

Treatment of Confluent and Reticulated Papillomatosis with Minocycline

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Confluent and reticulated papillomatosis (CRP) is a progressive dermatologic condition of unknown etiology. It is characterized by erythematous papules that occur first on the intermammary, interscapular, and epigastric regions. Treatments for CRP have included antifungal agents, retinoids, and tetracyclines, but none have shown consistent success. This article reports a case of a 17-year-old boy with CRP that was successfully treated with minocycline. Diagnosis, etiology, and treatment of CRP are discussed.

CASE PRESENTATION

Patient Presentation and History

A 17-year-old black male without significant past medical history presented to a dermatologist with an asymptomatic, nonpruritic eruption distributed on his neck, trunk and arms, and back (**Figure 1**). According to the patient, the eruption first occurred at age 12, but became more prominent over the past 5 years. Previous treatment for his condition included ammonium lactate 12% lotion (Lac-Hydrin), tretinoin 0.025% and 0.059% cream (Retin A), various topical antifungal creams, and selenium sulfide 2.5% shampoo, but none of these treatments provided resolution. The patient stated that a cousin on his father's side had a similar condition.

Physical Examination and Laboratory Evaluation

Physical examination revealed hyperpigmented, hyperkeratotic and scaling papules that coalesced into plaques in a reticulated pattern involving the neck, trunk and arms. A fungal culture, potassium hydroxide preparation, and Wood's lamp examination did not show any abnormalities. The results of laboratory studies, including basic chemistries and a thyroid panel, were within normal limits.

A biopsy specimen taken from the left shoulder revealed subtle changes consisting of elongated foci of parakeratosis in company with zones of normal basket-weave orthokeratosis in the cornified layer. The granular cell layer appeared normal and a periodic acid-Schiff stain was negative.

Diagnosis and Clinical Course

A diagnosis of confluent and reticulated papillomatosis (CRP) was made and minocycline therapy at a dose of 100 mg twice daily was begun. Within 2 weeks of initiation of treatment, the patient reported improvement and near resolution of the eruption. After 1 month, examination revealed both hyper- and hypopigmented macules coalescing into patches in a reticulated pattern with a significant reduction of scaling. After a total of 4 weeks of antibiotic therapy, minocycline was discontinued. One year later, the patient was using selenium sulfide 2.5% shampoo as maintenance therapy.

DISCUSSION

CRP was first described by Gougerot and Carteau in 1927 and remains a diagnosis of unknown etiology. Widely accepted theories suggest that this condition might be the result of an exaggerated response to fungi or a disorder of keratinization. Many treatment options have been used for CRP; nevertheless, a single uniformly effective agent has not been found.

Clinical Features

CRP usually begins during puberty, is more common in females, and is approximately 2 times more common in blacks than in whites. A sporadic pattern is generally noted, although familial cases have been reported.¹ Clinically, CRP begins as 1- to 2-mm erythematous papules that occur on the intermammary, interscapular, and epigastric regions. Eventually, the lesions become larger (4–5 mm) and develop a brown hue. Spread of the lesions occurs radially, resulting in a confluence of lesions centrally with a reticulated pattern at the periphery. In time, the chest, shoulders, and back become involved, with conflicting reports of mucosal sparing.²

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Histologic Features

Histologically, lesions of CRP tend to show hyperkeratosis, acanthosis, focal atrophy, and papillomatosis. Lee and colleagues³ found hyperkeratosis, a decreased granular layer, irregular papillomatosis, and hypermelanosis of the basal layer. On further study with electron microscopy, an increase in transitional cells between the stratum granulosum and stratum corneum was found,³ lending support to the theory that CRP is indeed a disorder of keratinization.

Etiology

The exact etiology of CRP is unknown. One popular theory suggests that fungus (eg, the yeast *Pityrosporum orbiculare*) may have a causal role in the development of CRP. Other theories suggest a variety of mechanisms: that CRP is a reflection of possible underlying endocrinopathies; that there is a possible relationship to pseudoacanthosis nigricans; that CRP is a variant of a disorder of cornification; and that there is an association with amyloidosis. Therefore, the differential diagnosis of hyperpigmented plaques and papules that spread to become confluent and reticulated might include benign acanthosis nigricans, pseudoacanthosis nigricans, tinea versicolor, amyloidosis, and CRP. Whether these are all truly different patterns of the same disease or entirely different disease processes is unknown.

Treatment

Treatment for CRP has included topical and oral antifungal medications, topical selenium sulfide, oral retinoids (eg, isotretinoin, etretinate) and tetracyclines (ie, minocycline), none of which have had consistent success. Nevertheless, it is becoming increasingly clear that the role of fungi may have been overemphasized. In a study of 19 patients from 1969 to 1986, Nordby and Mitchell⁴ found poor responses to topical imidazole in 14 of them. In many case studies, including the one presented here, results of fungal studies were negative, patients failed to respond to antifungal medications, and high rates of recurrence were found after discontinuation of the medication.

In an article describing 5 Saudi Arabian men with clinical and histologic features of CRP, Baalbaki et al⁵ described overt failure to various topical and oral treatments, including oral ketoconazole, and an impressive response to etretinate. Solomon and Laude⁶ found similar results with 2 patients treated with oral isotretinoin and 10% lactic acid lotion. This would tend to support the theory that CRP is a disorder of altered keratinization. Nevertheless, recurrence was high with cessation of treatment.

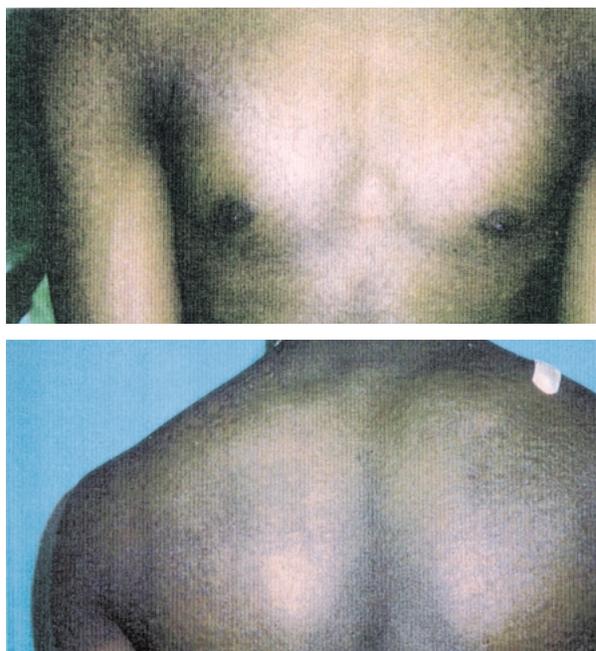


Figure 1. Photographs of the case patient show an eruption consisting of hyperpigmented, hyperkeratotic, and scaling papules coalescing into plaques in a reticulated pattern.

Recently, there have been several reports of an excellent response to minocycline. As with our patient, trials of 200 mg daily produced prompt clearing of lesions, some in as little as 2 weeks. Shimazu and Han-Yaku⁷ reported success in a 15-year-old Japanese boy who was given 200 mg daily of minocycline to treat CRP that recurred following treatment with oral itraconazole.

The precise mechanism by which minocycline improves CRP is still unknown. A possible explanation is that tetracyclines possess antiproliferative and anti-inflammatory actions, as well as bacteriostatic properties. Another hypothesis implicates bacterial derived toxins as a stimulus for keratinization such as that seen in CRP.⁸

CONCLUSION

CRP is an interesting dermatologic entity with a puzzling etiology. Although clinicians have had individual successes with various treatments including antifungal agents, retinoid derivatives, and tetracyclines, no single treatment has invalidated the use of the others. In the case presented, great success was achieved with minocycline. Perhaps minocycline eradicates an unknown organism involved in predisposing to CRP or helps to suppress an autoimmune phenomenon that might lead to an increase in keratinization. It seems unlikely that minocycline would have any potential effects on

fungal activity if fungi do indeed play a role in CRP. Continued interest in this condition may elucidate its true cause and most effective treatment. **HP**

ACKNOWLEDGMENT

The case presentation is drawn from the case report files of Kenneth Herman, DO, and Filomena Scola, DO, Philadelphia College of Osteopathic Medicine, Philadelphia, PA.

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