

Frequency of Skin Manifestations in 120 Type 2 Diabetics Presenting at Tertiary Care Hospital

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ABSTRACT

OBJECTIVES: To determine the frequency of skin manifestations in patients with type 2 Diabetes mellitus".

STUDY DESIGN, PLACE & DURATION: This was a descriptive case series study, carried out at Dep't of Medicine, Muhammad Medical College Hospital, Mirpurkhas and Liaquat University of Medical & Health Sciences, Jamshoro from November 2007 to April 2008.

SUBJECTS & METHODS: One hundred & twenty type 2 diabetics; both male and female, were included in this study. All patients were asked about any skin problems they might have and subsequently all were examined regardless of their response. Age, sex, duration of diabetes, mode of treatment whether on oral hypoglycemic agents or insulin, and skin manifestations were noted.

RESULTS: Age varied from 33 to 76 years (54 ± 17 years) and known duration of diabetes varied from 10 to 27 years (15 ± 9 years). The overall prevalence of one or more skin disease was 96 (80%). Diabetic dermopathy was seen in 36 (30%), rubeosis facies in 6 (5%), skin tags in 22 (18.33%), acanthosis nigricans in 7 (5.8%), eruptive xanthomas in 8 (6.66%), Vitiligo in 6 (5%), diabetic bullae in 8 (6.66%), diabetic xerosis in 6 (5%), lichen planus in 4 (3.33%), loss of hair in legs in 24 (20%), nail changes in 24 (20%), gangrenous diabetic foot in 29 (24 %), thick skin in 60 (50%), and hyperhidrosis in 36 (30%) patients. Pruritis was noted in 48 (40%) patients. The skin infections were noted in 84 (70%) cases; including bacterial infections in 60 (50%), fungal infections in 20 (16.66%) & viral infections in 04 (3.33%) cases.

CONCLUSIONS: We conclude that the skin is involved in diabetes quite often and whenever patients present with multiple skin manifestations; their diabetic status should be checked and controlled.

KEY WORDS: Diabetes mellitus, Skin Manifestations, Infections.

INTRODUCTION

Diabetes mellitus (DM) is a worldwide problem¹ and it is estimated that the number of diabetic patients will grow from 135 million to 300 million by the year 2025. In Pakistan, approximately 8 million people have DM and the same number is suffering from the impaired glucose tolerance. Unfortunately the major increases would occur in the developing countries and in Pakistan the number of diabetics in the 2025 is estimated to be doubled.² Affected organs include the cardiovascular, renal and nervous systems, eyes and the skin¹. The cutaneous manifestations of DM can be classified in four categories: skin disease with strong to weak association with diabetes (Necrobiosis lipoidica, diabetic dermopathy, yellow skin, eruptive xanthomas, acanthosis nigricans, oral leukoplakia, lichen planus), infections (bacterial, viral, fungal), cutaneous manifestations of diabetic complications (microangiopathy & macroangiopathy), and skin reactions to anti-diabetic treatment (sulphonylurea)³. The skin manifestations of diabetes are the result of multiple factors. Abnormal

carbohydrate metabolism, other altered metabolic pathways, atherosclerosis, microangiopathy, neuron degeneration, and impaired host mechanisms all play a role.⁴ Skin of diabetic patients has increased capillary fragility, and blood vessels show decreased circulation. Skin and soft tissue is the most common site for bacterial infections, and has been reported in up to 30% diabetics⁵. *Candida albicans* can cause angular cheilitis, vulvovaginitis, balanitis, finger web space infection and paronychia in poorly controlled diabetics. *Necrobiosis lipoidica* is an asymptomatic disease with oval sharply demarcated reddish brown plaques occurring mostly over anterior legs. It may also manifest as solitary nodule on the hands, fingers, forearms, face and scalp.⁵

SUBJECTS AND METHODS

One hundred & twenty type 2 diabetics; both male and female, attending Dept of Medicine, Muhammad Medical College Hospital Mirpurkhas and Liaquat University of Medical & Health Sciences Jamshoro

between November 2007 and April 2008, constituted the subject material of present study. Patients of more than 10 years duration were included in the present study, while patients of less than 10 years duration, gestational diabetes, diabetic nephropathy, previous history of skin-disorders and patients with major systemic illnesses were excluded from the study. Data were collected on a preformed proforma. Age, sex, duration of diabetes, mode of treatment, whether on oral hypoglycemic agents or insulin, and skin manifestations were noted. A detailed skin, general physical and systemic examinations were done along with blood sugar & urine examination. The cases of diabetic foot and carbuncles were admitted for the diabetes control, surgical wound care and pus culture & sensitivity. All the skin manifestations were noted by the Medical Officers, which were re-examined by a consultant, however, the diagnosis of fungal infections was confirmed by the KOH preparation. The data was processed on SPSS 10.

RESULTS

Among the one hundred and twenty diabetic cases, there were 84 (70%) male and 36 (43.2%) females. The age of patients ranged from 33 to 76 years (54 ± 17 years). The patients' details are shown in **Table I**. The overall prevalence of one or more skin disease was 96 (80%). Diabetic dermopathy was seen in 36 (30%), rubeosis facies in 6 (5%), skin tags in 22 (18.33%), acanthosis nigricans in 7 (5.8%), eruptive xanthomas in 8 (6.66%), vitiligo in 6 (5%), diabetic bullae in 8 (6.66%), diabetic xerosis in 6 (5%), lichen planus in 4 (3.33%), loss of hair in legs in 24 (20%), nail changes in 24 (20%), gangrenous diabetic foot in 29 (24%), thick skin in 60 (50%), allergic reactions to sulfonylurea in 4(3.33%) and hyperhidrosis in 36 (30%) patients. Pruritis was noted in 48 (40%) patients. The frequency of different manifestations with diabetes mellitus is shown in **Table II**. The skin infections were noted in 84 (70%) cases. Sixty patients had bacterial infections, with lesions like furunculosis, cellulitis, & carbuncles. Bacterial isolates noted were staphylococci 20 (16.66%), streptococci 10 (8.33%), pseudomonas 20 (16.66%), & proteus (8.33%). Twenty (16.66%) patients were having fungal infections; candidiasis being the most common i.e. in 12 (10%), while viral infections were noted in 4 (3.33%), the details are shown in **Table III**. Known duration of diabetes varied from 10 to 27 years and mean dura-

tion was 15 ± 9 years, while random blood sugar noted was 250±85 mg%. These data suggest that skin manifestations are closely associated with uncontrolled long standing diabetes mellitus.

**TABLE I:
BASELINE CHARACTERISTICS OF PATIENTS
(n=120)**

Total No. of Patients	120
Mean±SD age	54 ± 17 years
Mean±SD durations of diabetes	15 ± 9 years
Type of diabetes	Type 2 Diabetes
Mode of treatment	Oral hypoglycemic : 67 Combination therapy: 53

**TABLE II:
SKIN MANIFESTATIONS (n=120)**

Skin manifestations	Frequency	%
Diabetic thick skin	60	50
Pruritis	48	40
Diabetic dermopathy	36	30
Hyperhidrosis	36	30
Gangrenous diabetic foot	29	24
Nail changes	24	20
Skin tags	22	18.33
Diabetic bullae	8	6.66
Eruptive xanthomas	8	6.66
Canthosis nigricans	7	5.8
Diabetic xerosis	6	5
Rubeosis facies	6	5
Vitiligo	6	5
Necrobiosis lipoidica diabeti-corum	4	3.33
Granuloma annulare	4	3.33
Lichen planus	4	3.33
Allergic reactions to sulphon-ylurea	4	3.33

**TABLE III:
ISOLATED MICROORGANISMS (n=120)**

Isolated organism	Frequency	%
Bacterial	60	50
1. Staph.aureus	20	16.66
2. Streptococci	10	8.33
3. Pseudomonas	20	16.66
4. Proteus	10	8.33
Fungal	20	16.66
1. Candida albicans	12	10
2. Tinea cruris	2	1.66
3. Tinea versicolor	2	1.66
4. Tinea corporis	2	1.66
5. Tinea barbae	1	0.833
6. Tinea unguium	1	0.833
Viral	04	3.33
1. Herpes zoster	03	2.5
2. Herpes simplex	01	0.833

DISCUSSION

Various skin disease surveys have concluded that the diabetes mellitus is the most frequent systemic disease presenting with multiple skin complications. In our study, 80% of patients had some kind of skin manifestations, whereas its prevalence had been reported in the range from 30-100%⁵. The skin infections were noted in 84 (70%) as compared to another study which noted 96%⁶. The skin infections were noted in 70% cases; including bacterial infections in 50%, fungal infections in 16.66% & viral infections were noted in 3.33%. Same results are reported by Najdaw F,⁷ et al. In their study, they found bacterial infection as the commonest skin disorder in patients with diabetes; 62.5%, followed by fungal infection 50%⁷. In our study, thick skin was noted in 50% of patients, similar results are reported by Collier et al⁴ and also reported by one other study from Pakistan.⁸ There is an association between multiple skin tags and diabetes and according to one study 2/3 of diabetic patients had skin tags⁵. In our study skin tags were noted in 18.33% of patients. Pruritis was noted in 40% of cases. Skin infections, dryness of skin, & abnormal sweating are the underlying causes and these results are similar to reported in another study.⁸ Dia-

betic dermopathy is usually asymptomatic⁵, persists irrespective of diabetic control & commonly known as shin spots⁹. Acanthosis nigricans was noted in 5.8% of patients which is similar to a local study⁸. Xanthelasma are associated with hypercholesterolemia because these lipids are phagocytosed by macrophages and they appear as foam cells in eruptive xanthomas¹⁰. In our study eruptive xanthomas were noted in 6.66% of cases which is similar to another study⁸.

CONCLUSIONS

We conclude that the skin is involved in diabetes quite often and whenever patients present with multiple skin manifestations; their diabetic status should be checked and controlled. Poor glycaemic control increases the skin infections susceptibility. The recognition of these findings is the key to treatment and prevention.

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