceptionally rare [5-8]. Over 90% of cases are diagnosed in individuals over 40 years of age [8]. In Asian populations, such as the Korean, the distribution by sex and age is similar, although literature on these groups is limited [8].

Rhinophyma is rare in individuals with higher Fitzpatrick skin types (IV–VI) and in non-Caucasians [6, 7]. In Western regions like Scotland, an annual incidence of 12–13 new cases has been reported in tertiary plastic surgery centers [9]. There is no statistically significant association between alcohol consumption and the onset of rhinophyma, despite popular belief [9].

The disease progresses slowly over several years, with an average of 8 years to reach severe forms [8]. The involvement is usually limited to the nose, although extension and severity increase over time [8].

Etiology

The etiology of rhinophyma is not completely understood, but it is recognized as an advanced manifestation of rosacea, characterized by hyperplasia of sebaceous glands and nasal connective tissue [4- 11]. Most cases develop in the context of long-standing rosacea, although some patients present with rhinophyma without a clear history of rosacea, suggesting the involvement of other etiopathogenic factors [3-5].

Proposed factors include genetic predisposition, hormonal influences, stress, vitamin deficiencies, and the possible role of the mite Demodex folliculorum, although the evidence is limited and inconclusive [6]. Repetitive mechanical trauma (e.g., manipulation or excessive cleaning) may contribute to the development or progression of rhinophyma in some patients, particularly those without prior rosacea [3].

There is no direct evidence linking alcohol consumption with rhinophyma onset, despite common belief. In summary, rhinophyma has a multifactorial etiology, with rosacea playing a central role, but with possible contributions from mechanical, genetic, and environmental factors [4-12].

Clinical Features

Rhinophyma clinically presents with progressive hypertrophy of the nasal skin, with thickening and nasal deformity due to hyperplasia of sebaceous glands and connective tissue. The nose appears enlarged, bulbous, with an irregular, nodular or lobulated surface, and prominent skin pores. The skin often shows erythema, telangiectasias, and in some cases, a greasy or sebaceous texture with increased secretion and crusts or fissures in advanced stages [13-17].

In early stages, changes may be subtle, limited to skin thickening and persistent erythema. As the disease progresses, it may impair nasal function, causing partial or complete nostril obstruction, affecting breathing in severe cases [17, 18]. The process is usually painless but may be associated with local discomfort, secondary infections, or bleeding in ulcerated lesions.

The involvement is almost exclusively nasal, though the severity varies. The aesthetic and functional impact can be significant, with important psychological and social implications [16, 17]. Progression is slow and correlates with the extent of nasal involvement [5].

Diagnosis

Diagnosis is primarily clinical and based on typical findings: progressive thickening of nasal skin, sebaceous gland hypertrophy, irregular and nodular surface, and sometimes persistent erythema and telangiectasias. Typical presentation includes bulbous nasal deformity, and in advanced cases, functional obstruction [15-17].

Histopathologic studies are not routinely needed, as clinical features are usually sufficient, and biopsies can be misleading if not representative. Histology may be helpful in atypical cases or when malignancy is suspected, showing sebaceous gland hyperplasia, connective tissue fibrosis, and dilated follicular pores [19].

Differential diagnosis should include other causes of nasal swelling such as tumors, granulomatous diseases, infections, or vascular malformations. Thorough history and physical exam are key to ruling out these entities [15-20].

In summary, rhinophyma diagnosis is mainly clinical, supported by nasal morphology and exclusion of other conditions. Biopsy is reserved for doubtful or potentially malignant cases [15-19].

Treatment

Treatment for rhinophyma is primarily surgical, as medical options have not shown significant efficacy in reducing hypertrophic tissue. Common techniques include conventional excision (cold scalpel or shaving), specific tools like the five-blade scratcher, and ablative lasers (mainly CO_2 and Er:YAG) [21-25].

Cold scalpel decortication allows controlled resection of hyperplastic tissue with satisfactory aesthetic and functional results [21-25]. The five-blade scratcher technique has proven effective, safe, with minimal scarring and low recurrence rates [1-25].

Ablative lasers, especially CO_2 and Er:YAG, are widely used. CO_2 laser allows precise excision with good hemostasis but may cause scarring and hypopigmentation. Er:YAG, with better water absorption and less thermal damage, offers shorter recovery and fewer complications [22]-23]. Both show results comparable to conventional surgery [21-14]. Severe cases with deformity or functional compromise may require reconstructive techniques, such as grafts or local flaps [10].

In summary, surgical excision and ablative lasers are the standard treatment for rhinophyma, with excellent aesthetic and functional outcomes [21-25]. The choice depends on team expertise, resource availability, and patient characteristics.

Pharmacological Treatment

Pharmacological treatment of rhinophyma is limited and currently there is no approved drug for established disease. Antibiotics (e.g., metronidazole) and oral retinoids (e.g., isotretinoin) may help in early rosacea or very incipient rhinophyma but are ineffective for established hypertrophy [26, 27].

In advanced rhinophyma, management is surgical or ablative since medications do not reverse glandular hyperplasia or fibrosis [22-27]. Current consensus is that medications play a limited role in early stages or as adjuncts for rosacea, but are not recommended for established rhinophyma.

Prognosis

Prognosis is generally favorable after surgical or ablative treatment, with high satisfaction rates. The disease is chronic and progressive, but surgery (decortication, shave excision, or CO_2 laser) significantly improves appearance and quality of life [24-30].

Recurrence occurs in 7–47% depending on technique and follow-up. It is usually manageable with additional procedures. Severe complications are rare; most reported are scarring, hypopigmentation, and rare textural changes [28-30].

Rhinophyma progresses slowly, usually remains nasal, and is more common in elderly men. Without treatment, it causes progressive deformity and quality-of-life impact [5]. Proper treatment improves function and aesthetics, and most patients would recommend it [1-21].

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