

Diabetes Mellitus: A Malady Behind Various Dermatoses – A Study of 100 Cases



Dermatology

KEYWORDS : Diabetes Mellitus(DM), dermatoses, infection

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ABSTRACT

BACKGROUND: Skin is mirror to many systemic conditions like Diabetes mellitus (DM). It is the most common endocrine disorder with numerous cutaneous manifestations i.e. 43%-66% of Indian diabetics present with various cutaneous manifestations. **OBJECTIVE OF STUDY:** To determine incidence and correlation of DM with various dermatological conditions as 1. Due to metabolic disturbances 2. Degenerative changes 3. Not related to both of them. **METHODOLOGY:** 100 DM of P.D.U. Govt hospital, Rajkot, were studied. A detailed history, clinical examination and related investigations for skin lesions were carried out. **RESULTS:** Cutaneous infections were present in 66% cases (Most common superficial fungal infections (43%) followed by bacterial infections (19%). 9% cases had degenerative disorders. 65% diabetic patients had cutaneous manifestations other than metabolic and degenerative disorders related to DM (most common acanthosis nigricans (35%), followed by skin tags (25%). **CONCLUSION:** DM represents an area in which cutaneous manifestation is important clue to diagnosis and prognosis.

INTRODUCTION:

Skin is mirror to many systemic conditions like Diabetes mellitus (DM)⁽¹⁾. Along with lifestyle modification, incidence of DM has been increased parallelly. It is the most common endocrine disorder with numerous cutaneous manifestations of known and unknown origin i.e. 43%-66% of Indian diabetics present with various cutaneous manifestations⁽²⁾. Abnormal carbohydrate metabolism, other altered metabolic pathways, atherosclerosis, microangiopathy, neuron degeneration, and impaired host mechanisms all play roles⁽³⁾. Gilgor and Lazarus observed that at least 30% of patients with diabetes mellitus have some type of cutaneous involvement during the course of their chronic disease. A number of classifications delineating dermatoses observed in DM have been proposed.

Classification of cutaneous manifestation of DM⁽²⁾:

- Due to acute, gross metabolic disturbances: Infections, Xanthomatosis etc
- Due to chronic degenerative changes like microangiopathy, neuropathy : Diabetic bullae, Diabetic microangiopathy etc
- Not related to metabolic or degenerative changes, but commonly associated with DM: Acanthosis nigricans, Granuloma annulare etc

MATERIAL AND METHODS:

One hundred DM patients attending skin out-patient department and indoor patients of different wards of P.D.U. Govt hospital, Rajkot, were studied during the period of 1 month i.e. September 2016. A detailed history, clinical examination and related investigations for skin lesions like skin scrapping, KOH examination and culture for fungus in sabouraud's agar; gram staining, culture of the pus was done to identify the type of organism in selected cases. Histopathological examination of the skin biopsy was carried out wherever necessary to confirm the diagnosis. Related blood investigations like total count, differential count, Fasting and postprandial blood sugar levels, USG Doppler were done.

RESULTS:

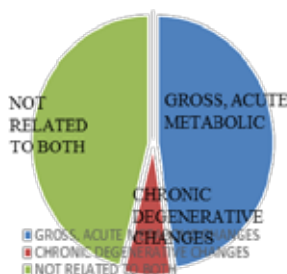
Among the 100 patients of diabetes mellitus, there were 52 male and 48 female. the male to female ratio was 1.38:1. The age of the patients ranged from 25 years to 78 years. Male diabetic patients had high incidence of associated skin diseases as compared to female diabetics. The duration of diabetes ranged from 2 months to 27 years. Cutaneous infections were present in 66% cases, out of them 53.85% were male and 46.15% female (TABLE 1, FIGURE 1). Maximum number of patients had superficial fungal infections 74.24%, followed by bacterial infection 28.79% and only 1 (1.52%) patient had parasitic infection i.e. scabies. Among superficial fungal infections 46.94% patients had Tinea corporis, followed by candidiasis in 14.29%, Onychomycosis in 12.24%. Among the total patients included in study xanthomatosis was present in 3% cases. Out of total patients with acute and gross metabolic changes due to DM it was present in 4.35% cases. Chronic degenerative changes due to DM were present in total 9% diabetic patients. Out of which pigmented purpura and callosity were seen in 22.22% patients each. In rest of case dermatoses like Lipodermatosclerosis (11.11%), diabetic bullae (11.11%) and gangrene of foot (11.11%) were present. Dermatoses related to DM which was not related with metabolic and degenerative changes were present in 64% patients. Among them maximum patients had acanthosis nigricans (58.44%) followed by skin tag in 39.06% patients. 12.5% patients had generalized pruritus, 4.69% had urticaria, 3.13% each had granuloma annulare and lichen planus; 3.13% patients had psoriasis and prurigo nodularis (1.56% each).

TABLE – 1
SEXWISE DISTRIBUTION OF VARIOUS DERMATOSES RELATED TO DM

		MALE	FEMALE
RELATED TO ACUTE, GROSS METABOLIC CHANGES			
BACTERIAL INFECTIONS			
	Furuncle	4	1
	Folliculitis	3	2

	Carbuncle	1	1
	Erythrasma	1	
	Pitted keratolysis	1	
	Paronychia	1	2
	Foot ulcer	1	
	Ecthyma	1	
FUNGAL INFECTIONS			
	Oral candidiasis	1	1
	Pruritus vulva		4
	Vulval candidiasis		1
	Interdigital candidiasis	1	3
	Balanitis	4	
	Tinea corporis	10	13
	Pityriasis versicolor	1	2
	onychomycosis	3	3
	Paronychia	1	1
PARASITIC			
	Scabies	1	
METABOLIC			
	Xanthelesma	1	2
RELATED TO DEGENERATIVE CHANGES			
	Pigmented Purpura	2	
	Lipodermatosclerosis	1	
	Calosity	2	1
	Diabetic bulla	1	1
	Gangrene of foot	1	
ASSOCIATED WITH DM BUT NO METABOLIC OR DEGENERATIVE CHANGES			
	AN	20	25
	Granuloma annulare	0	2
	Generalized pruritus	3	5
	Vitiligo	1	1
	LP	1	1
	Psoriasis	0	1
	Skin tag	7	18
	Urticaria	1	2
	Prurigo nodularis	1	0

FIGURE – 1



DISCUSSION:

The complications of diabetes are formidable, and no organ appears to be immune from the effects of this disease. The skin is only one of the organs affected.

Chattergi⁽⁴⁾ and Nigam et al,⁽⁵⁾ had observed a higher incidence (64.8% ,62.5% respectively) of cutaneous diseases among male diabetics, while in present study the incidence of dermatoses was nearly equal in male and female with a slight preponderance of male sex (52%) in our study with male: female sex ratio being 1.38:1. The skin diseases were prevalent in 5th decade (36%) , then 4th decade (26%) and lastly in 6th decade (19%) whereas Chhabra⁽⁶⁾ in his study observed 33.3% 23.5% and 9.9% incidence of skin diseases in 5th, 6th and 7th decades of age respectively.

Gulati et al⁽⁷⁾ reported cutaneous infections in 49% of diabetics in their study group. In the present study also, infections formed the largest group affecting 66%. Among all infections superficial fungal infections were more common (74.24%) as compared to bacterial infections (28.79%), unlike Mahajan S et al⁽⁸⁾, in which incidence of both was same (11% each).

Xanthomatosis was present in 3% patients as similar to Puri N study. Only one patient(1%) had diabetic bullae, as compared to Mahajan et al in which it was found in 2% patients. Dermatoses not associated with metabolic or degenerative changes were present in 42% patient in Puri N study⁽⁹⁾, while it is present in 64% in our study. This difference is mostly because of late detection of DM due to negligence on the part of patient.

In our study 25 patients had acrochordons and 2 had pigmented purpuric dermatosis which is not concurrent with other study in which, 4 had acrochordon and 1 had pigmented purpuric dermatosis⁽⁸⁾.

CONCLUSION:

Diabetes is characterized by a state of relative or complete insulin deficiency, leading to gross defects in glucose, fat, and protein metabolism⁽¹⁰⁾ . Often cutaneous disease is first sign in patients with undetected DM. Knowledge of the type of diabetic dermatoses and its presentation helps in prompt and early diagnosis of the condition, better management and reduced consequences in these patients.

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