

Neurodystrophic Hand Dermatitis: Sannino Barduagni Syndrome

Hand eczema is a chronic disease (1), commonly considered the expression of a contact allergic or irritative dermatitis. However, when the prick/patch tests and laboratory investigations are negative, important diagnostic challenges may arise.

Peripheral nerve fibers are in fact capable of releasing neuromediators. Thus, an alteration of the central and/or peripheral nervous system can cause the exacerbation as well as the onset of a cutaneous disease (2).

From September 1, 2013 to August 31, 2015, we observed 5 female patients between 20 and 40 years old, with particular hand dermatitis lesions on the volar area, unilateral on the right hand in 3 patients and bilateral in 2 patients. In one case, the dermopathy extended to all the fingers, up to the area of the metacarpophalangeal joints, thenar, and hypothenar eminences. The skin appeared dry (Figure 1), anhidrotic, inelastic, thinned, scaly, and slightly erythematous (Figure 2). In some cases, the fingertips appeared sclerotic, while in other cases the transversal fissures on the flexural joints caused painful and incomplete finger flexion. The dorsal surface was unaffected and the nails healthy. Symptoms were paresthesia and

burning sensation. All of the patients were in good general health, with negative routine laboratory investigations, IgE serum levels and prick/patch tests. One patient had just given childbirth three months before the onset of the disease. The patients had been suffering of their hand dermatitis for a duration ranging from 2 months and 2 years and had been treated unsuccessfully with topical and systemic drugs, mainly corticosteroids.

We performed a cervical spine X-ray in different projections. In all patients, we observed a degenerative disease of the cervical spine with a reduction of intersomatic discs, primarily C5-C6 (Figure 3). This led us to establish a diagnosis of neurodystrophic hand dermatitis (NHD). Patients started specific treatment programs for the spinal disorder, intake of a vitamin B complex and repairing/soothing skin creams, with a partial improvement.

NHD is rarely described in the literature; in 1964 Sannino *et al.* reported 89 female patients with skin alterations similar to the ones observed in our case series as well as negative patch/prick tests and laboratory investigations, and the main finding was the presence of a cervical spine disease between C5-C7 (3).



Figure 1. Patient number 1. The volar surface appears dry, anhidrotic, and inelastic, primarily in the first three fingers.



Figure 2. Patient number 4. The dermopathy extends to all the fingers where the skin appears dry, scaly, and slightly erythematous. The flexural joints cause incomplete finger flexion.



Figure 3. X-ray of patient number 1. Degenerative disease of the cervical spine: widespread intervertebral osteochondrosis characterized by significant narrowing of C5-C6 and C6-C7 intervertebral discs.

Recently, Azimi *et al.* performed a review of skin diseases at sites affected by neurological deficits. They started to collect data from 1966, but did not mention cases attributable to NHD, which is an underestimated and misdiagnosed disorder (2).

Cervical spine disease is a predisposing factor for the development of NHD. Additionally, thermoreceptors may be mainly involved, as also reported in brachio-radial pruritus (4-5), explaining the presence of burning sensation.

However, in our opinion, NHD should not be classified as a "neurogenic inflammation". This term describes the vasodilation and protein extravasation caused by inflammatory neuropeptides and adrenergic transmitters that influence the antigen presentation, mast-cell degranulation, and cytokine release (2). In fact, corticosteroids and other immunosuppressors are ineffective. Specific treatments for cervical spine disease remain the treatment of choice, as does constant use of repairing/soothing skin creams. Antidepressants, physiotherapy, postural exercises, neuromodulators, and vitamin B complex may be also helpful.

References:

1. Thyssen J P, Johansen J D, Linneberg A, Menné T. The epidemiology of hand eczema in the general population – prevalence and main findings. *Contact Dermatitis*. 2010;62:75-87.
2. Azimi E, Lerner EA, Elmariah SB. Altered manifestations of skin disease at sites affected by neurological deficit. *Br J Dermatol*. 2015;172:988-93.
3. Sannino M, Barduagni O. Palmar neurodystrophic xerodermic dermatitis. About an undescribed dermatitis. *Dermatologia*. 1964;15:300-17.
4. Wallengren J, Sundler F. Brachioradial pruritus is associated with a reduction in cutaneous innervation that normalizes during the symptom-free remissions. *J Am Acad Dermatol*. 2005;52:142-5.
5. Marziniak M, Phan NQ, Raap U, Siepmann D, Schürmeyer-Horst F, Pogatzki-Zahn E, *et al.* Brachioradial pruritus as a result of cervical spine pathology: the results of a magnetic resonance tomography study. *J Am Acad Dermatol*. 2011;65:756-62.

**Ugo Bottoni¹, Stefania Tamburrini¹,
Elisabetta Scali¹, Stefano Dastoli¹, Giuseppe
Fabrizio Amoruso¹, Giovanni Paolino²,
Elisa Moliterni², Teresa Grieco²,
Guglielmo Pranteda³, Stefano Calvieri²**

¹Magna Græcia University of Catanzaro,
Dermatology Department, Catanzaro, Italy

²Sapienza University of Rome, Umberto I Polyclinic,
Dermatology Department, Rome, Italy

³Sapienza University of Rome, Sant'Andrea General
Hospital, Dermatology Department, Rome, Italy

Corresponding author:

Elisa Moliterni, MD
Viale del Policlinico 156
00186 Rome
Italy
elisa.moliterni@gmail.com

Received: July 5, 2016

Accepted: November 4, 2017