

In Pediatric Skin Emergencies, Consider Infection

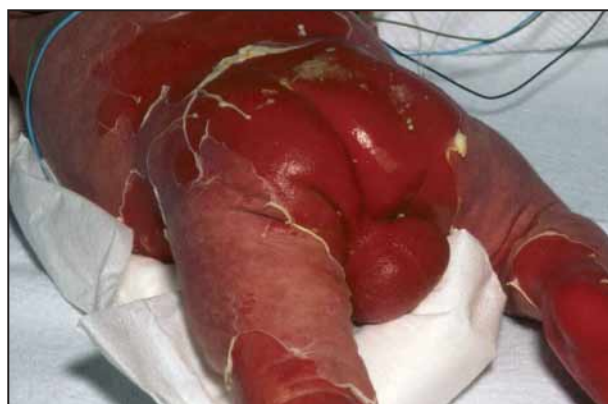
BY SHARON WORCESTER

Tallahassee Bureau

BAL HARBOUR, FLA. — Infections are a major cause of emergencies in pediatric dermatology, Howard Pride, M.D., said at the annual Masters of Pediatrics Conference sponsored by the University of Miami.

Though rare, such conditions must be kept in mind to ensure prompt diagnosis and appropriate treatment. Staphylococcal scalded skin syndrome, for example, is often thought to be a nondeadly disease, but it is associated with a mortality of up to 7%, particularly in the very young and should be identified early, said Dr. Pride, a pediatric dermatologist at Geisinger Medical Center, Danville, Pa.

The disease presents with a scarlet fever-like rash, usually beginning around the lips and nose and then becoming more generalized with flexural accentuation in the groin area; it may involve superficial bullae that rapidly denude and leave large areas of raw, red, moist skin that appears scalded. It typically occurs in children younger than 5 years.



Abrupt and extreme pain marks the onset of scalded skin syndrome. Staphylococcus often is the pathogen.



Chemotherapy increases vulnerability to ecthyma gangrenosum. Pseudomonas aeruginosa may cause it.

Onset is abrupt and includes irritability, malaise, fever, and extreme pain. In fact, pain is often the dominant symptom, Dr. Pride noted.

Staphylococcus aureus is the associated pathogen, but exfoliative toxins A and B, either of which is released at the infection site and spreads hematogenously, are the cause of the lesions. Therefore, cultures of the blisters are not useful.

The diagnosis is typically made clinically; there is little in the way of diagnostic testing for scalded skin syndrome. Biopsies or cultures of the eyes, nose, or pharynx can be performed, but Dr. Pride said he biopsies only on rare occasions.

For the most part, diagnosis is based on clinical intuition. However, for a rapid diagnosis and to differentiate this from toxic epidermal necrolysis, a snap frozen section can be performed.

Care for staphylococcal scalded skin syndrome is mostly supportive; skin care includes application of emollients, such as a petrolatum ointment. Mupirocin is not necessary since staphylococcus is not the direct cause of the skin lesions.

Strict attention to fluids and electrolytes is important, as is maintenance of body temperature. Antibiotic treatment against staphylococcus is useful, but a few articles have shown that some cases in adults have been associated with methicillin-resistant *Staphylococcus aureus*, so keep this in mind when considering antibiotic coverage, Dr. Pride advised.

"But the best thing we can do for these patients is control pain, because they are absolutely miserable," he said.

Other pediatric emergencies that Dr. Pride discussed include:

► **Ecthyma gangrenosum.** Lesions associated with this condition, which almost always occurs in the setting of immunocompromise, have a central hemorrhage with a purplish halo. They may have a punched-out ulcer appearance

with a necrotic base and black eschar. They commonly occur in patients undergoing chemotherapy, and *Pseudomonas aeruginosa* is usually the culprit, Dr. Pride said. But other organisms, such as herpes simplex, *S. aureus*, and species of *Klebsiella*, *Neisseria*, and *Candida* may be involved.

"But when you think about empirical coverage [*P. aeruginosa*] is the organism you really want to be covering," he said.

The diagnosis is usually made clinically, and supportive measures along with a broad-spectrum antibiotic should be initiated to ensure coverage while awaiting culture or biopsy results. Aspiration or drainage of lesions should be performed as necessary.

► **Meningococcemia.** This is a scary and sometimes rapidly progressing disease that also requires quick action. Presentation includes high fever, headache, nausea, diarrhea, and a petechial rash of the skin and mucous membranes. The fulminant form presents with massive skin and mucosal hemorrhage, shock, and rapid death. Peripheral gangrene can occur.

Rapid antigen tests exist, but specificity is not very high, so the diagnosis should be made clinically, and treatment should be initiated quickly in an intensive care unit. Penicillin remains the treatment of choice for this condition, and supportive care and skin care with mupirocin are useful. Prophylaxis of patient contacts is imperative, he said.

► **Rocky mountain spotted fever.** The peak incidence of this often tick-borne illness, which generally occurs in the southeastern and south central United States in early summer, is in children 5-9 years old. They present with sudden severe headache, malaise, myalgia, arthralgia, anorexia, photophobia, chills, and fever. Hypotension also can occur.

A rash, which progresses centrally and mostly affects the extremities, occurs on the fourth day of illness in about 90% of patients. Early in the course of illness, the rash appears with small discrete red blanching macules, which later become papules with a dark hue. The extremities have a nonpitted edematous characteristic, and in young children the rash may occur periorbitally.

About 80% of patients report a recent tick bite.

Like the other pediatric emergencies Dr. Pride discussed, this diagnosis is made clinically; good diagnostic tests are lacking.

Early treatment is important, because mortality ranges from 20% to 80% in untreated cases and is about 4% among treated cases.

Tetracyclines are the treatment of choice, with doxycycline preferred in patients younger than 8 years. Chloramphenicol is another treatment option.

Supportive care—often with intravenous hydration, supplemental oxygen and red blood cells—also is of benefit, he said.



Meningococcemia is marked by rapid onset and petechial rash of skin and mucous membranes.

PHOTOS COURTESY DR. HOWARD PRIDE

Imiquimod May Clear Superficial Infantile Hemangiomas

BY DAMIAN McNAMARA

Miami Bureau

MIAMI BEACH — Topical imiquimod shows promise for clearing superficial hemangiomas in young infants, according to a small study.

Although most superficial hemangiomas involute spontaneously by the time a child reaches age 4 or 5 years, they can leave behind significant scars, atrophic changes, or deformities. Topical imiquimod (Aldara) may be an option to speed up involution and minimize changes to the skin, Brian Berman, M.D., a coauthor of the study (*J. Am. Acad. Dermatol.* 2004;51:639-42), said at a seminar sponsored by the Skin Disease Education Foundation.

Other treatment options include cryosurgery, radiation, laser therapy, corticosteroids, and interferon. Although imiquimod and interferon are both immune response modifiers, imiquimod is applied locally and thus does not carry the same risk of systemic toxicity, said Dr. Berman, professor of dermatology at the University of Miami. Dr. Berman is a consultant for and on the speaker's bureau of 3M, maker of imiquimod.

Dr. Berman and his colleagues enrolled 10 infants aged 3-7 months with superfi-

cial hemangiomas. Participants were treated with imiquimod five times a week up to 16 weeks. One child dropped out after

Imiquimod and interferon are both immune response modifiers, but the former is applied locally and thus does not carry the same risk of systemic toxicity.

3 weeks because of inflammation that developed at the treatment site; the study results included nine infants.

Follow-up was between 7 and 9 months after cessation of therapy.

"Nine children experienced no systemic effects, no recurrences, no scarring," Dr. Berman said at the seminar. The Skin Disease Education Foundation and this newspaper are wholly owned subsidiaries of Elsevier.

Four participants had complete resolution of their hemangioma, and three others had greater than 75% resolution at 16 weeks. Another participant showed moderate improvement (judged in the 50%-74% range), but was lost to follow-up after 10 weeks.

There was a treatment failure in the only infant who did not have an inflammatory response to treatment. This child may not have responded because of a receptor deficiency or poor compliance, Dr. Berman said.

"The obvious answer is the child did not use the cream, but the child may be part of the small percentage of the population that has deficient or nonfunctioning Toll-like receptor 7." The receptor is required for imiquimod activity.