NECROBIOsis LIPOIDICA DIABETICORUM

*K. R. Umadevi and J. Srivani
Department of Pathology, Sri Muthukumaran Medical College Hospital and Research Institute, Chikkarayapuram, Chennai-600069, Tamilnadu, India
*Author for Correspondence

ABSTRACT
Necrobiosis lipoidica diabeticorum ("NLD") is a rash that occurs on the lower legs. It is more common in women, as seen in our case and there are usually several spots. They are slightly raised shiny red-brown patches. The centers are often yellowish and may develop open sores that are slow to heal. Often a biopsy is needed to diagnose NLD. NLD usually occurs more often in people with diabetes, in people with a family history of diabetes. We report a rare case of NLD in a young female -23 years old girl who is a known Type1Diabetic. NL/NLD most frequently appears on the patient's shins, often on both legs, although it may also occur on forearms, hands, trunk, and rarely, nipple, penis, and surgical sites. The lesions are often asymptomatic but may become tender and ulcerate when injured. The first symptom of NL is often a "bruised" appearance (erythema) that is not necessarily associated with a known injury. The extent to which NL is inherited is unknown.

Key Words: Necrobiosis, Papular Rash, Micro Albuminuria and Diabetes

INTRODUCTION
Necrobiosis lipoidica diabeticorum ("NLD") is a rash that occurs on the lower legs. It is more common in women especially with Diabetes or with the family history of Diabetes. Necrobiosis lipoidica is a necrotising skin condition that usually occurs in patients with Type 1 Diabetes but it can also be associated with Rheumatoid Arthritis. In the former case it is called necrobiosis lipoidica diabeticorum (NLD). NLD occurs in approximately 0.3% of the diabetic population, with the majority of sufferers being women (approximately 3:1 females to males affected). The severity or control of diabetes in an individual does not affect who will or will not get NLD. Better maintenance of diabetes after being diagnosed with NLD will not change how quickly the NLD will resolve. NL/NLD most frequently appears on the patient's shins, often on both legs, although it may also occur on forearms, hands, trunk, and, rarely, nipple, penis, and surgical sites. The lesions are often asymptomatic but may become tender and ulcerate when injured. The first symptom of NL is often a "bruised" appearance (erythema) that is not necessarily associated with a known injury. The extent to which NL is inherited is unknown.

CASE REPORT
A 23-year-old lady presented to the outpatient department of Dermatology for a scaly lesion over the Dorsum of the lower leg. She was a diabetic for last 5 years, which was under control with oral antidiabetic agents. Her only concern was the red rash, not itching, on both her legs for last 10 days. Otherwise, she was asymptomatic without any significant past medical history. There was no history of past surgical procedures, undue medicine intake, allergy to drug or environmental agents.

Figure 1: Showing lower magnification [20X] OF Necrobiotic collagen alternating with inflammatory cells
On examination, her vital parameters were normal. Her weight was 52 kg and height was 160 cm, with a body mass index of 27.3 kg/m\(^2\). Anterior aspect of both legs over shin of tibia had reddish brown papular rash with erythematic spreading borders. The rash was tender, non-blanching with reddish flakes over it. There were no signs of atrophy or ulceration. Sensations over the lesions were preserved. Systemic examination was normal without any evidence of diabetic retinopathy or neuropathy. Vibration perception thresholds (VPT) over both feet were 9/15 and 10/18, revealing absence of any neuropathy. Her blood sugar levels were: fasting 250 mg/dl and postprandial 320 mg/dl with glycosylated hemoglobin (HbA1C) 9.8%. Urine for microalbuminuria showed a value of 25 mg/dl. Biopsy of the lesions over leg revealed sandwich-like horizontal layers of necrobiotic collagen alternating with inflammatory cell infiltrate of lymphocytes, histiocytes, multinucleated giant cells and plasma cells.

**Figure 2:** Showing higher magnification [40x] Hand E of Necrobiotic collagen alternating with inflammatory cells

Biopsy of the skin Fig. 1 and Fig. 2 showing necrobiotic collagen alternating with inflammatory cell infiltrate of lymphocytes, histiocytes, multinucleated giant cells and plasma cells in the dermis (H and E, ×200).

**DISCUSSION**

In 1929, Oppenheim first described NLD and called it dermatitis atrophicans lipoidica diabetic but it was later renamed NLD by Urbach in 1932. In 1935 Goldsmith reported the first case in a nondiabetic patient. This was followed by description of NLD in nondiabetic patients by Meischer and Leder in 1948. Rollins and Winkelmann (1960) again described this condition in nondiabetic patient, leading to a suggestion that diabetics be excluded from the term. The term necrobiosis lipoidica (NL) encompasses the same clinical lesions regardless of the association with diabetes (DeSilva et al., 1999). The average age of onset is 30 years, with females being affected more commonly?

**Histology**

In a fully developed case, the characteristic features are present at the edge of the lesion. Histopathologically, NLD presents with interstitial and palisaded granulomas that involve the subcutaneous tissue and dermis (Lowitt & Dover, 1991). The earliest change is noticed in the form of small vessel vasculitis, progressing to large-vessel granulomatous vasculitis and collagen degeneration involving the dermis and subcutaneous fat (with the pattern of a septal panniculitis). The lymphocytic component of the dermal infiltrate is composed predominantly of T-cells, principally T-helper cells (Imtiaz & Khaleeli, 2001). The granulomas are arranged in a tier-like (layered) fashion and are admixed with areas of collagen degeneration (Tidman & Duncan, 2005). The granulomas are composed of histiocytes, and some of them are multinucleated lymphocytes, occasional plasma cells and eosinophils. Reduction in the number of intradermal nerve is an additional feature of NLD. The main findings on histopathology are thickening of the blood vessel walls and endothelial cell swelling found in the middle to deep dermis, the characteristics shared with diabetic microangiopathy (Santos-Juanes et al., 2004). Biopsy in our patient revealed sandwich-like horizontal layers of necrobiotic collagen alternating with inflammatory cell infiltrate of lymphocytes,
histiocytes, multinucleated giant cells and plasma cells (Alegre & Winkelmann 1988). These changes involved the full thickness of the dermis sparing the subcutis. Direct immunofluorescence microscopy of NLD has demonstrated IgM, IgA, C3 and fibrinogen in the blood vessels.

**Differential diagnosis**

Granuloma annulare (Binkley's spots): They are found most commonly in Sarcoidosis: It manifests as maculopapular eruptions, with erythema nodosum being the most common lesion. It is usually associated with involvement of other systems like eye, lungs, musculoskeletal systems, lymph nodes, etc.

Necrobiotic xanthogranuloma: It can manifest as eruptive, tuberous, tendinous xanthoma. Histologically, cholesterol clefts are found in the lesion.

**REFERENCES**


