

Original Research

Clinicopathological Profile of Leprosy at Prof. Dr. I. G. N. G. Ngoerah Central Hospital Denpasar During 2017–2022



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Article Info	Abstract
Article history: Received: 15 November 2023 Accepted: 29 January 2024	<p><i>Introduction:</i> Leprosy is a chronic disease caused by Mycobacterium Leprae. According to the WHO, leprosy is one of the communicable diseases that affect the skin, peripheral nerves, and upper mucosa, and it can cause physical disabilities, if not properly handled. This study aims to determine the clinical and pathological profile of leprosy at Prof. dr. I. G. N. G. Ngoerah Central Hospital Denpasar, in 2017 - 2022.</p> <p><i>Methods:</i> The study used a descriptive research design with total sampling from secondary data obtained from the Pathology Anatomy Laboratory of Prof. dr. I. G. N. G. Ngoerah Central Hospital Denpasar. The sample collected during the study period included 63 samples of patients diagnosed with leprosy, which were then processed using SPSS software version 26.</p> <p><i>Results:</i> The highest number of cases was found in a group of patients aged 19-64 years, accounting for 55 cases (87.3%), predominantly in male patients with 36 cases (57.1%). The most common main complaint was red patches, with 43 cases (72.8%) presenting erythematous skin lesions, specifically plaques, in 24 cases (42.8%).</p> <p><i>Conclusion:</i> Based on classification, leprosy was more frequently grouped into two classifications: the WHO classification and the Ridley Jopling classification. According to the WHO classification, the majority of patients were found to have the PB type, namely 35 cases (55.6%), while based on the Ridley Jopling classification, the BT type was more prevalent, namely 21 cases (33.3%). This study is beneficial as it provides insights into the clinical and pathological profile of leprosy. Further analytical research is needed to explore the relationships between various variables.</p>
Keywords: Leprosy, profile, clinicopathology	

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INTRODUCTION

Leprosy or Morbus Hansen is a chronic disease caused by the bacterium *M. leprae* [1]. According to the WHO, leprosy is an infectious disease that affects the skin, peripheral nerves, and upper mucosa and can cause physical disability if not treated properly [2]. Leprosy can cause complex problems, both in terms of health and economic, social, and other aspects [3]. Despite this, public awareness of leprosy is still lacking [4].

The lack of knowledge about leprosy and the slow course of the disease often lead to the misconception that leprosy is a common skin disease [5]. This has led to delays or improper management of leprosy patients [6]. Other factors that accelerate transmission are direct contact with patients, age, and the nature of leprosy which is called the greatest initiator disease. The symptoms that appear in leprosy patients are relatively similar to other diseases [7]. This makes it important to conduct special identification in determining whether a patient is infected with leprosy [8].

Based on data from the Ministry of Health, endemic areas such as Papua, Sulawesi, East Java, Maluku, and West Papua still have a leprosy prevalence rate of around 1/10,000 population until the leprosy prevalence rate in Indonesia reaches 0.71/10,000 population or equivalent to 18,248 cases recorded in 2017. From these data, it can be seen that the spread has not stopped [9].

The high rate of leprosy spread in Indonesia is influenced by many factors, one of which is the low understanding of the importance of public knowledge about

symptoms, epidemiology in prevention and treatment, and the availability of adequate health facilities to prevent clinical severity caused by the course of leprosy itself [7]. However, the reality is completely different, where there are still many people who do not know the general picture of leprosy and the lack of hospital options that can treat leprosy, especially in Bali.

METHODS

Study Design

This study is a descriptive retrospective study. A descriptive retrospective study is a type of research that looks back at past events to analyze and describe a particular phenomenon, situation, or condition. This type of study aims to provide an objective and detailed description of a specific topic based on historical data or records.

Subject

The samples used in this research were all leprosy patients in the medical records at the Anatomical Pathology Laboratory of Prof. dr. I. G. N. G. Ngoerah Denpasar for the period 1 January 2017 - 31 December 2022, with inclusion criteria containing complete data including age, gender, main complaint, skin efflorescence, WHO classification, and Ridley Jopling classification, while the exclusion criteria are leprosy patients with incomplete medical record data.

Data Collection

Data collection was carried out by first

applying for a research permit from the director of the Prof. dr. I. G. N. G. Ngoerah Central Hospital Denpasar. After permission was obtained, the researcher continued to collect medical records of patients with leprosy in the medical record room in the period January 1, 2017 - December 31, 2022. Data sorting was carried out and only complete data according to the criteria was included as research subjects.

Data Analysis

The data analysis used in this research is descriptive data analysis. Descriptive statistics are numerical or graphical summaries of data that provide an overview of the characteristics of a data set. The data described includes: case year, age, gender, patients' chief complaints, skin efflorescence, WHO classification, and Riddley Jopling classification.

RESULTS

The study was conducted at the Anatomical Pathology Laboratory of Prof. dr. I. G. N. G. Ngoerah Central Hospital Denpasar from 2017 to 2022 with a total of 63 samples, where each sample has characteristics that vary in each variable, including leprosy patient profiles based on age, gender, main complaints, skin efflorescence, WHO classification, and Riddley Jopling classification. Based on the results of the data obtained, the highest number of cases was found in 2017, namely 14 cases (22.2%). In the data obtained, the frequency of patients diagnosed with leprosy in 2017, 2019, and 2022 was almost the same, namely 14 cases

(22.2%), 12 cases (19%), and 13 cases (20%). Details of leprosy cases over the past six years are provided in Table 1.

The number of leprosy patients at Prof. dr. I. G. N. G. Ngoerah Central Hospital Denpasar in the period 2017 - 2022 was 63 people. Patients who fit the age criteria of 19 - 64 years were the most common with a frequency of 55 cases (87.3%) compared to patients who fit the age criteria of 0 - 18 years and over 65 years. Complete data details can be seen in Table 2.

Data on the distribution of leprosy patients at Prof. dr. I. G. N. G. Ngoerah Central Hospital Denpasar related to gender groups found that, the frequency of male patients diagnosed with leprosy has a greater number than women, as much as 57% compared to 43%. The complete data can be seen in Table 3.

Data on the chief complaint was only obtained in 59 samples from the total sample. The main complaint in leprosy patients at Prof. dr. I. G. N. G. Ngoerah Central Hospital Denpasar was reddish patches in 43 cases (72.8%), followed by other complaints of numbness or tingling found in 27 cases (45.7%). White spots and other complaints were almost the same, namely 12 cases (20.3%) and 14 cases (23.7%). The complete data can be seen in Table 4.

In 56 out of 63 leprosy patients, the most common skin efflorescence was reddish plaques on the skin in 24 cases (42.8%), followed by reddish macules in 16 cases (28.5%), and other typical symptoms such as decreased sensation in 18 cases (32.1%). Other complaints that are not categorized will

be included in other complaints. The complete data can be seen in Table 5.

Based on WHO classification data obtained in 63 patients. The number of patients including PB criteria is higher than the number of patients including MB criteria, with a total of 35 cases (55%) and 28 cases (44.4%). The data can be seen in Table 6.

In the data regarding the Riddley Jopling classification aimed at leprosy patients, the

results showed that there are two types of criteria that are dominant in leprosy patients at Prof. dr. I. G. N. G. Ngoerah, namely type BT with 21 cases (33.3%) and BL with 19 cases (30.2%), followed by type TT, LL, BB with 13 cases (20.6%), 7 cases (11.1%), 3 cases (4.8%) respectively. The complete data can be seen in Table 7.

Table 1
Leprosy Cases in 2017 - 2022

Years	Frequency	Percent
2017	14	22,2
2018	5	7,9
2019	12	19,0
2020	8	12,7
2021	11	17,5
2022	13	20,6
Total	63	100

Table 2
Sample Distribution Based on Age

Age	Frequency	Percent
0 - 18 years old	4	6,3
19 - 64 years old	55	87,3
>65 years old	4	6,3
Total	63	100

Table 3
Sample Distribution Based on Gender

Gender	Frequency	Percent
Male	36	57
Female	27	43
Total	63	100

Table 4
Distribution of Samples Based on Patients' Chief Complaints

Chief Complaint	Frequency	Percent
Reddish Spot	43	72,8%
Whitish Spot	12	20,3%
Wound	8	13,5%
Eyebrows Fall Out	6	10,1%
Nose Widening	3	5,0%
Numb or tingling	27	45,7%
Fever, Cough, Flu	6	10,1%
Joint Pain	9	15,2%
Etc. (thickening of the skin, itching, swelling, and history of leprosy)	14	23,7%
Total	59	100

Table 5
Distribution of Samples Based on Skin Efloricence

Skin Efflorescence	Frequency	Percent
Plaque Erythema	24	42,8
Erythema Nodosum	6	10,7
Ulcer	8	14,2
Macular Hyperpigmentation/ Hypopigmentation	16	28,5
Xerotic Skin	4	7,1
Punched-out Lesion	8	14,2
Decrease Sensation	18	32,1
Nerve Thickening	14	32,1
Total	56	100

Table 6
Sample Distribution Based on WHO Classification

WHO classification	Frequency	Percent
PB criteria	35	55.6
MB criteria	28	44.4
Total	63	100

Table 7
Sample Distribution Based on Riddley Jopling Classification

Riddley Jopling Classification	Frequency	Percent
TT	13	20,6
BT	21	33,3
BB	3	4,8
BL	19	30,2
LL	7	11,1
Total	63	100

DISCUSSION

Table 2 shows the profile of leprosy patients at Prof. dr. I. G. N. G. Ngoerah Central Hospital Denpasar in 2017 - 2022 based on age characteristics which is divided into three age categories: 0 - 18 years, 19 - 64 years, and > 65 years. Most findings were found in the productive age category, namely 19 - 64 years, with 55 cases (87.3%), while in the age category of 0 - 18 years and > 65 years, there were the same number of cases, namely 4 cases (6.3%).

In communicable diseases, age is one of the factors that influence the course of a disease. Presumably, the immune system is less mature in children and weaker in the elderly. However, this condition was not found in leprosy patients [10]. This finding is in line with research conducted by Ismaini, (2018) which stated that the highest incidence of leprosy is in adults, in the age category of 25 - 35 years [11]. Another study also showed that the largest age group diagnosed with leprosy was the age category 15 - 65 years, as much as 46% at the Raja City Health Center [12]. This can occur because productive age groups have high mobility and

activity when compared to other age groups [13].

Table 3 shows that the clinicopathology of leprosy patients at Prof. dr. I. G. N. G. Ngoerah Central Hospital Denpasar in 2017 - 2022 based on gender was found to be more prevalent in male patients, with 36 cases (57.6%) compared to women, with 27 cases (42.6%). This is in line with research conducted by Maryen (2018), which stated that men have 2.3 times more risk of leprosy infection than women with a comparison of cases found in male patients 35 cases (64.8%) and women 19 cases (35.2%) [14].

This study is also supported by the fact that male-to-female ratio in Sorong City is 2:1 [12]. The reason that reinforces this opinion is the biological factor. For example, the immune system in women is stronger than men [14]. In addition, physical activities that are predominantly carried out by men can also be one of the causes of decreased immunity, making the development of leprosy easier [15].

Table 4 shows the profile of leprosy patients at Prof. dr. I. G. N. G. Ngoerah Central Hospital Denpasar in 2017-2022 based on the main complaints. It was found that reddish

spots on the skin area were the most frequently complained of by leprosy patients, in as many as 43 cases (72.8%) followed by complaints of numbness or tingling in the lesions in 27 cases (45.7%). This is also in line with a case study conducted by Pradana, et al, (2016) who said that 50% of the complaints often felt by patients were reddish spots followed by numbness around the lesion, both in acute and chronic cases [16]. According to the Ministry of Health (2006), leprosy can be diagnosed through cardinal signs, one of which is patches on the skin that experience numbness [11].

Based on the pathogenesis, it can be seen that the *M. leprae* bacteria in the course of the disease will attack the nervous system first, especially Schwann cells, which would replicate and increase bacteria. Therefore, nerve complaints, especially numbness around the lesion are often felt by patients [4]. In addition, complaints of fever and joint pain can also be felt in leprosy patients with case findings of 10.1% and 15.2% of the total sample used, respectively. This statement is in line with the research of Karmila, (2016) who said that complaints of fever, myalgia, and arthralgia can also be felt in leprosy patients, especially those who have entered the leprosy reaction phase [17].

Table 5 shows the profile of leprosy patients at Prof. dr. I. G. N. G. Ngoerah Central Hospital Denpasar in 2017 - 2022 based on the patient's skin efflorescence, it was found that the most efflorescence was plaque erythema as many as 24 cases (42.8%). This is in line with the case report conducted by Pradana, et al, obtained the results of a physical examination in the form of reddish

plaques and decreased sensation in the lesion [16]. In the case report conducted by Karmila, (2016), the lesion was obtained in the form of multiple erythema nodules with firm boundaries, a picture of multiple erythema macules [17]. This is in accordance with the main signs or cardinal signs for diagnosing leprosy, namely reddish or whitish numb lesions that will widen over time, peripheral nerve thickening or nerve disorders, and the discovery of *M. leprae* bacteria on bacteriological tests [11].

Table 6 shows the profile of leprosy patients at Prof. dr. I. G. N. G. Ngoerah Central Hospital Denpasar in 2017 - 2022 based on the WHO classification of patients, which included the pauci bacillary (PB) type, which was more commonly found, as many as 35 cases (55.6%) compared to the multibacillary type (MB) which was 28 cases (44.4%). This can be influenced by many factors, one of which is patient medication compliance. In accordance with research conducted by Tuturop, patients regularly take medication in accordance with the recommendations given, as evidenced by the findings in 2010, the proportion of patients who obeyed taking medication was 52.4% of the paucibacillary (PB) type, while the remaining 13.5% of the multibacillary (MB) type [12]. In addition, leprosy is an immunologic disease. If the cellular immune system is high, the lesions that appear will disappear and the type of leprosy that develops is paucibacillary (PB). By diagnosing leprosy as early as possible and providing good management, the immunity of leprosy patients can be controlled. This is why the more common type of leprosy is paucibacillary (PB) [4].

Table 7. shows the profile of leprosy patients at Prof. dr. I. G. N. G. Ngoerah Central Hospital Denpasar in 2017 - 2022 based on the Riddley Jopling classification, the most patients were of the Boderline tuberculoid (BT) and Boderline lepromatosa (BL) types with 21 (33.3%) and 19 (30.2%) cases, followed by the Tuberculoid tuberculoid (TT), Lepromatosa lepromatosa (LL), and Boderline borderline (BB) types with a frequency of 13 cases (20.6%), 7 cases (11.1%) and 3 cases (4.8%).

This is suitable with research conducted by Aisyah, et al (2018) obtained data on new leprosy patients who belong to the BL type as much as 40.7%, followed by the LL type at 37% [13]. Classification is obtained from the clinical picture of leprosy patients. [18].

LIMITATIONS OF THE STUDY

This study only assessed the characteristics of patients with leprosy through medical records, so it could not identify risk factors for leprosy. In this study, there was still a significant obstacle in the form of a lack of complete medical record data related to the family history of the research subjects. I hope that the existing medical record data at Prof. dr. I. G. N. G. Ngoerah Central Hospital Denpasar is adjusted to national and international standards. Further analysis of the relationship between each variable is needed to describe patient characteristics in more detail.

IMPLICATIONS OF THE STUDY

This study is expected to provide information related to the characteristics of leprosy

patients so that future medical or nursing intervention planning can be planned to be more appropriate. It is recommended to conduct further research to find the relationship between each variable and the occurrence of leprosy. It is also necessary to add characteristics to future studies such as adherence to taking medication and the risk of living in the same house with patients.

CONCLUSIONS

Based on the results of the study of the clinicopathological profile of leprosy at Prof. dr. I. G. N. G. Ngoerah Central Hospital Denpasar in 2017-2022, there were a total of 63 data that met the inclusion criteria and the following conclusions were obtained: The most findings were found in the age group 19 - 64 years with a frequency of 55 cases (87.3%), men with a higher frequency, namely 36 cases (57.1%) compared to 27 cases (43%) in women. Based on the patient's main complaint, the most common complaint was reddish spots, namely 43 cases (72.8%). Based on the WHO classification, the most common findings were the PB type, with 35 cases (55.6%). Based on the Riddley Jopling classification, the most common findings were the BT type, with 21 cases (33.3%). Based on skin efflorescence, the most common findings were erythema plaques, with 24 cases (42.8%).

CONFLICT OF INTEREST

The are no conflict of interest in this study.

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