

Proximal Nail Atrophy Secondary to Recurrent Traumatic Manicure: A Case Report and Literature Review

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Abstract

Background: Recurrent traumatic manicure procedures can lead to significant damage to the nail and proximal nail fold. This case report discusses a 29-year-old female salon owner who developed proximal nail atrophy secondary to repetitive manicures.

Case report: The patient presented with a 3-year history of tenderness, blackening, and swelling of the proximal nail folds, affecting multiple fingers. Initial treatments for fungal infections and eczema were ineffective. Histopathological examination revealed epidermal thinning, flattened dermal ridges, and a fibrocollagenous stroma. The diagnosis of traumatic manicure-induced proximal nail atrophy was made.

The patient was advised to cease manicure procedures and was treated with Clobetasol Ointment, leading to significant improvement after six weeks.

Conclusion: This case highlights the risks associated with improper manicure techniques performed by untrained individuals. Proper education and preventive measures are crucial to prevent such complications.

Introduction

The nail apparatus is essential for protecting the distal digits and comprises several key components: the nail plate, nail bed, proximal nail fold, distal groove, and lateral grooves [1,2]. Disorders of the nail can stem

from a range of causes, including dermatological conditions, systemic diseases, infections, and trauma [3]. As cosmetic procedures involving the nails gain popularity, complications from improper practices have become more apparent [4]. When manicures are performed incorrectly, they can lead to infections, inflammation, and significant nail disfigurement [5]. This case report highlights the specific issue of proximal nail atrophy resulting from recurrent traumatic manicures. The condition underscores the need for improved training and awareness among those performing cosmetic nail procedures. Proper technique and hygiene are critical to preventing such complications. As demonstrated by this case, inadequate manicure practices can lead to long-term

damage, emphasizing the importance of education for both beauticians and clients to safeguard against potential adverse outcomes.

Case Presentation

A 29-year-old female salon owner presented with a 3-year history of progressive tenderness, blackening, and swelling of the proximal nail folds on the index and middle fingers of her right hand and the index and ring fingers of her left hand (**Figure 1**). The patient received weekly manicures during this period. Despite treatments for fungal infections and eczema, her symptoms worsened, and nail disfigurement became apparent.



Figure 1: Clinical Presentation of Proximal Nail Atrophy.

Physical examination revealed scarring and atrophy of the proximal nail folds, with loss of the nail cuticle. Biopsy results showed thinning of the epidermis, flattening of dermal ridges, and a fibrocollagenous stroma with minimal lymphocytic infiltration. Serology for antinuclear antibodies was normal. The diagnosis of proximal nail atrophy secondary to traumatic manicure was confirmed.

The patient was advised to discontinue manicure procedures and prescribed Clobetasol Ointment to be applied twice daily. At a follow-up appointment six weeks later, significant improvement was observed, with only mild tenderness and scarring remaining on one middle finger (**Figure 2**).



Figure 2: Post-Treatment Improvement after Six Weeks.

Literature Review

The growing popularity of cosmetic nail procedures has been paralleled by an increase in complications associated with improper techniques, including proximal nail atrophy [6]. The nail apparatus, consisting of the nail plate, nail bed, proximal nail fold, and surrounding structures, plays a critical role in protecting the distal digits [7]. However, the intricate anatomy of the nail unit renders it susceptible to damage from repetitive trauma, particularly when manicure practices are not performed correctly [6,7]. Improper manicure techniques—such as excessive pushing of the cuticle, the use of harsh chemicals, and inadequate hygiene practices—have been shown to cause chronic injuries to the nail unit. These injuries often manifest as nail dystrophy, paronychia, onycholysis, and in severe cases, proximal nail atrophy. Repeated trauma to the nail matrix and surrounding structures can result in long-term, irreversible damage, underscoring the importance of proper training and standardized practices in nail care [7]. Research has demonstrated that repeated trauma to the nail unit can lead to

significant structural and functional abnormalities. Wollina's study, for example, found that recurrent trauma to the proximal nail fold could cause scarring and atrophy, consistent with the case described in this report [8]. Multiple studies emphasize the necessity of recognizing the potential for permanent damage due to repeated mechanical injury [9,10]. Furthermore, the lack of standardized practices and insufficient anatomical knowledge among beauticians significantly heightens the risk of such complications [11]. Poor technique and inadequate infection control measures can exacerbate these risks, leading to adverse outcomes for clients [9-11].

The literature also highlights the critical role of education and training in preventing complications associated with nail procedures [12]. Studies show that beauticians with limited training are more likely to perform procedures that cause damage to the nail unit [13]. For instance, a review of nail care practices identified improper technique and lack of hygiene as common contributors to complications such as proximal nail atrophy and paronychia [14]. Educating beauticians on proper techniques, hygiene, and the

anatomy of the nail unit is essential in preventing these adverse outcomes. Training programs that emphasize these aspects can significantly reduce the incidence of such complications and improve overall client outcomes [15]. The literature suggests that the rise in nail-related complications is closely tied to the increasing prevalence of cosmetic nail procedures and the insufficient training of those performing these procedures [16,17]. By enhancing education and standardizing practices, it is possible to mitigate the risks associated with these procedures and protect clients from potentially serious nail conditions.

Discussion

This case highlights the significant risks associated with recurrent traumatic manicures, particularly the potential for chronic injury to the proximal nail fold. The persistent trauma observed in this patient led to proximal nail atrophy, underscoring the impact that improper manicure techniques can have on nail health. The case demonstrates how a lack of proper training and anatomical knowledge among many beauticians can exacerbate these risks. Without a thorough understanding of the nail unit's anatomy and the potential consequences of improper techniques, beauticians may inadvertently cause significant and lasting damage. Proper education on manicure techniques, including the avoidance of excessive trauma and adherence to good hygiene practices, is crucial for preventing such complications. Dermatologists and healthcare professionals need to be vigilant about these risks when diagnosing and treating nail disorders. This case serves as a reminder of the importance of proper technique and preventive measures in mitigating long-term nail damage. Healthcare providers should be aware of the potential for traumatic injuries resulting from manicure

procedures and consider these factors when assessing and managing nail conditions. This awareness can aid in the accurate diagnosis and appropriate treatment of nail disorders related to cosmetic practices. For professionals in the nail care industry who may experience similar issues, several best practices are recommended to prevent recurrence and ensure nail health. First, seeking training and certification from accredited institutions can provide valuable education on both technical skills and anatomical knowledge. This training can help prevent injury by teaching proper techniques and emphasizing the importance of understanding nail anatomy. Adhering to stringent hygiene practices is also essential to minimize the risk of infections and complications. In addition to training and hygiene, implementing protective measures such as using gloves and avoiding excessive manipulation of the cuticle or nail plate can further reduce the risk of injury. Regular health check-ups to monitor the condition of the nails and proximal nail folds are advisable. Seeking medical advice promptly at the first sign of persistent symptoms can help address issues early. Educating clients about the potential risks of frequent manicures and promoting practices that minimize trauma to the nails can enhance overall nail health and prevent complications.

Conclusion

This case report underscores the importance of recognizing and mitigating risks associated with cosmetic nail procedures, especially when performed by individuals without adequate training. Proximal nail atrophy resulting from repeated traumatic manicures highlights the need for increased awareness and education about proper nail care

techniques. Implementing preventive measures and proper training can help prevent such complications.

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