Periorbital Cellulitis Caused by Herpes Simplex Virus in a Child with Dedicator of Cytokinesis 8 Deficiency

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To the Editor: Dedicator of cytokinesis 8 deficiency (DOCK8 deficiency) was first described as a cause of primary immunodeficiency in 2009 in patients with severe eczema, cutaneous viral infections, and recurrent bacterial sinopulmonary infections [1, 2]. Cutaneous viral infections in DOCK8 deficiency can be severe and disseminated. We describe first child with DOCK8 deficiency and HSV periorbital cellulitis.

Our index case is a 1-y-6-mo-old boy who was referred for stem cell transplant. The child was found to harbor a homozygous 3' splice site variant in intron 16 of the DOCK8 gene (chr9:g.371427G>T). During pretransplant evaluation, he presented with right-sided periorbital redness. A secondary staphylococcal infection was thought, and he was treated with amoxicillin-clavulanic acid. On day 3, the periorbital swelling worsened with mucoid eye discharge. As methicillin-resistant *Staphylococcus aureus* (MRSA) infection was a concern, he was started on intravenous teicoplanin. A swab of the eye discharge and an MRSA screening swab was sent. On day 3 of teicoplanin, the swelling worsened, involving the upper eye lid with inability to open the eye. We, therefore, considered nonbacterial causes of the periorbital cellulitis. The eye-swab culture was negative at 48 h and viral PCR of eye swab was positive for HSV-1. He was started on intravenous aciclovir. There was complete resolution of the periorbital swelling by day 3 of aciclovir.

DOCK8 is a member of DOCK superfamily of guanine nucleotide exchange factors which interact with Rho GTPase

at the plasma membrane for spatial activation of Cdc42 in the dendritic cells [2]. Poor migration of CD4+ T cells to the skin has been postulated to contribute to loss of control of HSV infection in DOCK8-deficient patients [3].

To summarize, HSV-1 may cause severe disease (including periorbital cellulitis) in patients with DOCK8 deficiency, and that this may mimic other entities, such as bacterial infection.

Declarations

Conflict of Interest None.

References

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