

**Case Report / Olgu Sunusu**

**Treatment of necrobiosis lipoidica with pimecrolimus in a child with diabetes mellitus**

**Diyabetes mellituslu bir çocukta nekrobiyozis lipoidikanın pimecrolimus ile tedavisi**

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**Abstract**

Necrobiosis lipoidica diabetorum (NLD) is an idiopathic cutaneous granulomatous dermatitis. The disease is usually seen in people with diabetes mellitus. The treatment of NLD is quite difficult and takes a long time, particularly in ulcerated forms. In this case, a girl with 10 years of age is presented with a persistent plaque which had been present for 2.5 years on her left shin. Local treatment with pimecrolimus (Elidel 1.0% cream) twice daily for one month, in addition to glucose control provided a progressive improvement of the lesion. So, pimecrolimus may be used safely and effectively in the treatment of NLD.

**Key words:** child; diabetes mellitus; necrobiosis lipoidica; pimecrolimus

**Özet:**

Nekrobiyozis lipoidika diyabetorum (NLD), idiyopatik kutanöz granülatöz bir dermatittir. Hastalık genellikle diyabetik popülasyonda görülür. NLD'nin tedavisi, özellikle ülsere formlarda, oldukça zordur ve uzun zaman alır. On yaşında kız çocuk, 2,5 yıldır sol bacağına olan inatçı bir plak ile başvurdu. Glikoz kontrolüne ek olarak bir ay boyunca günde iki kez lokal pimecrolimus (Elidel %1 krem) tedavisi ile lezyonda belirgin düzelme sağlandı. Sonuçta, pimecrolimus NLD tedavisinde güvenli ve etkili bir şekilde kullanılabilir.

**Anahtar Kelimeler:** çocuk; diyabetes mellitus; nekrobiyozis lipoidika; pimecrolimus

**Introduction**

Necrobiosis lipoidica diabetorum (NLD) is an idiopathic cutaneous granulomatous dermatitis, and especially seen in diabetes mellitus (DM). Necrobiosis Lipoidica (NL) is seen in 2.3% of cases in the pediatric population and it is found in 0.3% to 1.2% of diabetic patients (1). Diagnosis is mainly clinical and it has a characteristic of clinical appearance. This lesion begins as an oval small patch and then grows slowly around itself. The color of advancing border is red while the central area turns yellow-brown. The central area resembles to a waxy structure and at a later time, this area atrophies and telangiectasia become prominent (2). The most commonly affected site is the leg and typical for DM patients. But it may also appear on the hands, fingers, forearms, face, and scalp and often one region is affected (3). Laboratory findings are not helpful in the diagnosis of NL. Necessity for biopsy may occur, especially in the early stages of disease for differential diagnosis. Because many diseases that include erythema nodosum, lupus panniculitis, granuloma annulare, sarcoidosis and amyloidosis may present with similar conditions (4). In this case, a girl with 10 years of age is presented with a persistent plaque which had been present for 2.5 years on her left shin.

### Case report

A ten year-old female patient was admitted to the hospital with a persistent plaque which had been present for 2.5 years on her left shin. The plaque was irregular and indurated, measuring 10 cm x 8 cm, with sharply defined, slightly elevated, irregular borders and a brownish, depressed, ulcerated central area with prominent telangiectasia, with no pruritus (Figure 1a). Type 1 diabetes (T1DM) had been diagnosed at 18 months of age. Her glucose control was not good for about four years. The family did not accept biopsy, so diagnosis of "necrobiosis lipoidica diabetorum (NLD)" was made according to physical examination. Local

treatment with pimecrolimus (Elidel 1.0% cream) twice daily for one month and a good blood glucose control provided a progressive improvement of the lesion (Figure 1b).



**Figure 1a: Before treatment**  
**Figure 1b: After treatment**

### Discussion

Necrobiosis lipoidica is an idiopathic cutaneous granulomatous dermatitis, and it is found in 0.3% to 1.2% of diabetic patients (1). The treatment of NL is very difficult and takes a long time, particularly in ulcerated forms. Several therapeutic options were applied, but optimal therapy is not clear yet. Topical or systemic corticosteroids have been used for the treatment of NL. But, blood glucose may be worsening at diabetic patients which already have sick blood glucose (3). There are many treatment options that include smoking cessation, blood glucose control, plus UVA therapy (PUVA), hydroxychloroquine (5,6).

The patient has used topical steroid and topical antibiotics for a long time within a period of 2.5 years. However, the patient did not recover with these treatments. Despite this, the patient's family did not accept other treatments like systemic steroid and PUVA due to their side effects.

Pimecrolimus is an immunomodulatory drug. It prevents the activation of nuclear factor of activated T cells by inhibiting calcineurin, after binding to macrophilin-12 (7). So, it has effect on suppression of T cells, inhibition of the production, and release of inflammatory cytokines such as IL-2, IL-3, IL-4, granulocyte-macrophage colony-stimulating factor, tumor necrosis factor  $\alpha$ , and interferon- $\gamma$ . Topical calcineurin inhibitors have already been established in the treatment of atopic dermatitis. They are being used in an increasingly wide range of other dermatologic conditions. Topical pimecrolimus was used in an adult patient with Pemphigus Foliaceus (8). Some studies were made with topical pimecrolimus at children. It was used successfully in an infant with Annular elastolytic giant cell granuloma (AEGCG) (9). 1% pimecrolimus cream was usually used for the treatment of atopic dermatitis. It is well tolerated in children and improves atopic dermatitis. And clinically unexpected adverse events were not reported (10). Because pimecrolimus is safe and effective for the treatment of these kinds of patients, it was used in our patient together with regulation of blood glucose. These all provide a clear treatment. To our knowledge, there was not any report for topical pimecrolimus usage in NL in children with DM.

### Conclusion

Pimecrolimus, which is safe and effective, may be used in pediatric patients for NL.

**Conflict of Interest:** None of the author declare any conflict of interest.

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