Rashes, Rashes, and More Rashes

LECTURE NOTES

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Disclosure

I have no relevant financial relationships with the manufacturers(s) of any commercial products(s) and/or provider of commercial services discussed in this CME activity.

I will discuss off label treatments and medications.
Objectives

• If successful, after this session you will

  – Be aware of and successfully counsel your patients and families on several skin diseases they see frequently such as atypical enteroviral eruptions, cutaneous mastocytosis, and inflammatory reactions to molluscum.

  – Be able to provide effective therapies or be able to refer more efficiently for the treatment of molluscum with complications.
Coxsackie Virus A6 Infection

- 99% vesiculobullous and erosive eruption
- 61% - rash > 10% of BSA
- perioral, extremity, truncal
- classic HFMD areas - palms, soles, buttocks
- eczema coxsackium in sites of AD
- 37% Gianotti-Crosti like eruption
- 17% petechial /purpuric
- Delayed onychomadesis & periungual desquamation

Pediatrics 2013;132:e149–e157

You scratch one brown spot with your fingernail and it does this…

Dx: Urticaria pigmentosa
Mastocytosis

- Spectrum of disorders - *mast cell hyperplasia*
- Cutaneous or systemic (organ involvement)
- KIT tyrosine kinase
  - receptor for Stem Cell Factor (SCF)
  - expressed on
    - mast cells
    - melanocytes
- Somatic point mutations
- constitutive activation of KIT → continued mast cell development > pigment production


Cutaneous Mastocytosis

MPCM (maculopapular cutaneous mastocytosis)

- Dermal infiltrates of mast cells
- 3 types
  - Mastocytoma
  - Urticaria pigmentosa
  - Diffuse cutaneous mastocytosis
- Hyperpigmented macules and papules
- Rarely systemic involvement
  - Symptoms vs visceral mastocytomas
Mastocytosis

- Darier’s sign - firm stroking elicits
  - wheal and flare (hive)
  - blistering
  - flushing
- Histamine release
  - urticaria
  - occasional blistering
  - improves by ~2 years

Mastocytosis Signs and Symptoms

**Cutaneous Disease**
- pruritus
- flushing
- abd pain and diarrhea
- palpitations
- dizziness
- syncope
- wheezing

**Extracutaneous Disease**
- fever, night sweats, malaise, weight loss
- bone pain
- mentation problems (cognitive disorganization)
- death – very rare (children and adults)
Skin lesions & Systemic Symptoms

- Significant predictors of the number of systemic symptoms
  - Number of skin lesions ($p = 0.02$)
  - Number of skin symptoms ($p < 0.01$)
- Systemic symptoms
  - diarrhea (22%), abdominal pain (15%), vomiting (10%)
  - wheezing or dyspnea (13%), cough (10%)
  - bone pain (10%)
  - headaches (8%)
  - rhinorrhea (8%)
  - irritability (6%)
  - anaphylaxis (1.5%)

*Pediatr Dermatol. 31(3) 271–275, 2014*

Solitary Mastocytoma

- 1st 3 months
- Exam
  - 1 or a few lesions
  - skin-colored to light brown, pink, or skin colored
  - 1-5 cm
  - oval to round
  - macules, nodules, or plaques
  - Trunk, upper extremity, neck
  - New lesions occur within 2 mo
  - May increase in size for several months
  - Hx – hives / blisters

Urticaria Pigmentosa

- Develops between 3-9 mo
- Clinical characteristics
  - Multiple, fixed, reddish-brown, hyperpigmented macules, papules > nodules
  - May coalesce into plaques
  - Early mimics urticaria before pigmentation becomes permanent
  - Mostly truncal and proximal extremities
  - Spares mid face, palms and soles
- Continued to develop new lesions for months to years
- Slowly resolves over years
- 50% gone by adolescents


Avoidance of Potential Mast Cell Stimuli

- Physical Stimuli
  - Heat (bathing)
  - Friction
  - Sunlight
- Degranulating Agents
  - Venoms (IgE-mediated hymenoptera)
  - Polymers (dextran)
- Biologics
  - Substance P
  - Somatostatin

Drugs
- Alcohol
- Anticholinergic medications
- Aspirin
- NSAIDs
- Narcotics (e.g. morphine, codeine)
- Polymyxin B sulfate
- Systemic anesthetics, d-tubocurarine, metocurine, etomidate, thiopental, succinylcholine, enflurane and isoflurane
- SAFE – IL lidocaine, propofol, vecuronium bromide, fentanyl
Treatment

- Antihistamines
- Ultrapotent topical steroids (GCS) under occlusion
- Low – mid potent topical GCS under wet wraps
- Intralesional GCS
- Cromolyn
  - Orally
  - Topically (1-4% lotion, cream)
- PUVA - oral
- EPI-pen – for severely reactive cases
- Systemic therapy for aggressive/severe mastocytosis
  - Interferon-a-2b
  - Imatinib mesylate, c-kit mutation dependent

Molluscum Contagiosum

- diagnosis
- disease course
- infectivity data
- complications
- office treatment
Molluscum Contagiosum

- Pox virus (MCV 1 and 2)
- Incubation period
  - usually 2-12 wks
  - range: 1 week – 6 months
- Duration - 2-18 months (max 3-4 years)
- One-third with inflammation/symptoms

Molluscum Contagiosum

- Contagious/ autoinoculable
- ages 3-16 years of age, 5-7%
- STI in adolescents and adults
- Lesions
  - 2-5 mm firm, skin colored to pink pearly papules
  - +/- umbilicated (dell)
  - +/- keratotic white core
  - +/- whitish zones/ lobules within lesion
  - Often clustered
  - Preferentially affect trunk and folds >> distal extremities
Confirming the Diagnosis of Molluscum Contagiosum with Wright, Giemsa stains or KOH Preparation

- curette MC lesion
- crush core between two glass slides
- apply Wright or Giemsa stain, or 10% KOH
- cover with coverslip
- observe clustered, round- or oval-shaped Henderson–Paterson bodies

Bauer JH. JAAD 56(5) 1 May 2007, P S104-S105

Clinical Differential of MC

- benign nevi
- milia
- keratosis pilaris
- verruca plana
- angiofibroma
- JXG - xanthogranuloma
- adnexal tumors
- neurilemmoma

- lichen nitidus /planus
- cryptococcus
- KA
- BCC
- granuloma annulare
- pyogenic granuloma
- bacillary angiomatosis
- histoplasmosis
- Penicillium marneffei
MC Relationship to Swimming

- Chigasaki City, Japan
- Questioned 5,477 parents in 15 elementary schools and 9 kindergartens
- 6.9% of all children had MC
  - 7.4% of elementary school children
  - 5.6% of kindergarteners

Niizeki K. Dermatologica. 1994 169:197-8

MC Relationship to Swimming

- 7.5% of swimmers had MC
- 3.6% of non-swimmers had MC (p<0.01)
- MC anatomic distribution
  - Trunk 49%
  - Side of body and axillae 31%
  - Extremities 12%
  - Elsewhere 8%

Niizeki K. Dermatologica. 1994 169:197-8
MC Relationship to Swimming

- MC anatomic distribution and swimming
- Side of the body and axillae
  - 11% non-swimmers
  - 33% swimmers
    - 59% swimming school
    - Kick board as possible fomite

Niizeki K. Dermatologica. 1994 169:197-8

MC and Relationship to Attendance at Swimming-Pools

- Basque Department of Health, Spain
- Pediatrician charts reviewed (1992)
  - 24 MC patients surveyed by telephone
  - 24 matched controls
- Frequency of attendance at municipal swimming pools

Castilla MT. Dermatol. 1995; 191:165
## Frequency of Attendance at the Swimming Pool

<table>
<thead>
<tr>
<th></th>
<th>MC CASES</th>
<th>CONTROLS</th>
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<tbody>
<tr>
<td></td>
<td>n (%)</td>
<td>n (%)</td>
</tr>
<tr>
<td>High Frequency</td>
<td>12 (50)</td>
<td>4 (17)</td>
</tr>
<tr>
<td>Low Frequency</td>
<td>12 (50)</td>
<td>20 (83)</td>
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<tr>
<td>Total</td>
<td>24 (100)</td>
<td>24 (100)</td>
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\[ P < 0.02 \]

*Castilla MT. Dermatol. 1995; 191:165*

## Molluscum Contagiosum, Swimming and Bathing: Clinical Analysis

- 198 pts with MC
- Risk factors - low (<26) vs high (>26) MC lesions
- High MC lesion counts sig associated w/
  - *School* swimming pool use -- RR 1.86
  - Sharing a bath sponge (RR 2.79)
  - or towel (RR1.57) with MC-infected person

Molluscum Contagiosum, Swimming and Bathing: Clinical Analysis

• No relationship with the severity of MC infections
  – swimming in a home pool (RR 0.90)
  – swimming in a public pool (RR 1.09)
  – swimming at the beach (RR 1.13)
  – sharing a bath tub with a MC-infected person (RR 1.24)
  – using a private (home) spa (RR 0.80)
• Did not assess risk of acquiring MC infection


3 Types of Inflammatory Complications of Molluscum Contagiosum

• Molluscum dermatitis
• Molluscum id reaction
• Inflamed molluscum lesions
• 30% of molluscum infections have at least one of these complications
Molluscum Dermatitis

- Local eczematous dermatitis
- Unknown etiology
- Pruritic
- Red
- Scaly
- Papules and patches
- Centered around the MC lesions
- More commonly prior to any treatment
- Treatment
  - moderate potency topical steroids
  - hydrocortisone valerate cr b.i.d. x 2 weeks
- Should treat to rid patient of MC

Molluscum Id Reaction

- Autoeczematization
- Unknown etiology
- Pruritic
- Red
- +/- edematous, variably crusted papules and patches
- Locations other than MC
  - Extensor extremities
  - Elbows, knees, ankles, wrists
  - Dorsal hands and feet
- Can occur with or without treatment of MC – more common with treatment
- Treat - moderate potency topical steroids – triamcinolone cream
Inflamed Molluscum

• Unknown etiology
• Pruritic
• Red, tender, edematous papules, pustules or nodules
• May be abscess-like, +/- infected
• May scar
• Bacterial culture
• I & D
• Treat with high to ultra-high potency topical steroids
• Treat all MC to prevent further lesions

Molluscum and Atopic Dermatitis

• Retrospective chart review, 302 pt charts
• 3 tertiary pediatric derm referral centers
  – 80% < 8 years old
  – 63% > 15 lesions
  – All but one otherwise healthy
• AD
  – 24% active or previously active
  – Increased risk for greater number of lesions

Dohil M. J Am Acad Dermatol 2006;54:47-54
Conclusion

Molluscum contagiosum
- Common infection of younger children (~5%)
- Duration – 2 – 18 mo (several years)
- STI in adolescents
- Pearly umbilicated papules, grouped or clustered
- MC can look like warts or tags in folds!
- Fomites (sponges, towels) and pools (swimming lessons, kick boards?)
- AD increases number of lesions > frequency of MC infection

Molluscum Contagiosum: Treatments

when necessary

- Cryotherapy
- Electrosurgery
- Laser ablation
- Chemical destruction
  - Cantharidin
  - TCA 30-50%
  - Phenol 1%
  - Silver nitrate
- Incision & expression
- Curettage
- Lancing / knicking
- Immunotherapy
- Home application
  - Topical retinoids
  - Imiquimod
  - KOH
  - Salicylic acid
  - Zymaderm
- Cimetidine (AD)
Treating Molluscum with Cryotherapy

- Liquid nitrogen -196°C
- Protocol
  - Apply liquid nitrogen on a Q-tip to the surface of MC
  - One to two 30-60 sec freeze thaw cycles
  - Painful – not tolerated well, hypopigmentation, scarring
  - Variably produces red papules, crusts > blisters in hours – days
  - Repeat in 2 weeks p.r.n
  - Rarely use except eyelid lesions then with caution

Treating with Cantharidin

- Cantharidin – potent blistering agent
- Blister beetle – “Beetle juice”
- 50-80% response rate – variable!
- Protocol
  - Apply tiny amount of cantharidin 0.7% in ethoxyethanol and acetone on surface of MC – blunt end of wooden cotton tip applicator
  - Allow to dry (30 sec)
  - Wash off in 4-6 hours in tub with soap and water
  - +/- cover with paper tape – use caution
  - Variably painful blisters in hours – days; ibuprofen/acetaminophen
  - Repeat in 2 weeks or as needed
Treating Molluscum with Curettage

- Curettage Protocol
  - Apply topical anesthetic (EMLA, LMX4) 1 hour before procedure
  - Spray refrigerant or ice cube x 30-45 sec
  - Flick with a 2-4 mm curette
    - pulls entire lesion off skin
    - defect in the epidermis and +/- papillary dermis remains
  - Caution can be bloody! Time consuming.
  - Hemostasis with direct pressure and/or aluminum chloride (stings)
  - Bandaids / Telfa
  - Can be painful – poorly tolerated in young children
  - Guarantee that lesions are removed at time of visit
  - Repeat in 2 weeks for new M.C. or p.r.n

Knickling/Lancing MC

- 16–22 g needle
- Superficially lance (incise) surface of lesion
- +/- remove core, not necessary
- Apply dressing (Bandaid)
- Variably tolerated
Needling with Tretinoin

- After application of tretinoin (0.05%)
- 26g needle introduced in the lesion (sl bleeding)
- Lesion becomes inflamed, disappears
- Can be performed twice weekly
- Daily application of tretinoin can be continued
- With inflammation MC disappears in 7-10 days
- Parents can be taught this to perform at home


Intralesional Candida Antigen Injections for MC

- Retrospective chart review of 47 patients
- 0.3 ml Candida Antigen injected into 1 or divided into 2 MC lesions
- Follow up in clinic or phone in 25
- 14/25 (56%) complete resolution
- 7/25 (28%) partial resolution
- 4/25 (16%) no resolution
- Some discomfort at injection, no serious S.E.

Intralesional Candida antigen of molluscum contagiosum in children

- Retrospective chart review of 29 children with MC
- IL injection of Candida antigen into up to 3 MC
- 55% Complete response
- 38% Partial response
- 93% Overall response
- 7% Failed to respond
- 4 patients c/o pain as sole adverse event (AE)
- No scarring or other AEs
- No recurrences


Skin Test Antigens

- Candida Antigen
- Commercially available
- Test immune function
  - Immunological evaluations
  - Anergy panels – PPD for tuberculosis
- Immunogenic
  - 64% of children develop a wheal to Candida*

Intralesional Skin Test Antigen Injection Protocol

- Candida Antigen
- Pretreat with topical 4% lidocaine cream or sprayed refrigerant
- Inject 0.1-0.3 ml at DEJ
- Raise small bleb
- Goggles!
- Every 2-4 weeks

Conclusion Molluscum contagiosum

- Complications
  - Molluscum dermatitis – halo around the MC
  - Molluscum id reaction - locations other than the MC
  - Inflamed MC
- Treat when necessary
  - Treatments
    - Cryotherapy
    - Cantharidin
    - Curettage
    - Knicking
    - Candida skin test antigen injection