

# THERAPEUTIC HOTLINE

## A case of Scalp Rosacea treated with low dose doxycycline and probiotic therapy and literature review on therapeutic options

M. C. FORTUNA\*, V. GARELLI\*, G. PRANTEDA\*, F. ROMANIELLO\*,  
M. CARDONE\*, M. CARLESIMO† & A. ROSSI\*

\*Dipartimento di Medicina Interna e Specialità mediche Clinica Dermatologica, “Sapienza”, University of Rome I School, Rome, Italy and  
†Dermatology “Sapienza”, University of Rome II School, Rome, Italy

**ABSTRACT:** Rosacea is a common chronic inflammatory disorder showing a wide range of clinical features such as telangiectasia, erythema, papules, and pustules primarily involving the central part of face (forehead, cheeks and nose) although extra facial manifestation have been described. We describe a case of rosacea with predominant scalp involvement successfully treated with a 8-week-course of doxycycline 40 mg once a day and probiotic therapy twice a day (Bifidobacterium breve BR03, Lactobacillus salivarius LS01  $1 \times 10^9$  UFC/dose).

**KEYWORDS:** extrafacial rosacea, low dose doxycycline, probiotic, scalp

### Introduction

Rosacea is a common chronic inflammatory disorder showing a wide range of clinical features such as telangiectasia, erythema, papules, and pustules primarily involving the central part of face (forehead, cheeks, and nose) although extra facial manifestation have been described; in particular rosacea affecting the bald scalp is unusual with few reports in the literature. Facial rosacea is most commonly observed in young women aged between 30 and 40; otherwise scalp rosacea

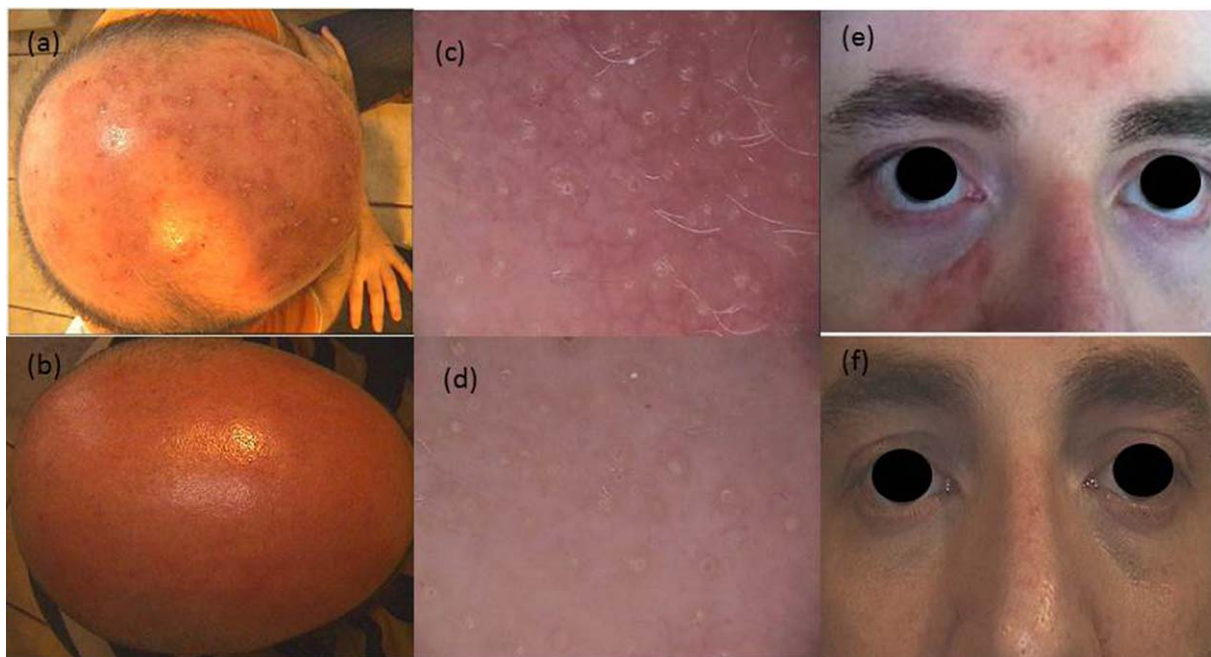
(SR) is more frequent in aged bald man where the diagnosis is more difficult because of its atypical pattern. Scalp involvement is characterized by pustules on erythematous background, and is a diagnostic challenge due to its atypical clinical pattern. Furthermore, two rare variants of rosacea have been reported: granulomatous variant, which can manifest with erythematous and monomorphic papules or nodules with periorificial location; and rosacea fulminans, characterized by the sudden eruption of cystic nodules, papules and pustules over the chin, cheeks, and forehead.

The etiopathogenesis of extrafacial rosacea is still unclear but several factors have been implicated such as disorders of vascular reactivity, genetic predisposition, weather conditions, and immune response against microorganisms such as *Demodex folliculorum* and *Helicobacter pylori* (1).

Address correspondence and reprint requests to: Giulia Pranteda, Dipartimento di Medicina Interna e Specialità mediche Clinica Dermatologica, “Sapienza”, University of Rome I School Italy, V.le del Policlinico 155, 00100 Rome, Italy, or email: cpranteda@libero.it

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**FIG. 1.** (a, T0): erythematous papules and pustules that involve the entire vertex of scalp; (b, T1): crusting and pustules had completely disappeared; (c, T0) dermoscopy: vascular polygons, follicular openings, some of which occupied by vellus hair, hyperkeratosis and plugging of follicular ostia; (d, T1) dermoscopy: polygonal vessels were absent; (e, T0): blepharitis and conjunctivitis; (f, T1): resolution of ocular manifestations.

The histopathology of rosacea is not very useful because it depends on the disease stage.

Rosacea can be a challenge to diagnose, and many other diseases have to be considered in the differential diagnosis. Among this seborrheic dermatitis predominantly involves the eyebrows, periauricular, paranasal, and glabellar region; acne can be excluded in the absence of comedo formation; keratosis pilaris rubra presents with marked erythema and keratotic follicular papules affecting the cheeks and the proximal arms; lupus erythematosus is characterized by the presence of erythema over the cheeks and nasal bridge (malar rash); in particular in differential diagnosis of SR it is important to consider scalp pustolosis (folliculitis decalvans, dissecting cellulitis, eosinophilic folliculitis, acne miliaris necrotica) (2).

## Case report

We describe a case of rosacea with predominant scalp involvement. A 37-year-old man was observed in our dermatology department with a 2-year-history of an intermittent scalp erythema and burning sensation. The erythema was thought to be worsened by stress. There was no history of systemic or topical steroid application to the face or scalp. Patient denied

past medical history and drugs intake. Based on the clinical features, a diagnosis of rosacea with predominant scalp involvement was made.

On clinical examination, he had widespread erythematous papules and pustules over his forehead and extending to involve the entire vertex of his scalp, which was bald. There was extensive crusting especially over the scalp. To a lesser extent, there was involvement of his cheeks and nose with smaller erythematous papules and pustules (Fig. 1a). Moreover blepharitis and conjunctivitis were present, the most common ocular manifestations in rosacea (Fig. 1e) (3,4).

The dermoscopy revealed the characteristic scalp pattern: vascular polygons, as already reported by Lallas et al. (5), follicular openings, some of which occupied by vellus hair, hyperkeratosis, and plugging of follicular ostia (Fig. 1c) (6).

A cutaneous swab was made to exclude bacterial or fungal infections, with negative result. He was treated with an 8-week-course of doxycycline 40 mg once a day and probiotic therapy twice a day (Bifidobacterium breve BR03, Lactobacillus salivarius LS01  $1 \times 10^9$  UFC/dose). After 8 weeks the patient came back to our department with a significant improvement of cutaneous and ocular manifestations; in particular crusting and pustules had completely disappeared leaving only a mild erythema (Figs. 1b,f);

the polygonal vessels observed on dermoscopy were absent (Fig. 1d). The patient was suggested to stop the treatment with doxycycline and to continue with the use of probiotic.

## Discussion

SR is a rare entity with only few reports in literature but has to be considered in the differential diagnosis of the folliculitis of the scalp; it is more frequent in man and is a diagnostic challenge due to its atypical clinical pattern. Generally, SR presents with papules and pustules on the scalp on an erythematous background and can be treated with topical therapies like metronidazole, azelaic acid, ivermectin along with systemic therapies such as oral tetracycline (doxycycline or minocycline 100 mg once daily for 3 weeks with gradual tapering to the least effective dose over several weeks or months), metronidazole, low dose isotretinoin (0.1–0.2 mg/kg/day) in severe cases and other oral antibiotics such as azithromycin or erythromycin can be considered. Recently, has also been approved the use of low dose doxycycline (40 mg once a day). In some selected cases, when telangiectasia and rhinophyma occur laser and surgery can be used (7–10).

In the case we reported, the patient presented with papules and pustules located on face and bald scalp along with blepharitis and conjunctivitis. Excluded other fungal or bacterial infection and common inflammatory skin diseases the diagnosis of rosacea was made.

The treatment was based on low-dose doxycycline and probiotic therapy.

Doxycycline, when used at the dosage of 40 mg daily, only shows an anti-inflammatory activity, reducing the onset of antibiotic resistances often observed with the use of doxycycline 100 mg once a day. In literature is reported the potential role of intestinal dysbiosis in the rosa-

cea's pathogenesis. This condition is common to other inflammatory skin diseases, such as atopic dermatitis and psoriasis and, for this reason, we administered probiotics to our patient (10,11).

In conclusion, we reported a case of rosacea with scalp involvement successfully treated with association of low-dose doxycycline and probiotics. The therapy was effective, well tolerated, with no side effects.

After 6 months of follow-up, our patient didn't show relapse or flare-up of disease.

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