

# A Prospective Study on Type 2 Diabetic Patients having Cutaneous Manifestations in a Tertiary Care Hospital in Rajsamand

DC Sharma<sup>1\*</sup>, JK Chhapparwal<sup>2</sup>

<sup>1\*</sup> Assistant professor, <sup>2</sup> Associate Professor, Department of Medicine, Ananta Institute of Medical Sciences & Research Center, Rajsamand, Rajasthan.

## ABSTRACT

**Background:** Diabetes mellitus is now affecting individuals of all age group and socioeconomic status. Besides other complications of the diabetes mellitus, skin is affected by the acute metabolic derangements as well as by chronic degenerative complications of diabetes. To evaluate the prevalence of skin manifestations in patients with diabetes mellitus. To analyze the prevalence and pattern of skin disorders among diabetic patients in North part of Uttar Pradesh.

**Methods:** This Prospective study was conducted on 40 diagnosed Type 2 diabetic patients having skin lesions attending the Department of Medicine, Ananta Institute of Medical Sciences & Research Center, Rajsamand, Rajasthan were included in our study on the basis of inclusion and exclusion criteria. Out of 40 patients, only 25 patients were completed the whole study done during the duration of 3 months (March 2016 to May 2016).

**Results:** The common skin disorders were: diabetic dermopathy (44%), Xerosis (36%), skin tags (32%), cutaneous infections (31%), and seborrheic keratosis (30%).

**Conclusions:** Skin is involved in diabetes quite often and the manifestations are numerous. Most of the patients were affected from Diabetic dermopathy.

**Key words:** Diabetes mellitus, skin lesions, Diabetes complications


## INTRODUCTION

Diabetes mellitus affects individuals of all ages and in all socio-economic segments of the population. Global presence of type 2 diabetics in the year 2000 was 171 million which is likely to be 366 million in the year 2030.<sup>[1]</sup> The International Diabetes Federation (IDF) estimates the total number of diabetic subjects to be around 40.9 million in India and this is further set to raise to 69.9 million by the year 2025.<sup>[2]</sup> Estimates by WHO suggest that the number of

diabetic subjects would increase to 80 million by the year 2030 in India.<sup>[1]</sup> Skin lesions are frequently observed in diabetic patients and about 30% of diabetics have cutaneous disorders.<sup>[3]</sup> The skin is affected by the acute metabolic derangements and the chronic degenerative complications of diabetes. Although the mechanism for many diabetes-associated skin conditions remains unknown, the pathogenesis of others is linked to abnormal carbohydrate metabolism, other altered metabolic pathways, atherosclerosis, microangiopathy, neuron degeneration, and impaired host mechanisms.<sup>[4]</sup> Only a few epidemiologic studies have been done on the prevalence of skin disorders in patients with diabetes mellitus.<sup>[3,5]</sup> There are no epidemiologic data related to skin disorders in diabetics reported from this part of Rajasthan, India. This study was designed to analyze the prevalence and pattern of skin disorders among diabetic patients- a maiden study conducted in this this region.

## METHODS

This was an observational and prospective study done on diabetic patients presented with skin lesions in outpatient Medicine department of Ananta Institute of Medical

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### Corresponding Author

Dr. DC Sharma, Assistant Professor, Department of Medicine, Ananta Institute of Medical Sciences & Research Center, Rajsamand, Rajasthan.

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Sciences & Research Center, a tertiary care teaching hospital in Rajsamand, Rajasthan.

Clinical details regarding age, sex, duration of diabetes mellitus, and treatment modalities were noted. All the patients underwent a detailed dermatological examination.

## RESULTS

The study comprised of 40 consecutive patients of diabetes mellitus with skin lesions. Out of 40 patients, only n=25 patients were completed the study and was present throughout the study duration. There were 13 males and 12 females. The duration of diabetes was <10 years in 15 patients. Five patients had 11-20 years of diabetes, and three had >20 years of diabetes. Two patients were newly diagnosed as diabetics.

Various types of skin lesions were found in the patients of diabetes. Around 12 type of Skin lesions were found in 25 diabetic patients, but most of the patients suffered from more than one type of skin lesions n=60 Table 1. Various types of skin infections observed are shown in Table 2. Skin lesions were mainly found in long-standing diabetic patients. Majority of patients n= 16 had combination of more than one type of skin lesions. Four patients had two types of skin lesions, three had three types, two had four types. Ten patients had only a single type of skin lesion.

**Table 1: Type of skin lesions seen in Type 2 diabetic patients.**

Types of skin lesions	Number of patients
Diabetic dermopathy	11
Xerosis	9
Skin tags	8
Infections	8
Seborrheic keratosis	7
Nail changes	5
Xanthlasma	3
Ichthyosis	3
Acanthosis nigricans	2
Vitiligo	2
Scleroderma-like skin	1
Diabetic rubeosis	1

**Table 2: Type of skin infection in Type 2 diabetic patients.**

Type of skin infection	Number of patients
Bacterial infection	
Impetigo contagiosa	2
Boils	3
Erythrasma	1
Folliculitis	2
Fungal infection	
Candidal	5
Dermatophytosis	3

## DISCUSSION

Cutaneous signs of diabetes mellitus are extremely valuable to the clinician. They generally appear after the primary disease has developed but may signal or appear coincidentally with its onset, or even precede diabetes by many years.

Cutaneous manifestations of diabetes are classified into four categories: Skin lesions with strong-to-weak association with diabetes (necrobiosis lipiodica, diabetic dermopathy, diabetic bullae, yellow skin, eruptive xanthomas, perforating disorders, acanthosis nigricans, oral leucoplakia, lichen planus), infections (bacterial, fungal), cutaneous manifestations of diabetic complications (microangiopathy, macroangiopathy, neuropathy), and skin reactions to diabetic treatment (sulphonylureas or insulin).[3] Most documented studies have shown the incidence of cutaneous disorders associated with diabetes to be between 30 and 71%.<sup>[3,6]</sup> In our study, the most common six skin disorders were: diabetic dermopathy (44%), Xerosis (36%), skin tags (32%), cutaneous infections (31%), and pruritis and seborrheic keratosis –30% each, respectively. Xerosis accounted for the most common skin manifestation after diabetic dermopathy in our study, although various studies on cutaneous lesions in diabetic patients do not comment on the prevalence of xerosis. Diabetic dermopathy, in the form of small, atrophic, brown-scar-like macules on both chins were seen in 44% of the patients. Diabetic dermopathy may develop from the factors that lead to the development of vascular complications of diabetes and it may serve as a clinical sign of an increased likelihood of vascular complications in diabetic patients.

Skin tags were seen in 32% of patients. Skin tags may serve as a marker for diabetes mellitus as was concluded by Thappa *et al.*<sup>[7]</sup> Cutaneous infections were seen in 31% of patients. Fungal infections were seen in 16% of the patients (9% had candidal and 7% had dermatophytosis). Bacterial infections were seen in 15% of the patients. It is widely believed that diabetic patients have an increased risk for infectious diseases, although there is little documented evidence to support it. This risk seems to be higher in poorly controlled patients, but it is often difficult to understand whether poor metabolic control is the cause or the consequence of the concurrent infections.<sup>[4]</sup> None of the patients had viral infections, wet gangrene, scleroderma diabeticorum, trophic ulcer, granuloma annulare, necrobiosis lipiodica, lichen planus, reactive perforating collagenosis, or drug reactions to oral hypoglycemics in this study, although these are usually associated with diabetes mellitus.

## CONCLUSION

Therefore, based on present study, we conclude that the skin is involved in diabetes quite often. The manifestations are numerous and varied and many a times they can serve as diagnostic marker for underlying diabetes. Whenever patients present with multiple skin manifestations, their

diabetic status should be checked. The recognition of these skin findings is the key to treatment and prevention.

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