**Cambodia Journal of Public Health**

## Case Report

# What is Hidden Behind Recalcitrant Acne Vulgaris?

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Received: September 19, 2024; revised December 09, 2024; accepted December 12, 2024

**ABSTRACT**

**Introduction**

Acne vulgaris (AV) is a common dermatological disorder largely known and well managed by dermatologists and aestheticians. However, there are many cases of unresponsive treatment for such conditions. Little is known about the cause of AV treatment resistance, which is fungal infection in which the cutaneous findings are indistinguishable from those of AV.

**Case Presentation**

A 31-year-old Cambodian male patient complained of on-and-off bothersome pruritus and generalized rashes on his back and shoulders for 10 years. He mentioned that pruritus intensifies during the summer more than during the winter. He had been treated for truncal acne—AV at other clinics—for five years, with only slight improvement. We prescribed oral antifungal, oral anti-pruritus, topical keratolytic, and antifungal soaps to the patients. Nearly 70% symptom improvement was reported.

**Conclusion**

When a patient is diagnosed with AV and is unresponsive to treatment within one month, reevaluation of cutaneous findings and symptoms is mandatory because Malassezia folliculitis is most likely masking behind AV.

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**Citation:** Pok, C, Pok S, Prum C. Case Report of What is Hidden Behind Recalcitrant Acne? *CJPH (2024):05:10*



**Keywords:** Malassezia spp., Malassezia folliculitis, Monomorphic erythematous papules, Pityrosporum folliculitis, Pruritus

## Introduction

Acne vulgaris (AV) is a common dermatological disorder largely known and well managed by dermatologists and aestheticians. However, there are many cases of unresponsive treatment for such conditions. Little is known about the cause of AV treatment resistance, which is fungal infection in which the cutaneous findings are indistinguishable from those of AV. The biological agent responsible for this condition is Pityrosporum, later known as Malassezia, a type of yeast from the Basidiomycota phylum, which is the normal microbiota of the skin [1,2].

Owing to their lipophilic nature, they are abundantly found to reside around sebaceous follicles [3]. Malassezia can become pathogenic when there is an overgrowth of yeasts under changes in skin conditions and occlusion of hair follicles [4,5]. It can invade the stratum corneum (SC) and cause inflammation in hair follicles [6]. Two hypotheses have been proposed for the causes of its pathogenicity. First, Malassezia yeasts might express lipase and phospholipase enzymes with the ability to alter the skin barrier and lead to skin irritation [4]. Second, yeasts can potentially induce keratinocytes to produce inflammatory cytokines through Toll-like receptor 2 (TLR-2) and activate complement cascades through classical and alternative pathways [7,8].

The condition is called Pityrosporum folliculitis (PF) or Malassezia folliculitis (MF) and is often mistaken for AV because of its acneiform eruption presentation. It is usually accompanied by pruritus papules on the chest, shoulders, back, or face [9]. Since there are no studies or reports about this disease in Cambodia, we present this case with the aim of describing the clinical characteristics and treatment options for the patient.

## Case presentation

A 31-year-old Cambodian male patient complained of on-and-off bothersome pruritus and generalized rashes on his back and shoulders for 10 years. He mentioned that pruritus intensifies during the summer more than during the winter **(Figure 1)**. The patient denied a history of past medical illness. He had been treated for truncal acne—AV at other clinics—for five years, with only slight improvement.

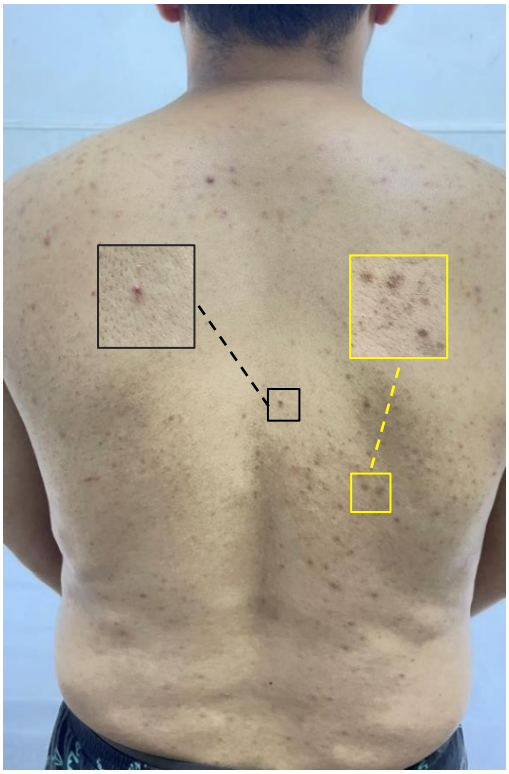

***Figure 1.*** *The erythematous papules were densely distributed on the lower back and shoulders. Erythematous papules with pustules (black square). PIH (yellow square).*

Upon reviewing his previous medications for acne, he received 100 mg of oral doxycycline, topical clindamycin, and 0.05% topical tretinoin. During inspection, he only had mild acne on his face, but we observed generalized erythematous monomorphic perifollicular papules without comedones **(Figure 2)** and post-inflammatory hyperpigmentation (PIH) most densely around the upper back and shoulders (Figures 1&2). His scalp was clear of scales or dandruff, allowing us to exclude the possibility that seborrheic dermatitis disease was associated with MF.

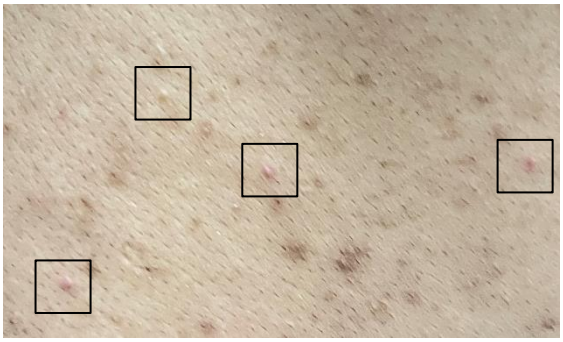

***Figure 2.*** *Monomorphic erythematous papules around the perifollicular areas on the lower back (black squares).*

However, if the patient had truncal acne, we would have seen the presence of closed and open comedones around the affected areas. In addition, the patient responded to treatment for acne vulgaris. The aggravation of pruritus during hot and sweaty conditions is also a clue for practitioners to consider MF because AV associated with itchiness rarely occurs.

For this reason, we made the provisional diagnosis as MF. To confirm the diagnosis, we scraped the skin and added potassium hydroxide (KOH) under a microscope. Fungal hyphae and spores were identified. The patient was prescribed oral antifungal agents, oral anti-pruritus agents, topical keratolytic agents, and antifungal soaps. To further illustrate, 200 mg of systemic itraconazole was given daily for 4 weeks in combination with 10 mg of cetirizine twice a day, 0.05% tretinoin was applied once every night, and the selenium sulfide soap was washed 3 times per week.

The patient reported about 20% symptom improvement after 72 hours of treatment initiation and nearly 70% improvement within the first week of the treatment regimen. Upon completion of the treatment, the patient reported the disappearance of pruritus, yet generalized PIH was still observed on his back. We continued administering topical 1% clotrimazole cream weekly for prevention.

## Discussion

A review of 15 studies by Green et al. revealed that the majority of patients affected with MF were male (64%) and that the frequent sites of occurrence were the chest (70%) and back/shoulder (69.2%), while the reported incidence of pruritus in most patients was 71.7% [10]. Our male patient also had pruritus lesions distributed densely on the back and shoulder, which is consistent with the review by Green et al. The clue to the diagnosis is evidence of acne resistance, pruritus, and monomorphic erythematous papules around the hair follicle. One study at Mae Fah Luang University, northern Thailand, conducted in 2022 revealed that patients diagnosed with MF were 7.4 times more likely to have itchy symptoms than patients diagnosed with AV were [11].

In a setting where the clinical diagnosis from cutaneous findings is very challenging due to the indistinguishable appearance between MF and AV, KOH smear investigation is encouraged because of its high sensitivity (84.6%) and specificity (100%) [12]. Using a dermoscopy and a wood lamp can also help to confirm the diagnosis when the KOH technique is not available. Coiled or looped hairs with perifollicular erythema and scaling can be observed on dermoscopy, and yellow–green fluorescence is exhibited under wood lamps when the lesions are illuminated [13,14].

The differential diagnosis includes AV, steroid acne, bacterial folliculitis, eosinophilic folliculitis, herpes simplex folliculitis, candida folliculitis, and Demodex folliculitis [3]. Generally, patients may experience recurrence after completing the treatment regimen, so maintenance therapy (weekly with topical antifungal or monthly with oral antifungal) is crucial to continue alleviating symptoms [15,16].

## Conclusions

In summary, when a patient is diagnosed with AV and is unresponsive to treatment within one month, re-evaluation of cutaneous findings and symptoms is mandatory because MF is most likely masking behind AV. While AV papules and pustules vary in size, MF lesions are often monomorphic and almost always reside around the follicular areas of the skin. It is also important to consider MF since the majority of the patients had experienced MF. Oral antifungal agents should be started immediately and discontinued from acne treatment via oral or topical antibiotics since these antibiotics do not affect fungal infection.

## Acknowledgments

We greatly appreciate Dr. Channa Prum for collecting documents and arranging the appointments for this case report.

## Contribution

Dr. Chendavatey Pok, Dr. Savoeurn Pok, and Dr. Channa Prum were responsible for the writing of this manuscript.

## Declaration

There are no conflicts of interest. Informed consent was obtained from the patients.

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