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Letter

Acne vulgaris in the context of complex medical co-morbidities: The Management of Severe Acne Vulgaris in a Female with Retinitis Pigmentosa- Utilizing Pulse Dye Laser in Conjunction with Medical Therapy

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Abstract

Acne vulgaris is a pervasive inflammatory disorder of the skin, with multiple etiologies and treatment options. Although first-line therapies exist, it is often the case that a patient will present with an underlying disorder that prohibits the use of most currently accepted treatment modalities. We present a patient with severe acne vulgaris and a history of retinitis pigmentosa who was treated with 595 nanometer pulsed dye laser therapy, in conjunction with therapeutic alternatives to first-line acne medications. Our patient exhibited a significant and sustained improvement with the combined use of 595 nanometer pulsed dye laser, Yaz (drospirenone-ethinyl estradiol), dapsone, topical metronidazole, sodium-sulfacetamide wash, and topical azelaic acid. The positive results in this case, suggest that this combined treatment modality may serve as an example of a safe and effective treatment alternative in the management of acne vulgaris complicated by medical co-morbidities that contraindicate the use of most first-line treatment options.

Introduction

Acne vulgaris (AV) is a multifactorial, inflammatory disorder affecting the pilosebaceous units of the skin. Clinical manifestations can range from non-inflamed comedones to inflammatory pustules, papules, and nodules. Acne vulgaris is one of the most common cutaneous disorders encountered and treated by dermatologists. It is estimated that moderate-to-severe acne affects about 20% of adolescents and that acne persists into the 20s and 30s in 64% and 43% of individuals, respectively [1]. Although advancements in therapy have allowed for the development of successful first-line medications to effectively treat this disorder, it is not uncommon for a patient with severe acne vulgaris to present to the dermatologist with co-morbidities that contraindicate the use of many first-line treatment modalities. In this context, it behooves the clinician to be familiar with alternative therapeutic approaches that allow for the safe and effective treatment of acne vulgaris.

The authors report a case of treatment of severe acne vulgaris in a female with a history of retinitis pigmentosa (RP). Retinitis pigmentosa is a heterogeneous group of retinal disorders, which collectively lead to progressive visual loss and retinal degeneration. RP is one of the most common subtypes of retinal disease, with an estimated prevalence of 1:4000 [2]. Given its relatively high prevalence, it is not unusual for a patient with RP to present to the clinician for treatment of other coexisting conditions, such as acne vulgaris. Unfortunately, because of its unique pathophysiology, RP can present as a therapeutic challenge in the treatment of most other conditions. First-line medications in acne therapy including retinoids, tetracyclines, and fluoroquinolones are all contraindicated in patients with RP. Side effects of these drugs include, but are not limited to, photosensitivity, increased susceptibility to macular degeneration, cataracts, increased intra-ocular pressure, and visual disturbance. Of note, a case-control study published in the Journal of the American Medical Association (JAMA) in 2012, found that patients taking oral fluoroquinolones alone were at a higher risk of developing a retinal detachment compared with non-users, although the absolute risk was relatively small [3]. For these reasons, it became necessary for the authors of this case to search for alternative modalities that would allow for the safe and effective treatment of severe acne vulgaris, without further complicating her underlying disease process.

Case synopsis

A 26-year-old woman presented with a chronic history of severe inflammatory acne and also reported a history of retinitis pigmentosa. On exam, the patient was found to have several erythematous, acneiform perifollicular papules and pustules noted on the bilateral malar cheeks, forehead, chin, and nose. Exam was also significant for isolated scattered papules, nodules, and cysts distributed along the chest and back. Surrounding telangiectasias and erythematous patches were also observed, along with areas of significant scarring and post-inflammatory hyperpigmentation, suggestive of a chronic inflammatory process (Figure 1). The differential diagnosis at this time included acne fulminans, acne conglobata, acne vulgaris, and severe granulomatous rosacea. She did not exhibit any signs of systemic inflammation including fever, chills, or joint pain at the time of her initial eruption.



Figure 1. Acne Vulgaris with underlying Rosacea prior to PDL 595 laser and medical therapy: Erythematous, acneiform perifollicular papules and pustules with surrounding telangiectasia and comedones on malar cheeks, forehead, chin, and nose



Figure 2. Acne Vulgaris and Rosacea after combined medical therapy and 4 PDL 595 laser treatments: Marked improvement of telangiectasia, and reduction of erythema and post-inflammatory hyperpigmentation of malar cheeks, forehead, chin, and nose.

A punch biopsy of the left malar cheek was performed to rule out other granulomatous acneiform eruptions including sarcoidosis, perioral papular dermatitis, and demodicidosis. Biopsy demonstrated dermal suppurative and granulomatous inflammation, with perifollicular neutrophils and histiocytes. The overlying epidermis was spongiotic with evidence of neutrophilic parakeratosis. No fungal elements were identified on PAS. Pathological differential diagnosis included acne fulminans, rosacea, and/or ruptured follicle or cyst. A culture was subsequently obtained to rule out gram-negative folliculitis. Screening for a hormone imbalance was also completed to rule out excess androgens. Results of all studies were negative and a diagnosis of acne vulgaris with an associated component of granulomatous rosacea, was made.

The patient was initially placed on oral dapson therapy, given her history of retinitis pigmentosa and contraindications to many first-line acne therapies. At her one month follow-up, the patient exhibited some improvement in erythema, but she continued to have persistent acneiform eruptions. At this visit, the patient's dapson dose was increased, with the addition of benzoyl peroxide wash. At her follow-up visit, the patient again demonstrated improvement. However, she continued to have persistent acne flares, which were refractory to her current therapy. Augmentin, sodium-sulfacetamide wash, and topical azelaic acid were then added to her treatment regime. Unfortunately, the patient exhibited worsening visual disturbance over the following weeks. It was unclear whether this related to her systemic dapson therapy or the continued progression of her retinitis pigmentosa. Nonetheless, in light of these worsening visual symptoms, the oral dapson was tapered off. The patient was subsequently started on spironolactone in addition to her current treatment. This therapy appeared to reduce her acne flares and improve erythema and inflammation. However, the patient ultimately developed renal calculi secondary to dehydration, requiring the discontinuation of spironolactone therapy.

Given the complexities in her treatment, alternative modes of therapy were considered. A decision was made to utilize a 595 nanometer pulsed dye laser (PDL) in an attempt to minimize severe telangiectasia from underlying rosacea and to control persistent acne flares. The patient demonstrated a significant improvement in symptoms following her initial treatment. Therefore, the decision was made to continue PDL as a long-term therapy every 6-8 weeks. Although significantly improved, the patient continued to present with intermittent flares of cystic and pustular acne lesions. The patient was subsequently initiated on Yaz (drospirenone-ethinyl estradiol), topical dapson, and topical metronidazole. Although complex, this treatment regimen resulted in an excellent control of the patient's symptoms, with marked improvement of telangiectasia and a reduction of erythema and post-inflammatory hyperpigmentation (Figure 2). With long-term maintenance of this combination therapy, the patient has had no further acne exacerbations and has exhibited a persistent remission in her symptoms.

Discussion

This case report illustrates the combined use of topical antibiotics, hormonal therapy, and pulse-dye laser treatments as a safe, alternative combined treatment modality for severe acne vulgaris in a patient with contraindications to many systemic anti-acne therapies. The patient exhibited a significant and sustained improvement with the combined use of 595 nanometer pulsed dye laser, Yaz (drospirenone-ethinyl estradiol), topical and systemic dapson, topical metronidazole, sodium-sulfacetamide wash, and topical azelaic acid.

Pulsed dye laser is a fairly new addition to the dermatologists' armamentarium of acne therapy. Studies on this topic are relatively limited, with the majority of studies targeted towards reduction of the appearance of scars from prior acne lesions [4, 5]. Of note, results of our patient's treatment indicated that the addition of PDL allowed for an improvement of severe telangiectasia, reduction of prior acne scars, and a decrease in subsequent acne flares. After 4 PDL treatments, this patient exhibited at least a 50% reduction in the amount of erythematous inflammation, with an overall decrease in post-inflammatory hyperpigmentation and a fading of prior cystic acne lesions. Although these results are promising, it is important to note that this patient showed a substantial resolution in symptoms only after the combined use of PDL, topical and systemic medications, and hormonal therapy. Therefore, it is difficult to confirm a single treatment modality as the cause of this patient's significant improvement.

Acne vulgaris is one of the most common disorders treated by dermatologists in clinical practice. Numerous contraindications to traditional acne therapy exist. Therefore, it is imperative to become familiar with alternative therapeutic modalities in the treatment of this very common and pervasive disorder. The purpose of this letter was to illustrate the many complexities in the treatment of acne vulgaris, and to provide a real-life example of the combined use of alternative therapies in its management.

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