Skin Flicks

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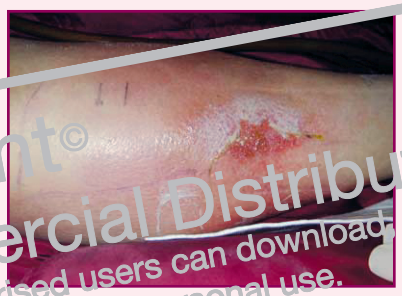
- Graham, 65, presents to the emergency department because of increasing pain at the site of an injury to his lower right leg (Figure 1).
- While he is waiting to be assessed, he becomes increasingly disoriented and is found to be hypotensive and is having trouble breathing. He also has a diffuse erythematous maculopapular eruption, bilateral conjunctiva injection and erythema of the palms and soles.



What's wrong with Graham?

Graham has streptococcal toxic shock syndrome (TSS). The term streptococcal TSS was first suggested in 1983 due to its similarities to staphylococcus-mediated TSS. The majority of cases is due to group A streptococcus. The cutaneous features of streptococcus TSS are similar to TSS with diffuse erythematous maculopapular eruption, hyperemia of mucous membranes, palmoplantar erythema and delayed desquamation of that palms and soles.

Streptococcal TSS patients are usually otherwise well, usually between 20 and 50 years of age and the the skin is the portal of entry in 60% to 80% of cases. Blood cultures are positive in more than 50% of cases. Mortality is approximately 30%.

The severity of this infection is due to strains of streptococcus that produce an exotoxin, streptococcal pyogenes exotoxin-A, which functions as a "super antigen" (an antigen that is capable of stimulating a much larger inflammatory response via a non-MHC mediated mechanism). In addition, the presence of a surface protein, M protein, is associated with increased virulence by binding with fibrinogen and causing activation and degranulation of polymorphonuclear lymphocytes. This leads to vascular damage, increase vessel permeability and hypercoagulability characteristic of streptococcus TSS.

Coverage with a β–lactamase-resistant antibiotic, as well as clindamycin, is the treatment for streptococcus TSS. Intravenous immunoglobulin is also used. There is a role for surgery in specific cases. Supportive measures are necessary and directed at the organ system involved.

What happened to Graham?

Graham developed acute respiratory distress syndrome, acute renal failure and hepatic dysfunction. He was admitted to the intensive care unit and required ventilation, dialysis and inotropic support. He was covered with broad-spectrum antibiotics. Blood cultures grew group A streptococcus (*Streptococcus pyogenes*). He survived.

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Case #2: Rosie's Diaper Rash

- Rosie, three-months-old, presents with a three-day history of a rash in the diaper area Figure 1. There has been no response to clotrimazole and a zinc oxide-based diaper cream.

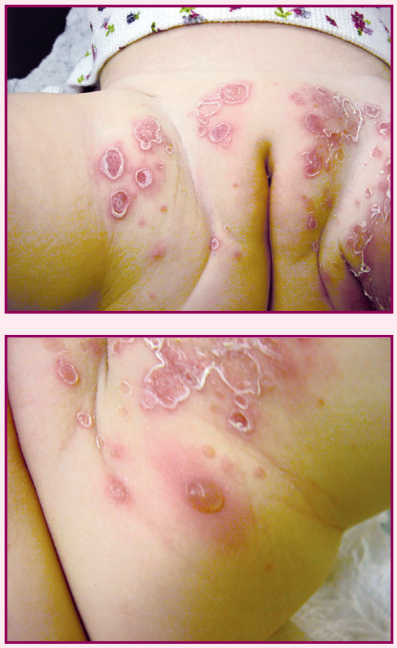

Figure 1. Rash in diaper area.

What's wrong with Rosie?

Rosie has bullous impetigo. This is due to a particular strain of Staphylococcus aureus, phage group II. This agent produces a toxin, exfoliative toxin A, which causes a superficial split in the skin. These flaccid vesicles and bullae rupture easily, so it is often difficult to find an intact lesion. A circular lesion, with an in-toeing scale around the periphery, is a hint about the preceding bullous lesion.

How can you treat Rosie?

Treatment consists of topical antibiotics, such as fusidic acid or mupirocin, for limited disease or oral antibiotics, such as cloxacillin or cephalexin, for more widespread disease.

Case #3: Ella's Eruption

- Ella, 18, presents with a progressive, widespread, scaly, pruritic eruption over the last week Figure 1. On closer questioning, she finished a course of azithromycin two weeks prior for a sore throat associated with fever and lymphadenopathy.

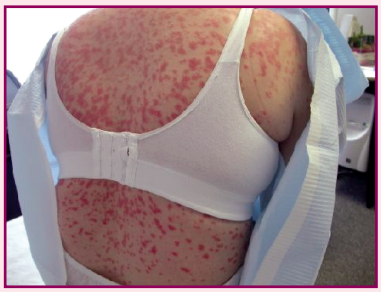

Figure 1. Widepsread, scaly, pruritic eruption.

What's wrong with Ella?

Ella has guttate psoriasis. "Guttate" means raindrop in Latin and refers to the many small plaques and papules of psoriasis that occur in this form of psoriasis. It is most commonly triggered by a Streptococcal throat infection and is often the initial presentation of psoriasis. All Streptococcal strains that cause guttate psoriasis produce Streptococcus pyogenes exotoxin C. Due to the time of onset and use of antibiotics given for the strep throat infection, it is often confused with a drug eruption.

How can she be treated?

Ella's subsequent type and course of psoriasis is unpredictable. Topical treatment is challenging due to the number of lesions involved. Soaking in doak oil, a tar derivative, is soothing. Phototherapy is also an option in centres where it is available. Steroids are helpful with a low strength for the face and folds, but a mid-strength topical steroid is usually required for the limbs. Care must be taken to avoid the uninvolved skin in order to minimize the risk of side-effects.

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