

Diseases in Disaster: Post-Earthquake Dermatoses, Nepal 2015

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INTRODUCTION

The morbidity and mortality of various diseases can increase vigorously following any natural disaster. The impact of which on health can be serious and strong. However there always remains a scientific uncertainty about the strength of association between the disease and the disaster.¹ The effects of population displacement, unmanaged victims, waste management and provision of good food/water and access to health care services always raise a threat of serious health effects following any disaster.

On April 25 2015, we experienced the biggest earthquake for past 80 years. It measured 7.8 Richter scale and the epicenter was centered on two districts, Gorkha and Sindhupalchowk of central Nepal.² Nearly 10,000 people were killed and thousands became homeless. There were hundreds of aftershocks within the first few days and is still continuing. Massive numbers of survivors were hurt and hospitals were flooded. Nonetheless presentation with cutaneous diseases was not uncommon following the disaster.

ABSTRACT

Nepal experienced a devastating earthquake measuring 7.8 Richter scale on 25th April 2015. Although the heightened effects were secondary to trauma, the indirect effects were also of prime importance. We came across different dermatoses, directly or indirectly secondary to earthquake. We here present an audit of the cutaneous effects following four months of the major shock presenting to a tertiary care center of central Nepal. A total of 7326 patients presented to the dermatology department over a period of four months following the major shock. Among them a total of 3833 patients (52.32%) had direct or indirect dermatoses following earthquake.

KEY WORDS

Disaster, dermatoses, Nepal

METHODS

This is a hospital based prospective, observational documentation of the cases presenting to the dermatology outpatient for four months following the major shock. The documentation started after three days of the major shock. Patients and attendants were asked about the nature and progression of the disease. The diagnosis was made on clinical grounds. Those muco-cutaneous diseases which appeared or flared up after the earthquake were only taken into account. Dermatoses which patient reported to have similar appearance and severity or which had no apparent relation with the disaster were excluded from the documentation process.

RESULTS

There were a total of 7326 patients recorded over the period of four months. On reviewing the file record of the previous four months (December 23 – April 23, 2015),

a total of 9251 patients were entered. A decrease of patients' flow by 20% was seen. However, among 7326 patients, a total of 3833 patients (52.32%) had direct or indirect dermatoses following earthquake. Among them a total of 179 (4.7%) patients had more than one cutaneous diagnosis. The demographic variables of the affected 3833 patients are presented in table 1. Table 2 represents the various cutaneous disorders attributable to earthquake. Figure one shows the distribution of patients according to the presenting month.

Table 1. Demographic parameters of the patients presenting for earthquake related dermatoses.

Variables	Frequency (Percentage) (N=3833)
Gender	
Male	2146 (56)
Female	1687 (44)
District of Residence	
Kavre	1562 (40.7)
Bhaktapur	701 (18.3)
Sindhupalchowk	619 (16.2)
Kathmandu	338 (8.8)
Sindhuli	107 (2.7)
Ramechhap	92 (2.4)
Dolakha	83 (2.1)
Lalitpur	109 (2.8)
Dhading	27 (0.7)
Others	195 (5)
Age (Mean ± SD)	26.67 ± 21.7
Area of living	
Rural (VDC)	2609 (68)
Urban (Municipality and above)	1224 (32)
Present Condition of living	
Previous home	2287 (59.6)
Temporary housing (Tent/Corrugated Tin)	1372 (35.8)
Camp	2
Cowshed	18 (0.5)
Homeless	1
Others (eg: with neighbors)	153 (4)

DISCUSSION

Majority (52.32%) of the patients were alleged to have earthquake related dermatoses. Much of the diseases occurred de novo, but flare up of pre-existing cutaneous diseases were also evident. Eczema (photodermatitis, allergic contact dermatitis, atopic dermatitis and seborrheic dermatitis) was the commonest (20.6%) diagnoses made. The disaster happened in the mid of summer month with high ultraviolet index which could be an attributable reason for the flare up of photodermatoses. Living in temporary

Table 2. List of earthquake related dermatoses.

Presenting Dermatoses	Frequency (N = 4023)
Direct Effects	
Wounds / Abrasion	86
Ecchymoses / Purpura	21
Indirect Effects	
1. Related to direct effect	
Secondary wound infection	109
Post-inflammatory Pigmentation	34
Hypertrophic scar	17
2. Infection / Infestation	
Bacterial Infections (Pyoderma / Non-pyodermas)	288
Herpes Simplex Infection	25
Varicella	18
Herpes Zoster	43
Molluscum contagiosum	49
Verruca (New onset)	3
Viral Exanthem	16
Fungal infections (including p. versicolor)	392
Scabies	349
Pediculosis capitis	124
Others	45
3. Inflammatory Dermatoses	
Urticaria	506
Insect dermatitis / papular urticaria	272
Photodermatoses	445
Acne flare up	118
Rosacea flare up	12
Seborrheic dermatitis	49
Prurigo simplex / Lichen Simplex chronicus	68
Eczema (excluding photodermatoses / Atopy)	211
Atopic dermatitis (new onset and flare up)	92
Psoriasis – New onset	8
Psoriasis – Flare up	163
Telogen effluvium	30
Beau's line (Nail)	3
4. Pigmentary Disorder	
Melasma / freckles flare up	395
5. Flare up of diagnosed autoimmune dermatoses under treatment	
Systemic lupus erythematosus	8
Discoid lupus erythematosus	21
Systemic sclerosis	2
Pemphigus Vulgaris	1

structures because of loss of home or fear of aftershocks were the major factors for it. Similarly urticarial dermatitis and insect bite reactions were also common. The reasons for the flare up all dermatoses are multifactorial including psycho-emotional stress, trauma or direct ultraviolet



Figure 1. Distribution of patients according to the presenting month.

exposure. Papular urticaria and insect bite reactions were reported to be the commonest dermatoses following an earthquake of 5.12 Richter scale in Sichuan province of China in the year 2008.³ Ambient temperature at that period for insects (35-38°C) was reported for the high incidence of insect dermatitis. Similarly parasitic infestations were reported to be common after Duzce earthquake, Turkey in 1999.⁴ Hence the early need of insect repellents, preferably in cream form has been felt following these incidents.

Apart from the direct effects of trauma including wounds and its secondary infections, the indirect cutaneous effects were more predominant. The apparent indirect effects can be mainly attributed to two reasons; due to destruction of physical infrastructure and because of psycho-emotional

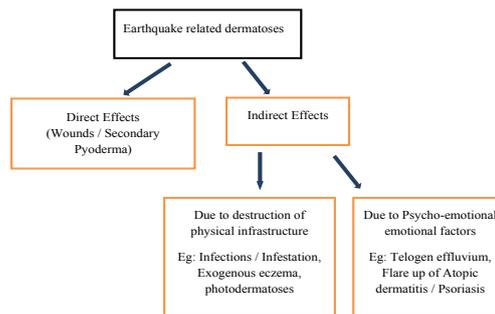


Figure 2. Flow diagram showing various factors leading to earthquake related dermatoses.

factors. The possible categorization of the dermatoses is shown in figure 2. Lack of food, shelter, water supply, overcrowding and problems because of rain were the major issues for the survivors for the first few months. These additional factors could aid in causation of other dermatoses.

Nepal is an earthquake prone region because of its complex geophysical structure.⁵ We can expect earthquake of any magnitude in the future. The earthquake of 2015 was a great learning experience for every Nepalese citizen. Despite various challenges, we learned to address our problems. Disaster preparedness involving earthquake resistant homes, buildings, trained citizens and health care workers are our future requirements.

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