



RISK OF DERMATOPHYTOSIS IN ADULT POPULATION WITH DIABETES MELLITUS TYPE 2 IN WESTERN UTTAR PRADESH: A CASE CONTROL STUDY

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ABSTRACT **INTRODUCTION :** Dermatophytosis is a common superficial fungal infection which has taken epidemic proportions in many pockets of India. Several risk factors have been implicated including environmental factors, treatment, host factor, Diabetes mellitus etc. for chronic and recurrent infections. The association of Diabetes and dermatophytosis is still ambiguous with contrasting data over years of research. Thus, there is need for more data collection and analysis to establish a clear association. **OBJECTIVES:** To assess recurrent and atypical infections in diabetic and non-diabetic individuals. **METHODOLOGY :** This was a case control study with 90 patients 45 diabetic and 45 non-diabetics having dermatophytosis attending skin OPD at Teerthanker Mahaveer Medical College, Moradabad were included in the study over a period of 12 months from July 2021 to June 2022. **CONCLUSION :** Atypical difficult to treat infections were observed more in diabetic group. Therefore, these patients should undergo diabetic status analysis. Patients of dermatophytosis with DM-II should maintain strict glycaemic control. Treating physicians should be aware of all these aspects and comprehensively treat with pharmacological therapy and counselling.

KEYWORDS :

INTRODUCTION :

Dermatophytosis is a type of superficial fungal infection of the skin, hair, and nails.^[1] The genera *Microsporum*, *Epidermophyton* promote dermatophytosis. The vast majority of human illnesses are caused by anthropophilic organisms.^[2]

In the past four to five years, chronic and recurring dermatophytosis has become more common among Indian physicians. The study showed that dermatophytosis has a highly negative impact on peoples' quality of life, especially in the early age, economically productive group. Recurrent dermatophytosis and rising medical costs have both been reported to put a substantial financial burden on individuals from lower-income families.^[3]

In tropical nations such as India, where the temperature is warm and muggy, dermatophytosis is a prevalent surface skin condition, and it remains a major threat to public health. A rise in the number of diabetes individuals influences the incidence of dermatophyte infections. Since diabetes mellitus is a global issue of rising relevance, its prevalence is rising.^[4] As the most prevalent endocrine condition, they affect 7.3% of the populace.^[5]

Since decreased nutritional supply, decreased aeration, and a delay in immunological competent cells migrating to the infected area or in the generation of antimicrobial peptides (AMP) owing to aging or other factors may favor the infectious processes. Diabetes increases the likelihood of dermatophytosis, particularly feet and fingernail tinea, by approximately three times due to changes in regional blood flow and nerve cells.^[6]

Tinea corporis, tinea pedis, and onychomycosis are frequent dermatophyte diseases observed in patients with diabetes.^[1]

In this regard the association established between diabetes and dermatophyte infections been observed to be controversial: some authors sustain^{36,37} and others negate.^[7,8]

Thus, this present study will be conducted to comprehend the progress of skin lesions and their connection to diabetes which would be the useful approach for the lasting continuation of diabetic patients.

MATERIALS AND METHODS :

This study is a Case control study.

Study took 12 months after the approval of research committee and ethical committee.

INCLUSION CRITERIA:

CASES: Clinically and microscopically diagnosed cases of dermatophytosis who attended the Department of Dermatology, Venereology & Leprosy (both out-patient and in-patient) of Teerthanker Mahaveer Medical College, Moradabad (UP).

CONTROLS:

1. The age and gender matched controls were selected from adult patients visiting hospital for complaints other than dermatological diseases.
2. Voluntary participation by the patients in the study.
3. Patients aged >18 were included in the study.

EXCLUSION CRITERIA:

1. Patients on immunosuppressive drugs and long-term oral corticosteroid therapy.
2. All pregnant and lactating females.

RESULT :

Data was analysed using Statistical Package for Social Sciences (SPSS) version 26. A "p" value less than 0.05 were considered significant. All the quantitative variables were presented as \pm standard deviation. All the categorical variables were presented as frequency and percentage. t- Test, Chi-Square test and Odds ratio was calculated to find out statistically significant observation

Table 1

TABLE SHOWS THE DISTRIBUTION OF RECURRENT DERMATOPHYTOSIS IN DIABETICS AND NON-DIABETICS

		RECURRENT		Total	P VALUE
		Y	N		
DIABETES	PRESENT	8	5	13	0.191
	ABSENT	12	20	32	
Total		20	25	45	

The above table and figure show the distribution of recurrent dermatophytosis in diabetics and non-diabetics where higher proportion of recurrent presence been observed in diabetes present category. Overall, this difference been observed to be non-significant.

Figure 1

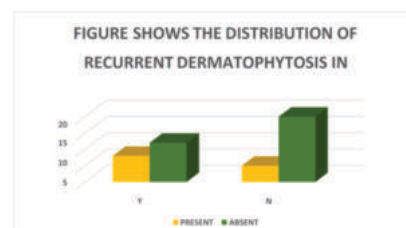
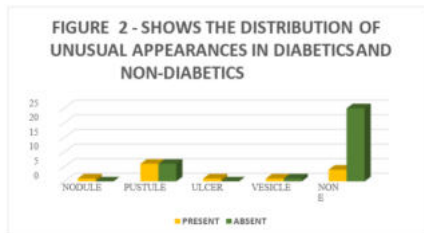


TABLE SHOWS THE DISTRIBUTION OF DIABETES WITH RECURRENT DERMATOPHYTOSIS ODDS RATIO - Diabetes with the risk of recurrent dermatophytosis odds ratio calculated =2.66 (95% Confidence Interval)

TABLE SHOWS THE DISTRIBUTION OF UNUSUAL APPEARANCES IN DIABETICS AND NON-DIABETICS

Table 2

		DIABETES		Total	P Value
		PRESENT	ABSENT		
UNUSUAL APPEARANCE	NODULE	1	0	1	0.025
	PUSTULE	6	6	12	
	ULCER	1	0	1	
	VESICLE	1	1	2	
Total		13	32	45	



The above table and figure show the distribution of unusual appearances in diabetics and non-diabetics where for the cases having diabetes as well as non-diabetics presented to have higher prevalence of Pustule. Overall, this difference been detected to be statistically significant.

Diabetes with the risk to be cases odds ratio calculated= 2.21 (95% Confidence Interval)

DISCUSSION:

The present study when analysed the distribution of recurrent dermatophytosis in diabetics and non-diabetics patients where higher proportion of recurrent presence been observed in diabetes present category although this difference been a nonsignificant one. The Dogra et al., analysis from this course revealed that the prevalence of recurring cases has grown drastically over the last three to four years. At least 6–11% of new cases observed in the dermatology clinic in northern India are of this kind. This present study in this background when calculated the odds ratio for diabetes with the risk of recurrent dermatophytosis odds ratio calculated as 2.66 (95% Confidence Interval).^[9]

This study observes the distribution of unusual appearances in diabetics and non-diabetics where for the cases having diabetes as well as non-diabetics presented to have higher prevalence of Pustule. Overall, this difference been observed to be statistically significant. Labib et al., study in this context documented that Folliculitis been mutual among affected with diabetes, and which been characterized by inflamed and pustules for most of the cases.^[10]

RESULTS:

The distribution of recurrent dermatophytosis in diabetics and non-diabetics where higher proportion of recurrent presence been observed in diabetes present category. Overall, this difference been observed to be non-significant.

Diabetes with the risk of recurrent dermatophytosis odds ratio calculated=2.66 (95% Confidence Interval).

The distribution of unusual appearances in diabetics and non-diabetics where for the cases having diabetes as well as non-diabetics presented to have higher prevalence of Pustule. Overall, this difference been observed to be statistically significant.

Diabetes with the risk to be cases odds ratio calculated= 2.21 (95% Confidence Interval).

CONCLUSION:

- Superficial mycosis that was amenable to minimal interventions has grown into a bothersome health problem accountable to epidemic like scenario in India impacting quality of life, increase economic burden to affected families
- Many factors related to the fungus, host, environment, drugs are responsible for this scenario and patients of diabetes due to their

immunosuppressed state are even more prone to these difficult to treat superficial fungal infections.

- Treating physicians should be aware of risk of dermatophytosis in diabetics and should advise these patients for regular dermatological examination with proper counseling, regular blood sugar level monitoring and adequate pharmacological therapy for diabetes to prevent atypical difficult to treat infections.

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