Case Letters

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A rare adverse event following laser hair reduction

Keywords: axillary rash, hair removal, laser treatment

Clinical problem

We present the case of a 31-year-old female reviewed at our dermatology clinic with a 3-year history of a tender and pruritic eruption affecting both axillae. The patient developed numerous pruritic papules 3 months after receiving a fourth laser hair reduction treatment to the axillae (Fig. 1). The laser used was Candela GentleLase PRO (Alexandrite 755 nm) by Syneron Medical Ltd. On examination, she had numerous nondischarging, dome-shaped flesh-colored papules in a follicular distribution affecting both axillae. No lesions were noted elsewhere on her body.

The patient also had a multiple-year history of scalp alopecia, which had progressively worsened after the birth of her first child. She had no significant medical history, had a normal metabolic status, and blood tests, including full blood count, electrolytes, urea, creatinine, liver function test, antinuclear antibody, thyroid function test, and lipid profile were all within reference range. No family history of dermatological conditions was reported. Also, 4-mm punch biopsies of the scalp and axillae were undertaken. Scalp biopsy demonstrated findings suggestive of female pattern alopecia, while the axillar demonstrated a central follicle with dilated infundibulum and hyperkeratinization. The surrounding dermis showed lymphocytic inflammation involving an apocrine gland with surrounding prominent xanthomatous cells present around the infundibulum (Fig. 2).

Given the clinical history of the rash appearing in the axillary area after laser hair reduction treatment and the clinical appearance of monomorphic dome-shaped papules in a follicular distribution, Fox-Fordyce disease (FFD) was diagnosed.

FFD is a rare and chronic skin disorder where apocrine sweat becomes trapped by a keratotic plug in the hair follicle, leading to inflammation and pruritus. Also referred to as apocrine miliaria and sweat retention disease, FFD predominantly affects postpubertal women between 13 and 35 years of age. The pathophysiology remains unclear; however, a high prevalence among young females following laser hair reduction is well documented in the literature, implying trauma as a potential trigger.[1]

A proposed pathomechanism is an accumulation of keratin leading to obstruction of the follicular infundibulum. This blocked adnexal structure subsequently ruptures, with debris spilling into the epithelium, causing localized inflammation with the recruitment of lymphocytes and histiocytes.[2] Lesions often improve after menopause, during pregnancy, or with the administration of oral contraceptives, indicating a potential hormonal role in the pathogenesis. Further to this, a number of cases have found a link between an elevated serum follicle-stimulating hormone and the development of FFD.[3]

The axillae are most commonly affected; however, FFD can also involve the anogenital, periareolar, lips, umbilicus, sternum, and upper medial thighs. FFD typically follows a relapsing and remitting course and, in some instances, completely resolves without treatment.

Therapeutic solution

While there is not a definitive cure for FFD, treatment often involves topical retinoids, tacrolimus, steroids, and antibiotics.

This case aims to raise awareness among those undertaking laser hair reduction procedures of an uncommon and potentially chronic adverse event. It also highlights an important differential diagnosis for clinicians to consider in postlaser treatment patients and those undergoing reproductive hormonal changes.

Conflicts of interest

None.

Funding

None.

Study approval

N/A

What is known about this subject in regard to women and their families?

- There is minimal information available to female patients undertaking laser hair reduction treatment—few women are aware of Fox-Fordyce disease as a potential chronic side effect of undertaking laser hair reduction treatment.

What is new from this article as messages for women and their families?

- This case calls for an awareness of a potential side effect of laser hair reduction and provides guidance on potential management options for Fox-Fordyce disease.

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Fig. 1. Clinical photo of dome-shaped flesh-colored papules in a follicular pattern in both axillae.

Author contributions

CS and ALR contributed equally to the writing and revisions of this manuscript.

Patient consent

Informed, written consent was received from all patients for whom photographs are present in the manuscript.

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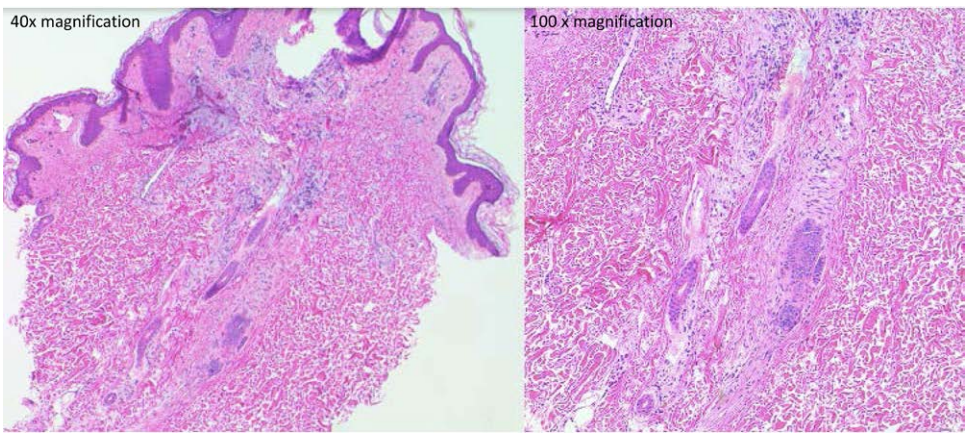

Fig. 2. Histological analysis demonstrating a central follicle with dilated infundibulum and hyperkeratinization. The surrounding dermis shows lymphocytic inflammation with xanthomatous cells present around the infundibulum.