



## A STUDY OF PREVALANCE AND PATTERN OF CUTANEOUS MANIFESTATIONS IN DIABETES MELLITUS

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**ABSTRACT** **BACKGROUND :** Cutaneous involvement is common in diabetes Mellitus and has been found in 43% - 66% of Indian diabetics. Skin involvement in diabetes can be autoimmune in nature or due to infection or secondary to treatment of diabetes. Management of these cutaneous manifestations depends on the underlying pathophysiology. Control of blood sugar is a prerequisite in all treatment approaches.

**AIM:** To determine the prevalence and to analyze the pattern of cutaneous manifestations in diabetes mellitus.

**MATERIALS AND METHODS:** 100 patients with the diagnosis of diabetes mellitus were included in this study. A detailed history, systemic, and cutaneous examination were carried out. Relevant investigations were done wherever necessary.

**RESULTS :** Out of 100 patients 70 patients were presented with skin lesions. Xerosis reported in majority of cases followed by infections.

**CONCLUSION:** Cutaneous manifestations are very common in long standing and uncontrolled diabetes.

**KEYWORDS :** Diabetes mellitus, skin tags, cutaneous manifestations.

### Introduction

Diabetes is the most common endocrine disorder. Some form of cutaneous involvement has been found in 43%-66% of Indian Diabetics.

Cutaneous manifestations of diabetes often reflect the status of the therapy, internal metabolic changes and type of diabetes. Multiple factors play a role in the cutaneous manifestations of diabetes namely abnormalities in the metabolism of carbohydrates, other altered metabolic pathways, and atherosclerosis, micro angiopathy, sensory, motor and autonomic neuropathies and impaired host mechanisms.

Cutaneous infections are more common in Type 2 Diabetes and lesions of autoimmune nature are more common in type 1 Diabetes, but the overall prevalence is equal in both types. Mechanism of many cutaneous lesions remains unknown, while pathogenesis of others linked to hyperglycemia and insulin dysfunction either directly or through damage to vascular, neurologic or immune systems.

### Materials and Methods:

The study was undertaken to determine the prevalence and to analyze the pattern of cutaneous manifestations in Diabetic patients. 100 patients with the diagnosis of Diabetes were included in the study. A detailed history was taken. Complete physical examination was done with particular reference to cutaneous condition including duration, progression and treatment modalities.

Blood sugar and urine examinations were done to assess the control of diabetes. Serum lipid profile, liver and renal function tests were done where ever necessary.

Histopathological examination and microbiological investigations were performed to confirm the clinical diagnosis.

### RESULTS:

Out of hundred patients 70 patients were presented with one or more skin lesions (70%)

Type of skin lesions observed in this study are xerosis with generalized pruritus in 40 cases (57.14%), infections in 30 cases (42.85%), skin tags in 10 cases (21.42%), acanthosis nigricans in 5 cases (7.14%).

Other skin lesions reported in the present study are cherry angiomas, diabetic neuropathy in the form of parasthesias, pigmented purpuric dermatoses, seborrheic keratoses and asteatotic eczema.

Out of 30 cases of infections bacterial infections were observed in 20 cases (66.66%) and fungal infections in 10 cases (33.33%)

Commonest bacterial infection observed are furuncles in 8 cases cellulitis in 5 cases and erythrasma in 7 cases. Among fungal infections candidial infections observed in 5 cases and dermatophyte infections in 8 cases.

**TABLE 1**

Type of lesion	No. of cases	Percentage of cases
Xerosis	40	57.14%
Infections	30	42.85%
Skin tags	10	21.42%
Acanthosis Nigricans	5	7.14%

### DISCUSSION

Diabetes mellitus is the most common endocrine disorder. According to WHO estimates the number of Diabetic patients would increase to 80 million by the year 2030 in India<sup>1</sup>. Some form of Cutaneous involvement has been found in 43% -66% of Indian Diabetics<sup>2,3</sup>. In the present study cutaneous involvement reported in 70% of cases. Mechanism of many cutaneous lesions remain unknown, while pathogenesis for others is linked to hyperglycemia and insulin dysfunction, either directly or through damage to the vascular, neurologic, or immune systems.

Cutaneous manifestations of Diabetes can be classified as<sup>5</sup>

- 1) Those that accompany acute or gross metabolic disturbances
- 2) Those that occur due to chronic degenerative changes
- 3) Those that occur more frequently in Diabetics but do not correlate with metabolic or degenerative changes
- 4) Cutaneous complications of diabetic therapy

Patients with type 1 diabetes often develop autoimmune type lesions and those with type 2 diabetes often develop cutaneous infections<sup>4,7</sup>. In the present study 95% of cases are of type 2 Diabetes and cutaneous infections were reported in 42.85% of cases. Cutaneous complications in Diabetes results from long term effects of Diabetes on microcirculation and on the skin collagen. Prompt Glycaemic control may have a beneficial effect on diabetic dermatoses<sup>7</sup>. In the present study xerosis with generalized pruritus was the most common cutaneous condition reported in 57.14% of cases. It may be due to old age and dry climate.

Skin infections are the most common cutaneous association with diabetes occurring in 20% -55% of poorly control diabetes<sup>3,4,7</sup>. In this study we reported skin infections in 42.85% cases and majority are bacterial infections followed by candidial infections and dermatophytosis. Candidial infection in Diabetic patients presents as balanoposthitis, vulvovaginitis, oral thrush, paronychia, intertrigo, onychomycosis, and angular cheilitis. These are more common in uncontrolled Diabetes. Yeast infection may be the only presenting feature of Diabetes. Present study reported candidial balaniposthitis, intertrigo, paronychia in 5 cases.

Skin tags or acrochordons are small, soft, pedunculated lesions occurring on neck, axilla, and often associated with obesity were seen in 26% of NIDDM type of patients. Skin tags may serve as a marker for Diabetes mellitus as was concluded by Thappa et al<sup>8</sup>. In the present study skin tags were observed in 15 cases (21.42%).

Acanthosis Negricans presents as brown to gray black papillomatous cutaneous thickening in flexural areas including posterolateral neck, axilla, groins and abdominal folds. The affected skin has dirty velvety texture. It is also associated with insulin resistance and hyperinsulinemia. AN may be considered as a prognostic indicator for development of type 2 DM. In Diabetes mellitus occurrence of Acanthosis Negricans may be related to insulin binding of insulin like growth factor receptors on keratinocytes and dermal fibroblasts<sup>9,10</sup>. In the present study Acanthosis Negricans seen in 5 cases(7.14%).

Other cutaneous lesions observed in the study are cherry angiomas, diabetic neuropathy presenting as parasthesias, Schamberg's purpura Asteatotic eczema, seborrheic keratoses. Cutaneous conditions like Necrobiosis Lipoidica, Diabetic bulla, Diabetic Dermopathy, Diabetic scleredema were not reported in the present study.

## CONCLUSION

Our study confirms high prevalence of cutaneous disorders in diabetic patients. Careful dermatological examination and follow up of diabetic patients helps in reducing morbidity and complications related to skin. Well controlled diabetes decreases the prevalence of diabetes mellitus specific cutaneous disorders associated with chronic hyperglycemia. Early diagnosis, timely intervention and treatment may improve the overall outcome in diabetic patients.

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