

A Study on Cutaneous Manifestations in Patients of Type 2 Diabetes Mellitus in a Tertiary Care Hospital

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Article History

Received: 5 Jan 2016

Revised: 8 Jan 2016

Accepted: 11 Jan 2016

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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.

Aims: 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 western part of Uttar Pradesh.

Materials and Methods: 50 diagnosed Type 2 diabetic patients having skin lesions either attending the Medicine or Dermatology department were included on the basis of inclusion and exclusion criteria.

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

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

KEYWORDS: 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 2030.¹ 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 2025.² Estimates by WHO suggest that the number of diabetic subjects would increase to 80 million by the year 2030 in India.¹ Skin lesions are frequently observed in diabetic patients and about 30% of diabetics have cutaneous disorders.³ 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.⁴ Only a few epidemiologic studies have been done on the prevalence of skin disorders in patients with diabetes mellitus.^{3,5} There are no epidemiologic data related to

skin disorders in diabetics reported from the western UP population, India. This study was designed to analyze the prevalence and pattern of skin disorders among diabetic patients from this region of Western Uttar Pradesh.

MATERIALS AND METHODS

This was an observational and prospective study done on diabetic patients presented with skin lesions in outpatient Medicine and Skin department of Rajshree Medical Research Institute, Bareilly, a tertiary care teaching hospital. On the basis of same inclusion and exclusion criteria, patients were also recruited from the department of Medicine in Rohilkhand Medical college, Bareilly. The study was approved by the ethics committee of the hospital and informed consent was obtained from all the subjects.

Clinical details regarding age, sex, duration of diabetes mellitus, and treatment modalities were noted. All the patients underwent a detailed dermatological examination. Relevant microbiological and histopathological investigations to confirm the diagnosis were carried out.

RESULTS

The study comprised of 50 consecutive patients of diabetes mellitus with skin lesions. There were 27 males and 23 females. The duration of diabetes was <10 years in 30 patients. Seventeen patients had 11-20 years of diabetes, and three had >20 years of diabetes. Five patients were newly diagnosed as diabetics.

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

Types of skin lesions	Number of patients
Diabetic dermopathy	22
Xerosis	18
Skin tags	16
Infections	16
Seborrheic keratosis	14
Nail changes	10
Xanthasma	5
Ichthyosis	5
Acanthosis nigricans	4
Vitiligo	4
Scleroderma-like skin	3
Diabetic rubeosis	2
Scabies	2
Lipodystrophy	2
Macular amyloidosis	2
Nodular prurigo	2
Diabetic bullae	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

Various types of skin lesions were found in the patients of diabetes. Around 17 type of Skin lesions were found in 50 diabetic patients, but most of the patients suffered from more than one type of skin lesions n=130 (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= 40 had combination of more than one type of skin lesions. Ten patients had two types of skin lesions, six had three types, eight had four types, and another eight had five types. Six types of skin lesions were observed in another

7 patients and only one patient presented with a maximum of seven. Ten patients had only a single type of skin lesion.

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%.^{3,6} 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.*⁷ 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.⁴ 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 on the basis of 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.

FUNDING: None.

CONFLICTS OF INTEREST: None declared.

REFERENCES

1. Wild S, Roglic G, Green A, Sicree R, King H. Global prevalence of diabetes, estimates for the year 2000 and projection for 2030. *Diabetes Care*. 2004;27:1047–53.
2. Sicree R, Shaw J, Zimmet P. Diabetes and impaired glucose tolerance. In: Gan D, editor. *Diabetes atlas*. International diabetes federation. 3rd ed. Belgium: International Diabetes Federation; 2006. pp. 15–103.
3. Romano G, Moretti G, Di Benedetto A, Giofre C, Di Cesare E, Russo G, et al. Skin lesions in diabetes mellitus: Prevalence and clinical correlations. *Diabetes Res Clin Pract*. 1998;39:101–6.
4. Bhat Y J, Gupta V, Kudyar R P. Cutaneous

manifestations of diabetes mellitus. *Int J Diab Dev Ctries*. 2006;26:152–5.

5. Sasmaz S, Buyukbese MA, Cetinkaya A, Celik M, Arican O. The prevalence of skin disorders in type-2 diabetic patients. *Int J Dermatol*. 2005;3:1.

6. Mahajan S, Koranne RV, Sharma SK. Cutaneous manifestation of diabetes melitus. *Indian J Dermatol Venereol Leprol*. 2003;69:105–8.

7. Thappa DM. Skin tags as markers of diabetes mellitus: An epidemiological study in India. *J Dermatol*. 1995;22:729–31.

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Cite this article as: Anuragi Arun Kumar, Shamshad Husain Ansari, Vijay Gupta. A Study on Cutaneous Manifestations in Patients of Type 2 Diabetes Mellitus in a Tertiary Care Hospital. *Int J Med Res Prof*. 2016, 2(1); 125-127.