Dear Editor,

Kyrle’s disease (KD) is an acquired perforating dermatosis commonly associated with underlying systemic diseases, particularly chronic renal disease; in fact, KD occurs in approximately 10% of patients with end stage renal disease (ESRD) who require hemodialysis (Joseph et al., 1996). This disease is more prevalent in women, with a female-to-male ratio of up to 6:1; and has no racial predilection. Cutaneous manifestations of KD typically present as intensely pruritic, hyperkeratotic papules with central keratic plugs commonly localized on the extensor surfaces of the lower extremities. Patients will often times exhibit the Koebner phenomenon, whereby skin lesions develop at sites of trauma and, thus, are exacerbated by scratching. The pruritus seen in this population greatly impacts quality of life, contributing to poor sleep, anxiety, and depression (Pisoni et al., 2006). As the number of patients on hemodialysis worldwide continues to grow, so does the demand for effective management of Kyrle’s disease.

To date, there have been no controlled studies or guidelines put into place regarding the treatment of KD. Currently, therapeutic recommendations exist on the basis of small case studies, where underlying disease management and pruritus alleviation is the main focus. While the optimal treatment for KD remains unclear, current therapies reported in the literature include phototherapy, topical or intralesional corticosteroids, antihistamines, isotretinoin, immunosuppressive agents, and various destructive therapies. This article highlights an alternative therapeutic option for this increasingly prevalent disease.

We describe the case of a 64-year-old male patient with dialysis-dependent ESRD who presented with a seven-month history of intractable pruritus and numerous hyperkeratotic papules with white compact cores on the extensor surfaces of his lower extremities (Fig. 1A). Despite adequate management of his underlying disease, as well as the use of topical triamcinolone and oral gabapentin, the patient reported that his lesions had progressively worsened. He rated his pruritus as a 10/10 and “unbearable, especially at night.” A skin-biopsy specimen revealed epidermal acanthosis and papillomatosis with deposits of elastic fibers and degraded collagen in the papillary dermis, consistent with KD.

Subsequently, intranasal butorphanol, a medication with kappa-agonist and mu-antagonist activity, was prescribed once daily (1 mg spray per nostril) to address the patient’s pruritus; the previously used topical and oral agents were discontinued. Two months following treatment initiation, there was marked improvement of the patient’s cutaneous lesions and the intensity of his pruritus decreased to a 0/10 (Fig. 1B). No adverse effects were reported.

Although the pathophysiology of KD and uremic pruritus is not completely understood, there is increasing evidence for the role of the endogenous opioid pathway. Specifically, activation of the mu-opioid system is proposed to cause itch, while the kappa-opioid system leads to itch inhibition (Jaiswal et al., 2016). Development of KD may be caused by an imbalance between these systems, leading to mu-opioid over-activity and subsequent itch. Butorphanol is a combined mu-opioid receptor antagonist and kappa-opioid receptor agonist that has previously been shown, in a single case series, to treat refractory pruritus. (Dawn and Yosipovitch, 2006) Moreover, intranasal butorphanol promotes patient compliance with therapy.

Fig. 1A. Pruritic, hyperkeratotic papules on the patient’s legs before treatment with butorphanol.
by allowing self-administration and once-daily dosing. Given the dramatic improvement seen in our patient, intranasal butorphanol may be an effective treatment option for patients with KD who are unresponsive to other medications.

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Fig. 1B. Non-pruritic healing papules with residual hyperpigmentation after treatment with butorphanol.