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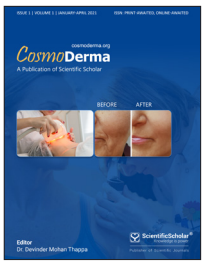

Case Report

Breaking the cycle: A comprehensive approach to treating recalcitrant nodulocystic acne in a young adult

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ABSTRACT

This report presents a case of recalcitrant nodulocystic acne in a 25-year-old male patient with a two-year history of persistent, recurrent lesions. The patient was previously treated with various surgical techniques, including incision and drainage and excision, without sustained resolution. Upon presentation to our department, a multimodal approach was initiated, involving surgical drainage, intralesional injections, systemic antibiotics, and isotretinoin therapy. The treatment regimen led to a significant reduction in active lesions, with minimal residual scarring and no post-inflammatory pigmentation. The patient is currently on regular follow-up with no signs of recurrence.

Keywords: Nodulocystic acne, Recalcitrant acne, Isotretinoin, Intralesional injection, Incision and drainage, Azithromycin, Scar management

INTRODUCTION

Nodulocystic acne is a severe form of acne vulgaris, characterized by deep, inflamed nodules, and cysts that can lead to scarring. Recalcitrant cases, which do not respond to conventional treatments, often require a combination of surgical, topical, and systemic interventions.[1] This case highlights the successful management of recalcitrant nodulocystic acne using a combined approach of incision and drainage (I&D), intralesional injections, and systemic medications.

CASE REPORT

A 25-year-old male presented with a two-year history of nodulocystic acne on his face, resistant to previous treatments, including incision, drainage, and excision techniques. Despite these interventions, new lesions continued to develop, with persistent inflammation and recurrence in previously treated areas [Figure 1]. The patient expressed considerable distress due to the chronic nature of his condition and the cosmetic implications.

Initial investigations included a complete blood count, liver function tests, and renal function tests to evaluate suitability for isotretinoin therapy. All laboratory results were within normal limits, allowing us to proceed with a multimodal treatment plan. As part of the initial management, comedone extraction was performed to reduce the buildup of keratinous debris. Surgical I&D was performed on larger cystic lesions to reduce inflammation and prevent further rupture of the lesions. The patient received intralesional injections of lincomycin hydrochloride (75 mg/mL) and triamcinolone acetonide (2.5 mg/mL). These injections were administered in

four doses, spaced three weeks apart. This approach aimed to reduce inflammatory activity and resolve the deep-seated nodules. The patient was prescribed azithromycin 500 mg three consecutive days a week as pulse therapy for 12 weeks to provide anti-inflammatory effects and control the acne-causing bacteria. Oral isotretinoin was initiated at a dose of 30 mg daily for eight weeks after which the dose was gradually tapered to 20 mg daily for four weeks. Following this, he was on isotretinoin 10 mg daily for four weeks and then 10 mg alternate days for two weeks. Isotretinoin was used for its sebum-suppressing and anti-inflammatory properties essential in reducing nodulocystic acne recurrence and preventing scarring.

The patient responded well to the treatment regimen, with significant resolution of active lesions after 12 weeks. Isotretinoin was continued for another six weeks after the resolution of lesions. Mild atrophic scarring was observed in a few lesions; however, the majority healed with no scarring or post-inflammatory hyperpigmentation [Figure 2]. He is currently on topical adapalene gel 0.1% for maintenance. The patient remained on regular follow-up for the past three months with no recurrence observed at subsequent visits.

Figure 1: Presentation at the first visit with nodulocystic acne over bilateral aspects of the face with pustular discharge and surrounding erythema.

Figure 2: 5th visit after four sittings of intralesional lincomycin with triamcinolone acetonide therapy given.

DISCUSSION

Nodulocystic acne presents unique challenges due to its complex and aggressive nature, often involving severe inflammation and the formation of deep-seated nodules and cysts. Unlike milder forms of acne, nodulocystic acne is often refractory to standard topical therapies and may persist or recur despite initial treatments.[1,2] This case highlights the need for an individualized, comprehensive approach that not only addresses active lesions but also minimizes recurrence and scarring. By combining surgical and pharmacologic strategies, we aimed to target both the visible lesions and the underlying inflammatory pathways that contribute to recurrence.[3]

The use of intralesional injections in nodulocystic acne is an important adjunctive therapy, particularly in cases resistant to conventional treatments. Intralesional injections of lincomycin and triamcinolone acetonide proved effective in controlling localized inflammation and reducing the size of nodules and cysts in this patient. Lincomycin acts as an antibacterial agent directly at the site, helping to eliminate Cutibacterium acnes, a key bacterium involved in acne pathogenesis.[4] Meanwhile, triamcinolone acetonide, a corticosteroid, works to quickly suppress inflammation, thereby reducing the potential for the formation of hypertrophic scars or post-inflammatory hyperpigmentation. Administered every three weeks, this combination was instrumental in managing inflammation while avoiding the side effects of systemic corticosteroids.[3,4]

Systemic therapies played a crucial role in this case, addressing the persistent and recurrent nature of the acne. Isotretinoin, a potent retinoid, was administered for eight weeks as a central part of the therapeutic regimen, gradually tapering to avoid rebound effects. Known for its ability to reduce sebaceous gland size and sebum production, isotretinoin helped control one of the primary drivers of nodulocystic acne.[5] Azithromycin pulse therapy provided an additional layer of efficacy by offering both antibacterial and anti-inflammatory effects. Studies have shown that pulse azithromycin is effective in reducing inflammation and bacterial load, making it an appropriate choice for patients with severe, persistent acne. The combination of isotretinoin and azithromycin pulse therapy allowed for a synergistic effect, tackling both inflammation and the bacterial component of acne, and contributing to a sustained resolution of lesions.[6]

Lincomycin, an antibiotic from the lincosamide class, has been studied for its utility in managing severe and

resistant acne, particularly nodulocystic acne. Although not as commonly used as other antibiotics, lincomycin's effectiveness stems from its ability to inhibit protein synthesis in *Cutibacterium acnes* (formerly *Propionibacterium acnes*), the bacteria implicated in acne inflammation. This inhibition prevents bacterial replication and reduces the inflammatory response, making it a valuable treatment option for recalcitrant cases of nodulocystic acne.[7]

Several studies have investigated the use of intralesional lincomycin for inflammatory acne lesions, especially nodulocystic acne. A 2021 study by Sarac *et al*. evaluated the efficacy of intralesional lincomycin injections in patients with nodulocystic acne and found significant improvements in lesion size and inflammation after 3–4 weekly doses, with minimal recurrence over the six-month follow-up period.[6,8] The intralesional route delivers the drug directly to the site of infection and inflammation, making it more effective in reducing large nodular lesions that are difficult to treat with oral or topical therapies alone. Lincomycin has also been studied in combination with corticosteroids such as triamcinolone for resistant acne cases. Intralesional lincomycin-triamcinolone injections have shown enhanced efficacy in reducing cystic lesions' size and duration compared to corticosteroids alone.[4,8] This combination capitalizes on lincomycin's antibacterial action and triamcinolone's anti-inflammatory effects, which are particularly beneficial in nodulocystic acne where inflammation and bacterial colonization both play crucial roles.[9]

Comparisons between lincomycin and other antibiotics have shown it to be effective in reducing lesion count and severity in inflammatory acne cases. A randomized trial in 2020 compared intralesional lincomycin to oral antibiotics in patients with nodulocystic acne and found that intralesional lincomycin provided faster resolution of individual cystic lesions and fewer side effects, particularly gastrointestinal, associated with systemic antibiotic use.[5,8]

Scarring and post-inflammatory pigmentation are common concerns in patients with nodulocystic acne due to the extensive tissue damage caused by deep-seated lesions. The early surgical intervention, comedone extraction, and I&D helped reduce lesion size and inflammation, which are key factors in scar formation. The combination of targeted intralesional therapy and systemic agents minimized both the size and number of active lesions, reducing the likelihood of scarring. In this case, only minimal atrophic scarring was observed, with most lesions healing without pigmentation issues, a favorable cosmetic outcome in severe acne management. Preventing scarring and pigmentation not only improves patient satisfaction but also supports long-term skin health and appearance.[10,11]

In conclusion, this case underscores the value of a multimodal approach in treating recalcitrant nodulocystic acne. By employing a combination of intralesional injections, systemic agents, and careful surgical intervention, we achieved not only a reduction in active lesions but also prevented common complications such as scarring and pigmentation. This comprehensive management strategy offers a blueprint for effectively addressing nodulocystic acne in cases where standard treatments have failed, providing a pathway to lasting skin clarity and improved quality of life for patients.

CONCLUSION

This case highlights the efficacy of a comprehensive treatment regimen for managing recalcitrant nodulocystic acne, especially in patients with a history of recurrent lesions. By addressing both the inflammatory and structural components of acne, the treatment achieved excellent results with minimal residual scarring. This approach could serve as a valuable template for similar cases of recalcitrant nodulocystic acne.

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