



Published by DiscoverSys

Profile of pyoderma in dermatology outpatient department at Sanglah General Hospital Denpasar, Bali-Indonesia period January 2016 until December 2017



CrossMark

Ni Luh Putu Ratih Vibriyanti Karna,^{1*} Dewi Gotama,¹ Sissy²

ABSTRACT

Introduction: Pyodermas are infections in the epidermis, just below the stratum corneum or in hair follicles. It is most common in children, although it can also affect adults. Pyoderma often found in tropic areas. Pyoderma is caused by *Staphylococcus*, *Streptococcus*, or both. This study aimed to identify the profile of pyoderma in Dermatology Outpatient Department at Sanglah General Hospital Denpasar Periods January 2016 – December 2017.

Method: Study design using descriptive retrospective model, done by taking data from daily visit record in Dermatology Outpatient Department at Sanglah General Hospital Denpasar Periods January 2016 – December 2017.

Result: Pyodermas is one of the common skin problems observed in patients attending dermatology OPD. The number of new cases in pyoderma is 202 cases (7,32%), often found in males and 0-5 years age group (35,64%). The diagnosis of furuncle is the most finding type of pyoderma and the most commonly given therapy is a combination therapy of systemic antibiotics with topical. Co-amoxiclav is the most common drug that uses orally and fusidic acid as topical ointment.

Conclusion: pyoderma remains as the most common skin infection in dermatology outpatient department at Sanglah General Hospital, Bali-Indonesia.

Keywords: pyoderma, skin infection, furuncle.

Cite This Article: Karna, N.L.P.R.V., Gotama, D., Sissy. 2018. Profile of pyoderma in dermatology outpatient department at Sanglah General Hospital Denpasar, Bali-Indonesia period January 2016 until December 2017. *Bali Dermatology and Venereology Journal* 1(1): 4-8. DOI:10.15562/bdv.v1i1.2

¹Dermatology and Venereology Departement, Faculty of Medicine, Udayana University, Sanglah General Hospital Denpasar, Bali-indonesia

²Pre-graduate in Dermatology and Venereology, Faculty of Medicine, Udayana University, Sanglah General Hospital Denpasar, Bali-indonesia

*Correspondence to:
Ni Luh Putu Ratih Vibriyanti Karna
Dermatology and Venereology Departement, Faculty of Medicine, Udayana University, Sanglah General Hospital Denpasar, Bali-indonesia
vibriyanti@unud.ac.id

Received: 16 April 2018
Accepted: 1 May 2018
Published: 11 May 2018

INTRODUCTION

Pyoderma is a type of skin disease most commonly found in developing country, especially the tropics. A report written by Bowen based on 18 studies of prevalence of the general population in developing countries by 2015 shows a high prevalence for skin infection (21-87%). In the Bowen study, pyoderma is the most common disease in children (0.2-35%). Pyoderma in children has a higher prevalence rate than adults (especially in children under five years).¹ Based on Azizah study, the highest data patient in Karitas Sumba Hospital is children (66.7%) with diagnosis of infectious disease on skin (57.7%).² Based on Dewi study at Soetomo Hospital Surabaya periods January 2002-December 2006 obtained pyoderma as one of the five most common skin diseases in children, with the age group is 1-4 years.³ In Dermatology Department at Sanglah General Hospital, Laksmi reported January 2006 - December 2008 showed 6.5% (287 cases), 6.23% (267 cases), 4.5% (175 cases).⁴ Pyoderma incidence in children in developing countries including Indonesia needs to evaluate periodically. This study aimed to identify the profile of pyoderma in Dermatology Outpatient

Department at Sanglah General Hospital Denpasar Periods January 2016 – December 2017.

METHODS

Study design using retrospective descriptive cross sectional model by taking data from patient medical records in Dermatology Outpatient Department at Sanglah General Hospital Denpasar. The population of this study was all new patients who came in Dermatology Outpatient Department at Sanglah General Hospital Denpasar. The samples were all new patients diagnosed with pyoderma. The variable is sex, age, type of pyoderma, therapy, location and comorbid of pyoderma.

RESULTS

Based on research conducted in Dermatology Outpatient Department at Sanglah General Hospital Denpasar periods January 2016-December 2017 obtained the total patients were 2759 patients, 202 (7.32%) of whom were diagnosed with pyoderma (Table 1).

Table 1 Pyoderma patient distribution based on age and sex

Age	Male		Female		Final Results	
	Total	%	Total	%	Total	%
0-5 years old	48	40.34%	24	28.91%	72	35.64%
5-11 years old	21	17.64%	11	13.25%	32	15.84%
12-16 years old	7	5.88%	1	1.20%	8	3.96%
17-25 years old	6	5.04%	10	12.04%	16	7.92%
26-35 years old	20	16.80%	16	19.28%	36	17.82%
36-45 years old	7	5.88%	9	10.84%	16	7.92%
46-55 years old	3	2.52%	2	2.41%	5	2.48%
56-65 years old	5	4.20%	7	8.43%	12	5.94%
> 65years old	2	1.68%	3	3.61%	5	2.46%
	119	100%	83		202	100%

Table 2 Pyoderma patient distribution based on type, distribution of pyoderma, therapy, complication and associated disease

Types of Pyoderma	Total	Percentage
Ecthyma	52	25.74 %
Furuncle	66	32.67 %
Folliculitis	26	12.87 %
Carbuncle	12	5.94 %
Pionychia	9	4.46 %
Impetigo Bullous	23	11.39 %
Impetigo Crustosa	14	6.93 %
Distribution of Pyoderma	Total	Percentage
Head	54	26.73%
Trunk	46	22.77%
Upper Extremities	23	11.39%
Lower Extremities	79	39.10%
Therapy	Total	Percentage
Combination therapy (Systemic Antibiotics + Topical Antibiotics Therapy)	127	62.87 %
Systemic Antibiotics	24	11.88%
Topical Antibiotics	51	25.25%
Systemic Antibiotics Therapy	Total	Percentage
Co-Amoxiclav	98	64.90%
Cefadroxyl	49	32.45%
Erythromycin	4	2.65%
Topical Antibiotics Therapy	Total	Percentage
Fusidic Acid	154	86.52%
Mupirocin	3	1.69%
Gentamicin	21	11.80%
Complication	Total	Percentage
Cellulitis	3	1.49%
Non-Cellulitis	199	98.51%

Table 2 Pyoderma patient distribution based on type, distribution of pyoderma, therapy, complication and associated disease

Associated Disease	Total	Percentage
Diabetes Mellitus	17	8.41%
Non-Diabetes Mellitus	41	20.30%
Unknown	144	71.29%

According to sex distribution, out of 202 patient diagnosed with pyoderma from January 2016 - December 2017, there were 119 (58.91%) male and 83 (41.09%) female patients. And according to age distribution, in 0-5 years age group 72 patients had pyoderma, in 5-11 year age group 32 patients, in 12-16 year age group 8 patients, in 17-25 year age group 16 patients, in 26-35 year age group 36 patients, in 36-45 year age group 16 patients, in 46-55 year age group 5 patients, in 56-65 year age group 12 patients and in >65 year age group 5 patients had pyoderma (Table 1).

According to type of pyoderma, out of 202 patients, there were 66 (26.94%) with furuncle, 52 (21.22%) patients with ecthyma, 26 (10.61%) patients with folliculitis, 23 (9.38%) patients with impetigo bullous, 14 (5.71%) patients with impetigo crustosa, 12 (4.89%) patients with carbuncle, 9 (3.67%) patients with pionychia. (Table 2)

According to the distribution of pyoderma, out of 202 patients there were found 54 (26.73%) patients got pyoderma on the head, 46 (22.77%) patients got pyoderma on the trunk, 23 (11.39%) patients got pyoderma on the upper extremities, and 79 (39.10%) patients got pyoderma on the lower extremities. (Table 2)

According to the therapy of pyoderma in Dermatology Outpatient Department at Sanglah General Hospital Denpasar periods January 2016-December 2017, out of 202 patients, there were 127 (62.87%) patients given therapy with combination therapy of systemic antibiotics with topical, 24 (11.88%) patients given therapy with systemic antibiotics, and 51 (25,25%) patients given therapy with topical antibiotics. For systemic antibiotics that used in Dermatology Outpatient Department at Sanglah General Hospital Denpasar as therapy in pyoderma, there were 98 (64.90%) patients given co-amoxiclav, 49 (32.45%) patients given cefadroxil, and 4 (2.65%) given erythromycin. (Table 2)

Based on topical antibiotics, there were 154 (86.52%) patients given fucidic acid, 21 (11.80%) patients given gentamicin, and 3 (1.69%) patients given mupirocin. According to the complication of pyoderma, this study found there were 3 cases of

cellulitis from 202 cases of pyoderma. And according to the associated disease, there were found that 17 patients had diabetes mellitus, 41 patients with nondiabetes mellitus, and 144 patients were unknown (Table 2).

DISCUSSION

In this study, the samples taken were all patients of new cases with clinical diagnosis of pyoderma, who came to treatment in Dermatology Outpatient Department at Sanglah General Hospital Denpasar periods January 2016 – December 2017 based on patients data on register book and medical record. The total number of visits patients from January 2016 to December 2017 in Dermatology Outpatient Department at Sanglah General Hospital Denpasar was 2759 and 202 (7.32%) of them were diagnosed with pyoderma.

In table 1, according to sex distribution, male were more common affected with pyoderma. Out of 202 patients with pyoderma, there were 119 (58.91%) male and 83 (41.09%) female patients. This result is similar with study from Nigeria in 2015 which found that males (80.4 %) had a higher prevalence than female (67.2 %) for bacterial skin infection, especially in pyoderma.⁵ Another study showed a different result, in Prof. Dr. dr. Kandou Manado Hospital in 2012, they found that female (56.6%) had a higher prevalence than male.⁶ There is no specific reason for the male preponderance it may be due to their increased exposure to minor traumas in their daily outdoor activities.⁷ According to age group (table 1), pyoderma mostly occurs in 0-5 year age groups, there were 72 patients (35.64%). This result is similar with Pangow et al. study in 2012 in Prof. Dr. dr. Kandou Manado Hospital. Pangow study showed that the most cases occur in 1-4 year age groups, there were 23 cases (43.4%) of 53 cases.⁸

Skin infection is more commonly occurring in infants and children than adults. This is because the baby's and children's skin have differences when compared with adult skin. Although the structure is complete, but different in maturity and function. Baby's skin and toddlers are thinner, natural and adaptive body's defense system in the skin is not

mature enough, causing skin and protection function against infections are weak.⁹

According to type of pyoderma distribution in table 2, furuncle was the most common occurrence with 66 cases (32.67%) and followed with ecthyma (25.74%) and folliculitis (12.87%). Other studies show the different result, Gandhi study in India, reported that the most common type of pyoderma was impetigo, followed by folliculitis and furuncle.¹⁰ According to the distribution, revealed that lower extremities were the most often affected site (39.10%), followed by head (26.73%), trunk (22.77%), and upper extremities (11.39%). These results follow the older studies. It was found that the lower extremities were involved in 60% cases followed by head (47.5%), upper extremities (21.5%), and trunk (12.5%).¹¹

In table 2, according to the therapy of pyoderma, found that the most often therapy were combination therapy (systemic antibiotics + topical antibiotics) (62.87%). Topical treatment may be considered for a patient with no more than three areas or an area of infection of fewer than 5 cm². Response to treatment should be regularly assessed, and a switch to oral antibiotics considered if the infection is not resolving or is worsening.

Combination of oral and topical antibiotics therapies are usually best treated in generalized or deep cases.¹² According to the drug, co-amoxiclav was the most common drug that uses orally as systemic antibiotics (64.90%) and fusidic acid as topical antibiotics (86.52%). Another study by Prof. Dr. dr. Kandou Manado Hospital shows a different result for systemic antibiotics, they reported that erythromycin as the most commonly given systemic antibiotics (62.2%) and they also reported that fusidic acid as the most commonly given topical antibiotics (52.63%). Co-amoxiclav is a broad spectrum antibiotic.

Based on Hanif et al. study, showed in their study that co-amoxiclav 91.7% against *Staphylococcus*.¹³ Fusidic acid is one of the antibacterials with bacteriostatic effect especially against gram-positive bacteria. The use of topical fusidic acid becomes one of the best choices as narrow-spectrum antibiotics because fusidic acid is active against *Staphylococcus aureus* and is used as topical antibacterial for skin and soft tissue infection. Fusidic acid has shown good skin permeability and potency of 21.22% low allergy.¹⁴ And according to the complication of pyoderma, only 3 cases of pyoderma were transformed to cellulitis. And according to the associated disease, there were found that 17 patients had diabetes mellitus (Table 2).

CONCLUSION

Pyoderma is one of the common skin problems observed in patients attending dermatology outpatient clinic. The study revealed that pyoderma was predominant with furuncle as a common clinical condition observed. Males were more frequently affected than females with age group between 0-5 years. And lower extremities were more commonly affected site. As therapy, a combination therapy of systemic antibiotics with topical antibiotics was the most often therapy. Co-amoxiclav was the most common drug that uses orally and fusidic acid as topical.

ACKNOWLEDGMENT

I would like to express my gratitude to the Director of Sanglah General Hospital, Denpasar Bali for allowing access to the hospital. I also would like to express my deep gratitude to the Head of Dermatology and Venereology Department, Faculty of Medicine, Udayana University, and my research supervisors, for their patient guidance, enthusiastic encouragement, and constructive criticism.

CONFLICT OF INTEREST

Author declares there is no conflict of interest.

REFERENCES

1. Bowen AC, Mahé A, Hay RJ, Andrews RM, Steer AC, Tong SYC, et al. The Global Epidemiology of Impetigo: A Systematic Review of the Population Prevalence of Impetigo and Pyoderma. *Journal*. 2015;7(1):3-10.
2. Azizah F. Frekuensi penyakit kulit di RS Karitas Sumba Barat Daya September 2014. *Frekuensi penyakit kulit*. 2014;2:147-50.
3. Dewi KD. Penelitian retrospektif pioderma pada anak di Instalasi Rawat Inap Kesehatan Kulit dan Kelamin RSUD Dr. Soetomo Surabaya. *Berkala Ilmu Kesehatan Kulit dan Kelamin*. 2009; 21:185-190.
4. Laksmi Dewi BAAA, Dhana Saputra IPK, Rusyati LM, Bratiartha MD, Adiguna MS. Profil Pioderma di Poliklinik Klinik dan Kelamin RS Sanglah Denpasar Periode Januari 2006-Desember 2008. *Penatalaksanaan pioderma terkini*. PERDOSKI. 2014;41:85-90.
5. Kalu EI, Wagbatsoma V, Ogbaini-Emovon E, Nwadike VU, Ojide CK. Age and sex prevalence of infectious dermatoses among primary school children in a rural South-Eastern Nigerian community. *Pan Afr Med J*. 2015;20(2):182-186.
6. Harahap J. Pola infeksi kulit pada anak di Poliklinik Kulit dan Kelamin RSUP Prof. Dr. R.D Kandou Manado tahun 2009-2011 [Skripsi]. [Manado]: Fakultas Kedokteran UNSRAT; 2013.
7. Venkatesh BMS, Nagaraju K, Vivekananda N. Bacteriological profile and antibiotic susceptibility of pyodermas at a tribal tertiary care Hospital. *Sch J App Med Sci*. 2016; 4(8E):3087-3091.

8. Pangow CC. Profil Pioderma Pada Anak di Poliklinik Kulit dan Kelamin RSUP Prof. Dr. R. D. Kandou Manado Periode Januari-Desember 2012. [Skripsi]. Manado: Fakultas Kedokteran UNSRAT; 2015.
9. Boediardja S. Infeksi kulit pada bayi dan balita. Dalam: Trihono PP, Djer MM, Sjakti HA, Hendrarto TW, Prawitasari T, penyunting. Best practices in pediatrics. Jakarta: Ikatan Dokter Anak Indonesia Cabang DKI Jakarta; 2013. h. 46-59.
10. Gandhi S, Ojha AK, Ranjan, Neelima. Clinical and Bacteriological Aspects of Pyoderma. N Am J Med Sci. 2012;4(1):492-495.
11. Patil R, Baveja S, Nataraj G, Khopkar U. Prevalence of methicillin-resistant *Staphylococcus aureus* (MRSA) in community-acquired primary pyoderma. Indian J Dermatol Venereol Leprol 2006;72(3):126-128.
12. Leversha A, Anson K. Cellulitis/skin infections. Starship Clinical Guidelines, 2012.
13. Hanif MM, Butt T, Amjad M. Pathogens involved and antibiotic sensitivity pattern of isolates in community acquired common bacterial skin infections presenting in a tertiary care hospital. Pak Arm Forces Med J. 2006;3(3):289-294.
14. Long BH. Fusidic acid in skin and soft-tissue infections. Acta Derm Venereol. 2008;216(1):14-20.



This work is licensed under a Creative Commons Attribution