CLINICAL IMAGES

Ecthyma

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A mother brought her three month old son to the Emergency Department with a two day history of rapid onset of "lesions" on his left chest, left arm and face. The mother denies the patient had any trauma, fevers, chills, oral lesions, new medications or recent changes in formula. The patient does not have any significant past medical history. He is up to date on immunizations. Of note, his 11 year old sister presented with similar lesions on her posterior thigh/buttock region over the same time period. The only difference was that his sisters' lesions were pruritic.

Lesions on the three month olds' arm, chest wall and left cheek were as depicted in Figures 1-3.

QUESTIONS:

1. What is the moste likely diagnosis?

A. Candida

B. Ecthyma

C. Insect bites

D. Porphyria cutanea tarda

E. Venous stasis ulcers

2. What is the recommended plan of care?

A. Nystatin cream

B. Permethrin cream

C. Phlebotomy and low-dose hydroxychloroquine

D. Wound debridement, barrier creams and multilayered compression bandages

E. Wound debridement and topical mupirocin

FIGURE 1:
Left anterior-upper arm

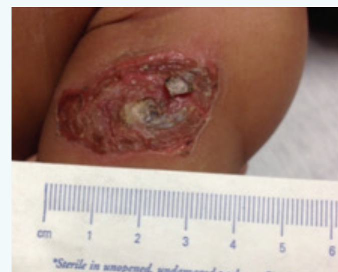


FIGURE 2:
Left cheek

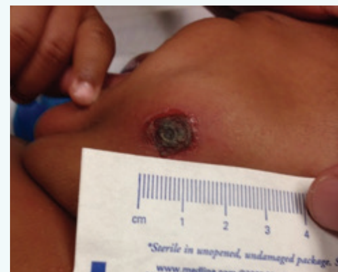
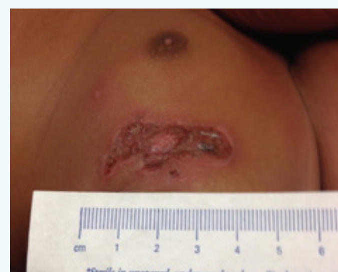


FIGURE 3:
Left anterior-lateral chest wall



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ANSWERS

1. What is the most likely diagnosis?

The correct answer is:

B) Ecthyma

The patient's history combined with the characteristic appearance of the lesions points to ecthyma as the most appropriate diagnosis.[1] The lesion could have originally begun with an insect bite, but if so is now secondarily infected; ecthyma is a more correct answer.[1,2] Porphyria cutanea tarda is incorrect, as these lesions occur primarily on sun exposed areas.[1,3] Venous stasis ulcers are pruritic and typically occur on the lower extremities.[1] Candidiasis is unlikely as the lesions are not in the skin folds and lack the distinctive bright red exanthem, small pustules at the edges of the rash, or the characteristic pasty, white residue it may generate.[4]

2. What is the recommended plan of care?

The correct answer is:

E) Wound debridement and topical mupirocin

Treatment for ecthyma generally begins with debridement of the lesions so that antibiotics will better penetrate the skin and treat the underlying infection.[1,5] Choices of topical antibiotic include mupirocin three times daily for seven to ten days or retapamulin twice daily for five days.[1,5,6] For lesions that are extensive or resistant to initial treatment, oral antibiotics may be used.[1,7,8] Choices include dicloxacillin or cephalexin, 250 to 500 mg four times daily for ten days (clindamycin or erythromycin can be used for patients allergic to penicillins).[7,8] Phlebotomy and low-dose hydroxychloroquine are treatments for porphyria cutanea tarda.[1,3] Wound debridement, barrier creams and multilayered compression bandages are steps towards managing venous stasis ulcers.[7,11] Nystatin cream is applied topically for candida infection and permethrin cream is used in the treatment of scabies.[1,4,9]

THE BASICS OF IMPETIGO...WHAT IT IS, WHAT CAUSES IT, WHAT ARE THE TYPES:

Impetigo is a communicable skin infection that is more common in children, but can occur at any age.[10] It exists in three main forms including bullous, non-bullous and ecthyma.[10] Impetigo is contagious, and can be spread among individuals living in the same household.[11]

Ecthyma is an uncommon variant of the skin infection impetigo and is most commonly found on the distal extremities.[5,10] It consists of punched-out, ulcerative lesions with surrounding erythema.[5] While impetigo is most commonly caused by Staphylococcus aureus, the ecthyma variant is most often caused by group A Streptococcus.[5] It is worth noting, however, that both conditions can be caused by either organism.[2] While most frequently seen in children ages two to six years of age, this type of infection can be seen at any age.[11] Infection often occurs after minor skin injuries or conditions such as abrasions, dermatitis, and insect bites.[11] For this reason, it is often seen among the homeless population as well as individuals in third world countries without the ability to maintain proper hygiene.[11]

SYMPTOMS/DESCRIPTION

Both impetigo and ecthyma may cause mild pain and pruritis.[7] Infections are often found in areas of skin that have recently been injured due to scratching or an insect bite.[2] Scratching the lesions may spread the infection, and the development of satellite lesions is common due to autoinoculation.[5] The diagnosis of the three variants of impetigo is made clinically based on appearance of the lesions.[7] Those lesions exhibiting a honey-colored crust are characteristic of bullous and nonbullous impetigo.[7] Interestingly, these two forms of impetigo infection occur in the superficial epidermis and do not extend below the dermal-epidermal junction.[5]

By contrast, ecthyma is often referred to as deep impetigo because it extends into the dermis.[2] It begins with a small, pus-filled blister and red border, which eventually leaves a crusty ulcer underneath.[2] Ecthyma is characterized by purulent, shallow ulcers with a punched-out appearance.[7] Overlying the ulcer is a thick, brown-black crust and surrounding erythema.[7] Cultures of ecthyma lesions are indicated only when empiric antibiotic therapy fails to resolve the problem.[7] In this case, patients should have a nasal culture and wound culture performed to identify Methicillin Resistant Staphylococcus aureus.[7]

Important diagnoses to include in a differential include excoriated insect bites, Porphyria cutanea tarda, venous stasis and ischemic ulcers of the legs.[6] For any patient with a history of recent travel or relevant exposures, alternative diagnoses such as cutaneous anthrax and other potentially serious zoonotic infections must be considered.[12] Ecthyma, as a variant of impetigo, should not be confused with Ecthyma gangrenosum, a bacterial infection caused by Pseudomonas aeruginosa and most commonly seen in immunocompromised patients.[12] Ecthyma gangrenosum involves vesicles and pustules that hemorrhage and ulcerate into a necrotic eschar.[12]

TREATMENT

In order to treat both ecthyma and impetigo, the lesions must be debrided.[1,5] By removing the crusted exudate from the lesions, topical antibiotics are better able to penetrate the skin and treat the underlying infection.[5] Mupirocin has been shown to be highly effective against gram-positive bacteria, such as Staphylococcus aureus and group A streptococcus.[5] For effective treatment, mupirocin should be applied three times daily for a period of seven to ten days.[1,5] Alternatively, retapamulin or fusidic acid can also be used.[7,8] While penicillin is usually an effective oral agent, antistaphylococcal agents such as dicloxacillin, cephalexin, clindamycin, etc. may be necessary for extensive lesions or lesions that are resistant to treatment.[7,8]

Several measures can be taken to prevent infection.[11] Patients should be encouraged to practice good hygiene with use of soap and water, to avoid sharing towels and to wash their clothes regularly.[11] For individuals diagnosed with impetigo, family members of the individual should be checked for signs of infection.[6] If there are concerns regarding exposure to impetigo or ecthyma, further preventive measures such as benzoyl peroxide wash and ethanol or isopropyl gel for hands/involved sites can be taken.[6]

Timely treatment of impetigo generally leads to prompt recovery.[6] Failure to treat the infection can lead to more extensive spread of disease.[6] Lesions can progress to infections deeper in the skin and soft-tissues.[6] Complications of group A strep (GAS) induced impetigo include guttate psoriasis, scarlet fever and glomerulonephritis.[6] Recurrent infections can occur due to either failure to eradicate the pathogen or by recolonization.[6] Scarring may be seen upon healing of ecthyma lesions.[6]

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