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Original Article

# Incidence of diabetic dermopathy

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**Abstract**

***Objective*** To assess the incidence of diabetic dermopathy and to correlate the incidence in diabetics and non diabetics.

***Patients and methods*** The study was done in 250 patients who attended skin outpatient department of our hospital. Thorough general physical examination and dermatological examination was carried out in each case. All the cases were noted and comparison between the diabetics and non diabetics was done.

***Results*** The incidence of diabetic dermopathy in our study was 21 (16.8%) cases in diabetics and 9(7.2%) cases in non diabetics which was statistically significant.

***Conclusion*** Any obese patient present with multiple shin spots having fasting blood glucose levels towards the higher side of normal along with a positive family history of diabetes mellitus should undergo further investigation to rule out the possibility of early diabetes and other microangiopathies as recognition of this finding is the key to early diagnosis, prevention and treatment of chronic disease like diabetes.

***Key words***
Diabetic dermopathy, shin spots, diabetes.

## Introduction

The term diabetic dermopathy was coined by Binkley in 1965 for the characteristic, circumscribed brown patches on the front and sides of lower portions of legs in diabetic subjects.[1] It is a type of vascular inflammation affecting small blood vessels in the skin and most often seen on the shins or front of the thighs and less often on the scalp, forearm and trunk. They appear sometimes in nondiabetics after trauma.[2] It is considered as one of the common skin manifestations in diabetics[3] and is noted as irregularly round or oval, circumscribed, shallow lesions varying in number from few to many, which are usually bilateral but not symmetrically distributed and asymptomatic. Some authors describe a preceding, distinct, red papular eruption which is independent of trauma to the skin[4] but Lithner has been able to duplicate these lesions by local thermal trauma.[5] Diabetic dermopathy probably represents post-traumatic atrophy and post-inflammatory hyperpigmentation in poorly vascularized skin. Recent report showed that most patients have an increase in glycosylated hemoglobin and a long history of diabetes.[6] It is twice as common in men as in women. These patches are also found in normal elderly people.[7]

The exact cause of diabetic dermopathy is unknown but may be due to infection, trauma with heat, cold, blunt objects or microangiopathy in patients with diabetes, older patients or those

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who have had diabetes for at least 10-20 years.[4] It also appears to be closely linked to increased glycosylated hemoglobin, an indicator of poor control of blood glucose levels.[7] These patients also have associated features of atherosclerotic vascular disease on the legs as shiny hairless skin, nail dystrophy, dependent cyanosis and rubor, pallor with elevation of extremities, cold feet, decreased or absent arterial pulses on palpation and neurotrophic ulcer. Microangiopathy is usually present together with large vessel involvement.

Histologically early lesion shows edema of papillary dermis, extravasated erythrocytes and a mild lymphocytic infiltrate. The colour of the lesion is due to hemosiderin deposits in histiocytes near the vessels.[4]

The present study was planned to determine the incidence of diabetic dermopathy in diabetics in comparison to nondiabetic controls.

**Patients and methods**

In this study 250 patients were evaluated in the skin and STD outpatient department of our hospital. The patients were equally divided into two groups of 125 patients each (group A and group B) in the age group of 30-60 years. Group A consisted of 125 diabetics and group B consisted of 125 nondiabetics selected randomly.

The diabetics were diagnosed according to the revised criteria of Alvin.[8] Patients were taken obese according to the body mass index given by Truswell.[9]

A detailed history with special reference to age, sex, rural/urban background, socioeconomic status, obesity, hypertension, duration of diabetes, type of treatment taken, history of complications and family history of diabetes was taken from each patient in both the groups and were recorded.

Routine investigations were done in both the groups like Hb, TLC, DLC, overnight fasting blood glucose, complete urine examination, special investigations like glucose tolerance test, serum cholesterol, 24 hr urine for proteins and fundus examination were done. The incidence of diabetic dermopathy was assessed in diabetic and non diabetic group and compared in the two groups to find out any association of diabetes with shin spots.

**Results**

In group A, there were 83(66.4%) female cases and 42(33.6%) male cases while in group B there were 97(77.6%) female cases and 28(22.4%) male cases. In our study majority of the cases in group A were in the age group of 50-60 years (44.8%) whereas in group B they were in the age range of 30-40 years (52.8%) [**Table 1**].

Incidence of dermopathy in our study was 21(16.8%) cases in diabetic group and 9 (7.2%) cases in non diabetic group (**Table 2**) The difference was statistically significant. Among the diabetic group (group A) majority of cases were having uncontrolled diabetes mellitus, family history of diabetes mellitus positive and duration of diabetes less than 5 years. Few of them also had peripheral vascular disease. Among the non diabetes mellitus cases (group B), majority of cases had fasting blood sugar levels towards higher side of normal, family history of diabetes mellitus positive and were either overweight or obese.

**Table 1** Demographic profile of group A and group B.

| *Demographic features* | | *Group A, diabetics, n=125 N (%)* | *Group B, non diabetics n=125 N (%)* |
|---|---|---|---|
| Gender | Male | 42 (33.6) | 97 (77.6) |
| | Female | 83 (66.4) | 28 (22.4) |
| Background | Rural | 45 (36) | 38 (30.4) |
| | Urban | 80 (64) | 87 (69.6) |
| Age distribution | 30-40 | 26 (20.8) | 66 (52.8) |
| | 41-50 | 43 (34.4) | 36 (28.8) |
| | 51-60 | 56 (44.8) | 23 (18.4) |
| Weight | Overweight and obese | 51 (40.8) | 65 (52.0) |
| Family history | Negative | 61 (48.8) | 70 (56) |
| | Positive | 64 (51.2) | 55 (44) |

**Table 2** Comparative pattern of diabetic dermopathy, peripheral vascular disease and obesity in group A and group B.

| *Manifestation* | *Group A (diabetics) n=125* | *Group B (non-diabetics) n=125* | $X^2$ | *p-value* |
|---|---|---|---|---|
| Diabetic dermopathy | 21 (16.8%) | 9 (7.2%) | 4.41 | <0.05 |
| Obesity | 52 (41.6%) | 68 (54.4%) | 4.10 | <0.05 |
| Peripheral vascular disease | 14 (11.2%) | 0 (0%) | 11.86 | <0.001 |

## Discussion

Diabetes mellitus is the most common endocrine disorder expected to affect 5.4% of the world population by the year 2025.[10] Incidence of skin manifestations is estimated to be 30% in diabetic patients during the course of their chronic illness.[11] Several skin conditions are specific to diabetes but most of them also occur in the nondiabetic population.[12] Atrophic hyperpigmented macules on the shins, so called diabetic dermopathy has been termed the most common cutaneous finding in diabetes.[3] It is usually noted as irregularly round or oval, circumscribed shallow lesions varying in number from few to many, which is usually bilateral but not symmetrically distributed. They are asymptomatic and often overlooked. Although these lesions may appear in anyone, particularly after an injury or trauma to the area, they are one of the most common skin problems found in patients with diabetes mellitus. Thus defining diabetic dermopathy as one or more shin spots results in higher sensitivity, lower specificity for the diagnosis of diabetes.[13]

The incidence of diabetic dermopathy in our study was 21 (16.8%) cases in diabetics and 9 (7.2%) cases in nondiabetics which was statistically significant (**Table 1** and **Table 2**). In a similar study incidence of diabetic dermopathy was found to be 14% in diabetics which is comparable to our study but no case was recorded in nondiabetic patients. Whereas another study has reported incidence of 20% in patients with normal glucose tolerance test, which is quite high in contrast to our study.[14]

There were more number of overweight or obese patients in the non diabetic (group B), 68(54.5%) as compared to diabetics (group A), 52 (41.6%) which was statistically significant. Obesity has long been accepted as a risk factor for noninsulin-dependent diabetes and the risk is related to both the duration and degree of obesity.[15] Obesity is also associated with impaired microvascular function both in the

basal state and during physiological hyperinsulinemia and this dysfunction is associated with raised blood pressure and insulin resistance.[16]

Peripheral vascular disease occurs frequently in association with diabetes mellitus partly as a result of the disease and partly as a reflection of age group. It appears some ten years earlier in diabetics than in the general population.[17] In our study the incidence of peripheral vascular disease was 14 (11.2%) cases in diabetic group and none was found in non diabetic group. Majority of the above cases were in the age group of 50-60 years with duration of diabetes ranging more than 5 years. Except one case all had fasting blood sugar levels ranging between 122-318 mg/dl, 4 cases had associated hypertension.

In one study incidence of peripheral vascular disease was found to be 6.3% in diabetics and 2.7% in non diabetics which was lower than that found in our study.[18] In another study 16% of patients had diabetic dermopathy which was comparable to our results but the percentage is quite high in western studies ranging from 22% to 45%.[19]

## Conclusion

From the above observations it is clear that skin is involved in diabetics quite often and earlier than general population. Diabetic dermopathy lesions or shin spots are harmless. They usually do not require any treatment and tend to go away after a few years, particularly following improved blood glucose control. Whereas if any obese patient presents with multiple shin spots having fasting blood glucose levels towards the higher side of normal along with the a positive family history of diabetes mellitus should undergo further investigation to rule out the possibility of early diabetes and other microangiopathies as recognition of this finding is the key to early diagnosis and prevention of chronic disease like diabetes and microangiopathies.

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