

Occupational Favre-Racouchot syndrome.

A case report

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Case Report

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Background: Favre-Racouchot syndrome (FRS) is a chronic dermatosis associated with prolonged ultraviolet radiation exposure and tobacco use, characterized by multiple open comedones, cysts, and marked actinic damage in sun-exposed areas. Although its pathogenesis is multifactorial and not fully understood, cumulative sun exposure and smoking are recognized as the principal risk factors.

We report the case of a 75-year-old male with a 30-year history of smoking and over four decades of occupational sun exposure as an agricultural worker. The patient, who also had poorly controlled type 2 diabetes mellitus, was admitted for a complicated urinary tract infection. During physical examination, a facial dermatosis was noted, predominantly affecting the temporal regions and cheeks, consisting of multiple well-defined open comedones measuring 0.1 to 0.3 cm on chronically sun-damaged skin. The diagnosis of FRS was established based on clinical findings and risk factors. Management included topical retinoids, resulting in partial improvement of the lesions. FRS is primarily a clinical diagnosis; however, histopathological evaluation may be useful in selected cases due to its broad differential diagnosis and association with other cutaneous conditions.

In conclusion, FRS represents not only a manifestation of chronic photodamage but also a clinical marker of prolonged exposure to modifiable environmental factors. Early recognition and a comprehensive therapeutic approach, including photoprotection and smoking cessation, are essential to improve clinical outcomes and prevent disease progression.

Keywords: Favre-Racouchot syndrome, retinoids.

Favre-Racouchot syndrome (FRS) is a complication caused by chronic exposure to ultraviolet radiation, which causes degeneration of collagen fibers and subsequent appearance of open comedones and multiple yellowish cysts.¹

Also referred to as senile comedones, solar comedones, and nodular elastosis with cysts and comedones, was originally described in 1932 by Favre and later reviewed in detail by Favre and Racouchot in 1951.²

It is a condition that affects approximately 1.4% of the general population, and between 4% and 6% of white men over 50 years of age. The exact etiology and pathogenesis of the disease are unknown, but prolonged sun exposure and smoking are known to be the main triggers. The intensity of smoking and the number of pack-years have been exponentially correlated with a higher probability of developing the disease.^{3,4,5,6,7,8}

Some authors consider this syndrome to be occupational due to its higher prevalence in drivers, farmers, doormen, fishermen, bricklayers, among others, due to the longer exposure time to solar radiation.^{7,8}

We present the case of a patient with Favre-Racouchot syndrome, treated with topical retinoids, with partial improvement in his lesions.

Case report

A 75-year-old man with a 30-year history of smoking one pack per day and over 40 years of occupational sun exposure as an agricultural worker presented to our hospital.

His medical history was significant for poorly controlled type 2 diabetes mellitus, treated with metformin and glibenclamide. He was admitted to our hospital for a complicated urinary tract infection, for which he received cefepime. However, physical examination revealed a dermatosis involving the head, predominantly affecting the face, with involvement of the temporal regions, temples, and cheeks, in a bilateral but asymmetric distribution (Figure 1). The lesions consisted of numerous open comedones, well-circumscribed and uniform, measuring approximately 1 to 3 mm in diameter, set on a background of chronically photodamaged skin, with a long-standing course (Figure 2, Figure 3).



Figure 1. Frontal view of the face showing multiple clustered open comedones distributed over the forehead, glabella, and periorbital regions, on a background of marked photodamage with deep wrinkles and yellowish thickened skin.

The diagnosis was established based on the patient's history of chronic sun exposure and long-term smoking, together with the characteristic clinical findings of multiple comedones distributed in typical sun-exposed areas described in the literature.

Discussion

This syndrome is characterized by the presence of multiple comedones, large open nodules and cysts, as well as signs of photoaging such as wrinkles and furrows, diffusely thickened yellowish skin, especially in the temporal and periorbital areas, which are the anatomical sites chronically exposed to the sun.⁹

The etiology of Favre-Racouchot syndrome is multifactorial. The most representative risk factors are chronic actinic damage, especially from UVA radiation, smoking, and radiotherapy; however, cases have been documented in patients without a significant history of sun exposure, supporting the theory of multiple etiologies.^{1,10} Another cause is radiotherapy, which has been linked to the development of FRS in at least three cases reported to date.¹⁴

Cigarettes contain carcinogenic substances, metals, polycyclic aromatic hydrocarbons, dioxin, and non-volatile nitrosamines, which constitute a factor that induces changes in elastic fibers, making them weaker and more fragmented, like those caused by solar elastosis.¹¹

Genetic predisposition, immunocompromise, and decreased androgen levels are other factors involved; regarding the latter, it is believed that their decrease in adulthood leads to less cell turnover in the



Figure 2. Close-up of the right temporal and malar region showing a high density of open comedones, predominantly in the lateral face, with evidence of solar elastosis and coarse skin texture.

sebaceous glands, sebum retention, and consequently, the formation of comedones.¹²

The differential diagnosis includes acne comedones, milia, colloid milium, syringomas, trichoepitheliomas, and sebaceous hyperplasia. Conditions closely linked to FRS include cutis rhomboidalis nuchae which it often accompanies and the actinic comedonal plaque, which is a variant of FRS.⁴ Other conditions reported to be associated with FRS include cutaneous myxoma, actinic keratosis, basal and squamous cell carcinoma, trichostasis spinulosa, keratoacanthoma, and eyelid papilloma.¹³

Favre-Racouchot disease can be diagnosed based solely on clinical presentation; however, due to its association with other pathologies and its wide range of differential diagnoses, many authors recommend histopathological examination of the lesions to confirm the diagnosis.^{4,14}

Histologically, it is characterized by significant actinic elastosis with epidermal atrophy surrounding the cystic lesions and by degeneration of elastic fibers in the upper dermis. The sebaceous glands are smaller, fewer in number, or even absent, and the pilosebaceous orifices are dilated. Comedones



Figure 3. Close-up of the left periorbital and malar region demonstrating numerous open comedones of varying sizes, some coalescing into dense clusters, overlying chronically sun-damaged skin with prominent rhytides.

have thin walls lined by flattened squamous epithelium; they often contain hair shafts, sebum, and microbial flora, which distinguishes them from infundibular cysts.^{4,12,14}

The comedones are colonized with *Cutibacterium acnes*, *Staphylococcus epidermidis*, and *Malassezia* yeasts. Inflammation is conspicuously absent.¹⁵

Currently, there is no single defined treatment, so the combination of medical and surgical treatments, along with general measures such as avoiding excessive sun exposure and quitting smoking, seems to be the approach.

Owing to their exfoliative and collagen remodeling properties, topical retinoids constitute the mainstay of medical treatment. Their regular use results in expulsion of small comedones and improvement in photodamaged skin. Daily oral Isotretinoin (0.05-0.1 mg/kg/day) used in conjunction with topical tretinoin has also been found effective. The disadvantage is that the treatment is for extended periods of time, for four to six months.¹⁶

It has been reported that the use of salicylic acid as a peel can be used in mild forms without cysts and helps to improve the appearance and texture of the skin.^{12,17}

Surgical techniques include comedone extraction, curettage, simple or multiple-stage

excision, dermabrasion, and laser resurfacing.^{16,18} The most recent addition to the therapeutic armamentarium of FRS is the combination of superpulsed carbon dioxide laser to vaporize the epidermis followed by extraction of cystic and comedonic material with a pair of forceps, with the entire procedure performed without anesthesia.¹⁹ Mavilia et al. reported excellent cosmetic results, rapid recovery, and good safety profile of this combination therapy in 50 patients of FRS with Fitzpatrick skin type III, and have suggested that it may become the treatment of choice for FRS.¹⁹

Conclusion

Favre-Racouchot syndrome is a chronic dermatosis closely associated with cumulative actinic damage and tobacco use, whose characteristic clinical presentation allows for diagnosis in most cases without the need for invasive studies. However, due to its association with multiple cutaneous conditions and its broad differential diagnosis, histopathological confirmation may be advisable in selected patients.

The present case clearly illustrates the interaction of the main risk factors described in the literature, particularly prolonged occupational sun exposure and chronic smoking, both of which contribute to the structural skin alterations that define this entity. It also highlights the importance of a thorough physical examination, even in non-dermatological clinical settings, for the timely identification of such dermatoses.

Regarding management, the absence of a single definitive treatment underscores the need for a comprehensive approach that combines general measures, such as strict photoprotection and smoking cessation, with medical therapies and, in selected cases, surgical interventions. Topical retinoids remain the cornerstone of treatment, offering favorable but often partial improvement, as observed in this patient.

Overall, Favre-Racouchot syndrome should be regarded not only as a cutaneous manifestation of aging and sun damage, but also as a clinical marker of chronic exposure to modifiable environmental factors. This emphasizes the importance of preventive strategies and early intervention to limit disease progression and improve patient quality of life.

Conflicts of interests

The authors declare that there are no financial, personal, or institutional conflicts of interest that could have influenced the work reported in this manuscript.

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