Nicolau Syndrome following Intramatricial Triamcinolone Injection for Nail Lichen Planus

Abstract

Nicolau syndrome (Embolia cutis medicamentosa) is a rare complication following parenteral administration of a drug. It has been reported in association with intramuscular, subcutaneous, intravenous and intra-articular injections. However, Nicolau syndrome following intramatricial injection has not been described to the best of our knowledge. We report the case of an 18-year-old male who developed this complication following 7th session of intramatricial injection. The patient was started on broad spectrum antibiotic coverage, vasodilator therapy, analgesics, and daily dressing. On day 21, the symptoms completely resolved with return of normal color of the digit. The case is being reported to make dermatologists aware of the possibility of Nicolau syndrome following intramatricial injection of triamcinolone acetonide.

Keywords: *Intramatricial steroids, nail dystrophy, Nicolau syndrome*

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Introduction

Nicolau syndrome (Embolia cutis medicamentosa) is a rare complication following parenteral administration of any drug. It was first described by Nicolau in 1925 following intramuscular injection of bismuth salts for the treatment of syphilis. It is characterized by severe painful local necrosis at the site of injection, eventually healing with scarring. It has been reported in association with intramuscular, subcutaneous, intravenous, as well as intra-articular injections. However, Nicolau syndrome following intramatricial injection has not previously been described in the literature to the best of our knowledge. We report this rare complication in a young patient with nail lichen planus undergoing intramatricial injection with triamcinolone acetonide (5mg/ml).

Case Report

An 18-year-old male who was undergoing treatment with intramatricial injections of triamcinolone acetonide (5mg/ml) for nail lichen planus [Figure 1a] presented to the emergency room with pain, redness, and swelling involving the right great toe following the 7th session of intramatricial injection to the nail. He experienced mild pain after the injection followed by swelling, for which he visited the hospital and was diagnosed as cellulitis. He was started on oral penicillin and analgesics; however, the local condition deteriorated with development of blackish discoloration of the entire toe [Figure 1b]. There were no associated systemic symptoms.

Subsequently, the tender, edematous, blackish great toe developed a sharply defined margin at the base of the digit. Keeping in mind a possibility of gangrene secondary to ischemia, the patient was started on broad spectrum antibiotic coverage, vasodilator therapy (nifedipine 10 mg), analgesics, and daily dressing. The toe improved, however, ulceration developed over the dorsal aspect of the toe [Figure 1c]. The vasodilator therapy was continued, and on day 21, the symptoms completely resolved and colour of the toe returned to normal [Figure 1d].

Discussion

Nicolau syndrome has been reported with parenteral administration of various drugs such as penicillin, local anesthetics, corticosteroids, and non-steroidal anti-inflammatory drugs.[1] However, the complication appears to be unrelated, either to the drug being administered or the mode of administration. This inadvertent

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How to cite this article: Grover C, Kharghoria G, Daulatabad D, Bhattacharya SN. Nicolau syndrome following intramatricial triamcinolone injection for nail lichen planus. Indian Dermatol Online J 2017;8:350-1.

Received: September, 2016. **Accepted:** November, 2016.

Access this article online

Website: www.idoj.in

DOI: 10.4103/idoj.IDOJ_333_16

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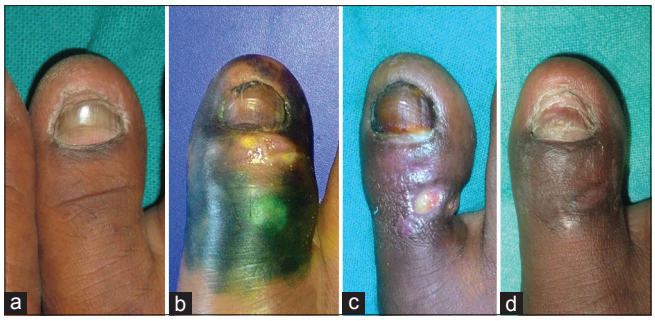

Figure 1: The great toe nail being treated with intramatricial triamcinolone acetonide (5mg/ml). (a) Day 0, the baseline clinical picture before the injection. (b) Day 4 after the injection was given. Note the extensive black discoloration of the whole toe with massive swelling. (c) Day 14, after institution of antibiotic and vasodilator therapy. (d) Day 28, improvement in colour and appearance of the digit

complication has been attributed to various underlying mechanisms. It could result from an inadvertant intra-arterial injection of drug leading to direct vessel injury or arterial embolism of microcrystals of drugs containing crystalloids.[2-4] Both these mechanisms were apparently not responsible in our case as the site of injection does not have any major arteries. The most commonly accepted theory is direct compression of vessel wall and resultant necrosis following paravascular injections. Other proposed mechanisms include microvascular thrombosis or vasospasm leading to ischemic necrosis (livedoid pattern).[5] Any of these could have been responsible in our case.

Nicolau syndrome is suggested by a sudden onset severe pain at the injection site. Our patient also experienced pain at the injection site, which, in retrospect, he reported to be more severe than the pain he was used to experience with previous injections at the same site, or even injections given in other digits during the same sitting. This could be an early marker of the possibility of developing such a rare eventuality. Other symptoms may range from mild pallor and cyanosis which may develop into tissue necrosis and ulceration, as noted in our patient.

It is emphasized that Nicolau syndrome is mainly a clinical diagnosis. Hence, an early recognition of these signs and symptoms can help institute early specific therapy, thus preventing dreaded consequences, which in this case could have amounted to loss of the toe.

Long-term complications are mainly in the form of contractures and deformities due to the scarring. Neurological complications such as hypoesthesia or paralysis have also been reported. Early institution of treatment has been reported to prevent the extent of necrosis. Conservative treatment with dressings, surgical debridement, and pain control are the mainstay of therapy. Measures to improve the vascularity such as pentoxyphylline, hyperbaric oxygen, intravenous alprostadil, and thrombolysis with heparin have been tried in the immediate post-event period.[5]

Our patient was managed conservatively with oral antibiotics, analgesics and vasodilators (nifedipine) with regular dressings. Pus culture sensitivity was done from the ulcer and methicillin-resistant *Stapylococcus aureus* was grown, which was sensitive to linezolid. The patient responded well with resolution of symptoms and appearance of granulation tissue.

Conclusion

We report this case to highlight the possibility of this rare complication occurring post intramatricial injectables as well. Dermatologists should be aware of this possibility to help them diagnose it early and manage accordingly, to prevent complications due to ischemic damage, which can be grave at this site.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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