

Case Report.

Perforating Dermatosi s as a cause of chronic pruritus Diabetic Patient on Hemodialysis or vice versa

Ail Alahrash ^{1,2}, Wedad. Ashaibani ².¹University of Zawia²Zawia Kidney Teaching Hospital , Libya.Corresponding author Email; a.alahrash@zu.edu.ly**Abstract**

Perforating Dermatosi s (PD) is a rare cutaneous disorder associated with chronic kidney disease (CKD) and diabetes mellitus (DM), characterized by the transepidermal elimination of dermal components. Despite its prevalence among dialysis patients, it remains underreported, particularly in our region. We present a case of a 70-year-old male with long standing diabetes and CKD on hemodialysis for seven years, who developed widespread perforating skin lesions. This case highlights the clinical presentation, and management challenges, emphasizing the importance of recognizing (PD) in nephrology and dermatology practice.

Keywords: Perforating dermatosis, diabetes mellitus, chronic kidney disease, dialysis, pruritus

Introduction; one of the rare cutaneous diseases that occur in long standing uncontrolled Diabetes who have chronic kidney disease (CKD) are Perforating Dermatosi s. It is a transepidermal elimination of dermis. Affected patients usually have pruritic papules or nodules. Our present case is dialysis-dependent diabetic diagnosed clinically as perforating dermatosis. Perforating dermatosis, consists of a group of skin disorders, like; Kyrle disease, perforating folliculiti s, elastosis perforans serpiginosa, and reactive perforating collagenosi s. It is seen in dialysis dependent CKD with DM. Despite its significant impact on quality of life, PD remains underdiagnosed, underscoring the need for greater clinical awareness and research in nephrology and dermatology [2].

Case Presentation A 70 years old, Libyan male with a history of type 2 diabetes mellitus for 15 years and (CKD) on maintenance hemodialysis for the past seven years, complaining of progressive pruritic skin lesions on the upper, lower extremities and trunk for a year, without any response to many dermatological treatments, that leading to excoriation and secondary infections. On examination, multiple different size and shape, maculopapular pruritic lesions on both lower extremities and upper limbs, multiple hyper-pigmented papules and nodules, were observed, on extensor surfaces and some lesions exhibited a keratotic plug (Fig.1). No other systemic symptoms like, fever or constitutional complaints, were noted.

Figure 1.. No other systemic symptoms like, fever or constitutional complaints, were noted.





Our patient's images (Figure 1) illustrate the characteristic cutaneous manifestations of PD, **a**. Close-up of the patient's forearm showing multiple keratotic papules and nodules with central yellowish or brownish crusts, **b & d**. A single lesion with a central keratotic plug, the surrounding hyperpigmentation suggests chronic inflammation and repeated trauma from pruritus, **c**. Wide spread involvement of the arms, showing numerous hyper pigmented papules and nodules. The patient is undergoing hemodialysis, as seen by the arteriovenous fistula (AVF) in the left arm.

Our case has mild Anemia (Hg 8.5 g/dL), with poor glycemic control (HbA1c 9%), there were No secondary infection detected by bacterial cultures. The diagnosis of perforating dermatosis was made, based on the clinical findings. The patient received topical therapies as, Emollients and topical corticosteroids, systemic antihistaminic agents, proper glycemic control, efficient dialysis and regular follow-up for skin lesion were implemented, without any significant improvement in the pruritic lesions.

Discussion Acquired-perforating dermatosis (APD) is a chronic pruritic skin disorder strongly associated with diabetes mellitus and chronic kidney disease (CKD), particularly in patients undergoing dialysis, exaggerated by poor glycemic control. The exact pathogenesis remains unclear but involves impaired dermal

elimination processes [4, 5]. The main presentation is severe pruritus that can significantly affect the patient's quality of life [6, 7]. Studies suggest that (PD) is closely related to metabolic disturbances due to glucose metabolism disturbances and lipid metabolism in diabetic CKD patients that may impair skin barrier function, predisposing them to APD [6]. Uremic toxin accumulation because of renal dysfunction may trigger inflammatory skin reactions, contributing to APD [7]. Immune dysfunction associated with both diabetes and CKD [6] may be exacerbated by (PD), leading to many complications like; infections and ulcerations and delayed healing, hence presence of chronic inflammatory infiltrates contributing to persistence epidermal hyperplasia [7]. Persistent itching, a common and distressing symptom in dialysis patients, this mechanical trauma to repeated scratching and micro trauma, possibly initiating the Trans epidermal elimination process [8]. Although, the treatment is difficult in such conditions, Phototherapy (Narrow-band UVB) might help [6] and biologics are under investigation for refractory cases [9].

Conclusion early diagnosing perforating dermatosis in dialysis-dependent diabetic patients and appropriate intervention alleviate symptoms and improve patient outcomes; meanwhile, early and proper management of pruritus in dialysis defendant CKD can prevent this condition. Further studies are needed to find appropriate therapies for this condition

References

1. Rapini RP, Herbert AA, Drucker CR. Acquired perforating dermatosis. Evidence for combined transepidermal elimination of both collagen and elastin fibers. *Arch Dermatol*. 1989;125(8):1074-1078.
2. Saray Y, Seçkin D, Bilezikçi B. Acquired perforating dermatosis: Clinicopathological features in twenty-two cases. *J Eur Acad Dermatol Venereol*. 2006;20(6):679-688.
3. Morton CA, Lafferty M, Hau C, Henderson I, Jones M. Pruritus and skin hydration during dialysis. *Nephrol Dial Transplant*. 1996;11(10):2031-2036.
4. Masmoudi A, Sellami T, Mnif F, et al. Acquired perforating dermatosis in a diabetic hemodialysis patient: A case report. *Nephrol Ther*. 2010;6(5):324-327.
5. Saif GB, Elgarhy LH. Perforating dermatosis in diabetic patients: Clinical and histopathological study. *Indian J Dermatol*. 2013;58(5):345-349.
6. Saray Y, Seçkin D, Bilezikçi B. Acquired perforating dermatosis: Clinicopathological features in twenty-two cases. *J Eur Acad Dermatol Venereol*. 2006;20(6):679-688. DOI: 10.1111/j.1468-3083.2006.01594.
7. Morton CA, Henderson IS, Jones MC, Lowe JG. Acquired perforating dermatosis in a British dialysis population. *Br J Dermatol*. 1996;135(5):671-677. DOI: 10.1046/j.1365-2133.1996.d01-949.
8. Chan LS, Cooper KD, Hoang MP. The spectrum of acquired perforating dermatosis. *Arch Dermatol*. 1995;131(10):1216-1221. DOI: 10.1001/archderm.1995.01690220070012.
9. Hafeez F, Shafi F, Kazmi AH. Acquired perforating dermatosis: A report of three cases successfully treated with narrow-band ultraviolet B therapy. *Photodermatol Photoimmunol Photomed*. 2019;35(1):51-54.