

SKINTED-4 cases of Locus Minors resistensiae

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ABSTRACT

Since 2009, the concept of ICD (immune compromised district” was fully developed and many such cases have been identified, since then. Prior to that, phenomenon was restricted to developing disease at earlier affected HZ sites but later on even the development of a second disease at the site of another disease has been included. We saw four such cases in one year - two cases of HZ who developed lichen planus and Eczema later on in same dermatome which were affected earlier and another two who developed eczema at the site of surgical incisions (for Knee replacement). Reporting more cases like this will enlighten the Dermatologist understanding the incidences.

Key words: Immune Compromised District; Wolf’s isotopic; Immune

INTRODUCTION

The confirmation of second disease at the site of an unrelated earlier disease is known as “Wolf’s isotopic response” or “Locus minoris resistensiae”.

This occurs due to defect in local immune dysregulation. The dysregulation intern is the result of complex cellular interactions and trafficking of immunocompetent cells through lymph and on signals of neuromediators released by peptidergic nerve fibres. This deregulation, usually leads to causation of second disease at the site of first ailment.

Similar scenarios emerge after surgeries because of denervation at local site. Development of eczema at the site of surgery has been described as SKINTED.

This Interesting phenomenon is not reported too often and that is why this case report of 4 cases in an year seen in a solo practice in a north Indian City (Amritsar)

CASE REPORTS

Case 1

64 years old ,obese, diabetic female started having voilaceous, itchy eruption on a spot at the site of her

previous ailment (herpes zoster known as Janayu to her in vernacular), which she had suffered some 5-6 years back. She had no record of treatment taken at that time. The itchy eruptions gradually spread all over the area affected earlier. Scared of getting the reappearance of painful situation of earlier days, she returned to the physician, she consulted in yesteryears. On clinical examination, lichen plants was pretty obvious and the suspicion was confirmed by dermatoscopic examination (Figs. 1 and 2). But for further confirmations biopsy was undertaken and the H/P confirmed the diagnosis of lichen planus (LP).

Case 2

An 80 year old man had herpes zoster six months ago and was diagnosed and treated with some medication (record not available) by a general physician. Two months later he developed circular lesions at the site of previous ailment. The general physician this time treated him on lines of Tinea Corporis as was evident by the medicines the old man was carrying along when he visited me. Tinea being prevalent these days, We asked for a KOH preparation and carried out Wood’s lamp examination. Both being negative , a biopsy was carried out. The histopathological examination revealed features of nummular eczema that is second disease at the site of Herpes zoster (Fig. 3).

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Both of the above cases fit into the newly described condition called HIS.

Case 3

The middle aged man developed eczema at the site of his surgery scars of knee transplants on both sides (Fig. 4) making the presentation of typical SKINTED.

Case 4

63 year old lady met with an accidental trauma of lower end of humerus, and a surgery was carried out to repair on 22.11.2020. On January 8, 2021 she reported with eczema at the site of scar as well as on her back, again making the presentation typical of Skinted (Fig. 5).

DISCUSSION

The confirmation of second disease at the site of an unrelated earlier disease led the authors to think

of “Wolf’s isotopic response” or “ Locus minoris resistentiae”.

The complex underlying mechanisms have lately been included into the concept of the “immunocompromised cutaneous district,” [1]. This term denotes a regional immune dysregulation caused by failure of lymph flow or altered neuropeptide release. The local alteration of the immune response, depending on the neurotransmitters and immune cells involved in the immunodestabilized cutaneous site can be either defective (favoring Herpes-infected areas are known to be privileged sites for either harbouring or rejecting a wide range of multifarious disorders (infections, tumours, dysimmune reactions). The phenomenon is labeled isotopic response when a new disease occurs on the herpes-infected site (locus minoris resistentiae) or isotopic non-response when the herpes-infected site



Figure 1: Typical purple pruritic rash can be observed at the site of Herpes zoster in a particular dermatome.

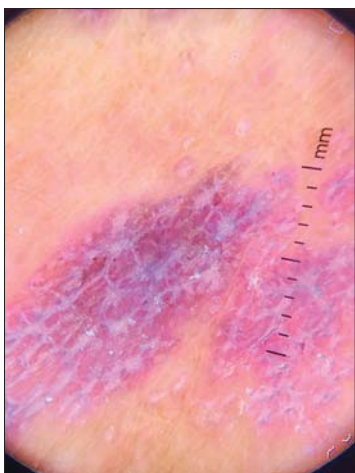


Figure 2: Dermatoscopic images of L.P. of the same case.



Figure 3 : H/P of Nummular eczema in case of Skinted-in a patient, who had knee replacement surgery months ago.



Figure 4 : Clinical photographs exhibiting eczema at the site of knee surgery in a patient, operated a few months ago.



Figure 5: Clinical photographs exhibiting eczema at the site of knee surgery in another patient.

is selectively spared by a cutaneous eruption that is diffuse elsewhere (*locus minoris resistentiae*).

The term isotopic response (or non-response) was mainly used for herpetic infections. Afterward, the prevailing term became Wolf's post-herpetic isotopic response or non-response (post-herpetic meaning a consequence of a varicella-zoster virus or herpes simplex virus infection). However, the cause of an isotopic response is far from being singular (herpetic infection) [2].

Since 2009, the year when the concept was fully developed and published, several cases of immunocompromised cutaneous district have been identified [3-9]. Several factors can be responsible for localized immune dysregulation including chronic lymph stasis, herpetic infections, ionizing or ultraviolet radiation, burns, all kinds of trauma, tattooing, intradermal vaccinations and others. Whatever the cause, an immunocompromised district may become a vulnerable site, prone to developing opportunistic infections, tumours, or dysimmune reactions strictly confined to the district itself; the opposite may also occur with systemic immune disorders or malignancies that selectively spare the district [10].

Our cases fits in the shoes of "Immune Compromised, Cutaneous District" perfectly and thus being reported.

The first two cases of ours, is being reported after 2017 case of hidradenitis suppurativa reported following radiotherapy for adenocarcinoma [11,12].

Development of LP at the site of Herpes Zoster, in a patient, after a lapse of 5-6 years ago is a good example of immunocompromised Cutaneous District. Same is

true for development of nummular eczema at the site of Herpes, after a lapse of six months.

The pathomechanism involved in this sectorial immune destabilisation may reside in locally hampered lymph drainage that hinders the normal trafficking of immunocompetent cells, damage to sensory nerve fibres that release immunity-related peptides, or both.

The locally altered interplay between immune cells conveyed by lymph vessels and neuromediators running along peripheral nerve fibres deprives the injured skin districts of normal immunological functions. According to the contingent circumstances depending on immune cells and neuropeptides involved, the regional immune dysregulation may manifest differently at different times, i.e., reduction of immunity facilitating the onset of opportunistic infections or tumours, excess of immunity responsible for dysimmune reactions or immune disorders [3].

Case number 3 and 4 of developing eczema at trauma site fit perfectly as cases of SKINTED.

Sharquie et al in 2010 [13] suggested the term neuropathy dermatitis for rash occurring in the postsurgical area with nerve transection. They speculated that at the time of nerve regeneration, nerve terminals release neuropeptides such as substance P, vasoactive intestinal peptide, and neurotensin, which play important role in immunomodulation and keratinocyte functioning.

These neuropeptides participate in regulation of immediate and delayed-type hypersensitivity reactions in the skin, thereby contributing to the development of cutaneous inflammatory disorders

Consent

The examination of the patient was conducted according to the principles of the Declaration of Helsinki.

The authors certify that they have obtained all appropriate patient consent forms, in which the patients gave their consent for images and other clinical information to be included in the journal. The patients understand that their names and initials will not be published and due effort will be made to conceal their identity, but that anonymity cannot be guaranteed.

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