



A STUDY OF CUTANEOUS MANIFESTATION IN PATIENTS WITH DIABETES MELLITUS IN TERTIARY CARE CENTRE

S.M.SARANYA	Postgraduate, 34, Mariadoss Street, Royapuram, Chennai- 600 013.
LAKSHMI PRIYA	Associate professor, Department of Dermatology, Venereology & Leprosy, Saveetha medical college hospital, Saveetha Nagar, Thandalam, Kancheepuram - 602105.
S.JAYAKUMAR	Professor and HOD, Department of Dermatology, Venereology & Leprosy, Saveetha medical college hospital, Saveetha Nagar, Thandalam, Kancheepuram- 602105.

ABSTRACT

BACKGROUND: Diabetes is the most common endocrine disorder, affecting 8.3% of the population. Diabetes mellitus and its impact on the human body have been extensively studied over the years. However, skin which is the largest organ in the body has received minimum attention. Therefore, this study was designed to analyze the prevalence and pattern of skin disorders among diabetic patients attending a tertiary care centre.

MATERIALS AND METHODS: A total of 250 diabetic patients attending the diabetic clinic of Saveetha Medical College & Hospital constituted the study group. The data were collected prospectively in a pre-established proforma and the clinical findings were also recorded.

RESULTS: A total of 250 diabetic patients were examined, there were (60.8%) males and (39.2%) females. The most common age group to have cutaneous manifestations was between 41- 70 years of age. Fungal infections (30.1%) were common cutaneous manifestations followed by bacterial infections (17.6%) and generalized pruritus (16.5%). Majority of patients (66.5%) had combination of more than one type of skin lesion. There was statistically significant correlation of skin lesions with duration of diabetes.

CONCLUSION: Skin lesions in Diabetes mellitus are sometimes mirror to an underlying disease process and they may be the first expression of the disease. It is found frequently among Type-2 DM and increasing duration of Diabetes increases possibility of skin involvement. Hence early detection & treatment of skin manifestations will help in prevention of further complications of the same.

KEYWORDS

Cutaneous manifestations, Diabetes mellitus, Skin lesions

INTRODUCTION:

Diabetes mellitus (DM) is the most common endocrine disorder, affecting 8.3% of the population. DM is a very common medical disorder affecting the blood vessels, skin, eye, kidney and the nervous system during the course of the disease process and hence requires involvement of almost every speciality in its spectrum of clinical manifestation.¹ The cutaneous manifestations of DM are well known and considered as common, as observed in 30- 71% of diabetic patients.^{2,3} Abnormalities in the metabolism of carbohydrates, alteration of metabolic pathways, vascular involvement in the form of atherosclerosis, microangiopathy and neuronal involvement in the form of sensory, motor and autonomic neuropathies and impaired host mechanisms, all play a role in the pathogenesis of skin manifestations.⁴ The prevalence of cutaneous infections occurs more commonly in DM Type2 whereas autoimmune lesions are commonly seen in DM Type1. Among the many skin manifestations in DM which vary from trivial to life threatening, none is pathognomic of the disease.⁵ This study was designed to analyze the prevalence and pattern of skin disorders among diabetic patients attending a tertiary care centre.

MATERIALS AND METHODS:

A total of 250 type-2 diabetic patients attending the diabetic clinic constituted the subject material of the present study. The study was conducted during the period 2015- 2016. Those patients not willing to take part in the study and those with gestational diabetes, type 1 DM were excluded from the study. A detailed history was taken as per the proforma with special emphasis on examination of the entire integumentary system, including the skin, hair, oral mucous membrane, genital mucosa, perianal areas and nails. The following investigations which were done in all cases include Complete blood count with ESR, Blood sugar levels and Urine complete examination.

The other investigations were tailored as per the cutaneous lesions

found in the patients. This included Wood's lamp examination, skin scrapings and KOH mount for fungal study, Pus for Gram stain, Bacterial and Fungal culture, Tzanck smear done in selected cases and skin biopsy was done in few cases to confirm the diagnosis. The results were tabulated and analysed.

RESULTS:

The present study was conducted over a period of 12 months from March 2015 to February 2016. Total of 250 cases were included in the study which comprised of 134 males and 116 females. The male to female ratio was 1.1:1 approximately.

GENDER WISE DISTRIBUTION:

Out of the 176 cases with cutaneous manifestations, 107 (60.8%) males and 69 (39.2%) females had skin manifestations. This shows male preponderance among the study population.

AGE WISE DISTRIBUTION:

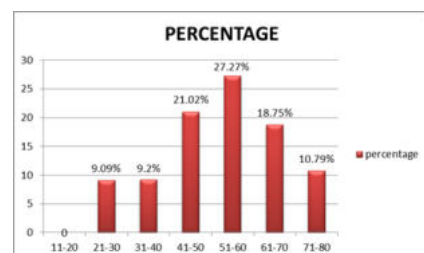


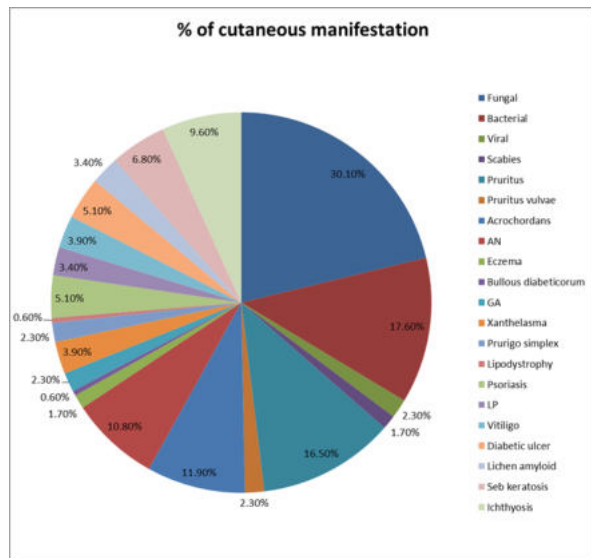
TABLE-1

Table-1 shows the age wise distribution of the cases with cutaneous manifestations. The study reveals that the peak incidence of DM with cutaneous manifestations was between 41-70 years of age.

CUTANEOUS MANIFESTATIONS AMONG DIABETICS:

SKIN DISEASES	NUMBER OF CASES
Fungal	53 (30.1%)
Bacterial	31 (17.6%)
Viral	4 (2.3%)
Scabies	3 (1.7%)
Generalized pruritus	29 (16.5%)
Pruritus vulvae	4 (2.3%)
Acrochordons	21 (11.9%)
Acanthosisnigricans (AN)	19(10.8%)
Eczema/ Lichen simplex chronicus	3(1.7%)
Bullous diabeticorum	1(0.6%)
Granuloma annulare (GA)	4(2.3%)
Xanthelasma	7(3.9%)
Prurigo Simplex	4(2.3%)
Lipoatrophy	1(0.6%)
Psoriasis	9 (5.1%)
Lichen Planus (LP)	6 (3.4%)
Vitiligo	7 (3.9%)
Diabetic foot ulcer	9(5.1%)
Lichen amyloidosis	6(3.4%)
Seborrhoic keratosis	12(6.8%)
Ichthyosis	17(9.6%)

**TABLE-2
GRAPHICAL REPRESENTATION OF THE CUTANEOUS MANIFESTATIONS:**



GRAPH-1
TABLE-2 & GRAPH-1 shows the various types of skin manifestations observed in our study. The commonest skin manifestations observed in our study were infections, most common being fungal infections followed by bacterial infections.

DISTRIBUTION OF FUNGAL, BACTERIAL & VIRAL INFECTIONS:

FUNGAL	NO OF CASES (Total= 53)
Dermatophytosis	32 (60.4%)
Pityriasisversicolor	11 (20.7%)
Candidalintertrigo	7 (13.2%)
Candidalbalanoposthitis	3 (5.7%)
BACTERIAL	NO OF CASES (Total =31)
Folliculitis	13 (41.9%)
Furunculosis	7 (22.6%)
Carbuncle	2 (6.5%)
Erythrasma	9 (29%)
VIRAL	NO OF CASES (Total= 4)

Herpes simplex	1 (25%)
Herpes zoster	3 (75%)

Out of the 53cases with fungal infections, dermatophytes were present in 32 patients (60.4%), Pityriasisversicolor- 11 (20.7%), Candidalintertrigo- 7 (13.2%) and Candidalbalanoposthitis- 3 (5.7%). Among the 32 patients with dermatophytes, Tinea corporis & Tinea cruris were the commonest forms accounting for 19 cases (59.4%) followed by Tinea pedis in 5 cases (15.6%), Onychomycosis in 7 cases (21.9%) and Tinea faciei in 1 case (3.1%).

Among the 31 patients (17.6%) with bacterial infections, 13 (41.9%) had folliculitis, 7 (22.6%) had furunculosis, 2 (6.5%) presented with carbuncle and 9 (29%) with erythrasma.

Viral infections constituted 2.3% of the total cases, out of which 1 case (25%) was of herpes simplex and 3 case (75%) of herpes zoster. From our study we also observed 3 cases (1.7%) of scabies.

Generalized pruritus in 29 (16.5%), pruritus vulvae among 4 cases (2.3%), acrochordons -21 (11.9%), acanthosis nigricans-19 (10.8%), eczema/LSC- 3 (1.7%), bullous diabeticorum- 1 (0.6%), granuloma annulare- 4 (2.3%), xanthelasma- 7 (3.9%), prurigo simplex-4 (2.3%), lipoatrophy-1 (0.6%), psoriasis-9 (5.1%), lichen planus-6 (3.4%), vitiligo-7 (3.9%), diabetic foot ulcer-9 (5.1%), lichen amyloid- 6 (3.4%), seborrhoic keratosis-12 (6.8%) and ichthyosis-17 (9.6%).

DISCUSSION:

Diabetes Mellitus is a common metabolic disorder that involves multi-speciality in its spectrum of clinical manifestations, thus skin is unique, dynamic, reactive and mirror of internal organs. Almost all diabetic patients eventually develop skin complications from the long-term effects of DM on the microcirculation and on skin collagen. Cutaneous infections are more common in type-2 diabetes, whereas autoimmune-related lesions are more common in type-1.

Most documented studies have shown the incidence of cutaneous disorders associated with diabetes to be between 30%- 71%. In this present study 70.4% of diabetic patients had one or more cutaneous manifestations. This is consistent with the study done by Mahajan et al⁷; who reported cutaneous infections in 64% of diabetics in their study group. Gulatiet al⁸ reported cutaneous infections in 49% of diabetics in their study group.

In the present study, the incidence of DM was more common in 41-70 years of age (67%). This is comparable with the previous studies.^{7,9,10} Nawaf Al-Mutairi¹¹ stated that the relative increase in the incidence of cutaneous involvement with age in diabetic patients may be attributed merely to the long duration of diabetes in these patients.

The sex incidence was found to be more in males (60.8%) than in females (39.2%) in our study. This is comparable to the study done by Kadamet al.¹²

Among the cutaneous manifestations observed in our study, infections comprised the largest group affecting 51.7% of cases. These findings were similar to previous researches.^{7,9,10,11} This may be explained on the basis of decrease in the host defence mechanism, & decreased phagocytic activity.

The most common infection observed in our study was fungal infections accounting for 53 cases (30.1%). There were 32 cases of dermatophytosis (60.4%), 11 cases of Pityriasisversicolor which was extensive and in 2 cases there were involvement of the thighs and lower limbs, 7 cases of candidalintertrigo & 3 cases of candidalbalanoposthitis. The present study coincides almost with the study of Anand LC et al¹³ observed fungal infections in 35% of cases.

Out of the 31 patients (17.6%) with bacterial infections, folliculitis

were present in 13, furunculosis in 7, carbuncle in 2 and erythrasma in 9. Satish K.S. et al found 29 cases of bacterial infections (11.6%) in their study.

Present study showed 6 cases (3.4%) of Lichen planus. This study coincides with the study done by George et al,¹⁴ who found 2% of LP in their study. In our study two patients had Hypertension, Diabetes mellitus and Lichen planus which is named as Grinspan syndrome.

Psoriasis & DM had been variously reported in literature as 2.4% to 5.7%. In our study we observed 9 cases (5.1%) of psoriasis which is almost consistent with finding of Greenwood et al.¹⁵ Skin disease strongly associated with DM like vitiligo were observed in 4% of cases.

CONCLUSION:

Cutaneous manifestations can serve as a marker for Diabetes mellitus. Upto one-third of patients are estimated to have cutaneous manifestations. Though DM involves multi-speciality in its spectrum, skin is the mirror of internal organs. Skin involvement is found frequently among Type-2 DM & increasing duration of diabetes increases possibility of skin involvement. Skin lesions can present as extensive involvement & atypical presentations are also common in diabetic patients than the general population. Hence early detection & treatment of skin manifestations will help in prevention of further complications of the same.

REFERENCES:

- Centers for Disease Control and Prevention. 2011 National Diabetes Fact Sheet. Available from <http://www.cdc.gov/DIABETES/pubs/factsheet11.htm>. Accessed 25 August 2013.
- Paron NG, Lambert PW: Cutaneous manifestations of diabetes mellitus. *Prim Care* 2000; 27: 371–383.
- Yosipovitch G, Hodak E, Vardi P, Shraga I, Karp M, Sprecher E, David M: The prevalence of cutaneous manifestations in IDDM patients and their association with diabetes risk factors and microvascular complications. *Diabetes Care* 1998; 21: 506–509.
- Simon Van Hattem, Aart H Bootsma, et al., Skin Manifestations of Diabetes, *Cleveland Clinic Journal of Medicine*, Nov. 2008, Vol. 75, pg. 11.
- C.F. Lai, et al., Cutaneous Manifestations in DM, *Hong Kong Practitioner*, May 1992, 14(5), pg. 2060.
- Nandini Chatterjee, Chandan Chattopadhyay, Nilanjan Sengupta, Chanchal Das, Nilendu Sarma, and Salil K Pal: An observational study of cutaneous manifestations in diabetes mellitus in a tertiary care Hospital of Eastern India. *Indian J Endocrinol Metab.* 2014 Mar-Apr; 18(2): 217–220.
- Mahajan S, Koranne R V, Sharma S K. Cutaneous manifestation of diabetes mellitus. *Indian J Dermatol Venereol Leprol* 2003; 69: 105-8.
- Gulati S, Jaganath K, Ashok SG. Cutaneous manifestations associated with diabetes mellitus—a study of 75 cases. 28th National Conference Indian Association of Dermatologists, Venereologists and Leprologists (Abstract book) 2000; 143: 167-168.
- Satish K. S, Ramya N, Soumya V. Cutaneous Manifestations associated with Diabetes Mellitus. *Journal of Evolution of Medical and Dental Sciences* 2014; 3(40), September 01; Page: 10160-10169, DOI: 10.14260/jemds/2014/3320.
- Nigam PK, Pande S: Pattern of dermatoses in diabetics. *Indian J Dermatol Venereol Leprol* 2003; 69: 83–85.
- Nawaf Al-Mutairi, Amr Zaki, Ashok Kumar Sharma, Mazen AlSheltawi. Cutaneous Manifestations of Diabetes Mellitus. *Med Princ Pract* 2006; 15: 427–430.
- Kadam MN, Soni PN, Phatale S, Siddramappa B. A study of cutaneous manifestations associated with diabetes mellitus. *Int J Adv Med.* 2016; 3(2): 296-303.
- Anand LC et al. Assessment of Diabetic state in various skin disorder usually associated with hyperglycemia. *IJDVL* 1978; 44: 95-102.
- Thomas George et al. Cutaneous manifestations in diabetes mellitus study of 50 cases. *IJDVL* 1976; 42: 261-266.
- Greenwood AM. A study of skin in five hundred cases of diabetes. *Am Med Association.* 1977; 89: 774-6.