

Letters to the Editor**An Interesting Case of Rash in a Child with Febrile Neutropenia - Not Everything is a Medical Problem****Keywords:** Rash; Leukemia.**Published:** May 01, 2025**Received:** February 25, 2025**Accepted:** April 12, 2025**Citation:** Bakliwal A., Sharma S.K. An interesting case of rash in a child with febrile neutropenia - Not everything is a medical problem. *Mediterr J Hematol Infect Dis* 2025, 17(1): e2025036, DOI: <http://dx.doi.org/10.4084/MJHID.2025.036>

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To the editor.

Rash is a common complication in children presenting with hematological malignancies. The differential diagnosis of rash includes bleeding diathesis, drug rash, infections, coagulopathy, or trauma. Sometimes, the diagnosis of rash may be challenging, though it may not require any specific tests. This case highlights a rare but interesting case of rash in a child being treated for acute lymphoblastic leukemia.

Case.

A 6-year-old male child was diagnosed with a case of B-cell acute lymphoblastic leukemia. He was accompanied by his parents and was admitted to the hospital for treatment. He was started on the BFM 2009 protocol and received pegylated asparaginase on day 12 and a second dose of daunorubicin and vincristine on day 15 of the protocol. He was having neutropenia and had developed a neutropenic fever on day 16. Blood and urine culture samples were sent, and he was started on injectable cefoperazone and sulbactam antibiotics as per institutional policy. He continued to have high-grade fever and was given injectable paracetamol three times a day. The next day, on clinical evaluation, the child had a temperature of 101°F and mild tachypnea, and it was noticed that the child had developed non-tender, reddish-blue colored patches over both soles (**Figure 1**). He had perianal excoriation of the skin. There was no rash elsewhere on the body. Systemic examination revealed no significant abnormality. The medication list of the child during this period included prednisolone as a part of induction chemotherapy, septran, pantoprazole, and intravenous fluids. His hemogram revealed hemoglobin of 9.2g/dl, white cell count of $0.70 \times 10^9/l$ with absolute neutrophil count of $0.14 \times 10^9/l$, and platelet count of $10 \times 10^9/l$. The peripheral smear did not show any blasts or parasites. His liver and kidney function tests were normal. His blood culture grew multi-drug resistant to *E. coli*, and he was started on an injection of colistimethate sodium as per the sensitivity

report. His malarial antigen, dengue serology, HIV, HBsAg, and HCV were negative. He was getting platelet transfusions as per requirements.



Figure 1. The soles of the child show reddish-blue patches.

Since the child was febrile and had cytopenias, disseminated intravascular coagulation, drug rash, vasculitis, local trauma, or physical abuse by parents were considered as the possible diagnoses. His prothrombin time, activated partial thromboplastin time, fibrin degradation products, and fibrinogen levels were normal. His repeat echocardiogram was also normal. The fever started decreasing, but the non-tender, localized rash on the feet persisted. There was no pain or swelling of the feet.

On the third day of morning rounds, when his soles were being examined for the rash, the child said that this could be due to the slippers he was wearing (**Figure 2**). Upon seeing his colored slippers, it was concluded that



Figure 2. The slippers of the child. The colors on the slippers are the same and correspond to the colors on the soles.



Figure 3. The color of the soles once the slipper's color faded away.

the rash was the same color as the slippers. The colors over the soles did not rub off immediately but slowly faded over the next few days (**Figure 3**).

The child was continued on further treatment based on the BFM 2009 protocol and achieved measurable

residual disease negative remission. He then completed his treatment and is on maintenance chemotherapy. He tolerated the treatment well and did not develop any rash later on.

Discussion. Though in hemato-oncology, we routinely deal with skin pathology due to thrombocytopenia, coagulopathy, drug rash, vasculitis, leukemia cutis, and rarely trauma, the simple diagnosis can sometimes be challenging. Among the chemotherapeutic agents, pegylated asparaginase can cause hypersensitivity, thrombosis, coagulopathy, and pancreatitis,¹ and daunorubicin can cause skin rash and thrombocytopenia.² Chemotherapy drugs can also cause hand-foot syndrome.³ This syndrome is also called "palmar-plantar erythrodysesthesia" and "acral erythema." Antibiotics are also known to cause hypersensitivity reactions and drug rash.^{4,5} Thrombocytopenia and coagulopathy are also common in patients with acute leukemia and during sepsis.^{5,6} Infections, particularly bacterial and viral infections, can have varied skin manifestations. A high index of suspicion and judicious use of clinical and laboratory parameters can be helpful in such cases, but the majority of skin rashes are diagnosed based on clinical judgment and skin biopsy where clinically indicated.

Conclusions. While treating patients with leukemia, we most often keep the above-mentioned possibilities for any rash but should also acknowledge non-medical causes. Here, the diagnosis was made by the patient child. Rash due to clothing, slippers, and artificial makeup colors can confuse the diagnosis and can lead to unwarranted evaluation and treatment. This case highlights a similar condition where the colors of slippers led to the assumption of some serious hematological condition.

Patient consent statement. The patient's parents provided written informed consent for the use of medical information and images in this case report. The signed informed consent form is available upon request.

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Competing interests: The authors declare no conflict of Interest.

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