Original Research Article

A study of the cutaneous manifestations in patients of diabetes mellitus

Yashdeep[1*], Kishor Singh[2], Sanjay Kanodia[3], Parvesh[4]

[1,4]Resident, [2]Professor and HOD, [3]Professor, Department of Dermatology, NIMS Medical College, Jaipur, Rajasthan, INDIA.
Email: robinmalik53@gmail.com

Abstract

This study was aim at studying cutaneous manifestation in patients of diabetes mellitus. A total number of 100 patient were taken in the study. It was concluded that Manifestations like infections appear early in the disease since diabetes remain undetected till its diagnosis and usually patient is not tuned to regular treatment and proper diet control in early diabetes, thus leading to persistent hyperglycaemia which in turn predisposes patient to infections. Other complications like micro angiopathy, neuropathy etc appear late due to advanced end glycosylation.

Key Words: diabetes mellitus.

[*]**Address for Correspondence:**
Dr. Yashdeep, Resident, Department of Dermatology, NIMS Medical College, Jaipur, Rajasthan, INDIA.
Email: robinmalik53@gmail.com
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INTRODUCTION

Diabetes mellitus (DM) is known to be a chronic multisystem disorder. As the Health Organisation (WHO) describes it, diabetes mellitus is a metabolic disorder of various aetiologies characterized by chronic hyperglycemia with disturbances of fat, protein and carbohydrate metabolism which occur as a result of disturbance in insulin action, insulin secretion or both. The common clinical symptoms seen in DM are blurring of vision, weight loss and polyuria. In its severe form; stupor, coma and death are seen due to non-ketotic hyperosmolar state in absence of effective treatment. Diabetes mellitus is a chronic disease and it affects multiple systems of the body including the skin. Cutaneous manifestations of diabetes mellitus generally appear subsequent to the development of the disease, but they may be the first presenting signs. In some cases these may precede the primary disease manifestation by many years. The aim of the present study was to study the pattern of Cutaneous manifestations of diabetes mellitus.

MATERIALS AND METHODS

The present study was carried out in the Department of Dermatology, Venereology and Leprosy, NIMS University Medical College and Hospital, Jaipur. A total of one hundred (100) consecutive patients of Diabetes Mellitus (type I and2) attending the Department of Dermatology and Medicine NIMS University Medical College and Hospital, Jaipur were enrolled in the study. **Ethics:** Patient's confidentiality was maintained and informed consent was taken. **Study Population**: Outpatient as well as inpatient with diabetes mellitus reporting to Skin OPD and Medicine OPD at National Institute of Medical Sciences and Research, Jaipur were included in the study.

Inclusion Criteria

- Patients willing to participate in the study.
- Diagnosed case of Diabetes mellitus.

Exclusion Criteria

- Patients less than 15 years of age.
- Patients with Gestational Diabetes Mellitus
- Unwelling patients.

A detailed history with special reference to age, sex, rural/urban background, BP, smoking, alcohol intake, duration of diabetes, type of diabetes, type of treatment taken, complications (if any) and family history of diabetes was taken from each patient and was recorded in the proforma attached. A complete general, physical,

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systemic and dermatological examination was done in each patient to detect the type and extent of cutaneous and systemic finding present if any. Following routine investigations like Hemoglobin, Total leukocyte count, Differential cell count, Preprandial capillary plasma glucose, Peak postprandial capillary plasma glucose and complete urine examination were done in each patient. HbA I c was done in each patient. Assessment of glycaemic control was also done by measuring Preprandial capillary plasma. glucose, Peak postprandial capillary plasma glucose. Diabetes was considered to be controlled when Preprandial capillary plasma glucose 3.9-7.2 mmollL (70-130 mg⁄dL), Peak postprandial capillary plasma glucose <180 mg/dL and HbAlc < 7.0%.

RESULTS

Out of 100 patients, Age group varies from 25-75 years. Minimum age was 25 years and maximum 75 years. Maximum number of patients were in 50-59 years (32%) of age group, followed by age group 40-49 years (27%). Majority of the patients were male (55%) and 45% were females. 99 of the patients belong to type 2 diabetes while only 1 belong to type 1 diabetes. Out of 100 diabetic patients, 78 had controlled diabetes with oral hypoglycemic agents or insulin and the rest 22 had uncontrolled diabetes. Majority of the patients (50%) had duration of diabetes between 1 to 5 years, 21 % between 6 to 10 years duration, while 19% had duration less than 1 year, and only 2% patients were having duration of diabetes ≥16 years. Majority of the patients (80%) were on oral hypoglycemic drugs, while 13 % of the patients were on combination therapy i.e. insulin and oral hypoglycemic. Seven percent of the patients were not on any treatment for DM. 53% of the patients were on regular treatment, while 40% were on irregular treatment and 7% were on no treatment. Out of these 52.8% patients had controlled diabetes, while 40% of the patients on irregular treatment had controlled diabetes (17.5%). Out of 7% of patients whose who were on no treatment had uncontrolled diabetes. Majority of the patients (43%) showed HbAlc levels <7, followed by 41% who had HbAlc≥ 8. 17% showed HbAlc levels between 7 to 7.99. 21% of the patients were smoker, 13% were alcoholic and 30% were hypertensive. Cutaneous infections were the commonest manifestations present in 71 % of patients, followed by the conditions associated with DM, which were present in 67% of patients, miscellaneous cutaneous findings were present in 45% of patients and no patient had complications due to treatment of diabetes. Cutaneous infections/infestations were present in 71 % of total patients (100). Most of the patients in infection group had more than one manifestations (Table1). Among these positive 71 patients, fungal infections were present in a total of 50 patients. Among these 50 patients, different fungal infections were dermatophytosis[36] and candidiasis[20]. Different dermatophytic infections were T. corporis[17], T. cruris[14], onychomycosis[14], T. pedis[4], T unguium[3]. The cutaneous conditions associated with DM which were present in 67% of patients (Table 2). Among the cutaneous conditions skin tag was the most common and was present in 33 %, followed by cherry angioma in 21 %, xerosis in 19%, acanthosis nigricans in 18%, generalized pruritus 12%, xanthelasma palpebrarum in 8%, diabetic dermopathy in 7%, yellow discolouration of hand in 5%, diabetic thick skin in 2%, rubeosis faciei in 2% and granuloma annulare in 1%. Miscellaneous cutaneous findings which were present in 45% of total cases (Table 3). Discolouration of nail was the commonest, followed by decrease hair over lower legs in 10%, eczemas in 10%, psoriasis in 5%. Apart from these pigmented purpuric dermatosis, lichen planus, seborrheic keratosis, alopecia, nevus, macular amylodosis, vitiligo, prurigo nodularis, perforating dermatosis, syringoma, urticaria and acne keloidalis nuchae were also present in decreasing order of frequency. Cutaneous complications of diabetic therapy were not common. Cutaneous infections, diabetes associated complications and miscellaneous cutaneous findings were more frequently in poorly controlled patients of DM. Majority of the patients had more than one cutaneous manifestation. i.e. 3 manifestations (26%), followed by 4 (24%), and 2 (21%) patients.

Table 1: Cutaneous Infections/ Infestations

	Number of Patients (n=71)			Percentage (%)
	Male	Female	Total	
I)Fungal	29	21	50	50
A)Dermatophytosis	23	13	36	36
T.Corporis	10	7	17	17
T. Cruris	9	5	14	14
Onychomycosis	9	5	14	14
T.Pedis	3	1	4	4
T. unguium	2	1	3	3
B)Candidiasis	11	9	20	20
Candidal Balanoposthitis	6	0	6	6
Vaginal Candidiasis	4	2	6	6
Cutaneous Candidiasis	0	5	5	5
Candidal Paronychia	1	2	3	3
2)Bacterial	8	11	19	19
Fol1liculitis	4	4	8	8
Frunculosis	3	5	8	8
Carbuncle	1	1	2	2
Cellulitis	0	1	1	1
3) Viral	2	4	6	6
Herpes Simplex	0	3	3	3
Herpes Zoster	2	1	3	3

Table 2: Cutaneous conditions associated with Diabetes Mellitus

	Number of Patients			(%)
	Male	Female	Total	
l. Skin Tag	15	18	33	33
2. Cherry Angioma	13	8	21	21
3. Xerosis	8	11	19	19
4. Acanthosis Nigricans	7	11	18	18
5. Gen. Pruritus	7	5	12	12
6. Xanthelasma Palpebrarum	5	3	8	8
7. Diabetic Dermopathy	5	2	7	7
8. Yellow Discolouration of Skin	3	2	5	5
9. Diabetic Thick Skin	2	0	2	2
10. Rubeosis F aciei	1	1	2	2
11. Granuloma Annulare	0	1	1	1

Table 3: Miscellaneous Cutaneous Findings

	Number of Patients			(%)
	Male	Female	Total	
l. Discolouration of Nail	11	0	11	11
2. Decrease hair on lower leg	7	3	10	10
3. Eczemas	6	4	10	10
4. Psoriasis	3	2	5	5
5. Pigmented Purpuric Dermatoses	3	2	5	5
6. Lichen Planus	1	3	4	4
7. Seborrheic Keratosis	2	2	4	4
8. Alopecia	2	1	3	3
9. Nevus	1	2	3	3
10. Macular Amylodosis	0	2	2	2
11. Vitiligo	1	1	2	2
12. Prurigo Nodularis	0	2	2	2
13. Perforating Dermatosis	0	1	1	1
14. Syringoma	0	1	1	1
15. Urticaria	1	0	1	1
16. Acne Keloidalis Nuchae	1	0	1	1

DISCUSSION

One hundred (100) patients were enrolled of age ranging from 25-75 years. Majority of the patients were in the age group of 51-60 years. Males (55%) outnumbered females (45%) in the present study. In our study Ninety nine (99%) patients had type-II DM, while only one (1%) had type- I DM. majority of the patients have cutaneous manifestations had uncontrolled diabetes (64%) Among the various dermatological manifestations, infections were the most common dermatoses (71 %) followed by other conditions associated with DM (67%) and miscellaneous cutaneous findings (45%). Fungal infections (50%) were the commonest infections followed by bacterial (19%) and viral (6%). Dermatophytosis was the commonest fungal infection observed in 36 patients followed by candidial infections 20 patients. Frunculosis and folliculitis were present in 8 patients each followed by Carbuncle (2) and cellulitis (1). Among the viral infections, 3 patients (3%) each had herpes simplex and herpes zoster. Various cutaneous conditions associated with Diabetes mellitus were skin tags (33%), cherry angioma (21%), xerosis of skin (19%), acanthosis nigricans (18%), generalized pruritus (12%), xanthelasma palpebrarum (8%), diabetic dermopathy (7%), yellow discolouration of hand (5%), diabetic thick skin(2%), rubeosis faciei (2%) and granuloma annulare (1%). Among the cutaneous conditions associated with diabetes, Skin tags were the commonest and were present in 33% of patients. Diabetic patients may have one or more than one cutaneous manifestations. Various miscellaneous cutaneous findings like discolouration of nail (11 %),decrease hair over lower legs (10%), eczemas (10%), psoriasis (5), pigmented purpuric dermatosis (5%), lichen planus (4%), seborrheic keratosis (4%), alopecia (3%), nevus (3%), macular amylodosis (2%), vitiligo (2%), prurigo nodularis (2%), perforating dermatosis (1%), syringoma (1%), urticaria (1%) and acne keloidalis nuchae (1%). Cutaneous complications of diabetic therapy were not common.Cutaneous infections, diabetes associated complications and miscellaneous cutaneous findings were more frequently in poorly controlled patients of DM. Majority of the patients had more than one cutaneous manifestation. i.e. 3 manifestations. (26%), followed by 4 (24%), and 2 (21%) patients.

CONCLUSION

Skin is not spared by complications of diabetes, being it's a multisystemic disease. Manifestations like infections appear early in the disease since diabetes remain undetected till its diagnosis and usually patient is not tuned to regular treatment and proper diet control in early diabetes, thus leading to persistent hyperglycaemia which in turn predisposes patient to infections. Other complications like micro angiopathy, neuropathy etc appear late due to advanced end glycosylation. Some/ extensive cutaneous manifestations can heighten the suspicion of a dermatologist regarding the diagnosis of diabetes.

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