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Cutaneous Infections in Patients Presenting in a Skin Clinic in the Tropics

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Abstract: Cutaneous infections in the tropics continue to be of importance because of the presence of a climate that supports the agents of transmission. Poor social and environmental conditions are also contributory to the spread of infection in the developing world. Lack of basic infrastructure and amenities like good water supply has a significant impact on transmission of infective dermatoses. Eighty two consecutive patients with infective dermatoses presenting at a skin clinic in a developing country in the tropics over a 9 months period were compiled and analyzed in a prospective, descriptive study. The diagnosis were made by a dermatologist and confirmed by microbiology where necessary. The ages of affected ranged between 1-69 years with male to female ratio of 1:1.6. The peak age affected was 20-29 years of age. Fungal infections was highest with 55 (67%) patients affected followed by parasitic with 10 (12%) patients affected. Viral non exanthematic skin disease occurred in 9 (11%) patients while, bacterial infections was documented in 8 (10%) of patients. The pattern of infective dermatoses was found to still follow the same pattern as in previous documented studies. It is logical to conclude that the same environmental and social conditions supporting the spread of infection and parasitic infestations in these environments has not been grossly changed. Cutaneous infections in the developing world continue to be a of public health importance. New measures to provide and sustain effective basic amenities with social facilities for better quality of life are suggested.

Key words: Cutaneous infections, developing countries, tropics, socio-economic factors, superficial, viral warts

INTRODUCTION

Infectious diseases continue to be the leading cause of morbidity and mortality all over the world because of human susceptibility, socioeconomic factors, climate, weather conditions and absence or breakdown of public health measures. Infectious dermatoses are the most common of the skin disorders in Africa as documented by Pierard *et al.* (2000) and O'Dell (1998). Skin diseases in Africa and the developing world have stimulated a lot of interest over the years because they are potentially preventable and controllable and because skin diseases also serve as an index of community development (Canizaries, 1993; Sladden and Johnson, 2004).

MATERIALS AND METHODS

The study is a prospective study at a skin clinic of a tertiary hospital carried out over a period of 9 months where expert dermatological services had been absent for a very long time. Studies were therefore initiated to document baseline data for skin diseases by a visiting dermatologist. A total of 82 patients presenting with infectious dermatoses of various etiology during this period were recruited into the study. Information on sociodemographic was documented. Diagnosis was made by the consultant dermatologist and laboratory confirmation was carried out as required. The diagnoses of skin infections made were grouped under bacterial, fungal, viral and parasitic infections of the skin. The results were compiled and the data analyzed.

RESULTS

Infective dermatoses accounted for 32.5% of all cases seen in the skin clinic during this period. A total of 82 patients with infective dermatoses were seen during the period of 9 months. The ages ranged from <1-69 years. There were 32 males and 50 females (Table 1) giving a

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Table 1: Age and sex distribution of 82 patients with infective dermatoses

Ages	Male	Female	Total No. of cases
0-9	6	3	9
10-19	5	9	14
20-29	3	20	23
30-39	7	8	15
40-49	7	4	11
50-59	2	5	7
60-69	2	1	3
Total	32	50	82

Table 2: Grouped diagnosis of 82 patients with infective dermatoses in a skin clinic

Infective/infestive dermatosis groups	No. of cases	Total (%)
Superficial fungal dermatoses	55	67
Parasitic skin diseases	10	12
Viral diseases of skin	09	11
Superficial bacterial dermatoses	08	10
Total	82	100

Table 3: Actual individual diagnosis in 82 patients in a skin clinic

Actual individual diagnosis	No. of cases	Total (%)
Tinea pedis	11	14
Tinea corporis	12	15
Tinea incognito	3	4
Tinea capitis	4	5
Tinea cruris	8	10
Onychmycosis	5	6
Candida infections	8	10
Pityosporum infection	4	5
Bacterial folliculitis	2	2
Pyoderma/impetigo	2	2
Sycosis cruris	1	1
Erythrasma	1	1
Bacterial lymphangitis	2	2
Scabies	5	6
Onchodermatitis	5	6
Viral warts	8	10
Herpes simplex	1	1
Total	82	100

male:female ratio of 1:1.6. The different skin infections were arranged into four etiological groupings; fungal, viral, parasitic and bacterial. Fungal infections was highest with 55 (67%) patients affected followed by parasitic with 10 (12%) patients affected. Viral non exanthematic skin disease occurred in 9 (11%) patients, while bacterial infections was documented in 8 (10%) of patients (Table 2).

The fungal infections were caused by dermatophytes, Candida and pityosporum organisms. *Tinea corporis*, *Tinea pedis* and *Tinea cruris* topped the list of dermatophytid infections in that order. There were three cases of *Tinea incognito* (Table 3). Bacterial infections included folliculitis, impetigo, erythrasma, *Sycosis cruris* and bacterial lymphangitis. Parasitic infestation included scabies and onchodermatitis. Viral warts were 10% of all cases.

DISCUSSION

Skin infections are common in the tropics (Pierard *et al*., 2000; O'Dell, 1998). Some of these infections are associated with poverty, ignorance, poor hygiene, overcrowding, filthy environment and poor access to prompt medical care. This is further complicated by the extreme tropical environment and climate that support the agents causing infective and parasitic skin diseases. A study documented that skin infection represents 30% of all hospital visits (Sladden and Johnson, 2004). This result is similar to the study in which infective dermatoses accounted for 32.5% of all patients who presented in the skin clinic.

Skin infections cut across ages and sex as documented in the series with a significant number presenting between 10 and 40 years of age in both males and females (Table 1). This is not surprising because of the predominantly youthful population in the developing world. These age groups also represent the active, mobile working population, more likely to have made appropriate contact for infection and to later seek health care. Females represented a larger number presenting with cutaneous infections in this series especially ages 20-29 years of age. Women are more likely to take time off to access health care facilities that will improve their body image. Also, women as mothers are more likely to make more intimate contact with infected children who may act as a pool.

Superficial fungal infections topped the list documented with 67% of the studied population being affected. This is in agreement with other studies done in the tropics (Onayemi *et al*., 2005). Climates where humidity is high and temperatures are higher would exhibit increased rates of cutaneous fungal infections. Superficial mycosis affects the skin and its appendages: the hair and the nails. Dermatophytes are limited to the upper layer of skin, where they subsist on the keratinized dead skin cells making them easy to eradicate. Fungal infections are common and more so when there are conditions that favor its spread like overcrowding and poor hygiene. In a prison study done in Abakaliki, Nigeria, of 402 prison inmates screened for fungal skin lesions, 79 (19.7%) showed skin lesions, which proved mycologically positive by microscopy and culture. Dermatophytes were responsible for skin lesions in 61 (77.2%) of the inmates, while non-dermatophytes accounted for 18 (22.8%) of the lesions (Oyeka *et al*., 2007).

In another cross-sectional study in a rural area of Allahabad, among the infective conditions, fungal infections were the most common disease with 187 cases (54.52%), followed by scabies in 79 cases (23.03%), bacterial infections in 58 cases (16.9%), leprosy in 13 cases (3.8%) and viral infections in 6 cases (1.75%). Among the fungal infections, *Tinea cruris* was found in 80 cases (42.8%), followed by *Pityriasis versicolor* in 36 (19.3%) and *Tinea corporis* in 33 (17.6%) cases

(Grover *et al*., 2008). Among infective dermatoses, a higher incidence of dermatophyte infections (31.06%) was noted in the males in a study group of psychiatric patients (Grover *et al*., 2008). Male dressing is usually more occlusive promoting warmth and moisture favorable for fungal growth.

The presentations of dermatophytic fungal infections were found to be quite varied depending on the site affected. The highest number occurred as *Tinea corporis* followed by *Tinea pedis* and *Tinea cruris* (Fig. 1). Figure 2 is a case of *Tinea corporis* among the series with typical central healing and peripheral spread. Scraping, microscopy and culture confirmed fungal infection in this patient. *Tinea corporis* is a superficial fungal infection involving the body and face, with the exclusion of the beard area in men. It is more common in tropical or subtropical climates. *Tinea incognito* occurs if a topical glucocorticoid has been applied and the clinical appearance of the initial *Tinea lesion* is altered, becoming less scaly, more extensive, pustular, pruritic and painful. *Tinea pedis* affects the foot and is common in athletes and uniformed forces, who wear occlusive shoes. *Tinea cruris* exists primarily near the areas of the groin and surrounding skin that are moist for a large part of the day as a result either of being occluded by clothing or of being covered by skin folds, the upper, inner thigh, inguinal folds, perineal area and buttocks the upper, inner thigh, inguinal folds, perineal area and buttocks (Silva-Tavares *et al*., 2001).

The parasitic infections documented were Scabies and Onchodermatitis during this period. Scabies is the commonest parasitic infestation in tropical setting. The sources of infection in scabies can be an infected. Family member, sexual partner, friends, school mates, prison mates or in dormitories and is spread commonly by direct contact, fomites and sexual route. Scabies has a worldwide distribution with a prevalence rate of 2-6% in developing countries (Strivastava *et al*., 1980; Olasode *et al*., 2000).

Onchocerciasis may not directly cause death, but it carries great social and economic consequences. Onchodermatitis is usually the first visible symptom of onchocerciasis. It usually begins with intense itching and progressing to a manifestation of irritating papular rashes known as craw-craw in parts of Africa. The condition could later deteriorate into chronic papular Onchodermatitis that present large papules and may lead to hyper-pigmentation and the thickening of the skin. This is usually followed by lichenification of the skin resulting in mosaic patterns popularly known as lizard skin or crocodile skin, while the advanced stage is characterized by depigmentation known as leopard skin, loss of elasticity and atrophy of the skin.

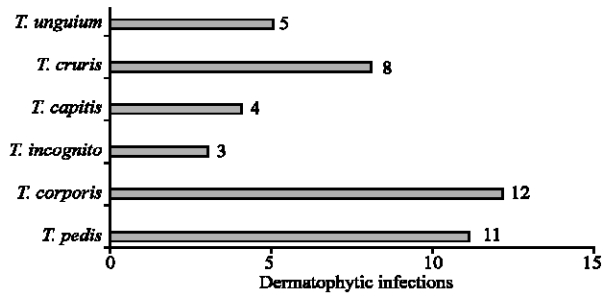

Fig. 1: Pattern of dermatophytic infections among 82 patients at the skin clinic

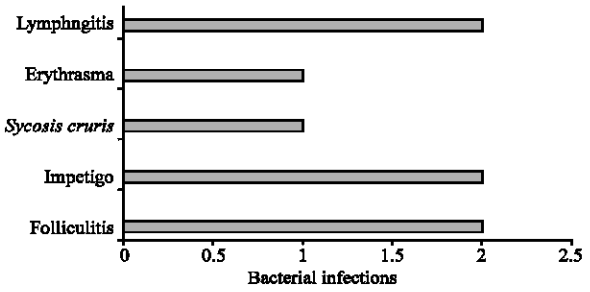

Fig. 2: Pattern of superficial bacterial infections among 82 patients attending the skin clinic

The group of viral skin infections in this series is comprised of viral warts and herpes simplex infections. Ano-genital warts (HPV) are one of the most common sexually transmitted diseases of the ano-genital tract in sexually active adults (Carr and Gyorfi, 2000). Ano-genital warts or condyloma acuminata are caused by the Human Papilloma Virus (HPV).

The superficial bacterial infections included bacterial folliculitis, Impetigo, bacterial lymphangitis, *Sycosis cruris* and Erythrasma (Fig. 3). Figure 4 shows a case of Sycosis cruris. The clinical picture is distinctive showing pustular folliculitis, cutaneous oedema, scale formation, atrophy, loss of skin markings and shininess symmetrically on both legs between the knee and ankle, mainly on the anterior surfaces. Another name for *Sycosis cruris* is *Dermatitis cruris* pustulosa and atrophicans. It affects young adults in Nigeria who apply heavy layers of petroleum jelly to the lower limbs as creams (Harman, 1968).

Bacterial skin infections in the tropics are the predominant cause of dermatological disease and are directly related to temperature, humidity, exposure and living conditions. Substandard housing and poor hygiene, biting and vector insects contribute to high rates of infection. Tropical skin infections are usually streptococcal or staphylococcal.

Fig. 3: One case of *Tinea corporis* shown in the clinic

Fig. 4: The case of *Sycosis cruris* shwon in the clinic

CONCLUSION

Infectious dermatoses continue to be of interest to the dermatologist in the tropics. The spectrum of clinical presentations are broad and non exhaustive at particular clinic settings, but can be grouped into their etiological backgrounds for an overview. Fungal infections continue to be a leading subgroup among infective dermatoses in the developing world. Bacterial, viral and parasitic skin infections are also well represented. The public health implications of spread of cutaneous infections by poor hygiene, overcrowding, poor socioeconomic environment, poor infrastructure, population explosion cannot be overemphasized. The quality of life need to be improved with good water and light supply to continually combat the spread of communicable diseases even on the skin.

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