

Cutaneous Manifestations of Diabetes Mellitus

Pages with reference to book, From 304 To 305

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Abstract

Of 100 cases of diabetes mellitus examined for cutaneous findings 82% showed cutaneous lesions. Infection (49%) was the most common finding followed by involvement of foot (30%). High incidence of vitiligo (10%) and localized anogenital pruritus (19%) was an unusual feature. Some of the cutaneous markers of diabetes mellitus like necrobiosis lipoidica diabetorum, diabetic bullae, acquired perforating dermatoses and sclerodema were not seen in this study (JPMA 48:304, 1998).

Introduction

Dermatological abnormalities are common in diabetes mellitus. At least 30% of persons with diabetes have some type of cutaneous involvement during the course of their disease¹. The actual prevalence probably approaches 100%, if metabolic effects on microcirculation and changes in skin collagen are considered². Skin manifestation can be a presenting symptom in some patients. Also trivial skin problems can lead to a major and even fatal complication in diabetics. Skin finding may be used as an indicator of patients present as well as past metabolic status. This study was done to highlight the cutaneous associations of diabetes mellitus in our patients.

Patients and Methods

One hundred cases of diabetes mellitus presenting at the diabetic clinic of Civil Hospital, Karachi were examined for cutaneous findings. There were 62 males and 38 females whose ages ranged from 12 to 74 years. Majority (81) had type II diabetes with an average duration of 8 years, while 19 suffered from type-I diabetes with an average duration of 7.5 years. Investigation performed included urine for sugar, ketone and protein, fasting and 2 hours postprandial blood sugar, blood urea, serum creatinine, liver function tests, serum cholesterol, serum triglycerides, E.C.G., serum electrolytes and serum proteins. Special investigations like culture and sensitivity of pus, skin scrapings for fungal infections and biopsy of skin lesions was done in selected cases to support the clinical findings in skin.

Results

Of 100 cases examined, 82% had some kind of a cutaneous lesion. More than one type of skin lesions were often found in some patients. Cutaneous infections were most frequent (49%). The most common infection was staphylococcal pyoderma (33%) including furuncles (22%), abscesses (2%), cellulitis (3%) and carbuncle (1%). Candidiasis seen in 13%. Nine patients had vulvovaginitis, 2 had intertrigo, 2 paronychia and there was one case each of angular stomatitis and thrush.

Involvement of the foot was seen in 30% patients. In majority of cases both ischemic and neuropathic lesions were present simultaneously. Paresthesia was the major complaint in 22 patients. The foot changes observed were callosities (11%), infections (8%), ulcers (7%), clawing of toes (7%), trophic changes (6%), gangrene (3%), coldness of feet (10%) and amputated toes/or foot (5%).

Pseudomotor disturbances were seen in 24 patients in the form of hyperhidrosis (16%), hypohidrosis (9%) and gustatory sweating (1%). Pruritus was present in 22 patients.

Of these 19 patients had localized anogenital pruritus while 3 had generalized pruritus. Other findings included skin tags (17%), oral findings (17%), finger pebbles (14%), diabetic dermopathy (12%), vitiligo (10%), nail changes (9%), cherry angiomas (9%), naevi (9%), thickened hand skin (8%), acanthosis nigricans (5%), limited joint mobility (4%), xanthomas (4%), seborrheic dermatitis (4%), lichen simplex (4%), seborrheic keratoses (3%), therapy complications (5%).

Oral involvement was seen in 17 patients. Thirteen cases had dental caries, 8 tartar deposition, 7 gingivitis, 2 leukoplakia, 2 candidiasis and 1 had lichen planus. There was one case each of Dupuytren's contracture, yellow skin, localized granuloma annulæ, rubeosis, lichen planus and psoriasis.

Discussion

A number of dermatological conditions are associated with or are sequelae of diabetes mellitus. Many of the associations may simply be a chance finding due to high prevalence of diabetes in the general population. It is suggested that a large number of the dermatological problems in diabetics are caused by hyperglycemia accelerated production of non-enzymatic advanced glycosylated end products¹.

Perez and Kohn stated that about 30% of diabetics have some cutaneous involvement during the course of their disease². In our study 82% patients had some kind of skin lesions attributed to diabetes, which indicates a high incidence of cutaneous involvement.

Forty-nine percent patients had cutaneous infections. The diabetic state decreases the resistance of host to infection by impairing many functions of the neutrophils³. Specific infections in diabetics such as rhinocerebral mucormycosis and non-clostridial gas gangrene may be linked with the diabetic state³.

However, the most common infections in diabetics are staphylococcal pyodermas and candidiasis⁴.

These are probably more frequent in patients with poorly controlled disease⁵.

Involvement of the foot was the second commonest finding (30%) in our study. The pathogenesis of the foot lesions in diabetics is complex and principally caused by neuropathy, ischemia and infection⁶. Foot problems are seen in about a quarter of diabetic patients⁷. In majority of cases both ischemic and neuropathic lesions are present simultaneously.

Autonomic disturbances were also a common finding. Diabetic neuropathy commonly involves a variety of nerves, including the autonomic fibres⁸. Fealey et al observed sweating abnormalities in 94% patients with diabetes who had findings suggestive of neuropathy⁸. The frequency of generalized pruritus in diabetes is unknown. Localized anogenital pruritus appears to be a manifestation of diabetes.

In one study, the incidence of localized pruritus in diabetics was 3.4%⁹. The relatively high incidence of localized pruritus in our study is an unusual feature.

The relatively common occurrence of finger pebbles in diabetics is reported by several authors¹⁰. In the present study pebbly pattern of periungual and knuckle skin was seen in 14% patients, 6% of these patients also had thickened hand skin. Diabetic cheirarthropathy is reported in 30-40% of insulin dependent diabetics and 4-70% of non-insulin dependent diabetics¹¹. These changes are probably caused by glycosylation of collagen with consequent change in its physical properties.

Dermopathy is the most common finding in diabetes mellitus occurring in 30% to 60% of patients². In our study this was observed in 12% patients. The exact pathogenesis of dermopathy in diabetics is still obscure but it may be a cutaneous marker of microangiopathy at other sites¹. The incidence of vitiligo in diabetics varies from 1-70%¹². In our study the high incidence of vitiligo is an unusual feature (10%). In general population the incidence of vitiligo is 1%¹³. In our study, 7 patients had NIDDM and 3 had IDDM.

The occurrence of acanthosis nigricans is common in diabetics² and insulin resistance is the key factor underlying its development. This was present in 5% cases in the present study, 4 patients were obese type 2 diabetics and one had type 1 diabetes. Allergic reactions to insulin occur in 10 to 50% of patients², 2% patients in this study had generalized urticaria from insulin therapy. Reactions with oral hypoglycemic agents were seen in 3 patients, 2 had photosensitivity and 1 had erythema nodosum. Some of the cutaneous markers of diabetes mellitus including necrobiosis lipoidica diabetorum, diabetic bullae, acquired perforating dermatoses and scleredema were not seen in our study.

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