

Pediatric Clips

Outpatient management of pediatric burn injury

By David P. Meagher, Jr, MD

February 2009 • Volume 7 • Issue 1

Pediatric Clips from The Children's Medical Center of Dayton are quick reviews of common pediatric conditions.

The Children's Medical Center of Dayton is the region's pediatric referral center for a 20-county area. As the only facility in the region with a full-time commitment to pediatrics, Dayton Children's offers a wide range of services in general pediatrics as well as in 35 subspecialty areas for infants, children and teens. We welcome your inquiries about services available – call 937-641-3666 or e-mail marketing@childrensdayton.org.



Experts you trust, caring for the children you love.

CASE STUDY

DL, a two-year-old male, presented to the outpatient burn clinic in February after having placed his right palm onto a hot stove burner the prior evening. His mother immediately placed his hand under cool running water and took him to the emergency department at the local hospital. His burns were dressed with Adaptic coated with Bacitracin ointment. He was referred to the pediatric burn clinic for follow-up care.

At the time of presentation to the clinic he was found to have burns involving approximately one percent

TBSA (Total Body Surface Area). There were intact blisters over much of the palmar surface with smaller blisters on three fingertips. Full range of motion was present.

Utilizing a standard outpatient burn management protocol, his wounds were cleansed with Shur Clens nonionic cleanser and blisters debrided. His wounds were judged to be superficial partial thickness in depth (thin second degree) without eschar or signs of infection. The burns were dressed using Neosporin ointment coated thickly on Adaptic nonstick dressing and wrapped

circumferentially in a position of function with Kerlex covered with colored Coban.

DL was followed as an outpatient with twice weekly dressing changes by the pediatric burn surgeon or the surgical nurse practitioner. As anticipated his wounds healed within 10 days without need for surgical intervention. His mother was instructed to moisturize his burns three times a day with ELTA cream until his injury had matured. She was instructed to bring him back for follow-up evaluation if signs of functional problems developed.

CASE DISCUSSION

Burn injury is not uncommon in young children with boys being involved four to five times as often as girls. The most common mechanisms in young children are contact with a hot object or scalding by hot liquid. Any clothing covering the injured area should be promptly removed and the burn cooled with tap water. Ice should not be used, secondary to imposing a cold injury on the burned area. The wounds should not be covered with agents such as butter, toothpaste, lard, etc. Initial care is frequently provided by a local emergency department or primary care office. Unlike advised in the past, most burn surgeons feel blisters should be debrided to allow an assessment of the wound bed, remove blister fluid that is high in chemicals that can deepen the injury or increase the risk of infection and allow the topical antimicrobial agent to come in contact with the wound surface.

Topical antimicrobials have long been part of burn wound management. In the past this consisted mainly of silver sulfadiazine cream which continues to have a place in the treatment of larger inpatient injuries. This agent unfortunately develops a pseudo-eschar which can obscure the wound bed and is painful to remove. Most outpatient burns should be dressed using a water soluble product such as Bacitracin, Polysporin or Neosporin. Many children are subjected to too many dressing changes. The risk of infection is very low when topical antimicrobials are utilized and the risk only increased by frequent painful dressing changes. In general parents are not effective burn nurses, having had little prior experience. Unless the wound is nearly healed parents are not expected to provide acute wound care. It is important they assist with moisturizing massage once the injury has healed and until mature.

In some cases the burn surgeon may elect to utilize newer devices such as biosynthetic dressings (Biobrane, Glucan-II, etc). In addition there are many burn dressings on the market containing silver ion as an agent aimed at decreasing the risk of infection. Some of these products are very expensive, should only be used on wounds having certain characteristics and may develop clinical problems when used incorrectly. In general biosynthetic should only be used on clean superficial partial thickness wounds. These are wounds that are pink, tender and glistening after debridement of blisters. The advantages of a biosynthetic dressing are decreased pain and need for even fewer dressing changes, many of which can be done at home once the product is adherent to the wound surface. Biosynthetic dressings are also very commonly used to cover donor sites of children having undergone grafting for deeper burns.

Continued

Continued from the front.

The depth of a burn in a child is frequently difficult to determine, even by the burn professional:

- **First degree:** has erythema without blisters. These injuries will heal within several days.
- **Second degree (partial thickness):** has blisters and is further divided into superficial or deep categories. A superficial partial thickness burn will heal within 14 days, not leave significant

scars and not need grafting. A deep partial thickness burn in children may be white or mottled in initial appearance, will heal within 14 to 21 days, is associated with worse scarring in children and is best treated with skin grafts.

- **Third degree (full thickness):** is white or black in appearance, takes longer than three weeks to heal and typically needs a skin graft.

REFERRAL TO THE BURN CLINIC

In general any burn may be referred for evaluation, but those that will clearly not heal within seven days should be considered for referral. This will allow time for the velocity of healing to be assessed. Burns to areas of functional and/or cosmetic importance should be referred earlier.

FEATURED SPECIALIST



DAVID P. MEAGHER, JR., MD, is the medical director of pediatric surgery, trauma and burns at The Children's Medical Center of Dayton. He completed

residencies in general surgery at Baylor in Houston, Texas, and pediatric surgery at Cincinnati Children's Hospital Medical

Center and The Children's Hospital in Denver, Colorado. He has been involved in the American Burn Association for years serving on multiple committees, including a term as chairman of the Rocky Mountain Region. He is a past president of the North American Burn Society. He was previously the trauma and burn director at The Children's Hospital in Denver and Children's Hospital Central California. He is joined at Dayton Children's by pediatric surgeons Victor Nanagas, MD, Jeffrey Christian, MD, and Jeffrey Pence, MD.

PEDIATRIC SURGERY AT DAYTON CHILDREN'S

The department of pediatric surgery at Dayton Children's provides consultation and evaluation for infants, children and teens with a range of surgical conditions. The department consists of four board-certified pediatric surgeons who are available 24 hours a day, seven days a week for phone consultation and emergency care. The pediatric surgery and burn clinics are available five days a week. To make a referral or for more information on pediatric surgery, call 937-461-5020.



DAYTON CHILDREN'S URGENT CARE IN SPRINGBORO

Our urgent care offers convenient access to pediatric experts trained to evaluate, treat and care for infants, children and teens. Our free parking and short wait times make visits easier.

Other services include: *rehabilitative services, medical imaging and laboratory*

Located inside Dayton Children's Outpatient Care Center — Springboro • 3333 West Tech Road, just off Route 741

Phone 937-641-5725 • **Hours** Monday – Friday, 3:00 pm – 10:00 pm, Saturday – Sunday, 11:00 am – 8:00 pm



For further information about The Children's Medical Center of Dayton or its specialists contact us at 937-641-3666 or marketing@childrensdayton.org.



One Children's Plaza
Dayton, Ohio 45404-1815

Nonprofit Organization
U.S. Postage Paid
Permit Number 323
Dayton, Ohio