Cutaneous lymphoid hyperplasia developing on the site of a positive intradermal allergy test to cefotetan

Sir,

A 36-year-old female presented with a severely pruritic erythematous nodule measuring 1.4 × 1.1 cm on the left forearm [Figure 1]. The lesion was well-demarcated and relatively hard but not fixed to any of the underlying structures. She stated that it developed following an allergy skin test, at the site. She was earlier diagnosed with a soft-tissue infection on the tip of the left index finger and an intradermal allergy skin test for cefotetan (second generation cephalosporin) was performed on the left forearm. However, a wheal-and-flare reaction occurred at the site; after ten days, it changed to a pruritic, erythematous nodule and persisted for seven months. Her personal medical history and laboratory blood investigations were unremarkable. A punch biopsy was performed to rule out various nodular skin diseases such as a hypertrophic scar, nodular fasciitis, cutaneous lymphoma and dermatofibrosarcoma protuberans. Histologically, the lesion showed dense perivascular patchy and nodular lymphoid infiltration throughout the entire depth of dermis with some eosinophils and lymphoid follicle-like structures [Figures 2a-c]. Immunohistochemistry showed that the infiltrating lymphocytes stained positively for CD3, CD20, CD4 and CD8, but not for CD30, CD56 and Ki-67 [Figure 3]. T and B lymphocytes were mixed and subsequent T-cell receptor β and γ gene rearrangements showed polyclonality. She was finally diagnosed with cutaneous lymphoid hyperplasia and was treated with intralesional injection of triamcinolone (10–20 mg/ml) seven times at two to three week intervals, which produced substantial improvement without recurrence by the fourth month of follow-up [Figure 4].

Although various stimuli such as medications, infections and foreign agents can induce cutaneous lymphoid hyperplasia;[1] in this case, there are two main possible causes to consider. One is repeated needle injury and the other,

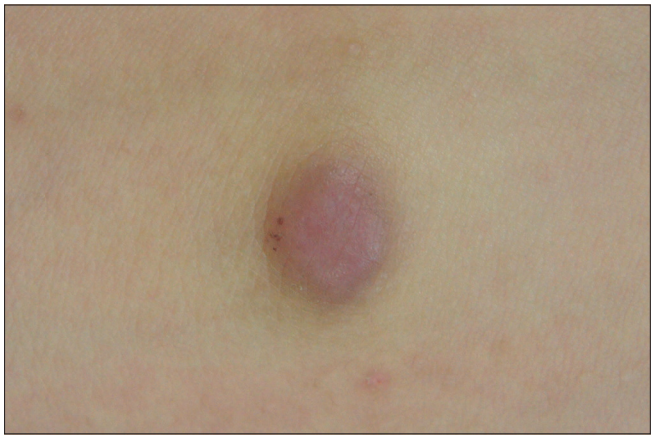

Figure 1: A severely pruritic, erythematous nodule measuring 1.4 × 1.1 cm on the left forearm that persisted for seven months after positive reaction of intradermal allergic skin test to cefotetan

delayed hypersensitivity. However, this was the first and only time she received an intradermal allergy skin test, so it is unlikely that repeated trauma was the cause. Delayed hypersensitivity could have been caused by two materials in this case; remaining metallic material from the needle and cefotetan. The metallic material from a needle may act as an immunogenic substance and induce a delayed direct hypersensitivity reaction and lymphocyte infiltration.[2] However, in general, the needle of a disposable medical syringe is mainly made of stainless steel and secretion of nickel and chromium ions is minimal.[2] Furthermore, a metallic fragment was not observed in her tissue specimen by polarized light microscopy and she had never experienced local side effects from previous needle injections. The other possible cause is the drug. The β-lactam ring of cephalosporins is well known to impart a degree of instability; the ring can act as a hapten and is immunogenic.[3] The side chain of the R group is known to be more diverse than penicillin, inducing delayed hypersensitivity.[3,4] Cephalosporins are one of the primary causes of drug allergy. However, there

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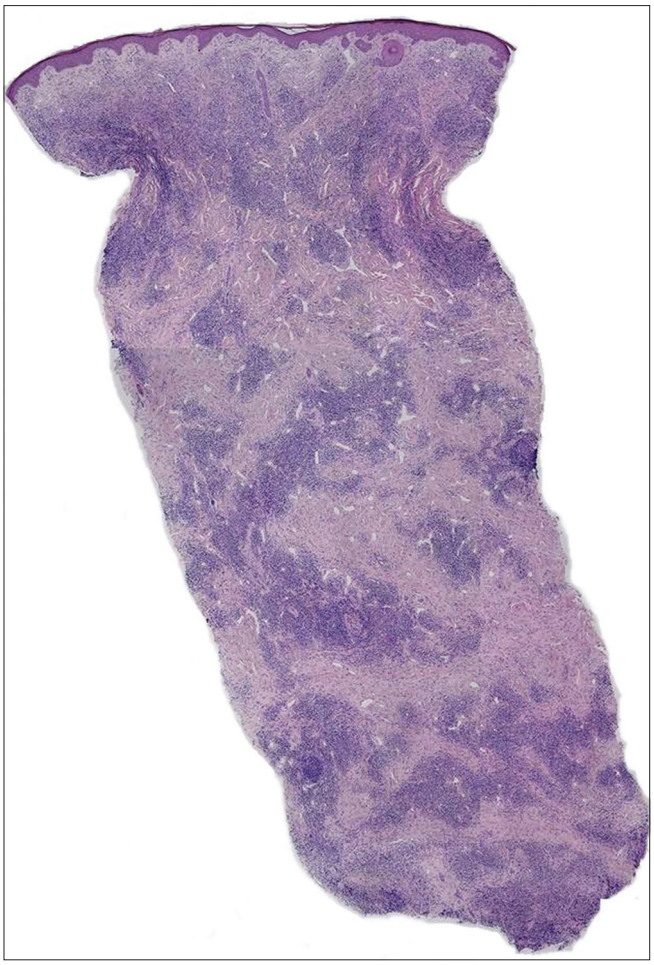

Figure 2a: Dense patchy and nodular infiltration was shown throughout the whole depth of dermis (H and E, ×20)

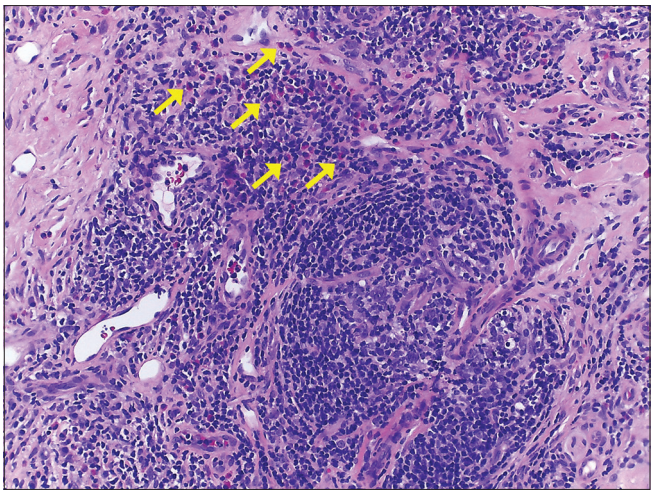

Figure 2b: Patchy infiltration composed of mixed cellular infiltrate of lymphocytes and eosinophils (yellow arrows) (H and E, ×200)

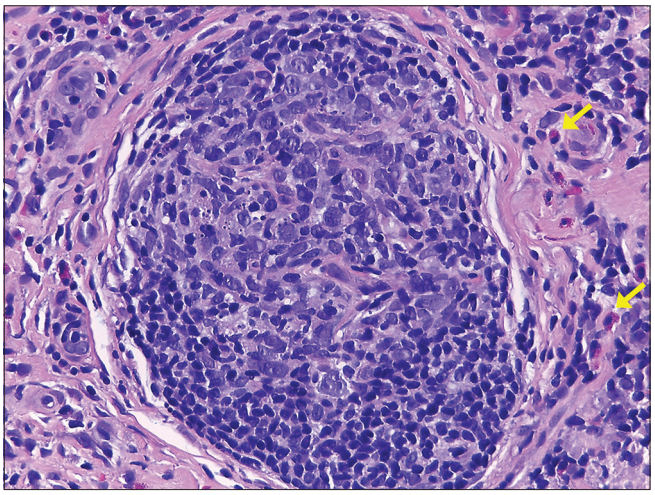

Figure 2c: Infiltrating lymphocytes formed lymphoid follicle-like structures and eosinophils (yellow arrows, H and E, ×400)

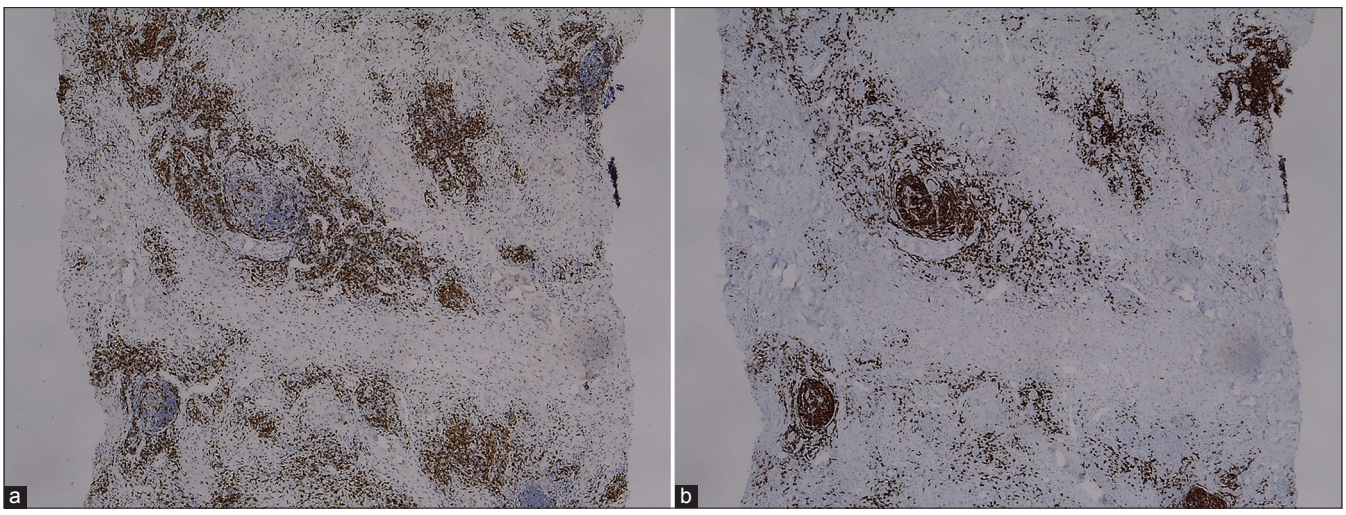

Figure 3: Immunohistochemical studies showed that infiltrating lymphocytes were positively stained with (a) CD3 (×40).(b) CD20 (×40)

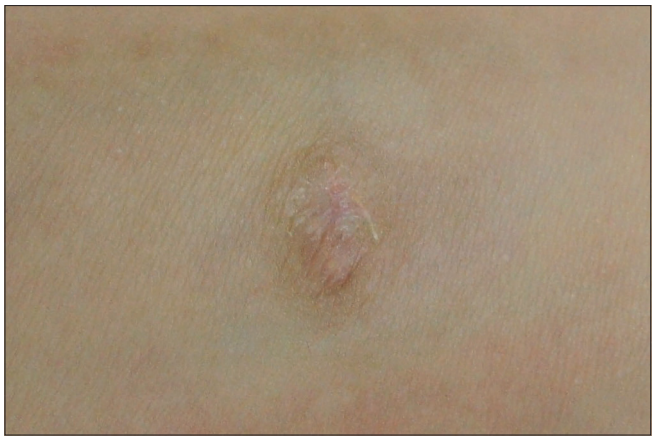

Figure 4: The lesion showed almost complete resolution after seven intralesional injections of triamcinolone given at two to three weeks intervals after being treated seven times with intralesional injections of triamcinolone

are few reports of cutaneous lymphoid hyperplasia due to cephalosporin.[5] Therefore, we report a rare case of cutaneous lymphoid hyperplasia which developed following a positive intradermal test due to delayed hypersensitivity to cefotetan. If we encounter a nodule after a positive intradermal allergy test to cefotetan, we should also consider the possibility of cutaneous lymphoid hyperplasia.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent.

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Conflicts of interest

There are no conflicts of interest.

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