

Letter to Editor

Levonorgestrel-releasing Intra-uterine Device-induced Lichenoid Drug Reaction: A Rare Clinical Entity

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Dear Editor,

Lichenoid drug reaction (LDR) is a variant of adverse drug reaction (ADR) that clinically and histopathologically mimics lichen planus and accounts for 0.38–2.83% of all reported ADR.^[1] LDR can occur in response to a wide range of medications, typically presenting as violaceous, flat-topped, polygonal papules over the photo-exposed sites.

While most LDRs are associated with systemic medications such as antihypertensives, antimalarials and non-steroidal anti-inflammatory drugs, recent literature has highlighted the potential for levonorgestrel-releasing intrauterine devices (IUDs) to trigger a similar reaction.^[2] This is particularly noteworthy, as cutaneous eruptions linked to IUD use are infrequently described in the literature.

Hereby, we are reporting a case of an extensive lichenoid drug eruption following the insertion of a levonorgestrel-releasing IUD. This case underscores the importance of considering IUD as a rare but potential cause of LDR. It highlights the need for heightened awareness among clinicians while evaluating patients with unexplained dermatological manifestations after IUD insertion.

A 40-year-old homemaker presented with multiple hyperpigmented, itchy, elevated lesions over bilateral upper and lower limbs and trunk and thick hyperpigmented keratotic lesions over the palms and soles for 3 months. Initially, she developed a few pea-sized, itchy, reddish, raised lesions over the palm, which gradually enlarged and turned violaceous on sun exposure. For this, she applied a topical potent steroid ointment without any improvement. Further, she developed crops of violaceous flat-topped papules and plaques of varying sizes, ranging from 0.2 × 0.2 cm to 3 × 3 cm, associated with central adherent scaling over the trunk [Figure 1a], bilateral upper and lower limbs within 3–5 days. Eventually, plaques over the palms and soles extended up to the dorsal aspect and became hyperkeratotic, with a peripheral rim of violaceous pigmentation associated with deep fissuring [Figure 1b], which hampered her day-to-day activity. In addition, ill-defined violaceous plaques were also seen over intertriginous sites. Mucosa, scalp and nails were normal.

On further inquiry, it was evident that she was a diagnosed case of leiomyoma and had a Mirena IUD (52 mg levonorgestrel) inserted 2 months before the onset of lesions.

On dermoscopy, red dots and globules, radiating linear bands, white structureless region, brown dots and keratotic plugs, along with grey and blue dots were seen [Figure 2].

The histopathology report revealed hyperplastic squamous epithelium with mild hyperkeratosis and parakeratosis, with irregular acanthosis. Focal basal cell vacuolisation with basement membrane degeneration is seen in the dermis. Multiple melanophages are also seen with patchy

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Figure 1: (a) Violaceous flat-topped papules and plaques with central adherent scaling over the trunk. (b) Hyperkeratotic violaceous plaques with fissuring over palms and soles.

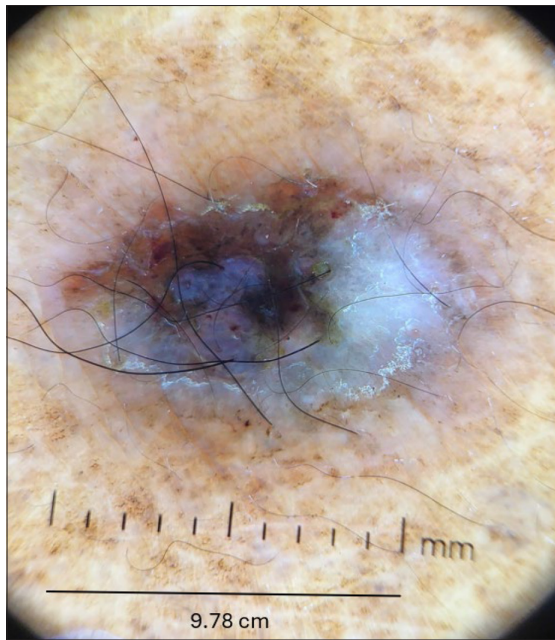


Figure 2: Dermoscopy showing white structureless region, keratotic plugs, brown dots, and blue dots (DermLite, DL4, polarised, contact with iPhone 15 attachment, $\times 10$).

inflammation in the dermo-epidermal junction containing eosinophils, lymphocytes and occasional plasma cells, which was suggestive of LDR [Figure 3a and b].

With these findings, an injectable steroid was administered along with acitretin during her hospital stay and discharged on tapering doses of prednisolone and capsule acitretin 25 mg daily dose. There was minimal improvement in thickness over palms and soles, but the itching component persisted and the patient also complained of the appearance

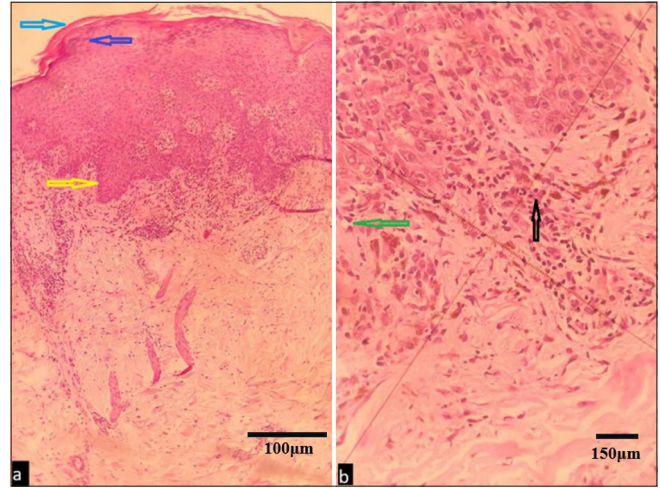


Figure 3: (a) Epidermis showing mild hyperkeratosis and parakeratosis with acanthosis (haematoxylin and eosin [H&E] $\times 10$). Blue arrow: Hyperkeratosis, Purple arrow: Hypergranulosis, Yellow arrow: Acanthosis. (b) Dermis showing focal basal cell vacuolisation with patchy inflammation in the dermo-epidermal junction containing eosinophils, lymphocytes, occasional plasma cells and melanophages (H&E $\times 40$). Green arrow: Basal cell vacuolisation, Black arrow: Patchy inflammatory infiltrate.



Figure 4: (a) Post IUD removal, lesions over the trunk healing with post-inflammatory hyperpigmentation. (b) post IUD removal, induration over previous lesions over palms and soles has subsided, leaving post-inflammatory hyperpigmentation.

of multiple new lesions of similar morphology. Later, removal of the IUD was planned after the gynaecology consultation. 2–3 weeks following IUD removal, the patient got significant relief from the itch with no further development of new lesions. Induration over previous lesions subsided with residual post-inflammatory hyperpigmentation over the bilateral upper and lower limbs, trunk [Figure 4a], palms and soles [Figure 4b]. Eventually, both systemic steroids and acitretin were tapered and stopped in 4 weeks.

Table 1: Previous case reports with similar presentations to our case induced by hormonal drugs.

Literature	Culprit drug	Clinical presentation
Jones <i>et al.</i> ²	levonorgestrel-releasing IUD induced LDR	Lichenified papules over the trunk and legs
Alhameedy <i>et al.</i> ³	Somatotropin injections	Pruritic reticulated violaceous plaques over the extremities, and hyperkeratotic streaks over the labia and buccal mucosa
Khan <i>et al.</i> ⁴	Enzalutamide (androgen receptor inhibitor)	Diffuse lichenified plaques in photo-exposed areas

Although the pathomechanism of LDE is still elucidated, it has been considered as a cross-reaction between the drug and keratinocytes, which leads to T-cell-mediated autoimmune damage of basal keratinocytes. LDE can be induced by drugs such as gold, antimalarials, antihypertensives, non-steroidal anti-inflammatory drugs, proton pump inhibitors, anti-diabetic, anti-tubercular, tumour necrosis factor-alpha inhibitors, tyrosine kinase inhibitors and checkpoint inhibitors.

Apart from these drugs, few literatures has documented the role of hormonal drugs triggering LDE [Table 1].^[3-5]

Similarly, in our case, multiple pruritic violaceous plaques over the bilateral extensor aspects of upper and lower limbs, trunk and face after 2 months of levonorgestrel-releasing IUD insertion. One of the characteristic presentations in our case is palmoplantar hyperkeratosis associated with fissuring, which has been rarely reported in imatinib mesylate-induced LDR.^[5]

Based on this clinical appearance, histological findings and the chronological relationship between the lesion's onset and exposure to the suspected agent, and the remission of symptoms upon stopping the suspected agent, we are reporting this case of LDR secondary to levonorgestrel-releasing IUD.

This case illustrates a distinct clinical manifestation of levonorgestrel-releasing IUD-related LDR manifested as

palmoplantar hyperkeratosis. To the best of our knowledge, this is the second reported case of LDR secondary to levonorgestrel-releasing IUD.

Ethical approval: Institutional Review Board approval is not required.

Declaration of patient consent: The authors certify that they have obtained all appropriate patient consent forms. In the form, the patients have given their consent for their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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