

Possible drug reaction, eosinophilia and systemic symptoms (DRESS) syndrome in an infant from ingestion of *Spirostachys africana* complicated by measles co-infection

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Drug reaction with eosinophilia and systemic symptoms (DRESS) is an adverse syndromic reaction to medications that is rare in infants. The pathognomonic signs are a rash, often morbilliform, spreading from an oedematous face to the torso and extremities, hypereosinophilia and organ involvement.¹⁻³

A 3-month-old girl presented with poor feeding, irritability and a rash for 1 week. She had been born by spontaneous vaginal delivery at term to an HIV-positive mother who had been on antiretrovirals for 2 years. She had received all immunisations for age according to local guidelines (polio, tetanus, tuberculosis, diphtheria, *Haemophilus influenzae* type B and hepatitis B) and was thriving. At age 2 months she developed cradle cap. Among the Xhosa in South Africa, infantile cradle cap is commonly known as *ishimca* and is treated topically with a traditionally prepared residue of the *mthombothi* (*Spirostachys africana*) tree. This child had been treated with *mthombothi*, but instead of topical application her young mother had bottle-fed her the diluted residue daily for 3 weeks. She was not on any other prescription, over-the-counter or traditional medicines.

The child had a resolving intertrigo (groin and axillae) and a yellow-brown scaly scalp consistent with seborrhoeic dermatitis. In addition she had significant peri-orbital oedema and a widespread fine papular erythematous (morbilliform) eruption that involved the face, trunk and palms (Figs 1 and 2). She was afebrile but distressed, with intercostal and subcostal recession, grunting and tachypnoea (82/min). Pulse oximetry revealed oxygen saturation of 85% on room air which improved to 98% on nasal prong oxygen delivered at 2 l/min.

Renal and liver function, the white cell count (13.8×10^9 /ml) and the absolute eosinophil count (13.8×10^9 /ml) were normal. The measles IgM was positive (IgG was negative). Viral culture



Fig. 1. Extensive confluent erythematous papules on face.

of nasopharyngeal aspirates for measles and other respiratory viruses as well as repeat HIV testing by polymerase chain



Fig. 2. Significant peri-orbital swelling.

reaction (PCR) were negative. A chest radiograph revealed extensive pneumonitis.

Requirements for the diagnosis of DRESS include a rash, peripheral blood eosinophilia (or atypical lymphocytes), systemic organ involvement and negative blood culture (and negative specified serology/PCR – hepatitis, Epstein-Barr virus (EBV), cytomegalovirus (CMV), mycoplasma/chlamydia, antinuclear antibodies). The eruption usually takes more than 15 days to resolve.⁴ The eosinophilia occurs in about 60% of cases.⁵

Our patient presented at the height of a local outbreak of measles, and although she had serological evidence of a current measles infection, peri-orbital puffiness and palmar involvement are not typical of measles and are hallmarks of DRESS⁵ in the presence of drug exposure. In the absence of bacterial infection, the lung involvement could be compatible with both measles and DRESS. The rapid resolution of the pneumonitis and improvement of the rash within 5 days of admission, cessation of *mthombothi* and application of topical steroids were consistent with a drug reaction. The child was discharged on day 7 with normal respiratory function and resolving rash.

Discussion

The *mthombothi* tree (*S. africana*) is endemic to southern and central Africa. The plant has several applications: residue from its leaves is used topically to treat rashes, and small doses of its latex are ingested to induce vomiting. Its wood is used to make furniture.^{6,7} Powdered *mthombothi* bark-ethanol extracts produce compounds with activity against *Staphylococcus aureus*, *Salmonella typhi*, *Vibrio cholerae*, *Escherichia coli* and *Shigella* dysentery in laboratory studies. Although it is used as a traditional remedy to treat gastro-intestinal discomfort, large doses can result in diarrhoea and organ damage.⁶ There are no published clinical trials confirming the lack of toxicity and the efficacy of *mthombothi*; its medical use is generally discouraged.⁸

Most paediatric patients develop DRESS secondary to antibiotics or anticonvulsants. Reactions to herbal medications are rare,² but may be more common in Asia (10% in Korea¹ and 4% in China²). However, measles alone could also explain the entire presentation in our case. Another possibility is that measles precipitated the episode of DRESS. The relationship between viral infections and allergy is stimulating research interest. Some have suggested that DRESS 'should be regarded as a reaction induced by a complex interplay among several herpes viruses (EBV, HHV-6, HHV-7, and CMV),

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antiviral immune responses, and drug-specific immune responses'.⁹ Interestingly, the youngest published case was an 11-month-old with HHV-6 and encephalopathy treated with phenobarbital.¹⁰ We were unable to find a report of measles infection precipitating or complicating DRESS.

Conclusion

This case illustrates the crucial role of determining all administered agents (including non-prescription remedies) in patients presenting with acute skin eruptions. We believe ours is potentially a case of firsts: the youngest report of DRESS, the first with a concurrent measles infection, and finally the first induced by an African herbal remedy.

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