

Original Research Article

A Prospective Observational Study to Evaluate the Prevalence and Clinical Correlation of Skin Lesions in Patients with Diabetes Mellitus**Mahipal Choudhary¹, Kailash Chander Khatri^{2*}**¹*Junior Specialist, Department of Medicine, Government Medical College & Attached Groups of Hospital, Barmer, Rajasthan, India*²*Assistant Professor, Department of Dermatology, Government Medical College & Associated Groups of Hospital Barmer, Rajasthan, India*

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Abstract

Background: Diabetes mellitus (DM) is a metabolic disorder corresponding to a relative-to-complete insulin deficiency. **Materials and Methods:** Evaluation of a total of 423 patients with confirmed diagnosis of diabetes mellitus reporting to OPD section of the hospital. The patients were evaluated for the presence of any skin lesion over a period of 12 months. The confirmation of diabetes was done using blood tests. Detail evaluation of demographic profile and clinical manifestations were carried out. A Performa was made and details of clinical examination were recorded separately. Prevalence of any type of cutaneous lesions was recorded. **Results:** The overall prevalence of skin lesions was 23.64 percent. 30 patients had type 1 DM and 70 patients had type 2 DM. Pruritis (n=30) and cutaneous infections (n=22) were most common cutaneous manifestations in patients with DM. Achordons were also common in diabetic patients. It was observed that fungal infections comprised of 68.18 % of cutaneous infections, bacterial infections comprised of 22.72 %. Viral infections were least common (9.1%). **Conclusion:** Within the limitations of the present study, it can be concluded that cutaneous infections and pruritis are significantly prevalent conditions in diabetic patients.

Keywords: Cutaneous Lesions, Skin Lesions, Diabetes Mellitus.

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Introduction

The word Diabetes mellitus is derived from the Greek word Diabetes, which literally means siphon - to pass through. However; in Latin language, it means sweet. Metabolically, it is associated with significant elevation and derangement of blood glucose levels. Broadly and commonly, it is classified into following main types: Type 1, Type 2, Maturity-onset diabetes of the young (MODY), Gestational diabetes, Neonatal diabetes, and Secondary causes. However; classically, types I and type II are the main clinically considered variants of DM which occur because of defective insulin secretion (T1DM) and/or action (T2DM). In 2011, across the globe, approximately a little less than 350 million subjects were affected with diabetes. Also, the number is expected to double by 2030[1,2]. Researchers from the past few decades have tried to analyze dermal changes in diabetic patients with varied glycemic control. Few of these dermal and cutaneous disorders represent an early manifestation of a yet undiagnosed DM. Other cutaneous alterations occur even when significant therapeutic treatment of DM has been initiated. Two types of noninfectious dermatoses with distinct pathobiologic background have been distinguished. These include few pathologies, which are indicators of poor glycemic control, and a cluster of skin changes representing DM-related manifestations of autoimmunity[3-6]. Hence, under the light of above-mentioned data, the present study was conducted to evaluate the prevalence and clinical correlation of skin lesions in patients with Diabetes Mellitus.

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E-mail: kkhatri999@gmail.com**Materials and Methods**

The present study was conducted in the Department of Dermatology and Department of Medicine, Government Medical College & Attached Groups of Hospital, Barmer, Rajasthan, India with the aim of assessing the prevalence and clinical correlation of skin lesions in patients with Diabetes Mellitus. Ethical clearance was obtained from the ethical committee of the institutional and written consent was obtained from all the patients after explaining in detail the entire research protocol. For the study, we evaluated a total of 423 patients with confirmed diagnosis of diabetes mellitus reporting to OPD section of the hospital. The patients were evaluated for the presence of any skin lesion over a period of 12 months. The confirmation of diabetes was done using blood tests. Detail evaluation of demographic profile and clinical manifestations were carried out. A Performa was made and details of clinical examination were recorded separately. Prevalence of any type of cutaneous lesions was recorded. The statistical analysis of the data was done using SPSS version 11.0 for windows. Chi-square and Student's t-test were used for checking the significance of the data. A p-value of 0.05 and lesser was defined to be statistically significant.

Results

In the present study, out of 423 patients, skin lesions were present in 100 diabetic patients. Hence; the overall prevalence of skin lesions was 23.64 percent. 30 patients had type 1 DM and 70 patients had type 2 DM. The mean age of patients with Type 1 DM was 36.29 years and with type 2 DM was 53.21 years. The number of males in T1DM group was 18 and in T2DM was 36. The number of females in T1DM group was 12 and in T2DM was 34. Table 2 shows cutaneous manifestations of DM in patients. We observed that pruritis (n=30) and cutaneous infections (n=22) were most common cutaneous manifestations in patients with DM. Achordons were also common in diabetic patients. Table 3 shows cutaneous conditions

related to infectious origins. It was observed that fungal infections comprised of 68.18 % of cutaneous infections, bacterial infections

comprised of 22.72 %. Viral infections were least common (9.1%).

Table 1: Demographic data of the diabetic patients with skin lesions

Demographic	Type 1 DM	Type 2 DM	p-value
Number of Patients	30	70	-
Mean Age	36.29	53.21	0.001
Sex (Male:Female)	18:12	36:34	0.21
Mean Duration of DM (Years)	6.98	5.92	0.81
FBS	161.28	158.92	0.28
HbA1c	9.25	8.98	0.25

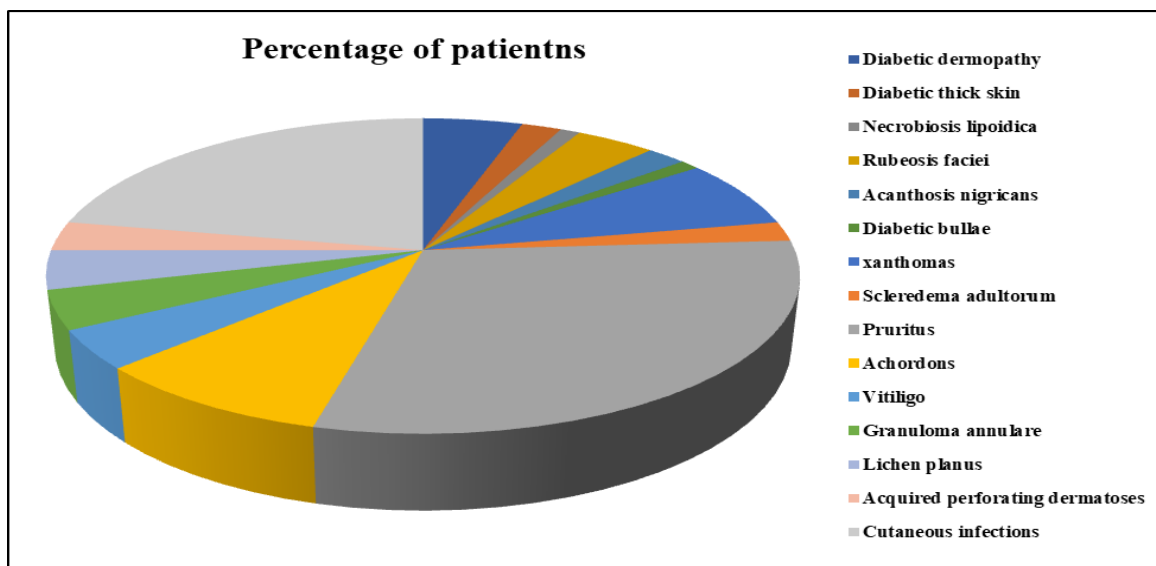


Fig 1: Cutaneous manifestations of DM in patients

Table 2: Cutaneous conditions related to infectious origins

Infectious origin	No. of cases	Percentage
Fungal	15	68.18
Bacterial	5	22.72
Viral	2	9.1
Total	22	100

Discussion

Diabetes mellitus is a one of the commonest pathological entity leading to more than four and a half million deaths across the globe per year. As per the data records of International Diabetes Federation, approximately three and a half million subjects across the globe are diabetic, out of which, approximately four-fifth are from lower economic countries. As per Indian data more than sixty million subjects were diabetic in 2011. Also, these numbers are expected to cross one hundred million by the end of 2030[6-9].Hence, under the light of above mentioned data, the present study was conducted to evaluate the prevalence and clinical correlation of skin lesions in patients with Diabetes Mellitus. In the present study, skin lesions of 100 diabetic patients were studied. 30 patients had type 1 DM and 70 patients had type 2 DM. The mean age of patients with Type 1 DM was 36.29 years and with type 2 DM was 53.21 years. The number of males in T1DM group was 18 and in T2DM were 36. In a previous study conducted by Ghosh K et al[7], authors assessed the prevalence of different cutaneous manifestations in diabetic patients. They assessed a total of 60 patients who were found to have dermal pathologies. Among these patients, approximately fifty percent of the patients had infectious conditions while vascular complications were encountered in thirty five percent of the patients. They also observed

significantly lower level of HbA1c levels in psoriasis and vitiligo patients. Al-Mutairi N et al[8], in another study, analyzed the prevalence of dermal disorders in diabetic patients. They evaluated 106 patients and concluded that the infections were the most common cutaneous manifestation and hypertension the most common systemic complication. In the present study, Skin pruritus and skin infections were most common cutaneous manifestations found in diabetic patients. Other cutaneous infections include diabetic dermopathy, diabetic thick skin, necrobiosis lipoidica, rubeosisfaciei, acanthosis nigricans, diabetic bullae, xanthomas, scleredemaadultorum, achordons, vitiligo, granuloma annulare, lichen planus and acquired perforating dermatoses. Among skin infections, fungal infections were most common. In another study conducted by Romano G et al[9], authors evaluated the prevalence of cutaneous lesions in diabetic patients. They evaluated a total of 457 subjects. 54% of the subjects had skin alterations mainly consisting of vitiligo, psoriasis and eczema. Chatterjee N et al[10], in another study evaluated the prevalence and pattern of skin disorders among diabetic patients from Eastern region of India. 680 diabetic subjects were analyzed. 64.8 percent of the patients were males while the remaining were females. Majority of the subjects of their study were having type 2 diabetes. 73.9% were found to have skin lesions.41%

of the Type 1 diabetics demonstrated skin lesions commonest being diabetic xerosis, infections and diabetic hand. Among Type 2 diabetics 490(75.61%) showed skin lesions. They concluded that involvement of skin is inevitable and multifarious in diabetes mellitus. Higher prevalence is seen in Type 2 diabetic population. The duration of diabetes is positively correlated with lesions and infective dermatologic manifestations were associated with higher HbA1C values.

Conclusion

From the above results, the authors conclude that cutaneous infections and pruritis are significantly prevalent conditions in diabetic patients.

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Conflict of Interest: Nil

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