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CASE REPORT

A Case of Milia En Plaque Secondary to Granulomatous Rosacea in a 22-Year-Old Filipino

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ABSTRACT: Milia en plaque (MEP) is a rare variant of primary milia characterized by multiple grouped milia arising on an erythematous plaque. Its etiopathogenesis remains unclear, although some cases have been associated with genetic and autoimmune conditions. We report the case of a 22-year-old Filipina with a 10-month history of an erythematous facial patch with papules and pustules, which progressively evolved into an erythematous plaque with multiple red and white papules. An initial diagnosis of MEP, likely secondary to papulopustular rosacea, was made, and a skin punch biopsy was performed for confirmatory diagnosis. Histopathological examination revealed epidermal spongiosis with a dense dermal nodular granulomatous inflammatory infiltrate composed of lymphocytes and histiocytes, along with small milia-like cysts. A definitive diagnosis of MEP secondary to granulomatous rosacea was established. The patient was treated with low-dose oral isotretinoin and azithromycin, together with topical metronidazole, azelaic acid, trifarotene, ivermectin, and serial milia extraction. Treatment adjustments, including discontinuation or modification of topical agents, were made based on clinical response. Complete resolution was achieved through combined management targeting both the MEP (topical retinoids and extraction) and the underlying rosacea. This case highlights the importance of careful clinical assessment and histopathological confirmation in diagnosing rare dermatologic conditions such as MEP associated with more common but potentially underdiagnosed inflammatory dermatoses.

Keywords: Milia, Milia en plaque, Rosacea, Granulomatous rosacea, Filipina

INTRODUCTION

Milia is a benign and generally asymptomatic skin condition that results from obstruction of a hair follicle or eccrine sweat duct. These small keratin-containing cysts may be classified as primary, occurring spontaneously, or secondary, arising following triggering events such as trauma, inflammatory and/or bullous skin diseases, or medication use [1]. Milia en plaque (MEP), characterized by multiple grouped milia distributed over an erythematous plaque, is a rare variant of primary milia. Although its exact etiology and pathogenesis remain unclear, several cases have been reported in association with genetic and autoimmune diseases, including pseudoxanthoma elasticum and discoid lupus erythematosus [2]. In this report, we present a case of MEP secondary to granulomatous rosacea to highlight the rarity of this association and to describe the clinical diagnostic and therapeutic approaches undertaken in the management of the patient.

CASE PRESENTATION

A 22-year-old woman presented with a 10-month history of an erythematous patch accompanied by papules and pustules on the right cheek, which developed one day after intense sun exposure. No other significant triggering factors, such as trauma,

burns, or medication use, were identified. Four months after the onset of the initial lesions, the erythematous patch progressed into an erythematous plaque with multiple red and white papules. Informed consent was obtained for publication of this case report.

MANAGEMENT AND OUTCOME

An initial clinical impression of milia en plaque (MEP), likely secondary to papulopustular rosacea, was made based on clinical examination. As part of the diagnostic workup, a skin punch biopsy was performed to establish a definitive diagnosis of MEP. Histopathological examination revealed epidermal spongiosis with a dense nodular granulomatous inflammatory infiltrate composed of lymphocytes and histiocytes within the dermis, along with small milia-like cysts, consistent with granulomatous rosacea and MEP, respectively (**Figure 1**). Immunohistochemical staining demonstrated CD3 and CD68 positivity, indicating the presence of T cells and macrophages, thereby supporting the diagnosis of granulomatous rosacea (**Figure 2**). A final histopathological diagnosis of MEP secondary to granulomatous rosacea was established.

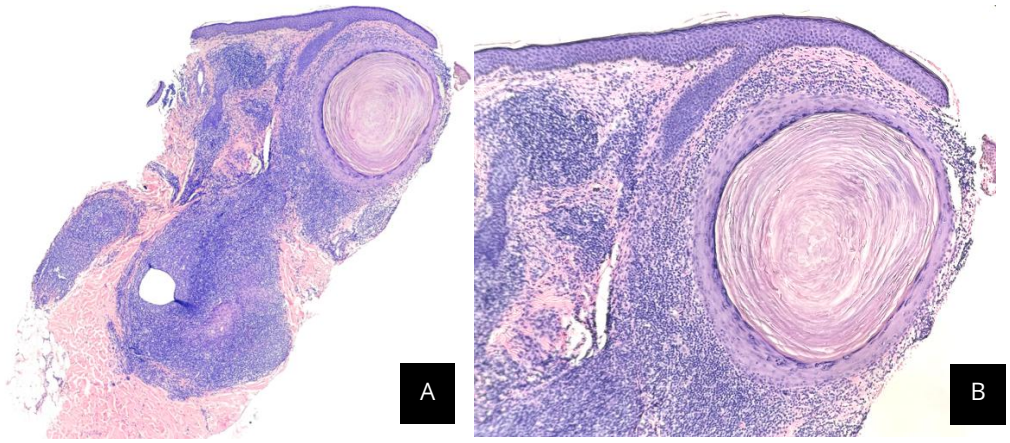

Figure 1. Histopathologic examination at **(A)** scanning magnification (×4) and **(B)** higher magnification (×10), showing a dense nodular granulomatous inflammatory infiltrate composed of lymphocytes and histiocytes within the dermis, along with small milia-like cysts, consistent with granulomatous rosacea and MEP, respectively.

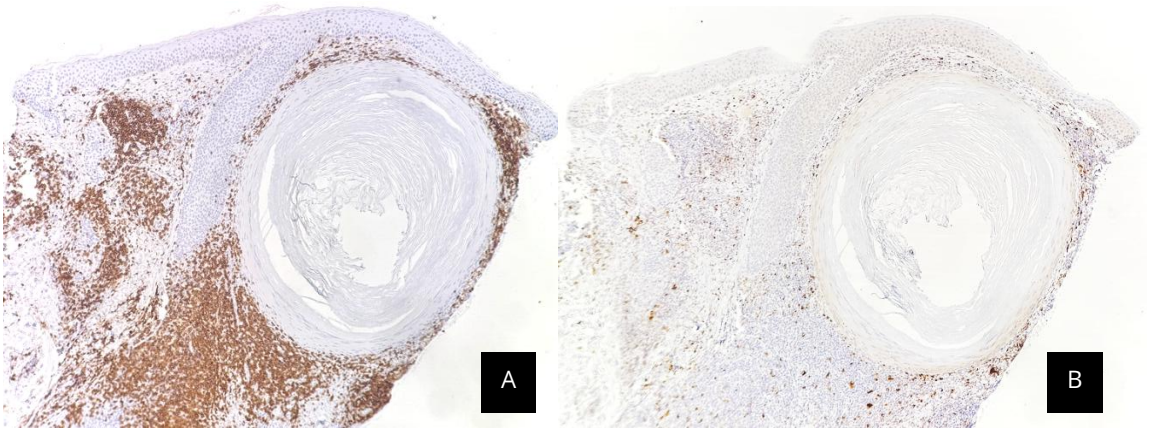

Figure 2. Immunohistochemical staining for **(A)** CD3 and **(B)** CD68, showing positive and weakly positive expression, respectively. These findings indicate the presence of T cells and macrophages, supporting the diagnosis of granulomatous rosacea.

Treatment was initiated with isotretinoin 10 mg once daily, azithromycin 500 mg three times weekly for six weeks, topical metronidazole 0.75% cream once daily in the morning, and azelaic acid 15% cream once daily at night. Initial management focused on controlling the inflammatory and erythematous features of rosacea prior to definitive treatment of MEP. After one month, only slight improvement in both rosacea and MEP was observed, therefore, trifarotene 0.005% cream for MEP and topical ivermectin 1% cream as adjunctive treatment for rosacea were added, applied once daily in the morning and at night, respectively. Approximately 80% improvement in both

conditions was observed after six months of treatment, along with three monthly sessions of milia extraction. The patient was subsequently maintained on isotretinoin 10 mg once daily, trifarotene 0.005% cream, and topical ivermectin 1% cream. Oral isotretinoin was gradually tapered to twice weekly at seven months of treatment. Near-complete resolution was achieved after nine months of combined oral and topical treatment (**Figure 3**). The treatment timeline and clinical response are illustrated in **Figure 4**.

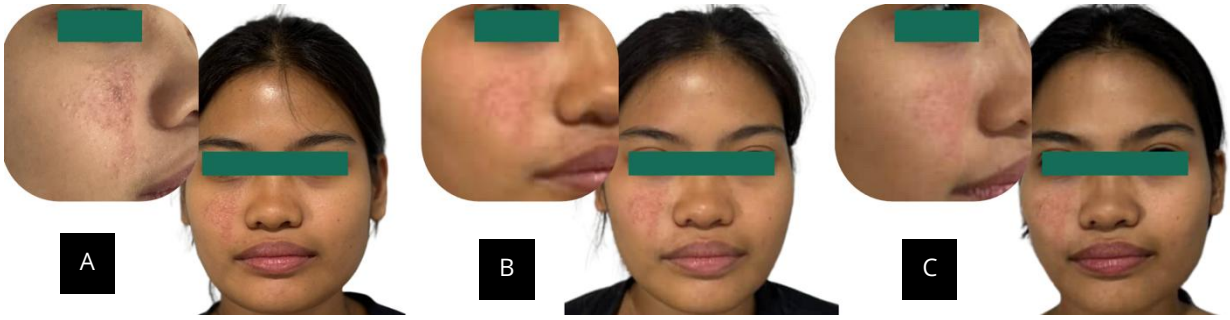

Figure 3. Clinical images showing lesions at **(A)** baseline, **(B)** 80% improvement after six months of treatment, and **(C)** near-complete resolution after nine months of treatment.

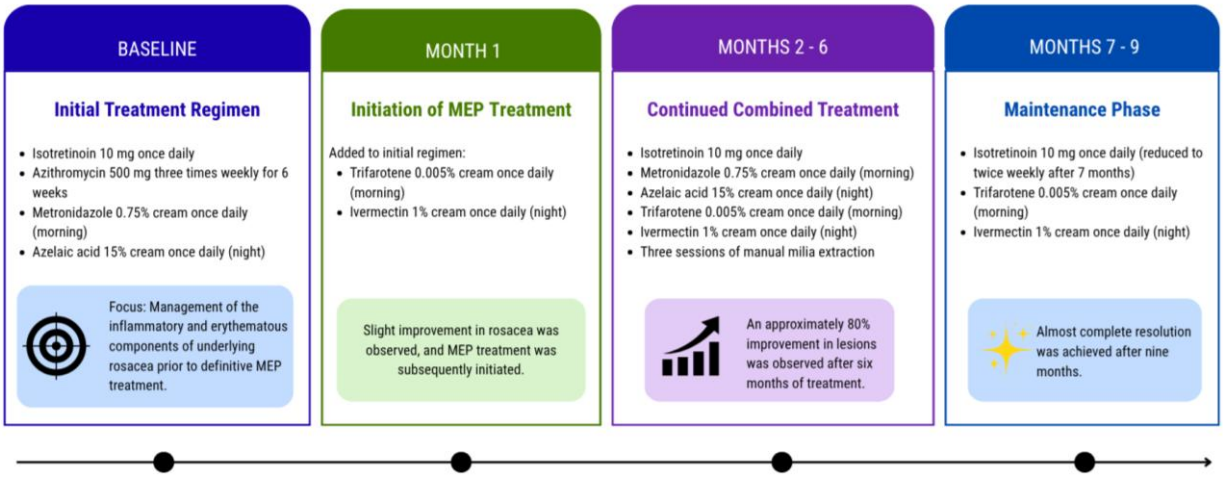

Figure 4. Timeline of the treatment regimen and clinical response.

DISCUSSION

MEP is a rare variant of primary milia, with fewer than 50 cases reported in the literature to date [3]. It was first described by Balzer in 1903 as a cystic hamartoma with trichoepithelial features, while the term "milia en plaque" was introduced by Hübler in 1978 [4]. It predominantly affects middle-aged women, with a female-to-male ratio of approximately 3:1 [5], and typically involves the head and neck region, particularly the preauricular and submandibular areas [6–9].

Histopathologically, primary milia are believed to arise from vellus hair, whereas secondary milia represent retention cysts that may originate from eccrine sweat ducts or from aberrant epidermis of hair follicles [10]. Although MEP is generally considered a primary condition arising spontaneously without a clear etiology, several secondary cases have been reported in association with conditions including discoid lupus erythematosus, pseudoxanthoma elasticum, lichen planus, trauma (including burns, dermabrasion, and ablative laser resurfacing), drug exposure (e.g., cyclosporine), and renal transplantation [11]. To the best of our knowledge, this is the first reported case of secondary MEP in the Philippines and the first associated with granulomatous rosacea.

The differential diagnoses of MEP include comedone nevus and Favre–Racouchot disease, which can be distinguished clinically [1]. In contrast to MEP, comedone nevus (nevus comedonicus) presents as nevoid, linear, or zosteriform-distributed comedones, typically with onset before 10 years of age. Favre–Racouchot disease, on the other hand, has a later onset and is characterized

by large comedones and cysts, commonly occurring in actinically damaged skin, particularly the lower and lateral periorbital regions. However, histopathological evaluation is often required to exclude these conditions and other secondary causes of MEP. In the present case, the diagnosis was established based on clinical history and examination and confirmed histopathologically. Notably, similar histopathological findings have been described in two previous cases of MEP with rosacea-like features, demonstrating dense inflammatory infiltrates surrounding milia-like structures [5].

Management of MEP remains challenging due to its rarity and the limited number of reported cases in the literature. Although spontaneous regression has been reported, the condition generally remains unchanged and asymptomatic when untreated. However, patients typically seek treatment due to cosmetic concerns that may cause significant psychological distress [1]. Treatment options include topical and systemic retinoids, topical corticosteroids, oral antibiotics such as minocycline, and procedural modalities such as manual extraction, electrodessication, cryotherapy, and CO2 laser therapy [12]. Topical retinoids remain the most commonly used treatment, while procedural interventions, including radiosurgery, are occasionally used in combination with retinoids and may result in less scarring compared with other modalities [13].

In the present case, treatment was initiated primarily targeting the underlying rosacea using a combination of oral and topical agents, including azithromycin, metronidazole, and azelaic acid, which provided anti-inflammatory benefits. Oral isotretinoin was also introduced early to address both conditions. Due to suboptimal initial response, topical ivermectin was added to target Demodex-associated inflammation. Subsequently, topical retinoid (trifarotene) was introduced to further improve both rosacea and MEP. Once substantial improvement in both conditions was observed, the maintenance phase consisting mainly of oral and topical retinoids and topical ivermectin was sufficient to achieve complete resolution of the lesions.

Treatment response may be influenced by the depth of MEP based on histopathologic examination. Superficial lesions tend to respond well to manual extraction and topical retinoids, whereas deeper lesions extending into the reticular dermis may require systemic therapy or more extensive procedures [5]. In this case, histopathology demonstrated a deep dermal nodular granulomatous inflammatory infiltrate surrounding milia-like cysts, which likely contributed to the favorable response to systemic isotretinoin.

CONCLUSION

This case highlights a rare presentation of MEP secondary to granulomatous rosacea, emphasizing the importance of clinicopathologic correlation in establishing an accurate diagnosis. Histopathologic evaluation was essential in confirming the diagnosis and guiding management. A combined therapeutic approach for both the MEP and the underlying granulomatous rosacea, including systemic and topical agents, and procedural extraction, resulted in significant clinical improvement and eventual resolution. This report contributes to the limited literature on MEP and underscores the need to consider underlying inflammatory dermatoses in atypical presentations.

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None

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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