

Skin Manifestation of Diabetes

Dr. Mohammed Saleem Mustafa D.M¹, Dr. Ammar Yaseen Abdullah D.M²,
Dr. Kifah Mohammed Kato DPH³, Dr. Ayad fakhry Abdulla G.P⁴

¹Directorate of Health, Al-Salam Hospital, Mosul, Iraq

²Directorate of Health, Ibn-Sena Hospital, Mosul, Iraq

³Directorate of Health, Singar Hospital, Mosul /Iraq

⁴Directorate of Health, Al-Shefaa Hospital, Mosul /Iraq

ABSTRACT

Various skin manifestations are associated with Diabetes Mellitus (either type 1 D.M or type 2 D.M) like diabetic dermopathy (pigmented pretibial papules), diabetic bullae (D. B), necrobiosis lipoidica diabetorum (N.L.D). Other skin manifestations are vitiligo, acanthosis nigricans (A.N), lipoatrophy and lipohypertrophy, granuloma annulare, scleroderma, xerosis and pruritus.

Objective: To describe the distributions of various skin manifestations in Diabetes Mellitus (type 1 D.M or type 2 D.M).

Methods: A prospective study carried out in AL-SALAM teaching Hospital in Mosul city (Iraq) from March 2018-June 2018 on hundred patients having D.M.

Results: Skin manifestations are more common in type 2 D.M than type 1 D.M (52 patient in type 2 D.M and 48 patient in type 1).

Conclusion: The commonest skin manifestations is D. Dermopathy 42% (29 males and 13 females) the ratio 2.2/1.

Keywords: Diabetes Mellitus (D.M), Diabetic Bullae (DB), necrobiosis lipoidica diabetorum (N.L.D).

INTRODUCTION

Diabetes mellitus is a clinical syndrome characterised by an increase in plasma blood glucose (hyperglycemia), diabetes has many causes but most commonly due to type 1 or type 2 diabetes. Type 1 diabetes is caused by autoimmune destruction of insulin-producing cells (Beta cells) in the pancreas, resulting in absolute insulin deficiency, whereas type 2 diabetes is characterised by resistance to the action of insulin and an inability to produce sufficient insulin to overcome this insulin resistance [1]. Various skin manifestations are associated with D.M, either type 1 or type 2. The most common skin manifestations of D.M are diabetic dermopathy and protracted wound healing and skin ulceration [2].

Dermopathy is the cutaneous manifestation of the microangiopathy of D.M (3) dermopathy is a term used to describe the small, round, brown atrophic skin lesion that occur on the shins with D.M.

The lesions are asymptomatic and occur in up to 55% of patients with D.M. but the incidence varies between different reports [3,4] Diabetic dermopathy is more common in older patients and those with long-standing diabetes, it is associated with microvascular complication of D.M such as retinopathy, nephropathy, neuropathy and also with large vessels disease.

Histological changes include epidermal atrophy with flattening of the rete ridge, dermal fibroblastic proliferation, altered collagen, dermal edema and an increase in dermal capillaries, with perivascular inflammatory infiltrate changes in the vessel walls and melanin and hemosiderin deposit. The underlying mechanism for Diabetic dermopathy is unknown although it may be related to local thermal trauma, decreased blood flow causing impaired wound healing or local subcutaneous nerve degeneration [3,4]. Diabetic dermopathy require no treatment. but maybe a surrogate for more serious complications of diabetes which require investigations and management Other skin manifestation are Necrobiosis Lipoidica Diabetorum (NLD), strongly associated with diabetes 75% of those affected have diabetes, it is due to Hyaline degeneration of collagen [3,4,5,6,7]. Diabetic Hand syndrome present as yellowish discoloration especially in the palmar creases, knuckle pad and limited mobility of finger joint or scleroderma [4,5,6,7]. Cutaneous and mucosal infection: particularly vulvovaginitis or balanitis occurs most frequently in poorly controlled or newly presenting diabetic patient [6,7].

Acanthosis Nigerians (AN): thickening and pigmentation of major flexor site might be associated with insulin resistant D.M. or obesity or underlying carcinoma [8,9]. Cutaneous allergic reaction to insulin previously common but have become less with highly purified human insulin [8,9]. Granuloma Annulare: the evidence that is the lesion associated with diabetes uncertain [8,9]. Diabetic Bullae: various forms of Bullae are describing but all are rare [5,6,7,8,9]. Vitiligo: occur more frequently in diabetic than in nondiabetic [5,6,7,8,9]. Cutaneous complication: Lipoatrophy. Lipohypertrophy, pruritus [5,6,7,8,9].

METHODS

A prospective study carried out in AL-SALAM teaching hospital in Mosul city (Iraq) from March 2018 – June 2018 on hundred patients having D.M.(both type 1 and type 2)

A thorough clinical history obtained from all patients, regarding type of diabetes, duration, type of treatment, association with other diseases and treatment, focusing on skin manifestation of diabetes that has been diagnosed clinically and frequently the idea of dermatologist in questionable and equivocal cases.

RESULT

BeOut of 100 patients with D.M.: 52 type 2, 48 type 1 with duration of disease ranging from 1 month to 25 year, the incidence of skin lesion among them found to be as follow:

1. Diabetic Dermopathy: Form 42% with (29) male and (13) female out of this: type 1 form (18) and type 2 (24) so ratio: regarding male/female 2.2 /1 and type 1 / type 2: 1.3/1.
2. Infection: Fungal infections like (*Candida* infection which cause Vulvitis, balanitis, vaginitis), Bacterial infection like (Impetigo, Folliculitis, Erysipelas) These infections form 32 %, 13 (type 1) and 19 (type 2) 1.4/1 with equal sex distribution table 3.
3. Diabetic foot: the 3rd common skin manifestation form 17 % (10) type 1 and (7) type 2 out of this 10 male and 7 female male/female 1.4/1.
4. Necrobiosis Lipoidica Diabeticorum (NLD) : Form 1 %.
5. Diabetic Bullae (DB): 5 %.
6. Scleroderma: 1% .
7. Diabetic: Hand syndrome: 2 %.

Table 1: The distribution of skin lesions according to type of D.M

	Skin Lesion	D.M.		Total No.
		Type 1	Type 2	
1-	Diabetic Dermopathy	18	24	42%
2-	Infections	13	19	32%
3-	Diabetic Foot	10	7	17%
4-	Diabetic Bullae	3	2	5%
5-	Necrobiosis Lipoidica Diabeticorum	1	-	1%
6-	Scleroderma	1	-	1%
7-	Diabetic Hand syndrome	2	-	2%
		48	52	100%

Table 2: the distribution of skin lesions according to sex (Male).

	Skin Lesion	D.M.		Total No.
		Type 1	Type 2	
1-	Diabetic Dermopathy	10	19	29
2-	Infections	6	10	16
3-	Diabetic Foot	6	4	10
4-	Diabetic Bullae	1	2	3
5-	Necrobiosis Lipoidica Diabeticorum	-	-	0
6-	Scleroderma	-	-	0
7-	Diabetic Hand syndrome.	2	-	2
		25	35	60

Table (3): the distribution of skin lesions according to sex (Female)

	skin lesion	D.M.		Total No.
		Type 1	Type 2	
1-	Diabetic Dermopathy	8	5	13
2-	Infections	7	9	16
3-	Diabetic Foot	3	4	7
4-	Diabetic Bullae	1	-	1
5-	Necrobiosis Lipoidica Diabeticorum	1	-	1
6-	Scleroderma	2	-	2
7-	Diabetic Hand syndrome.	-	-	0
		21	18	40

DISCUSSION

In this study the incidence and prevalence of skin lesion, among 100 patients with diabetes were compatible with other authors studies as follows:

1. Diabetic Dermopathy: in this study it form 42% with marked male predominance 19 (male) and 13(female), which really the most common dermatological condition associated with diabetes remembering, the condition, not restricted to diabetes and can occur in up to 3% of non diabetic (usually have only one or two lesions, whereas most diabetic patients have four or more , the etiology of the lesions remain obscure) (4,5,6,7,8).
2. Different skin infections: mainly fungal infection, i.e. candida causing intertrigo, vulvovaginitis, balanitis, candidal infections of the foot (3,4,5,6,7,8).
A number of recent study have shown no significant increase in prevalence of infection in diabetic subject. However, in this study, the incidence 32% probably related to poorly controlled diabetes (due to shortage of drugs, noncompliance to insulin therapy,) in addition to poor dietary control, low socio-economic and education.
3. Diabetic Foot: 17% of patients with diabetes were suffering from diabetic foot, foot ulceration occur as a result of trauma in the presence of neuropathy and or peripheral vascular diseases, with infection occurring as secondary phenomenon (3,4,5,6,7,8).
4. Necrobiosis Lipoidica Diabeticorum: In this study found to be 1% - which rare condition documented to be with prevalence of 0.3% in diabetic population approximately 2/3 of patients with NLD have D.M. (5,6,7).
5. Diabetic Bullae (DB): 5% these Bullae have been describe in diabetic subject but all rare, diabetic bullae affect more men than women, as in our study, is usually present as tense blisters on inflammatory base appearing rapidly and healing over few weeks (5,6,7).
6. Scleroderma: 1% especially called scleroderma of Bushkie : thickened, indurated skin, sometimes with erythema (thickened dermal collagen, with mucin infiltration deeper dermis, there evidence of an episode of infection mainly with streptococcus followed in several weeks by cutaneous induration beginning in posterior

and lateral neck affected skin herd, these patients are more prone to retinopathy neuropathy, peripheral vascular disease prevalence (5,6,7).

7. Diabetic Hand Syndrome (2%) in type 2 D.M: This comprises thickening of skin over the dorsum of digit and in extreme cases present with tight waxy appearance, limitation of joint mobility (6,7,8,9).

CONCLUSION

In this study showed that the skin manifestation is more common in type 2 than in type 1 (52 type 2 and 48 type 1). The commonest skin infection: is Diabetic Dermopathy 42%: (29) male and (13) female the ratio male to female is (2.2/1).

REFERENCES

- [1]. Walker BR, Colledge NR, Ralston SH, Penman ID, eds. "Davidson's Principles and Practice of Medicine". 22nd ed. Philadelphia, PA: Elsevier; 2014.
- [2]. Dan L, Longo, Anthony S. Fauci, Dennis L. Kasper, Stephen L. Hauser, Larry Jameson, Joseph Loscalzo, Harrison's of Internal medicine, 18th edition, vol. 2, 2012.
- [3]. McGeorge S, Walton S. Diabetic dermopathy. Br J Diabetes. British Journal of Diabetic D.M, vol 14, 2nd edition, 2014;.
- [4]. John C Pickup, Gareth Williams (Eds), "Textbook of diabetes". 3rd edn, 2003.
- [5]. Griffiths Ar, Rook's Textbook of Dermatology, Willey, Vol 4, 9th Edition, 2016.
- [6]. Lowell A. Goldsmith, Stephen I. Katz Barbara A. Gilchrist, Amy S. Pallerm David J. Leffen, Klaus Wolff, "Dermatology in general medicine," 8th edition, 2011.
- [7]. Leister L, Körber A, Dissemond J. [Successful treatment of a patient with ulcerated necrobiosis lipoidica non diabeticorum with adalimumab]. Hautarzt 2013.
- [8]. Susan Burge, Rubeta Matin, Dinny Wallis, "Oxford Hand book of medical Dermatology," Oxford University Press, 2nd edition, 2016.
- [9]. Watkins PJ. ABC of Diabetes.. London: Blackwell Publishing 5th ed, 2003.