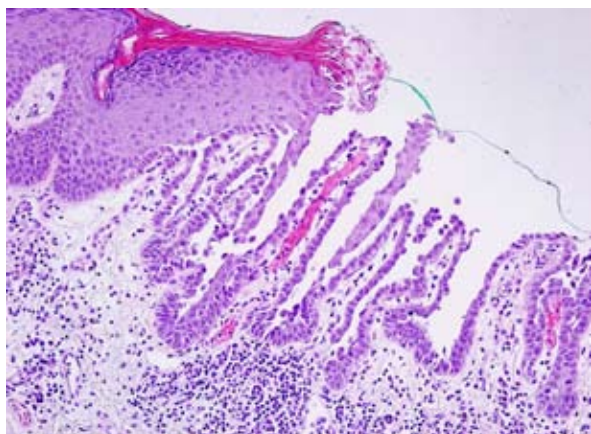


## Grover's Disease in a Kidney Transplant Recipient

Dear Editor,

It is not unusual for patients with renal insufficiency to develop skin pathologies. There are reports in the literature of increased incidence of calciphylaxis, pruritus, perforating dermatoses, and porphyria cutanea tarda in this patient population (1). Although it is quite rare, Grover's disease (GD) has been reported in several patients with renal insufficiency, but only once in a renal transplant recipient (2). The disease follows three patterns: persistently pruritic, transient eruptive, or a chronic asymptomatic course (3). Common risk factors concomitant with disease prevalence are immunosuppression, HIV, hemodialysis, viral and bacterial infections, malignancies, and other skin pathologies like contact and atopic dermatitis (4).

A 60-year-old woman had a family history of polycystic kidney disease and was subsequently diagnosed in 1997. The patient had concomitant hepatic involvement and a stable aneurysm of the anterior cerebral artery. Consequently, the patient pre-emptively received a kidney transplant in 2015. The



**Figure 1.** Histopathology of the skin lesion with suprabasal acantholysis, numerous cells separating from the epithelium, and a moderate amount of mononuclear infiltrate in the upper portion of the dermis and sparse suprabasal clefts (hematoxylin and eosin, original magnification  $\times 40$ ).

immunosuppressive therapy consisted of tacrolimus, mycophenolate mofetil, and prednisone with basiliximab induction.

In 2017, a biopsy of the right thigh demonstrated squamous cell carcinoma *in situ* measuring  $1 \times 1$  cm in size. The lesion was treated with surgical excision. The patient also exhibited an erythematous brown macule with undefined borders on the left side of the nose with a size of 12 mm; it was later determined to be actinic keratosis. The lesion was treated successfully with cryotherapy. During this period, a fever prompted a PCR for BK virus DNA which showed a substantial amount of copies, measuring 28,850 copies/mL in urine and 98 copies/mL in blood. The mycophenolate dose was reduced, and tacrolimus trough concentration was maintained at between 3 and 5  $\mu\text{g/L}$ .

In 2018 the patient presented with multiple pruritic erythematous papules located on the trunk. Upon histological biopsy, there was dominant suprabasal acantholysis with numerous cells separating from the epithelium. Furthermore, there was a moderate amount of mononuclear infiltrate in the upper portion of the dermis and sparse suprabasal clefts (Figure 1). Clinical presentation and histologic examination were consistent with Grover's disease. The patient was treated topically with betamethasone cream twice daily for four weeks. The skin changes persisted for only a few weeks.

The pathophysiological mechanism causing GD is still unknown. It is usually only a transient skin condition that lasts no more than a few weeks, but there have been more chronic cases lasting for years, particularly in patients on hemodialysis (5). The lesions commonly affect the chest area but may spread to diffusely envelope the body as erythematous papules, pustules, lichenoid lesions, or vesicles (2). Grover characterized 4 different subtypes based on the pathohistological findings as Darier-like (the most common), pemphigus vulgaris-like, Hailey-Hailey-

like, or spongiotic subtype (3). The histological patterns are not exclusive to one patient and may even be found concomitantly in a single lesion. The condition is definitively diagnosed through histology, showing distinctive acantholysis along the epidermis with dyskeratosis that is described as "corps ronds" and "grains" (3).

Grover's disease is more prevalent in middle-aged Caucasian men than any other group, with a 1.6-2.1 gender ratio (6). It was originally thought that the disease was caused by dysfunctional eccrine sweat glands, as the ailment was more common in patients that had increased perspiration either due to environmental heat, fever, or extensive bedrest. This idea was reinforced by histological evidence of atrophied sweat glands in uremic patients with renal insufficiency (7). Moreover, a case series and case report described remissions of GD in their patients on hemodialysis that received a renal transplant (5,8). However, subsequent studies have not supported an association with sweat dysfunction and disease development, while others have only managed to attribute sweat gland dysfunction as the primary trigger in 20-30% of cases (9). Conversely, cold dry air and xerosis cutis is thought to trigger the disease because it is four times more likely to be diagnosed in the winter months (10). Ultraviolet radiation has been identified as an exacerbating factor for GD, which could have been the trigger for onset of disease in our patient as demonstrated by her squamous cell carcinoma and actinic keratosis (11).

Despite immunosuppression being a risk factor for GD, as shown by its association in patients with HIV, bone marrow transplantation, hemodialysis, and hematological malignancies, GD has been reported only once in the literature after a renal transplant (2,4). As our case, that patient developed GD a few years after transplant without an obvious trigger and the lesions appeared as red papules that were disseminated over the anterior thorax. Their patient's cutaneous lesion resolved spontaneously after 2 weeks and never returned in the 2.5-year follow-up period. Their patient has had two renal allografts over a 20 year timespan, while ours had had her graft for only two years. The immunosuppressive regimen was slightly different: cyclosporine, azathioprine, and methylprednisolone versus our combination of tacrolimus, mycophenolate mofetil, and prednisone.

Grover's disease can be treated conservatively by avoiding risk factors such as UV light and sweating as well as applying moisturizing emollients which may cause the lesion to resolve spontaneously. Medical therapy consists of topical corticosteroids, topical

vitamin D analogues, oral retinoids, and oral corticosteroids, PUVA, and methotrexate for resistant cases (6,12).

When a patient exhibits pruritic papules of the skin, GD should be considered in differential diagnosis, especially in kidney transplant patients and those on hemodialysis. While the condition is rare, increased recognition in this patient population will allow for studies to further characterize this poorly understood disease.

#### References:

1. Chua S, Giam Y. Acantholytic dermatosis in chronic renal failure. *Int J Dermatol*. 1997;36:198-212.
2. Boutli F, Voyatzi M, Lefaki I, Chaidemenos G, Kanitakis J. Transient acantholytic dermatosis (Grover's disease) in a renal transplant patient. *J Dermatol*. 2006;3:178-81.
3. Fernandez-Figueras M, Puig L, Cannata P, Cuatrecasas M, Quer A, Ferrándiz C, *et al*. Grover Disease: A reappraisal of histopathological diagnostic criteria in 120 cases. *Am J Dermatopathol*. 2010;32:541-9.
4. Parsons JM. Transient acantholytic dermatosis (Grover's disease): a global perspective. *J Am Acad Dermatol*. 1996;35:653
5. Casanova J, Pujol R, Taberner R, Egido R, Fernandez E, Alomar A. Grover's disease in patients with chronic renal failure receiving hemodialysis: Clinicopathologic review of 4 cases. *J Am Acad Dermatol*. 1999;41:1029-33.
6. Quirk CJ, Heenan PJ. Grover's disease: 34 years on. *Australas J Dermatol*. 2004;45:83-6.
7. Prompt CA, Quinton PM, Kleeman CR. High concentration of sweat cadmium, magnesium and phosphate in chronic renal failure. *Nephron*. 1978;20:4-9.
8. Gonzalez-Sixto B, Roson E, Torre C, Garcia-Doval I, Cruces M. Grover's disease in a patient undergoing peritoneal dialysis with resolution after renal transplant. *Acta Derm Venereol*. 2007;87:561-2.
9. Antley CM, Carrington PR, Mrak RE, Smoller BR. Grover's disease (transient acantholytic dermatosis): relationship of acantholysis to acrosyringia. *J Cutan Pathol*. 1998;25:545-9.
10. Scheinfeld N, Mones J. Seasonal variation of transient acantholytic dyskeratosis (Grover's disease). *J Am Acad Dermatol*. 2006;55:263.
11. Cohen PR, Luzrock R. Transient acantholytic dermatosis after treatment with 2-chlorodeoxyadenosine. *Acta Derm Venereol*. 1977;77:412-3.

12. Streit M, Paredes BE, Braathen LR, Brand CU. Transitory acantholytic dermatosis (Grover disease). An analysis of the clinical spectrum based on 21 histologically assessed cases. *Hautarzt*. 2000;51:244.

**Jason Kirincich<sup>1</sup>, Davorin Lončarić<sup>2</sup>, Zrinka Bukvić Mokos<sup>2,3</sup>, Nikolina Bašić-Jukić<sup>1,3,4</sup>**

*<sup>1</sup>Department of Nephrology, Arterial Hypertension, Dialysis and Transplantation, University Hospital Centre Zagreb, Zagreb, Croatia*

*<sup>2</sup>Department of Dermatology and Venereology, University Hospital Centre Zagreb, Zagreb, Croatia*

*<sup>3</sup>School of Medicine, University of Zagreb, Zagreb, Croatia*

*<sup>4</sup>School of Medicine, University of Osijek, Osijek, Croatia*

**Corresponding author:**

Professor Nikolina Bašić-Jukić, MD, PhD  
Department of Nephrology, Arterial Hypertension, Dialysis and Transplantation  
University Hospital Centre Zagreb  
Kišpaticeva 12  
10000 Zagreb  
Croatia  
*nina\_basic@net.hr*

Received: November 5, 2018

Accepted: August 8, 2019