(e) ISSN Online: 2321-9599

(p) ISSN Print: 2348-6805

ORIGINAL ARTICLE

Prevalence of dermatological lesions in diabetic retinopathy

Amit Prakash

Assistant Professor, Department of Ophthalmology, Gold Field Institute of Medical Sciences & Research, Faridabad, Haryana, India

ABSTRACT:

Aim: The purpose of this study to determine the prevalence of dermatological lesions in patients with diabetic retinopathy. **Methods:** This cross sectional study was done the Department of Ophthalmology. 70 patients with diabetic retinopathy having diabetes mellitus of at least 5 years duration, aged between 30-65 years, were included in this study. The dermatological examination was done by a dermatologist under proper day light and if needed, using hand held magnifying lens. Examination of the retina was done by an Ophthalmologist using indirect ophthalmoscopy of dilated fundus, fundus photo, fundus fluorescein angiography and optical coherence tomography of the macula. **Results:**There was a slight female preponderance with 31 males (44.28%) and 39 females (55.71%) among the 70 patients. Of the 70 diabetic patients included in this study, 3(4.29%) had Very Mild Non Proliferative Diabetic Retinopathy (NPDR), 10(14.29%) had Mild NPDR, 19(27.14%) had Moderate NPDR, 5(7.14%) had Severe NPDR, 6(8.57%) had Proliferative Diabetic Retinopathy (PDR) and 27(38.57%) had Clinically Significant Macular Edema (CSME). 56 among 70 DR patients had different types of dermatological lesions, the prevalence being 80%. Dermatological lesions among poor glycemic control DM patients had a prevalence of 59% which was higher as compared to 41% among good glycemic control DM patients.29(41.43%) patients had diabetic dermopathy, 21(30%) had Xerosis, 18(25.71%) had IGH, 16(22.86%) patients had Icthyosis, 5(7.14%) patients had Intertrigo, 4(5.71%) patients had Tinea Versicolor, 3(4.28%) patients had Chronic Paronychia and 3(4.28%) patients had Tinea Unguium. 3(4.28%) patients had Eczema, 2(2.85%) had Melasma, 2(2.85%) had Lichen Amyloidosis, 2(2.85%) had Varicose vein, 1(1.43%) had Fissure feet, 1(1.43%) had Pigmented Purpuric Dermatosis (PPD), 1(1.43%) had Dermatosis Papulosa Nigra (DPN), 1(1.43%) had Sclerodactyly, 1(1.43%) had Plain warts, 1(1.43%) had Macular Amyloidosis, 1(1.43%) had Cherry Aneurysm, 1(1.43%) had Xanthelasma Palpebrarum, 1(1.43%) had Photodermatitis, 1(1.43%) had Skin tags, 1(1.43%) had Onychomycosis, 1(1.43%) had Onychogryphosis and 1(1.43%) had Prurigo. Table 3 and 4 shows the distribution of Dermatological lesions among Diabetic Retinopathypatients. **Conclusion:** Prevalence of Dermatological lesions in Diabetic Retinopathy patients was 80%, the most common being Diabetic Dermopathy (shin spots) which was 41.43%.

Keywords: dermatological lesions, diabetic, diabetic retinopathy, etc

Corresponding author: Amit Prakash, Assistant Professor, Department of Ophthalmology, Gold Field Institute of Medical Sciences & Research, Faridabad, Haryana, India

This article may be cited as: Prakash A. Prevalence of dermatological lesions in diabetic retinopathy. J Adv Med Dent Scie Res 2015;3(1):385-388.

INTRODUCTION

Diabetes mellitus (DM) is the most common endocrine disorder characterized by hyperglycemia.[1] Global estimate of type 2 diabetics in the year 2030 is likely to be 552 million. The International Diabetes Federation (IDF) documents the total number of diabetic subjects to be around 61.3 million in India and this is further set to raise to 101.2 million by the year 2030.[2] DM can affect almost all organ systems in the body and can cause microvascular complications like neuropathy (nervous system damage), nephropathy (renal system damage) and retinopathy (eye damage) as well as macrovascular complications like cardiovascular disease, stroke, and peripheral vascular disease leading to non- healing ulcers and gangrene which end up in amputation.[3] Some cutaneous manifestations related to DM such as acanthosis nigricans and pigmented purpuric dermatosis are the signs of macrovascular complications.[4] At least 30% of patients with DM are afected by diferent types of cutaneous disorders during the chronic course of their disease.[5] In the classifcation of cutaneous manifestations in DM, they are divided into four categories: (1) cutaneous diseases with weak to strong association with DM; (2) cutaneous infections; (3) cutaneous manifestations of DM complications; and (4) cutaneous reactions to DM treatments.[6,7]Long-term DM duration causes permanent and irreversible functional changes and damage to body cells, and therefore, it leads to problems arising from biochemical, structural, and functional anomalies.[8,9]Cutaneous complications of DM provide a clue to the current and past metabolic status of the patient.[5] Cutaneous infections occur in 20- 50% of patients and are ofen along with moderate blood glucose control. Microvascular circulatory disorders, peripheral vascular diseases, peripheral neuropathy, and immune responses reduction are all contributing factors to an increased susceptibility of infection.[10] Common cutaneous infections, staphylococcal infections, are more perilous and severe in patients with uncontrolled DM. Other types of infection include styes that cause tuberculosis of eyelid and also bacterial infection of the nails.[11] A fungus called Candida albicans is responsible for

numerous fungal infections afecting diabetic patients; these infections are common in vaginal area and lips corners (angular cheilitis).[11] Candidiasis infection (moniliasis) can be considered as an early symptom of undiagnosed DM and localized candidiasis infection in the genital area of women has a strong relationship with DM.[12] Increasing the knowledge about cutaneous manifestations of DM can be associated with overall prognosis improvement of disease through the early diagnosis and treatment.[13] According to various studies, 30-82% of DM patients experience diferent types of cutaneous disorder during the chronic course of their disease.[6,14]Controlling the metabolism of the body may prevent some of these manifestations and also support the treatment.[15] On the other hand, many glycemic control medications also have skin side effects.[16] People who have cutaneous manifestation related to DM, even without a history of DM, should be investigated for the possibility of the disease.[17] Diabetes mellitus (DM) is a highly prevalent interdisciplinary disorder that needs many diferent specialties' attention; however, the importance of dermatologists' knowledge has not been highlighted regarding this issue. As a result, we aim to assess the prevalence and variety of DM skin and nail manifestations in an effort to further acquaint dermatologists and other clinicians with diabetic dermatologic manifestations.

MATERIAL AND METHODS

This cross sectional study was done the Department of Ophthalmology, after taking the approval of the protocol review committee and institutional ethics committee. After taking informed consent detailed history was taken from the patient or relatives.70 patients with diabetic retinopathy having diabetes mellitus of at least 5 years duration, aged between 30-65 years, were included in this study. Patients suffering from ophthalmological conditions like hypertensive retinopathy, vascular occlusion and advanced cataract that may affect the findings were excluded from thestudy.

A questionnaire, which is semi structured was used to collect the data. The dermatological examination was done by a dermatologist under proper day light and if needed, using hand held magnifying lens. Examination of the retina was done by an Ophthalmologist using indirect ophthalmoscopy of dilated fundus, fundus photo, fundus fluorescein angiography and optical coherence tomography of the macula. Socio-demographic details of patients including name, age, sex, educational status and occupation, questions on diabetes mellitus like duration of diabetes, medications and associated conditions were included.

The collected data was entered in MS Excel software and was analysed using SPSS 20.

RESULTS

70 patients who had DR were included in the study. The range of age was from 30 years to 65 years. The mean age was 56.32(SD 7.41) years. The duration of diabetes mellitus in this group was 5 to 30 years with a mean duration of14.39 years (SD 6.37). Out of the 70 patients, 70% had some form of education of which, majority 81%werehousewives.There was a slight female preponderance with 31 males (44.28%) and 39 females (55.71%) among the 70 patients. (Table 1).

Table 1: Gender distribution diabetic retinopathy

Gender	Number of patients n=70	Percentage
Male	31	44.28
Female	39	55.71

Of the 70 diabetic patients included in this study, 3(4.29%) had Very Mild Non Proliferative Diabetic Retinopathy (NPDR), 10(14.29%) had Mild NPDR, 19(27.14%) had Moderate NPDR, 5(7.14%) had Severe NPDR, 6(8.57%) had Proliferative Diabetic Retinopathy (PDR) and 27(38.57%) had Clinically Significant Macular Edema (CSME).

Table 2: Distribution of diabetic retinopathy

	Number of patients	Percentage
Very mild NPDR	3	4.29
Mild NPDR	10	14.29
Moderate	19	27.14
Severe	5	7.14
PDR	6	8.57
Csme	27	38.57

24 patients (34.29%) were on Oral hypoglycemic agents (OHA), 11(15.71%) were on Insulin and 35(50%) were on both OHA & Insulin.

Only 25(35.71%) out of the 70 patients had good control of DM. 31(44.28%) out of 70 patients had Systemic Hypertension (HTN) along in addition to DM with a duration of 0.081 (1 month) to 22 years with a mean duration of 4.86 years (SD6.32).

56 among 70 DR patients had different types of dermatological lesions, the prevalence being 80%.

Dermatological lesions among poor glycemic control DM patients had a prevalence of 59% which was higher as compared to 41% among good glycemic control DM patients.

Out of 56 patients, the most prevalent dermatological lesions noted were diabetic dermopathy, Xerosis, Idiopathic Guttate Hypomelanosis (IGH), Icthyosis, Intertrigo, Tinea Versicolor and Chronic Paronychia, while the less prevalent ones were Eczema, Melasma, Lichen Amyloidosis, Varicose vein, Fissure feet, Pigmented Purpuric Dermatosis (PPD), Dermatosis Papulosa Nigra (DPN), Sclerodactyly, Plain warts, Macular Amyloidosis, Cherry Aneurysm, Xanthelasma Palpebraraum, Photodermatitis, Skin tags, Onychomycosis, Onychogryphosis and Prurigo.

29(41.43%) patients had diabetic dermopathy, 21(30%) had Xerosis, 18(25.71%) had IGH, 16(22.86%)patients had Icthyosis, 5(7.14%) patients had Intertrigo, 4(5.71%) patients had Tinea Versicolor, 3(4.28%) patients had Chronic Paronychia and 3(4.28%) patients had Tinea Unguium.

3(4.28%) patients had Eczema, 2(2.85%) had Melasma, 2(2.85%) had Lichen Amyloidosis, 2(2.85%) had Varicose vein, 1(1.43%) had Fissure feet, 1(1.43%) had Pigmented Purpuric Dermatosis (PPD), 1(1.43%) had Dermatosis Papulosa Nigra (DPN), 1(1.43%) had Sclerodactyly, 1(1.43%) had Plain warts, 1(1.43%) had Macular Amyloidosis, 1(1.43%) had Cherry Aneurysm, 1(1.43%) had Xanthelasma Palpebrarum, 1(1.43%) had Photodermatitis, 1(1.43%) had Skin tags, 1(1.43%) had Onychomycosis, 1(1.43%) had Onychogryphosis and 1(1.43%) had Prurigo. Table 3 and 4 shows the distribution of Dermatological lesions among Diabetic Retinopathypatients.

Table 3: distribution of most prevalent Dermatological lesions among DR patients

Dermatological Lesions	Number of patients	Percentage
Diabetic dermopathy (shin spots)	29	41.43
Xerosis	21	30.00
IGH	18	25.71
Icthyosis	16	22.86
Intertrigo	5	7.14
Tinea Versicolor	4	5.71
Chronic Paronychia	3	4.28
Tinea Unguium	3	4.28

Table 4: Distribution of less prevalent Dermatological lesions among DR patients

Dermatological Lesions	Number of patients	Percentage
Eczema	3	4.28
Melasma	2	2.85
Lichen Amyloidosis	2	2.85
Varicose veins	2	2.85
Fissure feet	1	1.43
PPD	1	1.43
DPN	1	1.43
Sclerodactyly	1	1.43
Plain warts	1	1.43
Macular Amyloidosis	1	1.43
Cherry Aneurysm	1	1.43
Xanthelasma Palpebrarum	1	1.43
Photodermatitis	1	1.43
Skin tags	1	1.43
Onychomycosis	1	1.43
Onychogryphosis	1	1.43
Prurigo	1	1.43

DISCUSSION

Poor glycemic control might lead on to prolonged hyperglycemia. Prolonged hyperglycemia causes microcirculation and glycosylation of proteins which in turn results in complications in various organ systems of the body. Kidney, retina, nerves, and skin are the most commonly affected which manifests as renal failure, retinopathy, neuropathy and Diabetic dermopathy.[18,19] In our study, Dermatological lesions among DR patients who had poor glycemic control had a prevalence of 59% which was higher as compared to 41% among good glycemic control patients.

Skin (Dermatological) disorders in DM can occur due to diabetic vascular abnormalities, cutaneous infections, treatment complications especially with Insulin, associated hyperlipidemia and other miscellaneous causes. Lesions like Diabetic

dermopathy, erysipelas-like erythema, Diabetic rubeosis, leg ulcers and wet gangrene of the foot are due to vascular abnormalities. Non clostridial gas gangrene, candida albicans etc. are due to cutaneous infections. Insulin reactions can lead on to insulin lipodystrophy and associated hyperlipidemia can cause acanthosis nigricans, eruptive xanthomas and skin tags. Other manifestations like diabetic bullae, pruritis, waxy skin, scleroderma diabeticorum, vitiligo, lichen planus etc. are also noticed inDM.[20]

In our cross sectional study, 70 patients with DR were included, who all had suffered from type 2 DM for at least 5 years. Prevalence of dermatological lesions among these patients was found to be 80%, and the most Prevalent Dermatological lesion was 29(41.43%) patients had diabetic dermopathy, 21(30%) had Xerosis, 18(25.71%) had IGH, 16(22.86%) patients had Icthyosis, 5(7.14%) patients had Intertrigo, 4(5.71%) patients had Tinea Versicolor, 3(4.28%) patients had Chronic Paronychia and 3(4.28%) patients had Tinea Unguium.

George and Walton also reported that Diabetic dermopathy (diabetic shin spots) is the commonest skin condition that occurs in patients with DM.[21]A study conducted among 125 DM patients by Kalsy et al found that the most frequent skin lesions was diabetic dermopathy.[22]In another study done by Chatterjee et al among 490 Type 2 diabetics, infections, Xerosis, hair loss beneath the knees and diabetic dermopathy were the mostfrequent.[23]A thorough search of literature could not give any studies which investigated on the prevalence of diabetic dermatological lesions in DR patients. Though both DR and Dermatological lesions are considered to be the complications of DM, we could not demonstrate the exact nature of association between these two in our study and further studies are required to do so.

CONCLUSION

Prevalence of Dermatological lesions in Diabetic Retinopathy patients was 80%, the most common being Diabetic Dermopathy (shin spots) which was 41.43%.

REFERENCE

1. American Diabetes Association. Diagnosis and classification of diabetes mellitus. Diabetes Care 2009;32:62-7.
2. Sicree R, Shaw J, Zimmet P. Diabetes and impaired glucose tolerance. In: Gan D, editor. Diabetes atlas. International Diabetes Federation. 5th ed. Belgium: International Diabetes Federation; 2011: 15-103.
3. Deshpande AD, Harris-Hayes M, SchootmanM. Epidemiology of Diabetes and Diabetes-related complications. *Phys Ther*2008;88(11):1254-64.
4. Pierard G, Seite S, Hermanns-Le T, Delvenne A, Scheen A, ˆ and C. Pierard-Franchimont C, "Te skin landscape in diabetes mellitus. Focus on dermocosmetic management," Clinical, Cosmetic and Investigational Dermatology.2013; 6:127–135.
5. Hussain F, Arif M, Ahmad M. Skin care knowledge, attitude and practices among Pakistani diabetic patients. *Edoj*. 2010;6:1–5.
6. Perez M I and Kohn S R, "Cutaneous manifestations of diabetes mellitus," Journal of the American Academy of Dermatology.1994;30(4): 519–531.
7. Paron N G and Lambert P W, "Cutaneous manifestations of diabetes mellitus," Primary Care—Clinics in Ofce Practice.2000; 27(2):371–383.
8. Wahid Z and Kanjee A, "Cutaneous manifestations of diabetes mellitus," Journal of Pakistan Medical Association.1998;48(10): 304-305.
9. Oumeish O Y, "Skin disorders in patients with diabetes,"Clinics in Dermatology.2008;26(3):235–242.
10. Al-Mutairi N , Zaki A, Sharma A K, and Al-Sheltawi M, "Cutaneous manifestations of diabetes mellitus: Study from Farwaniya Hospital, Kuwait," Medical Principles and Practice.2006;15(6):427–430.
11. Mahajan S, . Koranne R V, and Sharma S K, "Cutaneous manifestation of diabetes mellitus," Indian Journal of Dermatology, Venereology and Leprology.2003;69(2):105–108.
12. Ahmed K, Muhammad Z, and Qayum I, "Prevalence of cutaneous manifestations of diabetes mellitus," Journal of Ayub Medical College Abbottabad.2009;21(2):76–79.
13. Murphy-Chutorian B, Han G, and Cohen S R, "Dermatologic manifestations of diabetes mellitus. a review," Endocrinology and Metabolism Clinics of North America.2013;42(4): 869– 898.
14. Ahmed I and B. Goldstein B, "Diabetes mellitus," Clinics in Dermatology.2006; 24(4): 237–246.
15. Timshina DK, Thappa DM, Agrawal A. A clinical study of dermatoses in diabetes to establish its markers. *Indian J Dermatol*. 2012;57:20–5.
16. Van Hattem S, Bootsma A H, and Tio H B, "Skin manifestations of diabetes," Cleveland Clinic Journal of Medicine.2008;75(11):772–787.
17. Levy L and Zeichner J A, "Dermatologic manifestation of diabetes," Journal of Diabetes.2012;4(1): 68–76.
18. Chakrabarty A, Norman AR, Phillips TJ. Feature:cutaneous manifestations of diabetes. Wounds.2002;14(8):267-74.
19. Masharani U. Diabetes mellitus and hypoglycemia. In: McPhee SJ, Papadakis MA, editors. Current medical diagnosis & treatment. 46th ed. New York: McGraw-Hill,2007;1219-1265.
20. Ragunatha S, Anitha B, Inamadar AC, Palit A, Devarmani SS. Cutaneous disorders in 500 diabetic patients attending diabetic clinic. *Indian J Dermatol*. 2011;56:160–4.
21. George S MC, Walton S. Diabetic Dermopathy. Br J Diabetes Vasc Dis. 2014; 14(3):95-97.
22. Kalsy J, Malhotra S K, Malhotra S. Incidence of diabetic dermopathy. J Pak Assoc Dermatologists.2012;22(4):331-5.
23. Chatterjee N, Chattopadhyay C, Sengupta N, Das C, Sarma N, Pal SK. An observational study of cutaneous manifestationsin diabetes mellitus in a tertiary care Hospital of Eastern India. Indian J Endocrinol Metabol.2014;18(2):217-20.