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Case Report

Holistic and Comprehensive Management of Varicella in a Pediatric Patient Using a Family Medicine Approach in Primary Health Care: A Case Report

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Abstract:

Varicella is an acute and highly contagious viral infection caused by varicella-zoster virus. It commonly affects children and is characterized by fever, pruritus, and a generalized vesicular rash at different stages of development. Although many cases are self-limited, comprehensive management is important to reduce symptoms, prevent secondary skin infection, limit transmission, and strengthen family participation in care. This case report describes a 13-year-old boy who presented to a primary health care facility with small skin eruptions over the body accompanied by fever and generalized itching for five days. The patient had no history of allergy, no previous similar disease, and no family member with similar complaints. Physical examination showed stable general condition, pulse rate of 104 beats/minute, respiratory rate of 22 breaths/minute, body temperature of 36.6 °C, and underweight nutritional status with a body mass index of 16.3 kg/m². Dermatological examination revealed generalized papules and vesicles on an erythematous base involving the neck, thorax, upper limbs, abdomen, back, thighs, and lower legs. No laboratory or imaging investigation was performed. The patient was clinically diagnosed with varicella. Management included symptomatic therapy, acyclovir, topical acyclovir, antihistamine, cough medication, education to avoid scratching, nail trimming, hygiene improvement, adequate rest at home, and prevention of transmission. A family medicine assessment showed good family support but identified environmental density and hygiene as relevant contextual factors. This case highlights that primary care management of varicella should integrate clinical treatment, patient education, infection prevention, and family-centered support.

Keywords: Varicella; Chickenpox; Pediatric infection; Family medicine; Primary health care.

1. Introduction

Varicella, commonly known as chickenpox, is an acute infectious disease caused by varicella-zoster virus, a member of the Herpesviridae family (1)(2). Primary infection usually presents with fever, malaise, pruritus, and a generalized vesicular eruption (1)(3)(4). The rash typically appears in crops and may involve macules, papules, vesicles, pustules, and crusts at the same time (1)(3). Transmission occurs mainly through respiratory droplets, aerosolized particles, and direct contact with vesicular fluid, making varicella highly contagious in households, schools, and densely populated communities (5)(6)(7).

Varicella is often regarded as a mild childhood illness; however, it remains clinically important because it can cause discomfort, school absenteeism, household transmission, secondary bacterial skin infection, pneumonia, neurological complications, and more severe disease in adolescents, adults, pregnant women, newborns, and

immunocompromised individuals (5)(8)(9)(10). In children, scratching of pruritic lesions may increase the risk of skin trauma and bacterial superinfection (9)(10)(11). Therefore, adequate symptom control, hygiene education, isolation during the contagious period, and family participation are important components of care.

In primary health care, varicella is commonly diagnosed clinically based on the typical appearance and distribution of skin lesions (1)(3)(12). Laboratory confirmation, such as polymerase chain reaction testing from lesion samples, may be considered in atypical cases, severe disease, outbreaks, or high-risk patients, but it is not always available or necessary in routine uncomplicated cases (12). Management is generally supportive, while antiviral therapy may be considered based on age, duration of symptoms, disease severity, risk factors, and local clinical judgment (3)(13)(14).

Beyond clinical treatment, a family medicine approach is relevant because the spread and outcome of varicella are influenced by household behavior, hygiene practices, knowledge of transmission, ability to isolate the patient, medication adherence, and environmental conditions (4)(6). In pediatric patients, parents or caregivers play an essential role in monitoring symptoms, preventing scratching, ensuring adequate rest, supporting nutrition, and reducing transmission to siblings and neighbors.

This case report presents the holistic and comprehensive management of varicella in a pediatric patient at a primary health care facility. The objective is to describe how clinical findings, family function, environmental context, health education, and prevention of transmission can be integrated into a family medicine-based case management plan.

2. Case Presentation

A 13-year-old boy, identified as An. A for confidentiality, was brought by his mother to a primary health care facility in Makassar on 27 October 2025. The patient was a student and the second child of three siblings. He lived with his father, mother, older sibling, and younger sibling in a nuclear family. The family lived in a densely populated residential environment and interacted closely with neighbors. The socioeconomic status of the family was lower-middle, and the patient used national health insurance for health care access.

The chief complaint was the appearance of small skin eruptions over the body. The complaint had been present for five days before consultation and was accompanied by fever and generalized itching. The symptoms were intermittent. The patient denied pain. There was no history of allergy, no previous similar disease, and no family member with similar complaints. The patient's daily activities included going to school, helping his mother at a small shop after school, and sometimes playing with friends around the house.

Before evaluation, the patient had received or consumed paracetamol, acyclovir 400 mg, acyclovir 5% ointment, ambroxol syrup, chlorpheniramine, and amoxicillin trihydrate 500 mg according to prior medication history. The family reported that the patient regularly consumed medicine given by the health facility.

On physical examination, the patient was conscious and in a stable general condition. Vital signs showed blood pressure of 120/90 mmHg, pulse rate of 104 beats/minute, respiratory rate of 22 breaths/minute, and body temperature of 36.6 °C. His body weight was 30.5 kg, height was 137.5 cm, abdominal circumference was 60 cm, and body mass index was 16.3 kg/m², categorized as underweight.

Internal examination showed non-anemic conjunctivae, anicteric sclerae, no dirty tongue, regular first and second heart sounds without gallop or murmur, vesicular breath sounds without rhonchi or wheezing, no palpable liver or spleen enlargement, warm extremities, no cyanosis, and capillary refill time less than two seconds.

Dermatological examination revealed generalized skin lesions involving the neck, thorax, upper limbs, abdomen, back, thighs, and lower legs. The lesions were round and regular, consisting of papules and vesicles on an erythematous base. No laboratory test or imaging examination was performed. Based on the history and typical dermatological findings, the patient was clinically diagnosed with varicella (1)(3).

Table 1. Summary of patient clinical findings

Domain	Findings
Patient profile	13-year-old boy, student, second child of three siblings
Main complaint	Small skin eruptions over the body
Duration	Five days before consultation
Associated symptoms	Fever and generalized itching
Vital signs	Blood pressure 120/90 mmHg; pulse 104 beats/minute; respiratory rate 22 breaths/minute; temperature 36.6 °C
Nutritional status	Body mass index 16.3 kg/m²; underweight
Dermatological findings	Generalized papules and vesicles on an erythematous base involving the neck, thorax, upper limbs, abdomen, back, thighs, and lower legs
Investigations	No laboratory or imaging examination was performed
Clinical diagnosis	Varicella

The holistic diagnosis was organized into several domains. The personal aspect included generalized small skin eruptions, fever, itching, and the expectation that symptoms would resolve and medication could be reduced or stopped after improvement. The clinical aspect was varicella. Internal risk factors included pediatric age, school and play activities, underweight nutritional status, and hygiene-related vulnerability. External risk factors included residence in a densely populated environment and household/community interaction. Family support was generally good, especially in helping the patient take medication and seek health care. The functional status was classified as degree 2 because the patient remained able to perform light daily activities but required rest and limitation of contact to prevent transmission.

The family APGAR score indicated good family function, with the patient reporting satisfaction with family support, problem discussion, emotional response, acceptance, and shared time. The SCREEM assessment showed generally supportive social, cultural, religious, economic, educational, and medical resources. However, environmental density and hygiene practices were considered important targets for counseling because they may influence transmission risk and secondary infection prevention.

Table 2. Family medicine assessment

Assessment component	Result	Interpretation
Family type	Nuclear family	Patient lives with father, mother, older sibling, and younger sibling
Family APGAR	Good family support	No major family dysfunction identified
Social resource	Good relationship with neighbors	Supportive, but close interaction may increase transmission risk
Cultural/lifestyle factor	Patient plays with neighborhood friends	Needs temporary activity restriction during contagious period
Economic resource	Lower-middle socioeconomic status	Daily needs generally fulfilled; BPJS supports health care access
Educational resource	Family able to receive counseling	Needs repeated education on transmission prevention and lesion care
Medical resource	Uses primary health care and BPJS	Supportive for follow-up

The management plan consisted of pharmacological and non-pharmacological interventions. Pharmacological treatment included paracetamol for fever or discomfort, acyclovir 400 mg four times daily, acyclovir 5% ointment, chlorpheniramine for itching, and ambroxol syrup for respiratory symptoms as recorded in the treatment history. The use of antibiotics should be based on clinical indication, particularly if secondary bacterial infection is suspected (9)(11)(13).

Non-pharmacological management focused on education and prevention. The patient and family were advised not to scratch the lesions, to trim the patient's nails, to maintain skin hygiene, to keep the patient resting at home, and to limit contact with other children or susceptible individuals to reduce transmission (9)(10)(11). The family was also educated to monitor warning signs such as persistent high fever, worsening skin infection, breathing difficulty, reduced consciousness, poor oral intake, or signs of dehydration (9)(10)(15)(16)(17).

The expected outcomes were reduced itching, healing of lesions without secondary bacterial infection, improved family understanding of varicella transmission, better adherence to treatment, adequate rest at home, and prevention of spread to household and community contacts. After counseling, the family understood the importance of avoiding scratching, improving hygiene, supporting medication adherence, and temporarily limiting the patient's activities outside the home.

Table 3. Problem-solving evaluation after family medicine intervention

Problem	Intervention	Expected outcome
Varicella with generalized pruritic lesions	Symptomatic therapy, antiviral therapy, skin hygiene, avoid scratching, nail trimming	Lesions heal without secondary infection and itching decreases
Risk of transmission	Rest at home, avoid school and close contact during contagious period, family education	Reduced spread to siblings, school contacts, and neighbors
Underweight nutritional status	Nutrition education and adequate oral intake during illness	Improved recovery support and nutritional awareness
Dense living environment and hygiene concerns	Counseling on hygiene, ventilation, and safe interaction	Lower risk of transmission and skin infection

3. Discussion

This case demonstrates a common presentation of varicella in a pediatric patient managed in primary care. The patient presented with fever, itching, and generalized papulovesicular lesions on an erythematous base. These findings are consistent with the typical clinical manifestation of varicella, in which lesions appear in successive crops and may involve various stages of development (1)(3)(4). In uncomplicated cases, diagnosis is commonly clinical, while laboratory confirmation is reserved for atypical, severe, outbreak-related, or high-risk cases (3)(12).

The patient's environmental context was clinically relevant. He lived in a densely populated area and had routine contact with school friends, neighborhood friends, and household members. Varicella is highly contagious, particularly from one to two days before rash onset until all lesions have crusted (5)(6)(7). Therefore, home rest, temporary avoidance of school and play activities, and family education are important to reduce transmission (5)(6)(7). This is especially relevant in households with younger children, pregnant women, elderly individuals, or immunocompromised persons (18)(19)(20).

Pruritus was a prominent symptom in this case. Scratching can damage the skin barrier and increase the risk of secondary bacterial infection (9)(10)(11). Simple preventive measures, including nail trimming, maintaining clean skin, avoiding scratching, and using antipruritic medication when needed, are important parts of management. These measures are easy to deliver in primary care and can be understood by caregivers when explained using simple language.

Antiviral therapy with acyclovir was included in the patient's treatment history. Antiviral treatment may reduce the duration and severity of symptoms when used appropriately, particularly in selected patients based on age, timing of presentation, severity, and risk factors (3)(14). However, supportive care remains essential, including fever control, hydration, adequate rest, and monitoring for complications. In children, the decision to use antiviral therapy should be individualized according to clinical judgment and local practice (3)(13)(14).

The underweight nutritional status of the patient may affect general resilience during acute illness (8). Although nutritional status is not the only determinant of varicella severity, adequate nutrition and hydration are important for recovery. Family counseling should therefore include encouragement of balanced intake, sufficient fluids, and monitoring of appetite during illness.

A family medicine approach added value in this case because it identified not only the clinical diagnosis but also household support, environmental density, school and play exposure, hygiene behavior, health-care access, and caregiver roles (4)(6). The family APGAR and SCREEM assessment suggested that the family had adequate internal support and access to health care, but still required targeted education regarding transmission prevention

and lesion care. This supports the principle that infectious diseases in children should be managed with attention to the family and community context, not only with medication.

The main limitation of this case report is the absence of laboratory confirmation and structured follow-up documentation. However, the case remains useful because it reflects routine primary-care management of a clinically typical varicella case. Future case documentation should include vaccination history, detailed contact history, assessment of susceptible household members, pain or itch scoring, lesion progression, adverse drug monitoring, and follow-up outcomes until crusting and recovery (7)(12)(18)(21).

4. Conclusion

This case report describes a 13-year-old boy with clinically diagnosed varicella managed through a holistic and comprehensive family medicine approach in primary care. The case emphasizes that varicella management should include symptomatic treatment, antiviral therapy when clinically indicated, lesion care, prevention of scratching, hygiene improvement, temporary activity restriction, and family education to prevent transmission. A family-centered approach helps strengthen adherence, improve caregiver understanding, reduce household and community spread, and support safe recovery in pediatric patients.

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