Single injection technique for the management of both nail-matrix and nail-bed lesions of inflammatory nail disorders

Problem

Nail unit involvement is commonly seen with or without co-existent skin lesions in various inflammatory dermatoses. Treatment of isolated nail lesions is often challenging. The efficacy of topical treatment is limited as the densely keratinised nail plate and the thick, double-sided skin in the nail folds prevent the topical drug's optimal bioavailability. Oral drugs and biologics, on the other hand, have the potential for significant systemic toxicity and their use may not be justified in isolated nail involvement. In addition, the slow growth of diseased nail plates in many of these conditions, necessitates longer course of treatment affecting compliance. Intralesional therapy offers many advantages in isolated nail disease; it is targeted, the drug is deposited at the site of pathology in higher

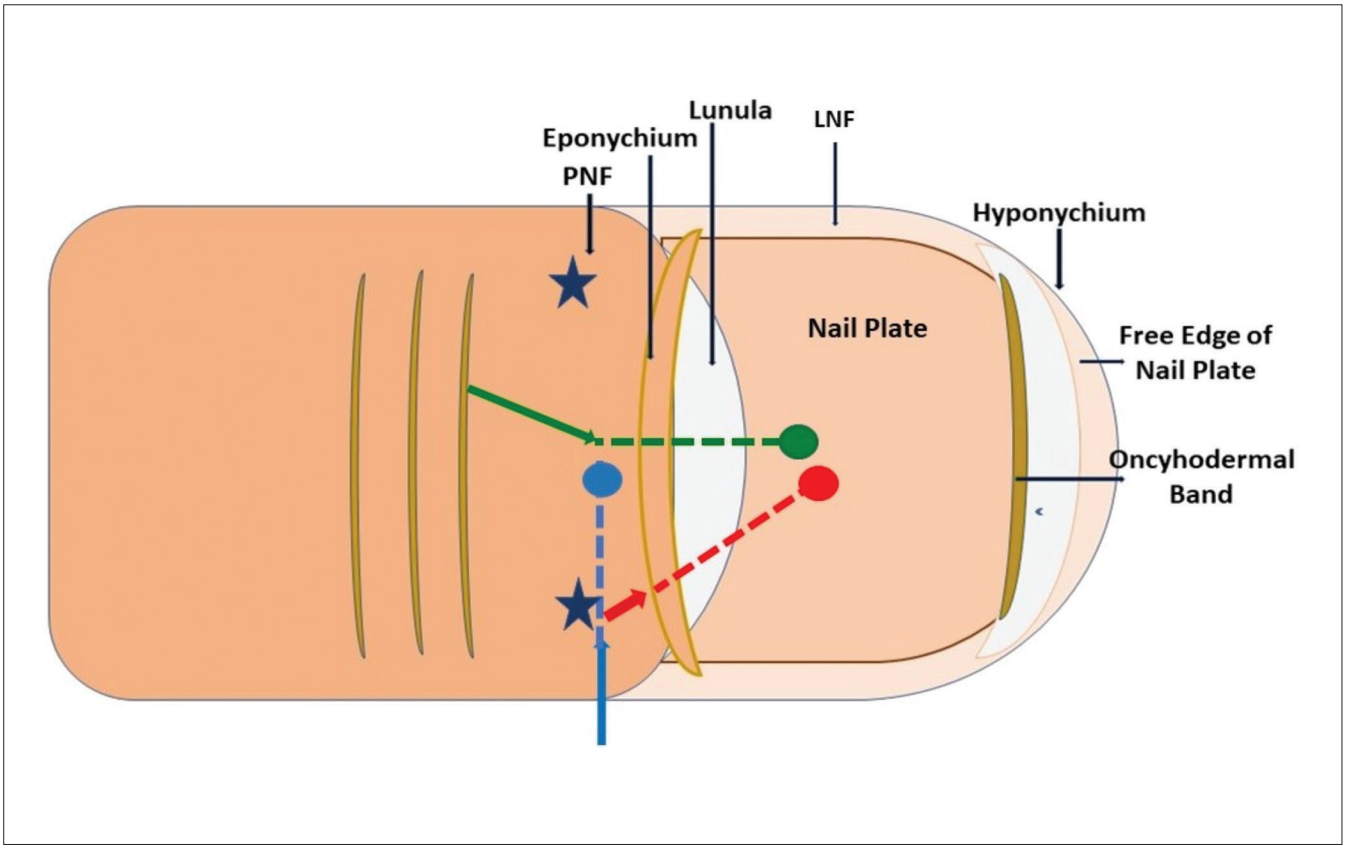

Figure 1: Diagrammatic representation of nail unit anatomy and the site of intramatricial injections (two deep blue stars or light blue line) and intra-bed injection (Red line). Green line depicts the course of single injection technique. Please note that the dotted lines indicate the course of needle under the skin. (LNF - lateral nail fold, PNF - proximal nail fold)

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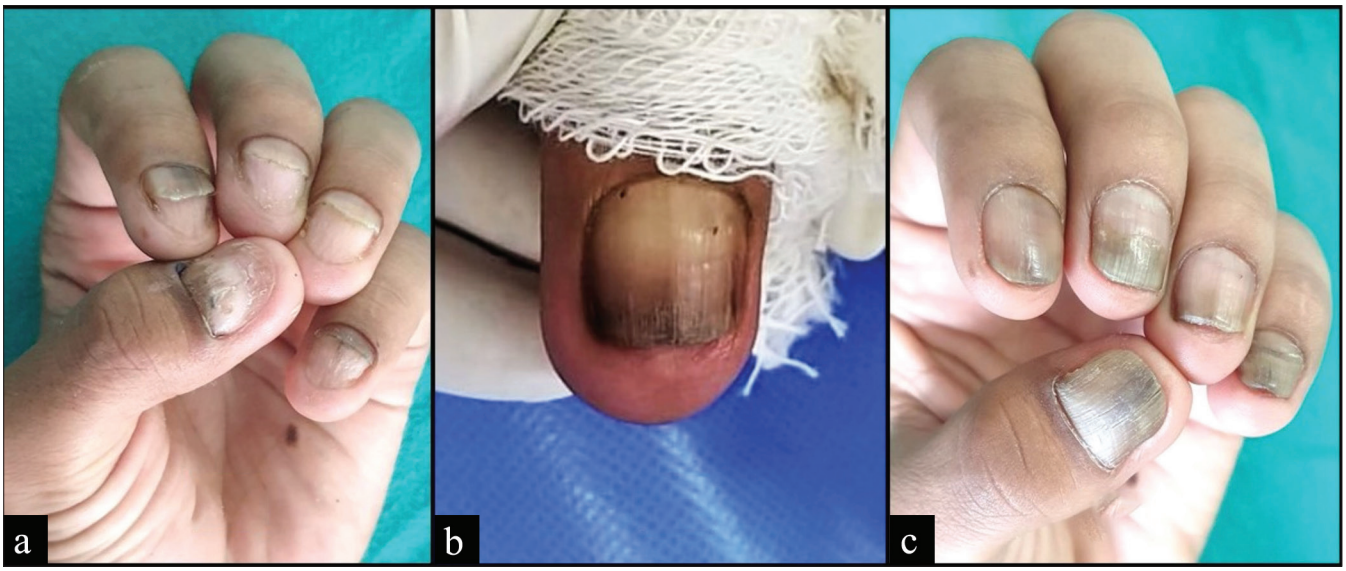

Figure 2: (a) Biopsy proven case of nail psoriasis in an adult male, (b) visible blanch of lunula and nail bed of the left ring finger just after the 4th triamcinolone acetonide injection, (c) significant resolution of nail lesions after 4 sessions

concentration and it also avoids drug interactions and systemic side effects. Furthermore, no specialized drug formulation or equipment is required. Many agents including triamcinolone acetonide, methotrexate and ciclosporin have been used for intra-matricial and/or nail bed injection depending upon the site of pathology in diseases like nail psoriasis and nail lichen planus. In many of these conditions, pathology exists in both the nail matrix and nail bed. Intra-matricial and intra-bed injections of corticosteroids (triamcinolone acetonide 5 mg/ml) have been recommended as a first line, low-risk procedure for inflammatory nail diseases including psoriasis.[1,2] The standard procedure for intra-matricial injection, involves inserting the needle 2–3 mm proximal to the junction of proximal and lateral nail folds and taking it horizontally to the centre or alternatively the injection is given at two points for fingers and three points for thumb/toenails [Figure 1].[1] For bed injection, the needle is inserted from proximal nail fold through the matrix into the bed [Figure 1].[3] Both intra-matricial/ bed injections are associated with moderate to severe pain for which prior application of cold packs and/or a vibratory device have been advised with limited success.[3] Mittal *et al.* have also proposed two additional pricks of the proximal digital block using 2% xylocaine.[4] Therefore, despite good efficacy, the significant pain associated with multiple needle pricks during intra-matricial and bed injections is a strong deterrent for both physician and the patients.

Solution

A simple yet very effective technique is to combine intra-matricial and intra bed injection with one needle prick. A 30-gauge needle with the bevel side up is inserted at an angle of 30–45 degrees, 2–3 mm proximal to the centre point of the proximal nail fold, directly into the matrix. At this point, approximately 0.05 ml of the drug solution is injected as appreciable by the blanching of the proximal and distal matrix region (lunula). Thereafter, along the same track the needle is advanced distally, and 0.05 ml of drug solution is deposited into the nail bed leading to blanching of the proximal 2/3rd of the nail bed [Video 1]. The anatomic contiguity allows slow and passive diffusion of the drug in the distal 1/3rd of the nailbed too. This single prick technique is simple yet effective [Figure 2] and is relatively less painful as it avoids the traversing of needle from the lateral nail fold to the centre and/or multiple separate pricks for both matrix and nail bed injection.

Video 1: Demonstrates the insertion of 30-gauge needle into the centre of matrix underlying proximal nail fold and then into the nail bed leading to the visible blanch of lunula and proximal 2/3rd of the nail bed

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Conflicts of interest
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