

Characteristic of Subcutaneous Mycosis Patients at Prof. Dr. I.G.N.G Hospital, Denpasar, Bali: An Observational Retrospective Study

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ABSTRACT

Introduction: Subcutaneous mycosis infections can occur in tropical and subtropical countries. Indonesia's geographic location is in a tropical country and is a developing country with the majority of its population working in agriculture, which is a risk factors associated with subcutaneous mycosis. **Methods:** This is a retrospective observational descriptive study with a cross-sectional design. Data were obtained through medical records from all patients who came for treatment in Prof IGNG Ngoerah General Hospital Denpasar from January 2018 to December 2023. The inclusion criteria in this study were all patients diagnosed with subcutaneous mycosis. The variables studied were age, gender, occupation, comorbidities, first symptoms, skin efflorescence, dermatoscopy finding, and type of mycosis based on yeast culture. **Results:** A total of 21 cases of subcutaneous mycosis within 5 years. The majority of patients were female, (67%), with the most common age group being 45-64 years (57%). Based on occupation, farmers account for at most (33%). The majority of patients had itchiness (33%) and redness (33%) as the first symptoms, nodule erythema was the most common skin efflorescence (57%), and the most common dermatoscopy finding was yellow dots (57%). The most common fungal infection based on culture was chromoblastomycosis (71%). **Conclusion:** The majority of patients of subcutaneous mycosis were female, with age group 45-64 years old, and farmers. Itchiness and redness were the common symptoms of the disease. On examination, nodule erythema is the most common skin efflorescence. Chromoblastomycosis was the most common type of infection.

Keywords: subcutaneous mycosis; tropical; fungal

INTRODUCTION

Subcutaneous mycosis is a fungal infection caused by penetration of the fungus into the dermis or subcutaneous tissue through a penetrating wound, such as a thorn prick. Sometimes this infection is a co-infection of a disease carried by a patient from an endemic area after a period of years. The most common subcutaneous mycoses are sporotrichosis, mycetoma, and chromoblastomycosis. Rarer infections include lobomycosis and subcutaneous mucormycosis. [1,2].

Subcutaneous mycosis infections can occur in tropical and subtropical countries. Cases have been reported in North, South and Central America, including the southern United States and Mexico, as well as in Africa, Egypt, Japan and Australia. The countries where the highest infection rates occur are Mexico, Brazil and South Africa. This infection is very rare in most European countries. Naturally, the fungus that causes this infection can grow on rotten vegetables, dry plant debris, leaves and wood. [2,3] This study was conducted to determine the prevalence and characteristics of subcutaneous mycosis to provide better knowledge and understanding of the disease.

METHODS

This is a retrospective observational descriptive study with a cross-sectional design. Data for this study were obtained through medical records from all patients who came for treatment at the Dermatovenereology polyclinic and inpatient ward at Prof IGNG Ngoerah General Hospital Denpasar from January 2018 to December 2023. The inclusion criteria in this study were all patients diagnosed with subcutaneous mycosis. Exclusion criteria were patients who had incomplete data. The variables studied were age, gender, occupation, comorbidities, and type of mycosis. The collected data will be grouped and analyzed using SPSS for Windows.

RESULTS

There were 21 cases of subcutaneous mycosis within 5 years. The majority of patients were female, as many as 14 patients (67%), compared to 7 male patients (33%). The largest age group is 45-64 years (57%). Based on their occupation, farmers account for at most 33% (7 patients). And the majority of patients (81%) did not have comorbidities, while 4 patients (19%) had comorbidities.

The most common diagnosis found was chromoblastomycosis (71%), followed by 10% each for actinomycetoma, sporotrichosis, and lobomycosis.

The characteristics of the research subjects are presented in Table 1.

TABLE 1: The characteristics of the research subjects are presented.

Variables	Frequency (n)	Percentage (%)
Sex		
Male	7	33
Female	14	67
Age (years)		
<25	8	38
25-44	1	5
45-64	12	57
Occupation		
Housewives	6	29
Office employee	3	14
Student	5	24
Farmers	7	33
First symptoms		
Itchiness	7	33
Redness	7	33
Burning sensation	3	14
Peeling skin	2	10
Hair loss	2	10
Skin Efflorescence		
Erythema nodule	12	57
Verrucose	1	5
Scaling	4	19
Central healing	4	19
Dermatoscopy finding		
Vascular changes	2	10
Yellow dots	12	57
Follicular involvement	7	33
Comorbid		
Yes	4	19
No	17	81
Mycosis type (based on culture)		
Chromoblastomycosis	15	71
Actinomycetal	2	10
Sporotrichosis	2	10
Lobomycosis	2	10

DISCUSSION

The majority of cases of subcutaneous mycosis occur in tropical and subtropical countries, such as America, Africa and South East Asia, including Indonesia.[3,4] Indonesia's geographic location is in a tropical country and is a developing country with the majority of its population working in agriculture, which is a risk factors associated with subcutaneous mycosis.[5]

Patients with subcutaneous mycosis in this study were dominated by women, 67%. These results are different from research conducted by Dr. Soetomo Surabaya General Hospital in the 2010–2014 period which showed that 93.3% of patients were men.[3]

And also, there was a study in North India showing that 70% of male patients had subcutaneous mycosis and women only 30% of the total cases.[7] This difference in results is probably because female patients are more active in seeking health services when they have certain complaints compared to male patients.

From this study, the largest age group is the productive age group, aged 45-64 years. This is in accordance with data from retrospective studies conducted in Brazil and Thailand which found that subcutaneous mycosis mainly affects the productive age group and comes from rural areas who often have contact with the ground. [8,9]

This was also found in research in North India which showed 61% of patients aged between 20-60 years.[7]

This subcutaneous mycosis is caused by saprophytic fungi that enter the skin and subcutaneous tissue. This group of fungi is known to live in soil and plants. However, although microinjuries are very common in people living in rural areas, overall, cases of subcutaneous mycosis are very few. Based on occupation, jobs related to agriculture have a higher risk of infection. Occupation and hobbies are important predisposing factors for the incidence of subcutaneous mycosis. Trauma is the port d'entree for fungal inoculation that causes subcutaneous mycosis. A history of trauma is found in two-thirds of subcutaneous mycosis patients who work as farmers, carpenters and gardeners.[10] In line with this, several retrospective studies in Cuba, Thailand and Brazil also show that many patients come from rural areas who often experience trauma. and contact with soil. [8,9] This is in line with the results of research, which states that the majority of people who suffer from subcutaneous mycosis are farmers.

The majority of patients had itchiness (33%) and redness (33%) as the first symptoms. The fungal infection triggers an immune response which cause inflammation. Redness and itchiness are common symptoms of inflammation. [9] Nodule erythema was the most common skin efflorescence (57%). Nodule erythema is the response of the immune system to eliminate fungal infection by widening of the blood vessels in the affected area. [8,9] The most common dermatoscopy finding was yellow dots (57%). The yellow dots or globules indicate the fungal elements or keratin debris, fungal elements (including spores or hyphae), pigmentary changes, and might be related to affected vascular structure. [7,9]

Among the many types of subcutaneous mycoses, chromoblastomycosis is the most common subcutaneous mycosis. Apart from that, sporotrichosis and mycetoma are also often found, but not as much as chromoblastomycosis. Meanwhile, subcutaneous lobomycosis and mucormycosis are rare. [1,2] This is in line with our research. Data shows that the most common subcutaneous mycosis infection is chromoblastomycosis, as many as 15 patients (71%). Meanwhile, actinomycetoma and sporotrichosis each account for 10% of all cases.

CONCLUSION

From this study, subcutaneous mycosis patients were dominated by women (67%) with the most common age being 45-64 years (57%). The majority of patients' occupations were farmers (33%).

Most patients (81%) did not have comorbidities and the most common type of mycosis was chromoblastomycosis at 71%. The majority of patients had itchiness (33%) and redness (33%) as the first symptoms, nodule erythema was the most common skin efflorescence (57%), and the most common dermatoscopy finding was yellow dots (57%).

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