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Profile of Superficial Dermatophytosis at the Skin and Venereology Polyclinic of Wulan Windy Hospital Medan for the period 2021-2024

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ABSTRACT

Dermatophytosis is one of the superficial mycoses caused by fungi that invade keratin-containing tissues such as the stratum corneum of the epidermis, hair, and nails. Dermatophytosis is divided based on its location, namely tinea capitis, tinea barbae, tinea cruris, tinea pedis et manum, tinea unguinum, and tinea corporis. Dermatophytosis is caused by dermatophyte fungi from the arthrodermataceae family. This family consists of more than 40 species divided into three genera: Epidermophyton, Microsporum, and Trichophyton. This study aims to determine the profile of dermatophytosis in the Dermatology and Venereology Polyclinic of Wulan Windy Hospital, Medan, from January to December 2013 based on the classification of location, age, gender, occupation, and therapy given. This study is a retrospective descriptive study based on medical record data from new patients who were treated at the Dermatology and Venereology Polyclinic, Wulan Windy Hospital, Medan, in the period 2021-2024. The number of new dermatophytosis patient visits increased from 2021 to 2023, but decreased in 2024. Tinea corporis was the most common diagnosis at 54.9%. Most patients were women. The most common age group found was 45-64 years in 2021-2023. Most treatments were topical. There was an increase in the number of dermatophytosis patients. The most infected age group was the productive age group, because in this age group there was an increase in physical activity and a tendency to sweat a lot and be humid.

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INTRODUCTION

Dermatophytosis is one of the superficial mycosis diseases caused by fungi that invade tissues containing keratin such as the stratum corneum epidermis, hair, and nails (Schieke SM, 2012). It is often called a tinea infection and is classified according to the part of the body affected. Organisms that cause dermatophytosis belong to three genera, namely Trichophyton, Microsporum, and Epidermophyton, while based on their transmission there are three classifications, namely anthropophilic, zoophilic, and geophilic (Nenoff P, 2013 and Putri, 2017).

Based on epidemiological data conducted in Indonesia, the incidence of dermatophytosis is higher than other superficial dermatomic cases. Research conducted by Putri AI in 2011-2013 found that the percentage of new dermatophytosis cases in the Outpatient Unit (URJ) of Skin and Sexual Health Dr. Soetomo Hospital Surabaya was 47.4%, 52.9%, and 46%. Almost 50% of cases in the Mycology Division are dermatophytosis (Putri, 2017). Another study by Citrashanty in 2008-2010 at the Department of Mycology of URJ Skin and Venereal Health, Dr. Soetomo Hospital Surabaya, compared the number of superficial dermatomycosis patients, the percentages were 59.5%, 56.3%, and 52.9% were dermatophytos.

Dermatophytosis is influenced by many factors, some of the predisposing factors that cause this infection are personal hygiene, the use of strict clothing, socioeconomic status, dense living conditions that can result in direct skin-to-skin contact or close contact with animals, as well as the presence of chronic diseases (immunosuppression) such as Human Immunodeficiency Virus (HIV), cytostatic use, and long-term corticosteroids (Surekha, 2015).

Establishment of dermatophytosis diagnoses is generally done clinically, which can be strengthened by microscopic examinations, cultures, and examinations with Wood lamps in certain

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species. Retrospective research on dermatophytosis at the Skin and Venereology Polyclinic of Wulan Windy Hospital Medan needs to be carried out for improvement in the future.

METHOD

The research design used is a retrospective descriptive study by looking at electronic medical records of dermatophytosis patients at the Skin and Venereology Polyclinic of Wulan Windy Medan Hospital during the 2021-2024 period. The study sample was taken from all new cases recorded to have dermatophytosis. The research variables were classification based on location, age, gender, occupation, and therapy used.

RESULTS AND DISCUSSION

Result

The distribution of the number of new dermatophytosis cases at the Wulan Windy Hospital Polyclinic for the 2021-2024 period is 575 patients out of 3930 (100%) of the total skin disease cases.

Table 1. Distribution of Dermatophytosis Cases by Number of Cases

Year	Total Cases	Number of Cases of Dermatophytosis
2021	401	71
2022	937	148
2023	1020	187
2024	1572	169
Total	3930	575

The majority of dermatophytosis cases encountered at the Wulan Windy Hospital Polyclinic for the 2014-2016 period were corporate tinea 54.9%, followed by cruris tinea at 20.3%, and pedis tinea at 8.6%

Table 2. Distribution of dermatophytosis types at the Skin and Venereology Polyclinic of Wulan Windy Hospital Medan for the 2021-2024 Period

Case	2021 (%)	2022 (%)	2023 (%)	2024 (%)	Total
Tinea korporis	36 (50.7)	72 (48.6)	113 (60.4)	95 (56.2)	316 (54.9)
Tinea kruris	8 (11.2)	35 (23.6)	31 (16.5)	43 (22.9)	117 (20.3)
Tinea imbrikata	0	0	0	0	0
Tinea manum	8 (11.2)	10 (6.7)	11 (5.8)	13 (6.9)	42 (7.3)
Tinea pedis	7 (9.8)	13 (8.7)	13 (6.9)	17 (9)	50 (8.6)
Tinea unguium	5 (7)	9 (6)	6 (3.2)	5 (2.6)	25 (4.3)
Tinea kapitis	7 (9.8)	9 (6)	13 (6.9)	14 (7.4)	43 (7.4)
Total	71	148	187	169	575 (100)

The most dermatophytosis patients at the Wulan Windy Hospital Polyclinic in the 2021 period were in the 45-64 year old group, which was as many patients as many as (%), followed by the 25-44 year old age group as many as 46 patients (25%).

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Table 3. Age group distribution of dermatophytosis patients at the Skin and Venereology Polyclinic of Wulan Windy Hospital for the 2021 period

Case	Age							Total %)
	0-<1	1-4	5-14	15-24	25-44	45-64	≥65	
Tinea korporis	0	0	1	2	10	20	3	36 (50)
Tinea kruris	0	0	0	1	2	3	2	8 (11,2)
Tinea imbrikata	0	0	0	0	0	0	0	0
Tinea manuum	0	0	0	1	2	4	1	8 (11,2)
Tinea pedis	0	0	0	2	2	2	1	7 (9,8)
Tinea unguium	0	0	0	1	2	2	0	5 (7)
Tinea barbae	0	0	0	0	0	0	0	0
Tinea kapitis	0	0	4	2	1	0	0	7 (9,8)
Total	0	0	5	9	19	31	7	71 (100)

Table 4. Age group distribution of dermatophytosis patients at the Skin and Venereology Polyclinic of Wulan Windy Hospital for the 2022 period

Case	Age							Total (%)
	0-<1	1-4	5-14	15-24	25-44	45-64	≥65	
Tinea korporis	0	0	3	7	11	45	6	72 (48,6)
Tinea kruris	0	0	0	1	9	21	4	35 (23,6)
Tinea imbrikata	0	0	0	0	0	0	0	0
Tinea manuum	0	0	0	2	3	4	1	10 (6,7)
Tinea pedis	0	0	0	2	3	6	2	13 (8,7)
Tinea unguium	0	0	0	1	2	3	3	9 (6)
Tinea barbae	0	0	0	0	0	0	0	0
Tinea kapitis	0	0	3	2	2	1	1	9 (6)
Total	0	0	6	15	30	80	17	148 (100)

The most dermatophytosis patients at the Polyclinic of Wulan Windy Hospital for the 2022 period are in the age group of 25-44 years, which is 32 patients (31.4%)

Table 5. Age group distribution of dermatophytosis patients at the Skin and Venereology Polyclinic of Wulan Windy Hospital for the 2023 period

Case	Age							Total (%)
	0-<1	1-4	5-14	15-24	25-44	45-64	≥65	
Tinea korporis	0	0	12	15	28	49	9	113 (60,4)
Tinea kruris	0	0	3	5	7	13	3	31 (16,5)
Tinea imbrikata	0	0	0	0	0	0	0	0
Tinea manuum	0	0	0	1	3	4	3	11 (5,8)
Tinea pedis	0	0	0	2	3	7	1	13 (6,9)
Tinea unguium	0	0	0	1	2	2	1	6 (3,2)
Tinea barbae	0	0	0	0	0	0	0	0
Tinea kapitis	0	0	6	3	2	2	0	13 (6,9)
Total	0	0	21	27	45	77	17	187 (100)

The most dermatophytosis patients at the Wulan Windy Hospital Polyclinic for the 2023 period are in the age group of 25-44 years, which is 32 patients (31.4%) (Table 5). The most dermatophytosis patients at the Wulan Windy Hospital Polyclinic for the 2024 period are in the age group of 25-44 years, which is 32 patients (31.4%) (Table 6).

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The distribution of dermatophytosis cases by gender at the Wulan Windy Hospital Polyclinic for the 2021-2024 period out of a total of 575 dermatophytosis cases, namely 238 men (41.3%) and the most female patients with 337 people (58.6%) (Table 7).

Table 6. Age group distribution of dermatophytosis patients at the Skin and Venereology Polyclinic of Wulan Windy Hospital for the 2024 period.

Case	Umur							Total (%)
	0-<1	1-4	5-14	15-24	25-44	45-64	≥65	
Tinea korporis	0	0	4	7	33	47	4	95 (56,2)
Tinea kruris	0	0	5	4	11	20	3	43 (25,4)
Tinea imbrikata	0	0	0	0	0	0	0	0
Tinea manuum	0	0	0	1	4	6	2	13 (7,6)
Tinea pedis	0	0	0	3	5	7	2	17 (10)
Tinea unguium	0	0	0	1	1	2	1	5 (2,9)
Tinea barbae	0	0	0	0	0	0	0	0
Tinea kapitis	0	0	7	4	3	0	0	14 (8,2)
Total	0	0	16	20	57	82	12	169 (100)

Table 7. Gender distribution of dermatophytosis patients at the Skin and Venereology Polyclinic of Wulan Windy Hospital for the 2021-2024 period

Year	Gender		Total
	Man (%)	Woman (%)	
2021	30 (42,3)	41 (57,7)	71
2022	67 (45,3)	81 (54,7)	148
2023	79 (42,3)	108 (57,7)	187
2024	62 (36,7)	107 (63,3)	169
Total	238 (100)	337 (100)	

The type of therapy for dermatophytosis can also be known based on this study, namely for 68.6% of cases treated with topical therapy (Table 8). This therapy most commonly uses ketoconazole cr. accompanied by oral antihistamines.

Table 8. Distribution of Dermatophytosis Cases Based on Patient Therapy at the Skin and Venereology Polyclinic of Wulan Windy Hospital for the 2021-2024 period

Therapy	Total Cases	(%)
Topikal	238	41.3
Sistematic	147	25.5
Combination	190	33
Total	575	100

Topical antifungal administration aims to help eradicate dermatophytes from the skin to avoid spreading around the affected area, as well as to reduce the risk of transmission to other people.12 In cases treated with combination therapy, systemic antifungal drugs (griseofulvin, itrakonazole, ketoconazole) are given in combination with topical antifungal drugs (ketoconazole cr.). In cases such as tinea capitis, in line with the penetration of dermatophytes into the hair follicles, oral treatment is given for infections that affect the hair (Table 8).

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Discussion

Based on retrospective research that has been carried out at the Skin and Venereology Polyclinic at Wulan Windy Hospital for the 2021-2024 period, 575 cases of dermatophytosis were obtained out of a total of 3930 cases of dermatophytosis of skin and venereal diseases at the Skin and Venereology Polyclinic of Wulan Windy Hospital. These results show an increase in dermatophytosis cases increasing in percentage terms from 2021 to 2023, but in 2024 it will decrease from 18.3% to 10.7%. This increase can be caused by several factors, such as public awareness to check themselves at the hospital or it can also be due to various obstacles that occurred in the previous year's research so that the data obtained was inadequate (Asri E, 2013).

The most common diagnoses found from the period 2021 to 2024 were tinea corporis (54.9%) and tinea kruris (20.3%). Lakshmanan and colleagues in India said that corporate tinea is the most commonly found clinical manifestation, which is 79.9%, followed by crucible tinea at 10%. This can be caused because corporal tinea can touch all surfaces of the body and can be suffered by all ages, especially in adults who do not understand hygiene and sweat a lot and have higher skin moisture. Tinea crust is the second most common diagnosis, this can be caused by the use of tight clothing or clothes that do not absorb sweat, thus increasing humidity (Kakourou, 2010).

The most age groups suffering from dermatophytosis at the Skin and Venereology Polyclinic of Wulan Windy Hospital tend to be the same, from 2021 to 2024 the most age groups are 45-64 years old, which is 43.6% (2021), 54% (2022), 41.1% (2023), 48.5% (2024). This result is in accordance with a study conducted by Sondakh at the Skin and Venereology Polyclinic of Prof. Dr. R. D. Kandou Manado Hospital for the period of January-December 2013, it was found that the age group with the most cases of dermatophytosis was 45-64 years old, namely 50 cases (32.7%).11 This can be caused by decreasing body defense factors along with increasing age in the age group and the possibility of comorbidities that cause immunosuppressive conditions so as to facilitate the occurrence of fungal infections. Considering that this group is still of working age, if added to activity factors that produce sweat and are not balanced with personal hygiene, it will cause an increased risk of developing dermatophytosis. In contrast to the study in India by Ramaraj V, it was found that the age group of 21-40 was more affected by dermatophytosis than other age groups, namely 133 (63.27%). Almost the same results were also found in a study conducted at the Skin and Sexual Health URJ of Dr. Soetomo Hospital Surabaya for the 2011-2013 period by Putri AI showing the most age of 25-44 years as much as 31.6%, 29.5%, and 33.1%. This age group, which is an adult and productive age group, can have increased physical activity and has a tendency to sweat a lot and be damp, as well as the risk of being traumatized that causes easy fungal growth. Socialization with many people is also found to be higher at this age, thus helping the spread of infection (Kaur R, 2015).

By gender, data was obtained that during the period 2021-204, the most results of dermatophytosis cases at the Skin and Venereology Polyclinic of Wulan Windy Hospital were women, namely 41 cases (57.7%) in 2021, 81 cases (54.7%) in 2022, 108 cases (57.7%) in 2023, and 107 cases (63.3%). The possible factor that causes it is that women tend to pay more attention to changes in appearance so that they are encouraged to check themselves.

The type of therapy for dermatophytosis can also be known based on this study, namely for 41.3% of cases treated with topical therapy (Table 8). This therapy most often uses ketoconazole cr accompanied by oral antihistamines. Topical antifungal administration aims to help eradicate dermatophytes from the patient's skin to avoid spreading around the affected area, as well as to reduce the risk of transmission to others.12 In cases treated with combination therapy, systemic antifungal drugs (griseofulvin, itrakonazole, ketoconazole) are given in combination with topical antifungal drugs (ketoconazole cr.). In cases such as tinea capitis, in line with the penetration of dermatophytes into the hair follicles, oral treatment is given for infections that affect the hair. Filling in more complete electronic medical record data, creating written medical records, and conducting better education to patients by emphasizing the importance of control of returning to the hospital is still needed to see the results of treatment on patients.

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CONCLUSION

This study shows that dermatophytosis is one of the superficial fungal infections that is common in the Skin and Venereal Polyclinic of Wulan Windy Hospital Medan. During the 2021-2024 period, the number of dermatophytosis cases reached 575 cases out of a total of 3930 cases of skin diseases. Corporal tinea is the most commonly found type with a percentage of 54.9%, followed by cruris tinea (20.3%) and pedis tinea (8.6%). In terms of age distribution, the age group of 25-44 years has the highest prevalence, followed by the age group of 45-64 years. By gender, female patients (58.6%) were more than male patients (41.3%). Factors contributing to the high incidence of dermatophytosis include poor personal hygiene, the use of tight clothing, crowded living environments, and immunosuppressive conditions such as HIV or long-term use of corticosteroid drugs. The diagnostic methods used in this study include clinical diagnosis that is strengthened by microscopic examination and fungal culture. The most commonly used therapy was topical therapy (41.3%), followed by systemic therapy (25.5%) and combination therapy (33%). Cream ketoconazole is the most commonly used topical antifungal drug, while combination therapy includes the use of systemic antifungal drugs such as griseofulvin, itrakonazole, and oral ketoconazole. The results of this study confirm the importance of early detection and proper management of dermatophytosis to reduce the risk of spread and increase the effectiveness of therapy. In addition, education about the prevention and risk factors of dermatophytosis needs to be improved to reduce the incidence of this disease in the future.

REFERENCES

Schieke SM, Garg A. Superficial fungal infection. In: Wolff K, Goldsmith LA, Katz SI, Gilchrest BA, Paller AS, Leffel DJ, editors, Fitzpatrick's Dermatology in General Medicine. 8th ed. New York: McGraw Hill Companies; 2012. p.2277-97.

Sahoo A.K, Mahajan R. Management of tinea corporis, tinea cruris, and tinea pedis: A comprehensive review. Indian Dermatol Online J 2016;(7): 77-86.

Nenoff P, Krüger C, Ginter-Hanselmayer G, Tietz HJ. Mycology – an update. Part 1: dermatomycoses: causative agents, epidemiology and pathogenesis. JDDG 2013: 188-209.

Astari L, Cholis M. Imunopatogenesis dermatomikosis superfisialis. Dalam: Bramono K, Suyoso S, Indriatmi W, Ramali LM, Widaty S, Ervianti E, editor. Dermatomikosis superfisialis, pedoman untuk dokter dan mahasiswa kedokteran. Edisi kedua. Jakarta: Fakultas Kedokteran Universitas Indonesia; 2013. h.9-23.

Lakshmipathy DT, Kannabiran K. Review on dermatomycosis: pathogenesis and treatment. SciRes 2010; 2: 726-31.

Putri AI, Astari A. Profil dan evaluasi pasien dermatofitosis. BIKKK 2017; 29(2): 135-41.

Citrashanty I, Suyoso S. Mikosis superfisialis Divisi Mikologi Unit Rawat Jalan Kulit dan Kelamin RSUD dr. Soetomo Surabaya periode tahun 2008-2010. BIKKK 2011; 23: 200-06.

Surekha A, Kumar GR, Sridevi K, Murty DS, Usha G, Bharati G. Superficial dermatomycoses : a prospective clinico-mycological study. J Clin Sci Res 2015; 4: 7-15.

Kakourou T, Uksal U. Guidelines for the management of tinea capitis in children. Pediatr Dermatol 2010;27(3): 226–8.

Roberts DT, Taylor WD, Oyle JB. Guidelines for treatment of onychomycosis. BJD 2003; 148: 402–10.

Asri E, Yenny S.W, Akhyar G, Gaya M.L. A retrospective study of superficial mycosis in Dermatology and Venereology Outpatient Clinic of Dr. M. Djamil Hospital Padang (January 2013-December 2015). In: Wahyuningsih R, Tsuboi R, Burhan E, Rusyati LMM, Ariwatin NL, Miranda E, et al, editors. Programme and Abstract Book The 6th Asia Pasific Society for Medical Mycology (APSMM) Congress. Bali: Indonesia Society for Human and Animal Micology Indonesia; 2013. p.131.Parks G. Genital herpes. In: Nelson AL, Woodward JA, editors. Sexually Transmitted Disease: A Practical Guide For Primary Care. New York: Humana Press; 2013. p. 47–70.

Kaur R, Panda PS, Sardana K, Khan S. Mycological pattern of dermatomycoses in a tertiary care

hospital. J Trop Med 2015; 1-5.
Karakteristik Dermatofitosis Piraccini BM, Alessandrini A. Onychomycosis: a review. J. Fungi 2015; 1: 30-43.
Wahyuningsih R, Tsuboi R, Burhan E, Rusyati LMM, Ariwatin NL, Miranda E, et al, editors. Medical Mycology in Asia Pacific: towards one health. Programme and Abstract Book The 6th Asia Pasific Society for Medical Mycology (APSMM) Congress; 2016 Oct 20-22; Bali: Indonesia Socety for Human and Animal Micology Indonesia.
Bramono K, Suyoso S, Indriatmi W, Ramali LM, Widaty S, Ervianti E. Dermatomikosis superfisialis, Pedoman untuk dokter dan mahasiswa kedokteran. Edisi kedua. Jakarta: Fakultas Kedokteran Universitas Indonesia; 2013.p.1-181.
Fuller LC, Barton RC, Mustapa MFM, Proudfoot LE, Punjabi SP, Higgins EM. British Association of Dermatologists Guidelines for the Management of Tinea Capitis 2014. BJD 2014; 171: 454–63.
Ervianti E, Suyoso S, Zulkarnain I. Panduan praktik klinis tinea korporis, tinea faciei dan tinea kruris. RSUD Dr. Soetomo. Surabaya; 2014.p.81-4
Ervianti E, Suyoso S, Zulkarnain I. Panduan praktik klinis tinea kapitis. RSUD Dr. Soetomo. Surabaya; 2014.p.88-9.