



Letter to the Editor

Decoding eczematous lesions occurring post-surgery

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Dear Sir,

Surgical procedures can result in a broad spectrum of cutaneous changes. Eczematous lesions at surgical sites include autonomic denervation dermatitis, post-traumatic eczema, and “surgery of the knee, injury to the infrapatellar branch of the saphenous nerve, traumatic eczematous dermatitis (SKINTED).” We describe two patients presenting with postsurgical eczema.

CASE 1

A 45-year-old male patient presented with itchy, hyperpigmented, scaly eczematous plaques with oozing and excoriations over the left medial aspect of the left distal leg Figure 1a for 6 months. The patient was a known diabetic on regular treatment. He was involved in a road accident 2 years ago, resulting in his right little toe amputation. He had undergone skin graft transfer from the left distal part of the leg to the right foot [Figure 1b]. The patient started developing eczematous lesions over the graft site 1.5 years later. There was a moderate sensory deficit to touch and pain. We made a final diagnosis of autonomic denervation dermatitis based on the history. We treated our patient with topical corticosteroids with good improvement.

CASE 2

A 62-year-old female patient with itchy, hyperpigmented, scaly eczematous plaques linearly distributed along the medial aspect of the left leg [Figure 2]. The patient had undergone a saphenous vein graft as a part of coronary artery bypass graft two years ago. She started developing eczematous lesions from where a saphenous vein graft was taken 6 months after surgery. The patient had minimal sensory deficit over the incision scar. We made a final diagnosis of autonomic denervation dermatitis and treated it with topical corticosteroids with good improvement.

Autonomic nerve fibers play an important role in sweat gland function, vasomotor activity, and cutaneous blood flow. The skin barrier function is maintained by the normal functioning of sweat glands, sebaceous glands, and cutaneous blood flow. Impaired sudomotor activity has a role in the development of dermatitis. Acetylcholine and catecholamines secreted from autonomic nerve endings modulate keratinocyte proliferation, adhesion, migration, and differentiation. During nerve regeneration, there is a release of neuropeptides from nerve terminals during nerve regeneration. The neuropeptides, including substance P, calcitonin gene-related protein, vasoactive intestinal peptide, and neurotensin, modulate the presentation of epidermal antigen. They also play a role in immediate and delayed-type hypersensitivity reactions resulting in dermatitis.

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Figure 1a: Hyperpigmented, scaly eczematous plaque with oozing and excoriations over the left medial aspect of left distal leg



Figure 1b: Skin graft site over the right foot



Figure 2: Hyperpigmented, scaly eczematous plaque linearly distributed along the medial aspect of the left leg

Table 1: Clinical features of autonomic denervation dermatitis, post-traumatic eczema, and SKINTED

Clinical features	Autonomic denervation dermatitis	Post-traumatic eczema	SKINTED
Onset	Months to years after surgery	3–4 weeks after trauma	Months to years after surgery to the knee
Nature of trauma	Surgery	Mechanical/thermal/chemical trauma	Knee surgery
Site	At surgical site	At traumatic site	Surgical site over knee
Nature of wound	Healed surgical site	Wound in healing phase	Healed surgical site
Recurrent	Persistent/recurrent lesions	Recurrent lesions	Recurrent lesions

Cutaneous surgeries result in traumatic damage to dermal nerve fibers. This nerve damage results in the denervation of various autonomic organs of the skin. The altered cutaneous anatomy and physiology following autonomic nerve injury is termed “trophoneurosis.” Verma and Mody described “surgery of the knee, injury to the infrapatellar branch of the saphenous nerve, traumatic eczematous dermatitis (SKINTED).”^[1] The condition was region and procedure-specific. It occurs 3 weeks to 4 months after knee surgery. The condition was accompanied by hypoesthesia/anesthesia, which develop soon after surgery and resolved once the skin lesions appeared.^[2] Mathias proposed the term “post-traumatic eczema.”^[3] Sharquie *et al.* proposed “neuropathy dermatitis” to describe eruptions similar to SKINTED.^[4] Madke recently suggested the term “autonomic denervation dermatitis.”^[5] Table 1 lists the differences between autonomic denervation dermatitis, post-traumatic eczema, and SKINTED.

Table 2: Case reports of autonomic denervation dermatitis

Author	Age	Gender	Time lag between surgery and development of ADD	Nature of trauma	Site	Clinical features
Madke <i>et al.</i> ⁵	60	F	10 months	Total knee replacement	Left knee	Eczematous, scaly, oozy lesion
Madke <i>et al.</i> ⁵	58	M	18 months	Saphenous vein graft harvest	Medial aspect of right leg	Dry, scaly, ill-define lesion
Madke <i>et al.</i> ⁵	59	M	2 years	Total knee replacement	Right knee	Dry, scaly, pruritic lesions
Madke <i>et al.</i> ⁵	49	M	6 months	Saphenous vein graft harvest	Medial aspect of right leg and ankle joint	Eczematous lesion with dry skin
Madke <i>et al.</i> ⁵	59	M	1 year	Total knee replacement	Left knee	Pruritic, oozy papulovesicular lesion
Madke <i>et al.</i> ⁵	55	M	1 year	Saphenous vein graft harvest	Right leg and ankle	Eczematous lesion
Madke <i>et al.</i> ⁵	55	M	2 years	Open reduction and internal fixation of femur fracture	Lateral aspect of right thigh	
Madke <i>et al.</i> ⁵	60	M	3 years	Saphenous vein graft harvest	Right leg and ankle joint	Eczematous lesion
Madke <i>et al.</i> ⁵	61	M	9 months	Total knee replacement	Left knee	Oozy, papulovesicular lesion
Madke <i>et al.</i> ⁵	65	M	2 years	Total knee replacement	Right knee	Oozy papulovesicular lesion
Mathur <i>et al.</i> ⁸	70	M	1 year 4 months	Bilateral total knee replacement	Bilateral knees	Itchy, dry lesions
Mathur <i>et al.</i> ⁸	49	F	11 months	Bilateral total knee replacement	Bilateral knees	Itchy, red lesions
Pathania <i>et al.</i> ¹	60	F	9 months	Bilateral knee replacement surgery	Bilateral knees	Oozy, red lesions on left knee Hyperpigmented, raised lesion on right knee
Bose <i>et al.</i> ⁶	48	M	6 months	Saphenous vein graft harvest	Right medial malleolus to upper thigh	Oozy, crusted lesion with xerosis
Biswas <i>et al.</i> ⁷	54	M	11 months	Saphenous vein graft harvest	Left leg	Red, oozy, lesions

Post-traumatic eczema occurs 2–4 weeks after mechanical, thermal, or chemical injury. The lesions occur in and around the wound, often during healing. The pathogenesis of post-traumatic eczema includes atopic predisposition and post-traumatic inflammatory response (koebnerization).^[5] The condition frequently recurs over multiple years.

Autonomic denervation dermatitis presents with xerosis and anesthesia/hypoesthesia months to years after surgical trauma,^[6] after the surgical site has healed [Table 2]. Autonomic denervation dermatitis results from transection of dermal nerves during cutaneous surgery.^[7] The lesions of autonomic denervation dermatitis are persistent or recurrent. Patients often present with relapses in winters and should be counselled regarding the chronic nature of the disease.^[8] SKINTED is a site and procedure specific subset of autonomic denervation dermatitis.

The presentation of post-traumatic eczema and autonomic denervation dermatitis are very similar. Dermatologists should be aware of the differences between these two entities to make a proper diagnosis.

Declaration of patient consent

Patient's consent not required as patients identity is not disclosed or compromised.

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Conflicts of interest

There are no conflicts of interest.

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