What’s That Rash?
Doctor, What’s Wrong With My Skin?

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Pediatric Dermatology: $100

A 4 year old patient presents with the rash shown. What is the most appropriate next step in management?

A. Start oral acyclovir
B. Start triamcinolone 0.1% cream twice daily
C. Perform patch testing
D. Reassurance
Pediatric Dermatology: $100

Lichen Striatus

- Lichen striatus is a benign skin eruption of childhood of uncertain etiology
- Sudden onset unilateral, linear papules
- Usually on the extremities
- Resolve over 6-12 months
- Follows the lines of Blaschko (not dermatomes)
What is the most common cause in the U.S. of these monomorphous pink papules on the elbow of this pediatric patient?

A. EBV  
B. Hepatitis B  
C. CMV  
D. Parvovirus B19  
E. Parainfluenza virus
EBV

• Gianotti-Crosti syndrome (papular acrodermatitis of childhood)
• Self limiting dermatosis triggered by viral infection
• Lasts 3-4 weeks, usually in pre-school children
• Atopic patients at greater risk
• All viruses listed can be associated, EBV is by far the most common cause in the U.S

Pediatric Dermatology: $300

Which of the following is not an appropriate treatment for the lesions shown?

A. Agonize TLR 7
B. Oral acyclovir
C. Apply cantharadin
D. Apply podophyllin
Pediatric Dermatology: $300

Molluscum contagiosum

- DNA pox virus
- Direct skin contact
- Central umbilication with dome shaped flesh colored papule is classic
- All are acceptable treatments for molluscum (TLR 7 is agonized by imiquimod) except acyclovir which would not be effective against molluscum and treats HSV
This “cluster of jewels” rash is associated with which autoantibody?

A. IgA
B. IgG
C. IgM
D. IgE
Linear IgA bullous dermatosis of childhood

• IgA antibodies against the basement membrane causing sub epidermal blister
• Presents around age 5 (neonate-10 possible)
• Self limited, can last months to 4 years
• IgA against BP180/type XVII collagen (most commonly)

Pediatric Dermatology: $500

What was the most likely trigger of this rash in a pediatric patient?

A. Strep
B. Varicella
C. EBV
D. HHV-6
Pediatric Dermatology: $500

Guttate psoriasis

• Subtype of psoriasis seen in children following *Strep pharyngitis*

• Thought to be a molecular mimic that triggers psoriasis in genetically susceptible patients
Atopic Dermatitis: $100

Older adults with a new onset atopic dermatitis-type rash should be evaluated for which disease?

A. Type IV hypersensitivity reaction
B. Chronic spontaneous urticaria
C. Xerosis
D. Mycosis Fungoides (Sezary Syndrome)
Atopic Dermatitis: $100

Mycosis fungoides (Sezary Syndrome)

- Form of Cutaneous T Cell Lymphoma
- This should be ruled out in new onset eczema-type dermatitis in older adults
Atopic Dermatitis: $200

For the treatment of atopic dermatitis, what type of phototherapy is usually used for acute exacerbations?

A. UVA1  
B. BB-UVB  
C. NB-UVB  
D. Full-spectrum light
UVA 1

• UVA1 is usually used for acute atopic dermatitis exacerbations

• NB (narrow band)-UVB is better for chronic atopic dermatitis

Atopic Dermatitis: $300

At present, what is the minimum age of approval for dupilumab in the treatment of atopic dermatitis?

A. 10 years old
B. 12 years old
C. 6 years old
D. 18 years old
Atopic Dermatitis: $300

Dupilumab

• Dupilumab for atopic dermatitis is currently FDA approved for ages 6 and above.
Atopic Dermatitis: $400

What cytokine, a potential therapeutic target for the treatment of atopic dermatitis, is thought to be involved with the sensation of pruritus?

A. TSLP
B. IL-6
C. IL-31
D. IL-1
**IL-31**
• IL-31 is a pruritus/itch mediator.

**Atopic Dermatitis: $500**
Ruxolitinib is the newest agent approved by the FDA for the treatment of atopic dermatitis. What is the mechanism of action?

A. TSLP Inhibitor  
B. IL-4 inhibitor  
C. IL-31 inhibitor  
D. JAK inhibitor

Atopic Dermatitis: $500

JAK inhibitor

- Ruxolitinib is a topical JAK inhibitor recently approved for mild to moderate atopic dermatitis.

An 80 year old man developed septic arthritis and was treated with multiple medications and subsequently developed this rash. What is the suspected culprit?

A. Vancomycin
B. Ibuprofen
C. Allopurinol
D. Chlorhexidine
Blistering Dermatoses: $100

- Linear IgA autoimmune vesiculobullous disease
- Vancomycin most common associated drug
- Sub epidermal blisters
- Linear IgA deposition at D-E junction

Jha et al., Case Reports in Dermatological Medicine, 2017.
Blistering Dermatoses: $200

A 32-year-old man presents with 3 days the itchy rash on his hands seen here. He feels well but did have genital sores last week. Normal vitalis, remainder of skin is clear. This is his current diagnosis:

A. Rocky Mountain spotted fever
B. Scabies
C. Erythema multiforme
D. Syphilis

Erythema multiforme

- Case due to herpes simplex virus
- EM may also be associated with certain medications or autoimmune conditions.

Blistering Dermatoses: $300

A 30 year old woman presents with an intensely pruritic rash on the buttocks and forearms. What is your diagnosis?

A. Dermatitis related to bed bugs
B. Dermatitis herpetiformis
C. Bullous lupus erythematosus
D. Scabies
Blistering Dermatoses: $300

Dermatitis herpetiformis

- Granular deposition of IgA at dermal-epidermal junction
Blistering Dermatoses: $400

A patient has had an ongoing recurrent urticarial-like pruritic rash and now presents with the formation of bullae. Immunofluorescence demonstrates linear IgG and C3 at the dermal epidermal junction. What is the diagnosis?

A. Pemphigus vulgaris  
B. Bullous pemphigoid  
C. Dermatitis herpetiformis  
D. Pemphigus foliaceus
Bullous pemphigoid

- Autoimmune skin disease
- IgG antibodies bind to protein in hemidesmosomes
- Inflammatory cells destroy hemidesmosome proteins (BPAG1, BPAG2)
- Split forms between the dermis and epidermis, resulting in sub-epidermal bullae
- Direct Immunofluorescence: Linear IgG & C3 at the dermal-epidermal junction

Bullous pemphigoid

- Tense blisters on erythematous base
- Typically evolve over a few days and leave behind crusted lesions that heal
- Treatment:
  - Corticosteroids
  - Dapsone
    - inhibits neutrophil chemotaxis
    - suppressing recruitment and local production of toxic secretory products
Blistering Dermatoses: $500

A patient presents with flaccid bullae and mucous membrane involvement. You diagnose pemphigus vulgaris. Biopsy shows:

A. Intraepidermal bullae; DIF with intercellular IgG antibodies
B. Linear IgG & C3 at the dermal-epidermal junction
C. Granular deposition of IgA at dermal papillae and dermal-epidermal junction
D. IgG deposition in blister floor
Pemphigus vulgaris

- Flaccid bullae eventually rupture and leave painful erosions
- Frequent painful oral blisters/ulcers
- Acantholysis (loss of adhesion)
- Intraepidermal blister/bullae
- Positive immunofluorescence in intercellular epidermis
  - antigen is the desmosomes that hold these cells together

MAST CELL DISORDERS
The mother of a 6-year-old girl brings her to see you for a recurrent “hive.” On physical exam you see the lesion on the child’s back. After stroking the lesion, it becomes raised with central clearing. You just elicited this sign:

A. Headlight sign
B. Nikolsky sign
C. Darier’s sign
D. Dermatographism
Darier’s sign

• This child has a solitary mastocytoma.
• Stroking a mastocytoma may lead to mast cell activation/degranulation (Darier’s sign).

Mast cell disorders: $200

A 30-year-old-woman with these chronic skin lesions, recurrent anaphylaxis and an elevated baseline tryptase likely has this mutation.

A. KIT D816V
B. 22q11.2 deletion
C. PDGFRA
D. FLG
Mast cell disorders: $200

• D816V mutations cause the receptor tyrosine kinase to be constitutively active leading to abnormal mast cell proliferation.

• This woman has telangiectatic cutaneous mastocytosis, also known as telangiectasia macularis eruptiva perstans.

• Telangiectatic cutaneous mastocytosis is very persistent and may sometimes lead to systemic involvement.
Mast cell disorders: $300

You perform a biopsy on the skin lesions seen here. This type of stain will help confirm your suspected diagnosis.

A. H&E
B. Trichrome
C. CD117
D. CD40L
CD117

• This patient has maculopapular mastocytosis or urticaria pigmentosa.

• CD117 (c-KIT membrane receptor on the surface of mast cells) can help visualize mast cells on biopsy.

Mast cell disorders: $400

Of the bone marrow biopsy and aspirate findings seen here, this is a major diagnostic criteria for systemic mastocytosis.

A. Panels “a” and “b” which show dense aggregates of mast cells (>15) {a} confirmed by immunohistochemistry for tryptase {b}
B. Panel “c” demonstrating atypical mast cell morphology including spindle shaped and degranulated mast cells
C. Panel “d” demonstrating co-expression of CD117 with CD25
D. None of the above
Mast cell disorders: $400

Panels “a” and “b” which show dense aggregates of mast cells (>15) {a} confirmed by immunohistochemistry for tryptase {b}

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<td>Multifocal, dense aggregates of mast cells (15 or more) detected in sections of bone marrow and confirmed by tryptase immunohistochemistry or other special stains</td>
<td>a. In biopsy section, more than 25% of the mast cells in the infiltrate have atypical morphology, or, of all the mast cells in the aspirate smear, more than 25% are immature or atypical</td>
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<td>b. Mast cells co-express CD117 with CD2 and/or CD25</td>
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<td>c. Detection of KIT point mutation at codon 816 in bone marrow, blood, or other extracutaneous organs</td>
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<td>d. Serum total tryptase persistently &gt;20 ng/ml (not a valid criteria in cases of systemic mastocytosis with associated clonal hematologic non-mast-cell lineage disease)</td>
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This young man has been experiencing recurrent flushing, generalized itching and abdominal bloating. His baseline tryptase is 12 ng/mL. He is found to have hereditary alpha-tryptasemia. He has extra copies of this gene.

A. KIT  
B. PDGFRA  
C. IL5RA  
D. TPSAB1
TPSAB1

• Hereditary alpha tryptasemia is an autosomal dominant genetic trait caused by increased germline copies of TPSAB1 encoding alpha-tryptase.

• Individuals with this trait have elevated basal serum tryptase usually >10mg/mL and may present with associated multisystem complaints.
Infectious complications AD: $200

Which organism is responsible for this infection in this patient with eczema?

A. Strep viridans
B. Coxsackie virus
C. Herpes simplex virus
D. Staph aureus

https://en.wikipedia.org/wiki/
Eczema herpeticum

- Rapid dissemination of HSV infection
- Rare complication AD (3%)
- May be associated with fever, malaise, lymphadenopathy
- Potential complications: keratoconjunctivitis (blindness), meningitis, encephalitis
- Acyclovir has significantly decreased EH mortality
What is the treatment for eczema coxsackium?

A. Acyclovir
B. Valacyclovir
C. Oral steroids
D. No oral treatment is needed
No oral treatment is needed

- Coxsackie virus A6 associated with EC
- Oral sores, papules on palms and soles
- May appear on buttocks (not typical AD distribution)
- Definitive diagnosis: enterovirus PCR
- Supportive care; can use TCS
- Not life threatening

Infectious complications AD: $600

Which vaccine has been associated with eczema vaccinatum?

A. Jansen COVID-19
B. Astra-Zeneca COVID-19
C. Varicella
D. MMR
E. Smallpox
Infectious complications AD: $600

Smallpox

- Disseminated live vaccinia virus from smallpox vaccination in patient with AD
- Life threatening with up to 40% mortality
- Decreased levels LL-37
- Smallpox vaccination contraindicated in patients with AD
- Can receive modified attenuated vaccinia vaccine
Infectious complications AD: $800

How would you treat this rash associated with an atopic dermatitis flare in a 20 year old? Lesions also present on hands.

A. No treatment  
B. Cephalexin  
C. Nasal mupirocin  
D. Tacrolimus topical

Infectious complications AD: $800
Staphylococcus aureus

• 90% of AD skin lesions v. 5% healthy subjects
• 100% colonization with Staph. aureus
• Local infection: topical mupirocin 2% BID 1-2 weeks
• Extensive infection: oral antibiotics (cephalexin)
• Nasal mupirocin (for 5 days, monthly)
• Rare complications: bacteremia, endocarditis, septic arthritis

Infectious complications AD: $1000

What treatment would you consider for this patient?

A. Topical tacrolimus
B. Topical mometasone
C. Topical crisaborole
D. Topical imiquimod
Infectious complications AD: $1000

Topical imiquimod

- Molluscum contagiosum (MCV)
- Umbilicated flesh colored papules
- May have hundreds of lesions
- Most lesions resolve spontaneously
- Severe cases: consider cryotherapy or topical imiquimod
A patient with multiple medical problems including inflammatory arthropathy develops this rash along with generalized malaise:

A. Lichen planus  
B. Contact dermatitis  
C. Pyoderma gangrenosum  
D. Pityriasis lichenoides chronica
Dermatology Potpourri: $200

- 50% have systemic illnesses
- Arthralgias & malaise
- Common associated diseases
  - inflammatory bowel disease (ulcerative colitis or Crohn's)
  - seronegative or seropositive polyarthritis
  - hematologic disorders (leukemia, monoclonal gammopathies)
A 21 year old woman with severe AD not responding to skin care and TCS undergoes patch testing. At her 96 hour reading, 3 allergens produce the results seen here. This group of allergens is the most likely cause of these rim reactions.

A. Metals
B. Fragrances
C. Topical corticosteroids
D. Preservatives
Topical corticosteroids

- Rim reactions are often observed with positive PT to TCS as a result of a higher concentration of TCS in the center (suppresses the reaction) and lower concentration at the edges (does not suppress the reaction).

- TCS patch test positives may be delayed.

- TCS sensitization should be considered in TCS refractory or severe AD.

Dermatology Potpourri: $600

In this 7 year old child with severe atopic dermatitis an oral immunosuppressive was started because his insurance provider would not cover dupilumab without a 3-month trial of an oral immunosuppressive. He developed the finding seen here as a result of this drug.

A. Methotrexate
B. Cyclosporine
C. Mycophenolate mofetil
D. Azathioprine
Dermatology Potpourri: $600

Cyclosporine

- This child developed gum hypertrophy and hirsutism, both of which resolved with cessation of cyclosporine.
Dermatology Potpourri: $800

This rash consisting of erythematous micro-papules seen in a linear grouped arrangement developed twice on the trunk about 24 hours after eating the same restaurant burger:

A. Alpha gal allergy
B. Sesame hypersensitivity
C. Shiitake mushroom dermatitis
D. Balsam of Peru dermatitis
C. Shiitake mushroom dermatitis

Dermatology Potpourri: $800

After delayed large local reactions to the first dose of mRNA COVID vaccines, this can be recommended to patients:

A. Avoid all mRNA vaccines
B. Avoid all COVID vaccines
C. Receive the second dose with observation
D. Undergo desensitization prior to the second dose

Receive the second dose with observation

- Local injection-site reactions and delayed-type hypersensitivity reactions are not contraindications to subsequent vaccination.
SEVERE CUTANEOUS ADVERSE REACTIONS (SCARs)

SCARs: $200

Two days after starting penicillin for a dental abscess, this young man developed the rash seen here. It started in his axilla and spread diffusely. He's not feeling ill. ESR is elevated and he has a mild eosinophilia. Other labs and vitals are normal. This gene mutation caused him to be susceptible to this condition.

A. DOCK8
B. Filaggrin
C. IL36RN
D. CCR5
This patient has acute generalized exanthematous pustulosis, or AGEP.

AGEP is a drug eruption characterized by superficial sterile non-follicular pustules.

AGEP is associated with *IL36RN* gene mutations.
- This mutation increases susceptibility to AGEP when prescribed certain medications or when exposed to certain infections.
SCARs: $400

This patient who is on no medications presents concerned about an allergic reaction to a bug bite he got 3 days ago. He has the rash seen here. He feels well otherwise. You diagnose AGEP. This type of arthropod bite has been associated with AGEP.

A. Lone star tick
B. Spider
C. Deer tick
D. Kissing bug
Spider

• Agents that may trigger AGEP:
  • Beta-lactams
  • Tetracyclines
  • Sulfonamides
  • Oral anti-fungals
  • Calcium channel blockers
  • Hydroxychloroquine
  • Carbamazepine
  • Acetaminophen
  • Viral infections (EBV, enterovirus, adenovirus, CMV, hepatitis B)
  • Spider bites

SCARs: $600

This gentleman with AD since childhood recently has had eczema difficult to control with 1% hydrocortisone ointment, with rare use of a class III TCS. His doctor switched him to crisaborale. A few days later he developed an itchy burning rash at sites of his usual AD flares followed by fever, malaise and progression to the rash seen here. No mucosal involvement, no lymphadenopathy. Normal CBC, ESR and CMP. He improved with oral corticosteroid treatment. This is his diagnosis.

A. Allergic contact dermatitis to crisaborale
B. Stevens-Johnson syndrome
C. TCS withdrawal syndrome
D. Toxic shock syndrome
SCARs: $600

TCS Withdrawal Syndrome

- Most commonly associated with mid to high potency TCS.

- Often begins in areas of usual AD flares where TCS was chronically applied but then spreads to other areas of the skin.
  - Large BSA involvement possible
  - Normal labs, no lymphadenopathy

- Two possible morphologies:
  - Papulopustular and erythematooedematous
Patch testing is helpful in identification of the culprit drug in this type of severe cutaneous adverse reaction.

A. DRESS/Drug Hypersensitivity Syndrome due to allopurinol
B. SJS-TEN due to antibiotic
C. DRESS/ Drug Hypersensitivity Syndrome due to anticonvulsants
D. SJS-TEN due to anticonvulsants
DRESS/Drug Hypersensitivity Syndrome due to anticonvulsants

- While patch testing may be useful in patients with DRESS to anticonvulsants with about 50% positive reactions, is not useful for allopurinol with 0% positive reactions.

- Patch testing is **not** recommended to identify the causative agent of SJS-TEN.

SCARs: $1000

A 7-year-old girl who was treated with penicillin for tonsillitis about 2 weeks ago presents with an almost 2 week history of fever and diffuse painful blisters. On admission she is found to have a bullous rash on her torso, extremities and lips and elevated neutrophils on CBC. No infections etiology was identified. Five days after admission, she developed a new skin ulcer on the right hand at the site of an intravenous cannula. She had this condition.

A. Neutrophilic dermatosis  
B. Dermatitis herpetiformis  
C. Pemphigus vulgaris  
D. Leukocyticlastic vasculitis

Neutrophilic dermatosis

- Biopsy of an ulcer showed a dense neutrophilic infiltrate extending to the base of the lesion.

- Her lesion at her IV site is consistent with pathergy.

- The lesions improved with methylprednisolone, oral cyclosporine, and wound care.
What is the most likely association for the rash shown in a 16 year old?

A. Mom has similar rash
B. Exposure to clothing dye
C. Use of isotretinoin
D. Atopic family history
Use of isotretinoin

• This is a typical appearance of retinoid dermatitis associated with isotretinoin use.

• It typically affects the arms/dorsal hands and resolves with topical steroids and when the isotretinoin course is completed.
Which of the following is a cause of diaper dermatitis with prominent petechiae?

A. Systemic contact dermatitis  
B. Irritant diaper dermatitis  
C. Langerhans cell histiocytosis  
D. Dermatitis herpetiformis
Pediatric Dermatology: $400

C. Langerhans cell histiocytosis

Pediatric Dermatology: $600

16 month old with eczema developed irritability after this lesion on his arm was irritated. He has a history of positive patch test to nickel. What is the diagnosis?

A. Allergic contact dermatitis
B. Solitary mastocytoma
C. Nickel dermatitis
D. Inflamed molluscum
B. Solitary mastocytoma
Pediatric Dermatology: $800

What test was a positive mutation in this infant with rash, abnormal hair and failure to thrive?

A. Filaggrin  
B. RAG1/2  
C. SPINK5  
D. VDJ recombinase
A breastfed infant with rash and diarrhea:

A. Acrodermatitis enteropathica
B. Systemic contact dermatitis
C. Selenium deficiency
D. Cobalt allergy
A. Acrodermatitis enteropathica
What’s This Rash?

Doctor, What’s Wrong With My Skin??

Is this an allergy????

Doctor, is this an allergy???: $200

Patient on infliximab develops erythematous dermatitis in a symmetrical distribution. What is the most likely diagnosis?
SDRIFE (Baboon syndrome)

Criteria for Diagnosis:
- Exposure to systemic drug (initial or repeated dosing)
- Erythema of gluteal and/or perianal area, V-shaped involvement of inguinal or perianal area
- Involvement of one other intertriginous or flexural areas
- Symmetry of involved areas
- Absence of any systemic symptoms or signs

J Allergy Clin Immunol 2010; 125: S138-49

Doctor, is this an allergy??: $400

A 64 year old man with no history of atopy presents with this scaly itchy red flank lesion that has been present for about 2 years. It has been gradually getting bigger. He should be evaluated for this condition.
Cutaneous T cell lymphoma

• Consider cutaneous T cell lymphoma in adult onset eczema and perform appropriate biopsies.

• Cutaneous T cell lymphoma may present as a single plaque or patch or hypopigmented macules on areas not frequently exposed to the sun or may present with generalized erythroderma.

Cutaneous T cell lymphoma

Multiple Stages:
Patch (atrophic or non atrophic),
Plaque
Tumor

• Often goes on for many years

• Patches with thin, wrinkled quality, often with reticulated pigmentation

• Pruritus varies
  • common in premycotic phase
  • may precede MF by years
A patient is referred to you for recurrent unexplained abdominal pains and tryptase level of 240 ng/mL. This rash is noted on your examination:

Telangiectasia macularis eruptive perstans (TMEP)
Doctor, is this an allergy??: $800

What is this rash consisting of well demarcated plaques that has a variable intermittent course and is very pruritic?

Nummular eczema
**Subacute cutaneous lupus erythematosus**

- Well-defined, inflammatory plaques
  - Annual polycyclic
  - Papulo-squamous
- 60% +DIF on lesional skin
Thanks for your participation!