

MOLLUSCUM CONTAGIOSUM PROFILE AT THE DERMATOLOGY AND VENEREOLOGY POLYCLINIC OF PROF. I.G.N.G. NGOERAH CENTRAL GENERAL HOSPITAL DENPASAR

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ABSTRACT

Molluscum contagiosum (MC) is a viral infectious disease caused by the Molluscum Contagiosum Virus (MCV). There are four subtypes of MCV (MCV-1, MCV-2, MCV-3, and MCV-4). The worldwide incidence of MK infection is estimated to be around 2% to 8%, while in the HIV/AIDS population, it is approximately 5% to 18%. To date, there is limited research reporting on the profile of MC patients in Indonesia. This is a descriptive cross-sectional research design. Data were obtained retrospectively and collected from the medical records of patients with molluscum contagiosum who visited the Dermatology and Venereology Polyclinic at Prof. I.G.N.G. Ngoerah General Hospital in Denpasar, Bali, from January 2018 to December 2020. In this study of molluscum contagiosum infection at the Dermatology and Venereology Polyclinic of Sanglah General Hospital in Denpasar, Bali, during the period of January 2018 to December 2020, the majority of participants were aged between 18-44 years (61.1%) and were male (61.1%). Most participants were from Bali (77.8%) and were married (55.6%). Moreover, the majority of participants were sexually active (77.8%) and had a negative HIV status (55.6%). Concerning sexual orientation, most participants identified as heterosexual (83.3%). Regarding the type of therapy received, most participants underwent enucleation (55.5%) and combination therapy (22.2%). Broad public education, especially for parents, regarding molluscum contagiosum should be enhanced to support more effective healthcare efforts encompassing treatment, prevention, and health promotion.

KEYWORDS *Molluscum contagiosum, Dermatology Venereology, Characteristics*



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INTRODUCTION

Molluscum contagiosum (MC) is a viral infectious disease caused by the Molluscum Contagiosum Virus (MCV). There are four subtypes of MCV (MCV-1, MCV-2, MCV-3, and MCV-4). Among these subtypes, MCV-1 is found in more than 90% of MC cases. After the eradication of smallpox, MCV became the poxvirus most commonly affecting humans.¹ MC typically affects school-age children, sexually active young adults, and individuals with compromised immune status (Kulit, 2021). MC is transmitted through skin contact and is most commonly found in children under the age of 14. Symptoms of MC are primarily limited to the skin. However, in some cases, there can be severe inflammatory reactions in the lesion area, which can sometimes be mistaken for bacterial infections or cellulitis. MCV specifically attacks the epidermal layer of the skin (Kang & Fitzpatrick, 1994). The manifestations can include pink, pearly, or skin-colored papules, nodules, or tumors, with a central umbilication or depression. Occasionally, eczematous reactions can also be found around the lesions (Wolff et al., 2017).

The MC virus specifically attacks the epidermis, more specifically the keratinocyte cytoplasm. The incubation period of this virus varies from 2 weeks to 6 months (Badri T, 2022). Replication results in the formation of inclusion bodies known as Henderson-Paterson bodies in the basal layer of the epidermis. The proliferation and enlargement of cells lead to the disintegration of the stratum corneum and the formation of an ostium with a depression that can serve as an exit path for virions when the inclusion body ruptures. The MC virus produces specific proteins that can inhibit the body's immune response. As a result, both the non-specific and adaptive immune systems are inhibited, and the body's antiviral response is inadequate, allowing skin lesions to persist for an extended period. However, there are specific times when the virus becomes detectable by the immune system, triggering a local immune response and resulting in the resolution of the infection.

The global incidence of MC infection is estimated to be around 2% - 8%, with a higher rate in HIV/AIDS populations, ranging from 5% to 18%. The true prevalence of MC is likely higher because sometimes the infection is subclinical. The primary mode of MC virus transmission is through direct contact with active lesions, autoinoculation from scratching, indirect transmission from shared objects (such as sports equipment, razors, and hair clippers), and sexual contact.

Individuals infected with the MC virus may have no symptoms or may develop skin abnormalities characterized by dome-shaped papules with a central depression (delle). When squeezed, these papules release a white, pearl-like mass, which is the molluscum body. Lesions may also be lenticular and wax-like in appearance. They are often found on the face, body, and extremities. Secondary infections can occur in MC lesions, leading to suppuration.

Diagnostic tests for MC are typically not required. MC can be clinically diagnosed. Management of MC can be divided into non-medication and medication-based approaches. The non-medication approach focuses on maintaining skin hygiene, while the medication-based approach aims to remove molluscum bodies using topical or systemic therapies, as well as surgical procedures like curettage, enucleation, cryosurgery, or the use of liquid nitrogen.

Given that MC is the poxvirus that most frequently infects humans, regular research on the patient profile of MC is needed to understand risk factors and assist in clinical decision-making for patient management. However, there is limited research reporting on the patient profile of MC in Indonesia, with the most recent study conducted by Runtuwene et al. in Manado from 2013-2015 (Runtuwene et al., 2016). No such research has been conducted in Denpasar. Therefore, this study aims to provide insights into the patient profile of MC in Indonesia, specifically in Bali, for the period of 2018-2020.

RESEARCH METHOD

This research is a descriptive cross-sectional design. Data was obtained retrospectively and collected from the medical records of patients with molluscum contagiosum who visited the Dermatology and Venereology Polyclinic of Prof. I.G.N.G. Ngoerah Denpasar General Hospital in Bali. The study timeline includes administrative preparation, data collection, and data analysis. Overall, the research is conducted from January 2023 to June 2023. The study sample comprises all cases diagnosed with molluscum contagiosum at the Dermatology and Venereology Polyclinic of Prof. I.G.N.G. Ngoerah General Hospital, Denpasar, Bali, during the period of January 2018 to December 2020. The study sample is selected through consecutive sampling, where all subjects meeting the eligibility criteria during the study period become part of the research until the minimum required sample size is achieved.

The inclusion criteria for participants are that they must be individuals diagnosed with molluscum contagiosum by a doctor. Additionally, they are required to undergo an examination at the Dermatology and Venereology Polyclinic of Prof. I.G.N.G. Ngoerah General Hospital, Denpasar. Participants with incomplete medical record data for the necessary variables will be excluded from the study.

Data analysis in this study is performed descriptively using SPSS 20 software. The results of data analysis will be presented in tabular form, with categorical data expressed in frequency distributions and percentages. Continuous data will be presented as mean and standard deviation for normally distributed data and as median and range for non-normally distributed data.

RESULT AND DISCUSSION

In this study, the characteristics of the participants consist of 18 individuals with an average age of approximately 18 years (± 15.4). The results indicate that 4 participants (22.2%) are aged 5-17 years, 11 participants (61.1%) are aged 18-44 years, and 3 participants (16.7%) are older than 45 years. A total of 11 participants (61.1%) are male, while 7 participants (38.9%) are female. In terms of marital status, 10 participants (55.6%) are married, while 8 participants (44.4%) are unmarried. Based on occupation, 3 individuals (16.7%) work as housewives, 6 individuals (33.3%) work in the private sector, 2 individuals (11.1%) are students, 5 individuals (27.8%) are self-employed, and 2 individuals (11.1%) are unemployed.

The majority of participants originate from Bali (77.8%), with one person each coming from Java (5.6%), East Nusa Tenggara (5.6%), Sumatra (5.6%), and

outside Indonesia (5.6%). Most of the participants (14 patients) were sexually active (77.8%) and 4 participants (22.2%) were not sexually active. Regarding HIV status, 8 participants (44.4%) are HIV-positive, while 10 participants (55.6%) are HIV-negative.

As for sexual orientation, 3 participants (16.7%) identify themselves as homosexual, while 15 other participants (83.3%) identify themselves as heterosexual. Concerning the type of therapy received, 10 participants (55.5%) underwent enucleation, 4 participants (22.2%) received combination therapy, 3 participants (16.7%) received 10% KOH treatment, and 1 participant (5.6%) received 80% TCA treatment. Combination therapy includes combination between enucleation with 10% KOH or with 80% TCA.

Tabel 1. Patients Characteristics

Characteristics	N = 18	%
Age (Mean ± SD)	18 ± 15.4	
0-4 years	0	0
5-17 years	4	22.2
18-44 years	11	61.1
45 years	3	16.7
Gender		
Male	11	61.1
Female	7	38.9
Marital Status		
Married	10	55.6
Unmarried	8	44.4
Occupation		
Housewife	3	16.7
Private Sector Employee	6	33.3
Student	2	11.1
Self-Employed	5	27.8
Unemployed	2	11.1
Place of Origin		
Bali	14	77.8
Java	1	5.6
East Nusa Tenggara	1	5.6
Sumatra	1	5.6
Outside Indonesia	1	5.6
Sexually active		
Yes	14	77.8
No	4	22.2
HIV Status		
Positive	8	44.4
Negative	10	55.6
Sexual Orientation		

Homosexual	3	16.7
Heterosexual	15	83.3
Therapy		
Enucleation	10	55.5
10% KOH Solution	3	16.7
80% TCA Solution	1	5.6
Combination therapy	4	22.2

SD: Standard Deviation

Discussion

Molluscum contagiosum (MC) is a cutaneous infection that only affects humans. MC is caused by the Molluscum contagiosum virus (MCV), which belongs to the Poxviridae family, Molluscipoxvirus genus.¹ MC infections are most commonly found in children, sexually active individuals, athletes participating in contact sports, and people with compromised immune systems. MC infections are most frequently found in children under 14 years of age. In this study, the characteristics of the participants consisted of 18 individuals with an average age of about 18 years (± 15.4), with the majority of participants (61.1%) in the 18-44 age group. These results are consistent with a study conducted in Slovenia, where the majority of MC patients were over 17 years old, accounting for 71.8% (Trčko et al., 2018).

In young adults, MC infections can be associated with a decline due to sexual relationships. Transmission through sexual contact occurs due to skin-to-skin contact and is closely related to MC infections in the genital area. In adults, apart from the use of shared items, it can also be associated with immunodeficiency conditions (Robinson, Townsend, and Jahnke, 2020). Previous studies have also stated that men are more affected by MC than women, with a ratio of 64.4% vs. 35.6%. This aligns with this study where 11 participants (61.1%) were male, while 7 participants (38.9%) were female.

Based on occupation, 3 individuals (16.7%) were homemakers, 6 individuals (33.3%) were private sector employees, 2 individuals (11.1%) were students, 5 individuals (27.8%) were self-employed, and 2 individuals (11.1%) were unemployed. This differs slightly from a study conducted at the Department of Dermatology and Venereology, Prof. Dr. R. D. Kandou General Hospital Manado during the period of January 2013 to December 2015, where the highest incidence was among students, with 29 patients (48.3%), and the lowest was among homemakers, with 2 patients (3.3%). Athletes, especially those in sports that involve shared equipment (mats, rackets, sticks), have a higher risk of MC infection. HIV patients have a higher risk of MC infection. HIV patients with a CD4+ count < 200 cells/ μ L are significantly more at risk for MC infection, and MC infection is often used as a clinical indicator of advanced HIV infection (Vora et al., 2015). In 10-20% of symptomatic HIV patients, extensive MC infection can be found, with more than 100 lesions. In HIV patients, MC virus replication occurs continuously due to the host's immune system defect. This can explain extensive infections and sometimes atypical histological findings resembling localized tumor formation (Encarnacion et al., 2021). In this study, 3 participants (16.7%) identified themselves as homosexual.

Based on HIV status, 8 participants (44.4%) were HIV positive, while 10 participants (55.6%) were HIV negative.

The management of Molluscum contagiosum (MC) infection must be tailored to the risk and benefit considerations for each patient and should be decided after discussion with the patient and their family. In children, further action is often not necessary as their immune system tends to overcome MC infections without intervention. However, in some cases, therapy may be required if the infection persists, lesions cause severe itching, or the lesions interfere with appearance. Given therapy can be either topical, systemic, or destructive.

Topical therapy is often chemically destructive and can include various agents such as trichloroacetic acid (TCA), salicylic acid, hydrogen peroxide, cantharidin, potassium hydroxide, silver nitrate, 5% imiquimod cream, KOH, and benzoyl peroxide (Robinson et al., 2020). Systemic therapy, in some cases, may involve the use of immunotherapy to stimulate the immune system and help eliminate the MC virus. Some immunotherapy options include cimetidine, cidofovir, cantharidin, and interferon-alpha (Edwards et al., 2021; Eichenfield et al., 2021; Gerlero & Hernández-Martín, 2018; Griffiths et al., 2016; Silverman & Shinder, 2022). Destructive therapy, often the primary choice for adults, involves physical or chemical procedures to destroy MC lesions. Some destructive methods include curettage, manual extraction, laser, electrodesiccation, and cryotherapy. However, the selection of destructive measures should be carefully considered in children because it can cause pain. Cantharidin 0.7% is the recommended topical therapy for children. In this study, 10 participants (55.5%) underwent enucleation, 4 participants (22.2%) received combination therapy, 3 participants (16.7%) received 10% KOH treatment, and 1 participant (5.6%) received 80% TCA treatment.

CONCLUSION

In this study of Molluscum contagiosum (MC) infection at the Dermatology and Venereology Polyclinic of Prof. I.G.N.G. Ngoerah General Hospital, Denpasar, Bali, during the period of January 2018 to December 2020, the majority of participants were between the ages of 18-44 years (61.1%) and were male (61.1%). Most of the participants came from Bali (77.8%) and were married (55.6%). Meanwhile, the majority of participants were sexually active (77.8%) and had a negative HIV status (55.6%). In terms of sexual orientation, most participants identified as heterosexual (83.3%). Regarding the type of therapy received, the majority of participants underwent enucleation (55.5%) and combination therapy (22.2%). Accuracy in patient data recording plays a crucial role in ensuring comprehensive, accurate, and informative documentation, while the management and storage of medical records must also be well-maintained. Public education, especially for parents, needs to be enhanced to support more effective health efforts, including treatment, prevention, and health promotion. Additionally, in-depth and regular research on Molluscum Contagiosum is needed to deepen our understanding of this condition.

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