



A Study on the Prevalence of Cutaneous Manifestations of Diabetes Mellitus

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Abstract

Diabetes is one of the most common endocrine problems, affecting 8.3% of the population. Cutaneous manifestations may be the first sign of Diabetes, or may develop during the course of the disease. Individuals with type 2 diabetes is more likely to manifest cutaneous manifestations compared to type 1 patients. An observational study was conducted in a tertiary care centre among 200 patients with Diabetes and cutaneous manifestations for a period of six months. Type 2 Diabetes was common among the study population. Majority of patients were females and the common age group was 46-55 years of age. Among the cutaneous manifestations, infections constituted the majority. Fungal infections formed the major part among infections. Candidiasis and dermatophytosis were the commonest type of fungal infections. Incidence of newly detected Diabetes was common in patients with candidal balanitis. Xerosis was seen in 18 patients and most of these patients had diabetic neuropathy. The next common cutaneous manifestation was pruritus which was seen in uncontrolled diabetes and in early stages of diabetes. Cutaneous manifestations primarily due to microangiopathy were less in our study. These were manifested as diabetic ulcers in 2.5% of patient's. Awareness of dermatological manifestations helps in early detection of Diabetes in cases with pruritus and candidal balanitis and in early diagnosis of its complications like diabetic neuropathy and nephropathy

Keywords: Prevalence, Cutaneous manifestations, Diabetes.

Background

Diabetes is the most common endocrine disorder, affecting 8.3% of the population. Cutaneous manifestations may be the first sign of Diabetes, or may develop during the course of the disease. Individuals with type 2 diabetes is more likely to manifest cutaneous manifestations compared to type 1 patients.

Introduction

Cutaneous involvement is seen in 30% of diabetic patients during the course of their disease. Although the overall prevalence of cutaneous disorders does not seem to differ between type I and type II diabetes patients, Type II patients do develop more frequent cutaneous infections, whereas type I patients develop more autoimmune-type cutaneous lesions¹. Cutaneous manifestations usually seen in patients subsequent

to development of diabetes, but may be the first sign or may precede diabetes by many years. Diabetes exhibits a variety of multisystem complications involving the blood vessels, skin, eye, kidney, and the nervous system during the course. Abnormal carbohydrate metabolism, other altered metabolic pathways, atherosclerosis, microangiopathy, neuron degeneration, and impaired host mechanisms all play roles. Gilgor and Lazarus observed that at least 30% of patients with diabetes mellitus have some type of cutaneous involvement during the course of the disease.² A number of classifications on the cutaneous manifestations of Diabetes is available in literature. Sehgal and Shanker opined that no diseases of the skin are absolutely peculiar to diabetes, except three dermatoses the incidence of which is more common in diabetics than in non-diabetics.²

In a study cutaneous infections (45.7%) was found to be the most common skin manifestations of Diabetes ,followed by Xerosis (6.4%) and inflammatory skin disease (27.7%)³. Acanthosis nigricans is a commonly recognized skin manifestation of Diabetes.⁴ It is a well-known fact that Diabetes alters the endothelial functions. Ultrastructure and size of human corneocytes in the upper stratum corneum layer of skin are changed in Diabetic subjects⁶Fungal infections were the most prevalent among cutaneous infections and interdigital spaces , genital spaces genitalia and skin folds were the frequent sites of infection ⁷

Materials and Methods

An observational study was conducted in the Dermatology outpatient department of a tertiary care centre in central Kerala on 200 patients who were referred from medicine department who had diabetes and cutaneous manifestations for a period of six months from January 2016 to June 2016 after getting ethical clearance from the Institutional Ethics Committee. History and clinical examination of these patients were done in detail, a dermatological examination was done

and relevant investigations for the diagnosis of cutaneous manifestations and diabetic complications were done where ever necessary. Their data was entered in a proforma containing the personal details, and duration of diabetes and the details of their cutaneous manifestations. The data was entered in spss and analysed.

Results

Among the 200 study participants more than half of the patients were females (56%) and the rest were males (44%). Majority of patients included in the study had Type 2 Diabetes (98%) and only 2% of the patients were Type 1 Diabetes. Majority of the study population were of 46 to 55 year group (32%). 30.5% of the patients were of 56 to 65 years .Very few patients 2 % were of age group above 75 years. Among the cutaneous manifestations-Infections formed the major group, Candidiasis and Dermatophytosis were the commonest among the infections. Three patients(1.5%) had scleredema diabeticorum, one patient(0.5%) had diabetic bulla ,one patient with Bullous pemphigoid, seven patients(3.5%) with Lichen Planus, five patients with diabetic ulcer, Xerosis in 18(9%) patients and 20 patients(10%) had pruritus. Three patients had Kyrles disease which was seen in patients with diabetic complications mainly diabetic nephropathy.

Infections	Number	Percentage
Tinea versicolor	19	9.5%
Dermatophyte Infections	48	24%
Candidal balanitis	11	5.5%
Candidal vulvovaginitis	6	3%
pyoderma	20	10%
Chronic paronychia	7	3.5%
intertrigo	15	0.5%
Scleredema diabeticorum	3	1.5%
Photodermatitis	9	4.5%
Photolichenoid eruption	2	1%
Leg ulcers	5	2.5%
DLE	1	0.5%
Bullous pemphigoid	1	0.5%
Diabetic bulla	1	0.5%
Lichenplanus	7	3.5%
Prurigo	4	2%
Acanthosis nigricans	2	1%
Xerosis	18	9%
Psoriasis	6	3%
Eczema	25	12.5%
Pruritus	20	10%
Kyrles disease	3	1.5%
Erythema multiforme	1	0.5%
Alopecia areata	1	0.5%
Urticaria	2	1%
Miliaria	10	5%

Discussion

Majority of patients were females in the study, who had diabetes with cutaneous manifestations which was at par with other studies. Most of the patients with cutaneous manifestations were of the fifth and sixth decade which was similar to the study conducted by Rao GS & Pai GS⁸. Majority (98%) of patients were of noninsulin dependent diabetes which was similar to the study conducted by Mahajan S, Koranne RV, Sharma S K. Infections were the commonest cutaneous manifestation in our study population. Among the cutaneous infections, fungal infections were the commonest. Dermatophyte infections with extensive involvement were seen in 48 of the patients, followed by tinea versicolor in 19 patients and intertrigo in 15 patients. Another important fungal infection seen was candidiasis, among that candidal balanitis was seen in 11 patients (5.5%), candidal vulvovaginitis in 6 patients (3%) and chronic candidal paronychia in 7 patients (3.5%). In this study the incidence of newly detected Diabetes was high in patients with candidal balanitis. Xerosis was seen in 18 patients and most of these patients had diabetic neuropathy. The next common cutaneous manifestation was pruritus which was seen in uncontrolled diabetes and in early stages of diabetes. Cutaneous manifestations primarily due to microangiopathy were less in this study which was also similar to other Indian studies^{9,10}. These were manifested as diabetic leg ulcers which was seen in 2.5% of patients and diabetic bulla in one patient (0.5%).

Conclusion

Diabetes is a disease which affects various systems of the body. In this study it was noticed that a high incidence of cutaneous manifestations was noticed in type 2 Diabetes. So a routine dermatological screening is recommended for longstanding cases of type 2 Diabetes.

References

1. Cutaneous manifestations of diabetes mellitus Tammie Ferringer, MD, O. Fred Miller III, MD*Mahajan S, Koranne R V,
2. Sharma S K. Cutaneous manifestation of diabetes melitus. Indian J Dermatol Venereol Leprol [serial online] 2003 [cited 2019 Jul 21]; 69:105-8. Available from: <http://www.ijdvl.com/text.asp?2003/69/2/104/58886>.
3. Demeirseren DD, Emre S, Akoglu G et al. Relationship between skin disease and extra cutaneous complication of diabetes mellitus: clinical analysis of 750 patients. Am J Clin Dermatol 2014; 15:65-70 [PubMed]
4. Kalus AA, Chein AJ, Oluerd JE, Chapter 151, Diabetes Mellitus and other endocrine disorders. In D Fitzpatrick, Dermatology in General Medicine, 8 TH edition Cicconne MM, Scicchitano P, Cameli M, Cecere A, Cortese F, et al 2014,
5. Endothelial function in prediabetes, Diabetes and diabetic cardiomyopathy, a review. J Diabetes Metab 5: 364.
6. Sticker M, Licht M, Heise HM, Surface ultrastructure and size of human corneocytes, from upper stratum corneum layers of normal and diabetic subjects with discussion of cohesion aspects. J Diabetes Metab 6: 603
7. Romano G, Morettei G, Di Benedetto, A, Giofre C, Di Cesare E, Russo G, et al. Skin lesions in Diabetes Mellitus: Prevalence and clinical correlation. Diabetes Res Clin Pract. 1998; 39:101-6
8. Giligor RS, Lazarus G S. Skin manifestations of diabetes mellitus. In, Diabetes Mellitus, eds Rifkin H, Raskin P, Brady co, Louana 1981, 313. 321.
9. Rao GS, Pai GS, Indian Journal of Dermatology, Venereology and leprology
10. Mahajan S, Koranne R V, Sharma S K. Cutaneous manifestation of diabetes melitus. Indian J Dermatol Venereol Leprol 2003;69:105-8.