Challenges in Moderate-To-Severe Pediatric Psoriasis

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Epidemiology

- One third of psoriasis cases begin in the pediatric years
- Prevalence of psoriasis among children under the age of 18 is between 0.093% and 0.128% [1]
  - Highest among children 15-17 years of age[1]
- Most common time of onset is adolescence[2]

1. National Psoriasis Foundation
2. Menter A et al. Joint American Academy of Dermatology-National Psoriasis Foundation guidelines of care for the management of psoriasis with systemic nonbiologic therapies. J Am Acad Dermatol. 2020 Jun;82(6):1445-1486

Comorbidities

- PsA (largest evidence base)
  - In 80% of children, the joint inflammation precedes the skin manifestations
- Obesity and Metabolic Syndrome
  - Hyperlipidemia
  - Diabetes Mellitus
    - Insulin resistance in children with psoriasis is about 2x that of children without psoriasis
- Inflammatory bowel disease
  - 3-4x more common in children with psoriasis
- Mental health
  - Has as much of an impact on QOL as diabetes, epilepsy and atopic dermatitis

1. Menter A et al. Joint American Academy of Dermatology-National Psoriasis Foundation guidelines of care for the management of psoriasis with systemic nonbiologic therapies. J Am Acad Dermatol. 2020 Jun;82(6):1445-1486

Joint American Academy of Dermatology–National Psoriasis Foundation guidelines of care for the management and treatment of psoriasis in pediatric patients

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Defining Moderate to Severe Disease

- Moderate: BSA of 3% to 10%
- Severe: BSA > 10%
- BSA should not be the sole predictor of disease severity
  - Disease location (face, scalp, etc)
  - Impact on QOL (physical, emotional, social, psychological functioning)
    - Consider Children's Dermatology Life Quality Index (CDLQI)
  - Pruritus

1. Menter A et al. Joint American Academy of Dermatology-National Psoriasis Foundation guidelines of care for the management of psoriasis with systemic nonbiologic therapies. J Am Acad Dermatol. 2020 Jun;82(6):1445-1486

What is in our pediatric psoriasis toolbox?

- Topicals
  - Calcipotriene Foam ≥4 years
  - Calcipotriene and betamethasone foam/suspension: ≥12 years
  - **Roflumilast cream 0.3% ≥ 6 years**
- Biologics
  - Etanercept ≥4 years
  - Usterkinumab ≥6 years (approved for psoriatic arthritis down to age 6 years)
  - Ixekizumab ≥6 years
  - Secukinumab ≥6 years (approved for psoriatic arthritis down to age 2 years)
- Small molecules
  - Apremilast ≥6 years **(August 2024) (≥ 20 kilograms)**

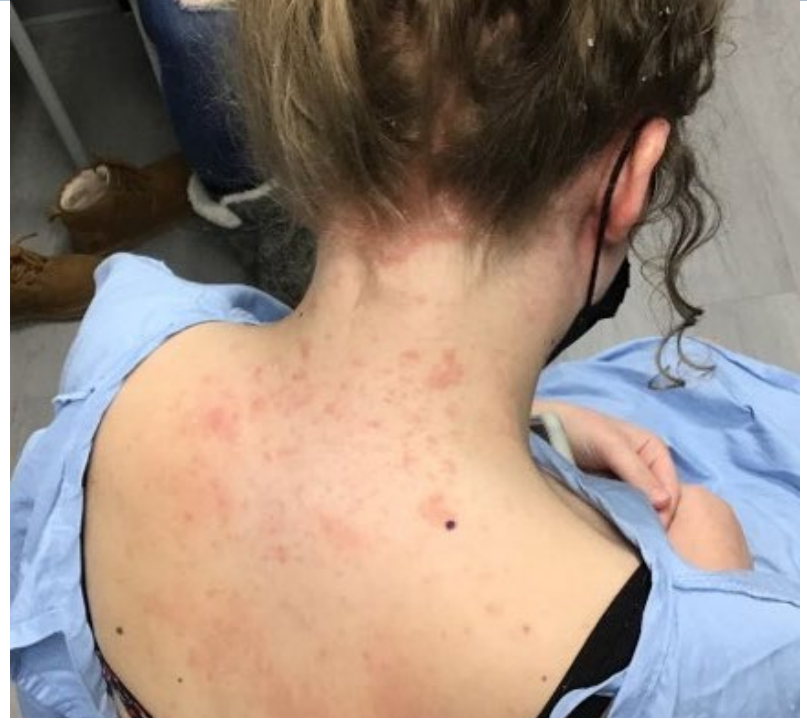
Case Based Discussions

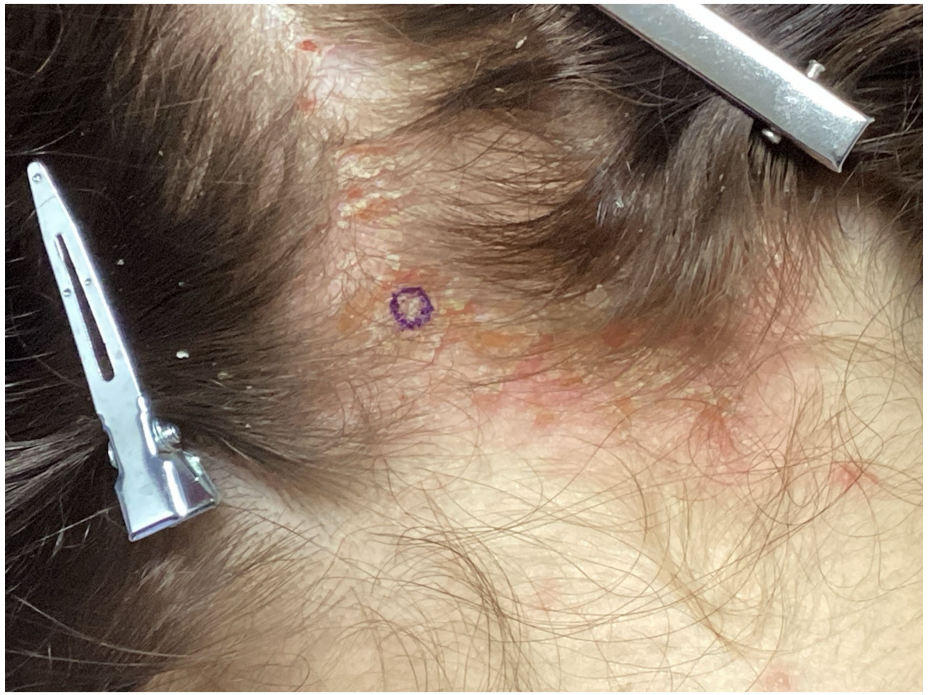
Mona Shahriari, MD

12 year old Abby

- 2 year history of an "itchy rash"
- Refractory to TCS
- History of non-specific joint pains for 1-2 years

"I feel embarrassed when my friends see flakes on my clothes and I avoid the beach cause I don't want others to see me in a bathing suit"





Pediatric Psoriatic Arthritis

- Pediatric psoriatic arthritis is bimodal
  - First peak at 2 to 3 years:
    - Female predisposition
    - ANA positivity
    - Oligoarthritis with tendency for small joint and wrist involvement
  - Second peak at 10 to 12 years:
    - Male predisposition
    - Enthesitis
    - Axial disease
    - HLA-B27 positivity
- Dactylitis is common

Osier E et al. Pediatric Psoriasis Comorbidity Screening Guidelines. JAMA Dermatol. 2017 Jul 1;153(7):698-704

Approach to Psoriatic Arthritis

- Screen for PsA via a directed ROS and PE
- No validated screening tools in children
- Ask about limping or stiffness, especially in the morning
- Consider referral to rheumatology
- If a child with psoriasis is diagnosed with PsA, **screen for uveitis**
  - Ask about eye pain, redness, visual loss, photophobia
  - Consider referral to optho

Osier E et al. Pediatric Psoriasis Comorbidity Screening Guidelines. JAMA Dermatol. 2017 Jul 1;153(7):698-704

Approach to Mental Health Concerns

- Pediatric patients with psoriasis have a 25-30% higher risk of depression and/or anxiety compared to children without psoriasis
- Early recognition and intervention is key to avoid negative social experiences and bullying which can impact self-esteem
- Screen yearly for depression and anxiety, regardless of age

Osier E et al. Pediatric Psoriasis Comorbidity Screening Guidelines. JAMA Dermatol. 2017 Jul 1;153(7):698-704

Treatment Considerations- Methotrexate

- Methotrexate
  - Great option when treating concomitant PsA
  - 0.2-0.7mg/kg per week
    - In pediatric patients ages 13 and older of average weight, dosing is similar to adults with a max of 25mg per week
  - Consider test dose (1.25mg to 5mg) followed by CBC a week later in higher risk patients
  - Takes 8-12 weeks to see a response
- Note: treatment with biologics may be associated with significantly greater reduction in psoriasis severity than methotrexate and better drug survival over time
  - Etanercept > Adalimumab > Ustekinumab > Infliximab

Menter A et al. Joint American Academy of Dermatology-National Psoriasis Foundation guidelines of care for the management of psoriasis with systemic nonbiologic therapies. J Am Acad Dermatol. 2020 Jun;82(6):1445-1486
Bronckers IMGJ et al, A Comparison of Psoriasis Severity in Pediatric Patients Treated With Methotrexate vs Biologic Agents. JAMA Dermatol. 2020 Apr 1;156(4):384-392

Methotrexate for inflammatory skin disease in pediatric patients: Consensus treatment guidelines.

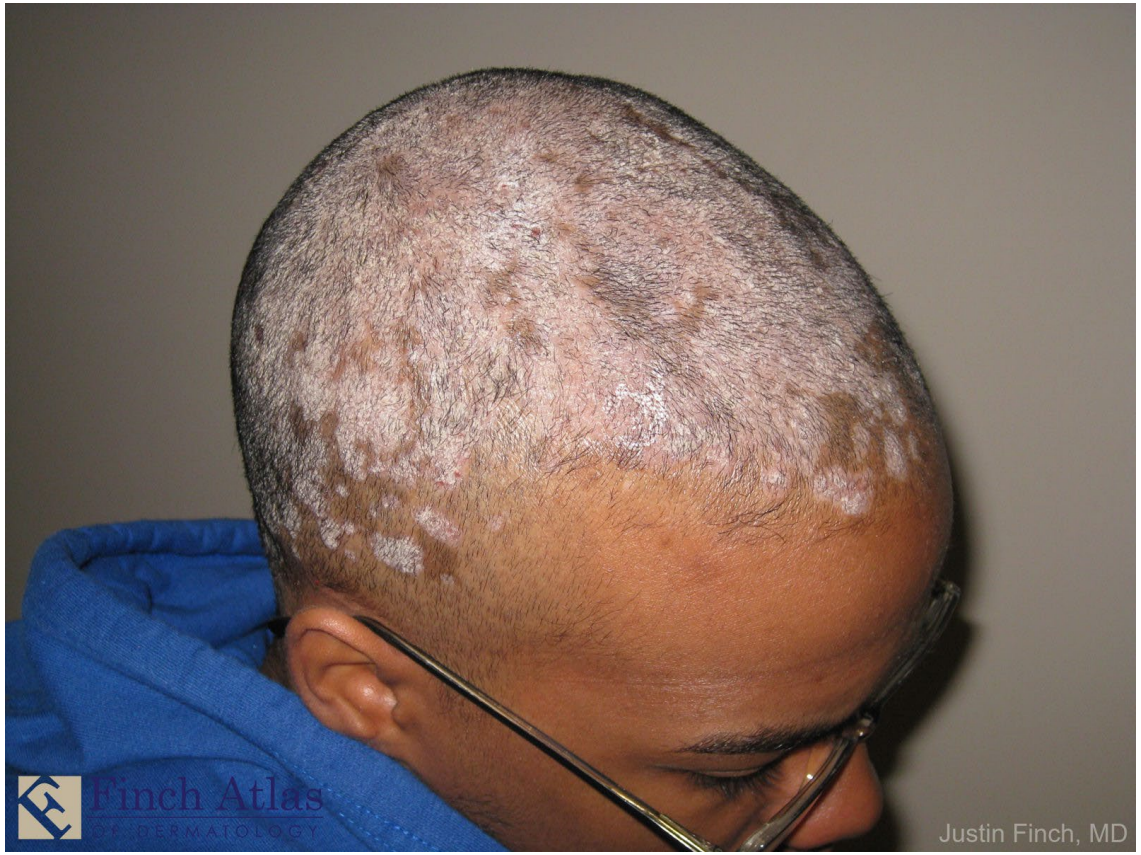
Siegfried EC, Arkin LM, Chiu YE, **Hebert AA**, Callen JP, Castelo-Soccio L, Co DO, Cordoro KM, Curran ML, Dalrymple AM, Flohr C, Gordon KB, Hanna D, Irvine AD, Kim S, Kirkorian AY, Lara-Corrales I, Lindstrom J, Paller AS, Reyes M, Begolka WS, Tom WL, Van Voorhees AS, Vleugels RA, Lee LW, Davies OMT, Brandling-Bennett HA.

Pediatr Dermatol. 2023 Sep-Oct;40(5):789-808. doi: 10.1111/pde.15327. Epub 2023 Jun 14.

PMID: 37316462

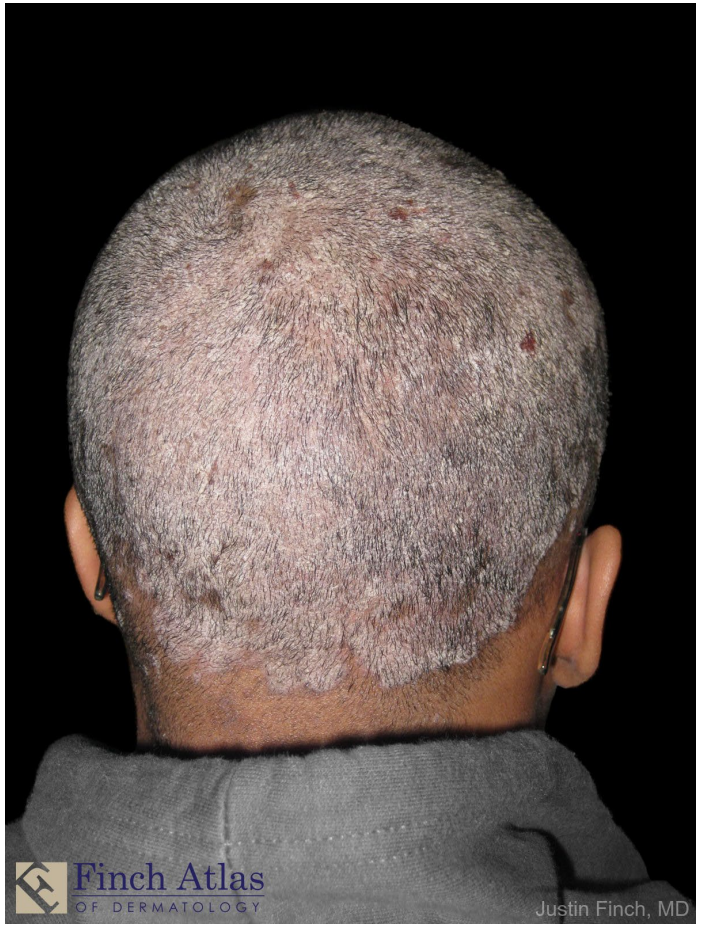
14 year old Robert

- 1 year history of a rash on the scalp and trunk
- Refractory to TCS, topical ketoconazole, oral griseofulvin
- Previously diagnosed as eczema and tinea
- History of non-specific GI symptoms for 6months



Special Considerations in Skin of Color

- Have Robert fully undress and do a head to toe exam including scalp, nails, and intergluteal cleft
  - Nail psoriasis is a potential predictor of more severe disease course over time in the pediatric population
- Erythema isn't always "red/pink"; it can be violet, dark brown or even gray
- Scale may or may not be a prominent feature due to moisturizing norms
- Induration may not be inherently visible; use light touch or side lighting to better assess
- Haircare and styling practices will influence the formulation of topical therapy



Kaufman BP, Alexis AF. *Am J Clin Dermatol*. 2018;19(3):405-423; Bronckers et al. Nail Involvement as a Predictor of Disease Severity in Paediatric Psoriasis: Follow-up Data from the Dutch ChildCAPTURE Registry. Acta Derm Venereol. 2019 Feb 1;99(2):152-157

Approach to IBD

- Important to screen Robert for possible IBD
- Ask about:
  - Development on a growth curve
  - Unexplained weight loss,
  - Nausea or vomiting
  - Abdominal pain
  - Chronic diarrhea
  - Blood in the stool
- Consider referral to GI for formal evaluation

Osier E et al. Pediatric Psoriasis Comorbidity Screening Guidelines. JAMA Dermatol. 2017 Jul 1;153(7):698-704

Treatment Considerations- Biologics

- Etanercept and adalimumab are approved for pediatric psoriasis and pediatric Crohn's
- Ustekinumab is approved for pediatric psoriasis but not pediatric IBD in the US
- Biologic initiation in pediatric patients follows similar guidelines as in adults
  - Consideration: immunization schedule
    - Avoid treatment in children whose parents choose to not vaccinate them
    - Live vaccines are contraindicated, but if necessary, should d/c biologic for 3-6months depending on the guidelines and restart 4 weeks after administration
- Real world safety of biologics, in comparison to traditional systemics, has been reassuring
  - Biologics are my first line!

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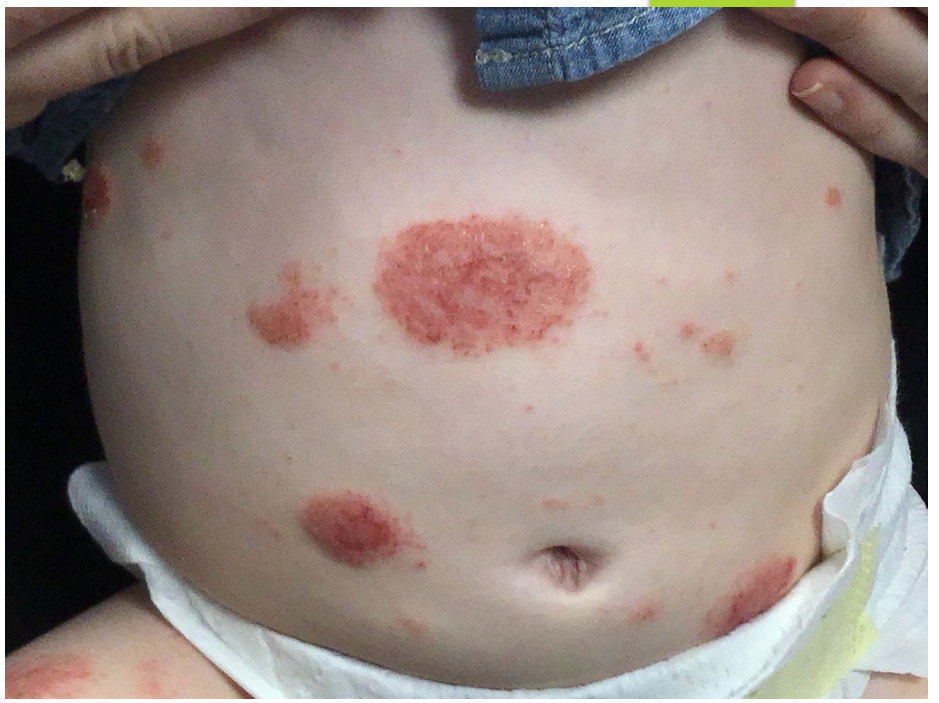
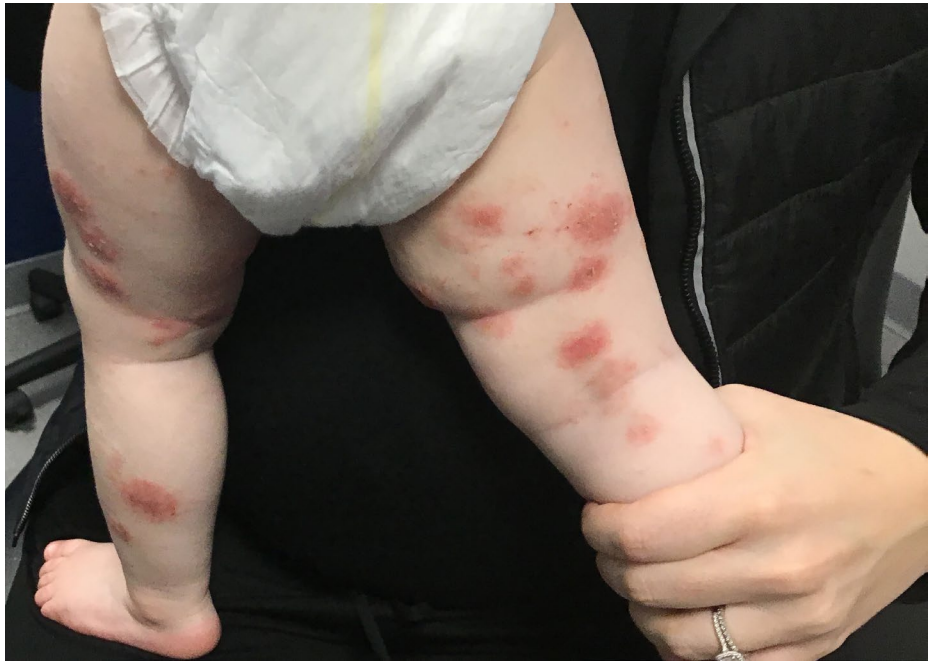
Lansang P et al. ,Management of pediatric plaque psoriasis using biologics. J Am Acad Dermatol. 2020 Jan;82(1):213-221

2 year old Emmy

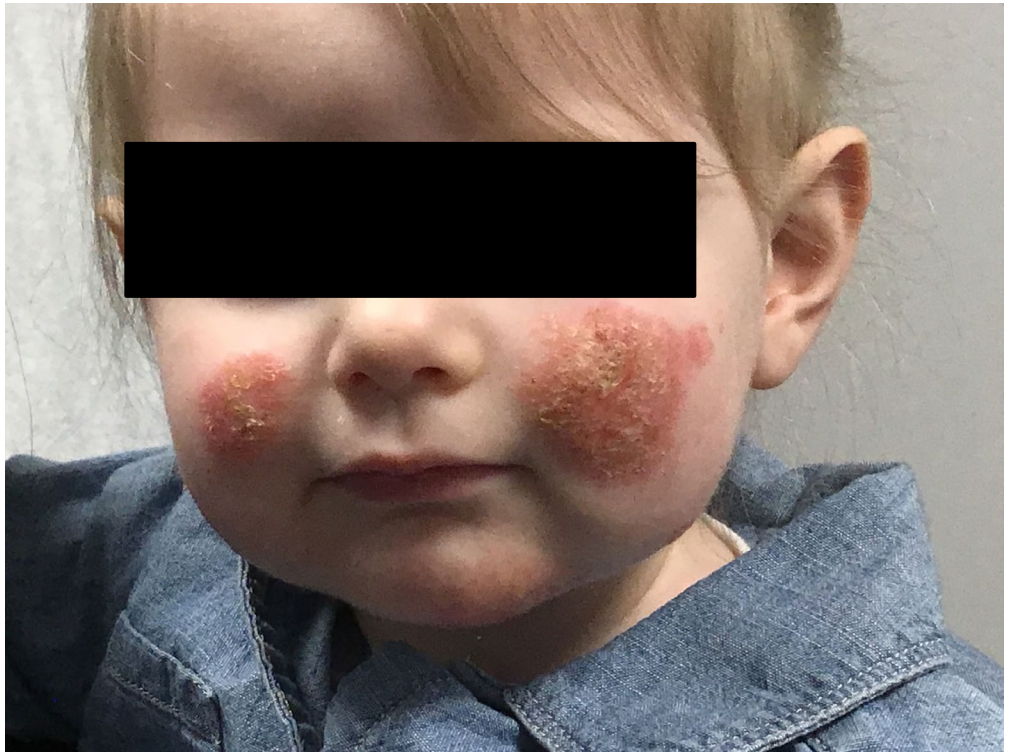
- 6 month history of a rash, all over
- Refractory to TCS and TCI
- Referral stated "refractory atopic dermatitis"
- Family history of plaque psoriasis in mom, controlled on a biologic





Treatment Considerations

- Consider antibiotics for *Streptococcus*
  - Culture-directed antibiotics in the case of positive results on strep pharyngeal, anal or vulvar culture
- Topical Corticosteroids
  - Concern for HPA axis suppression in younger patients, especially infants due to high BSA to volume ratio
  - Be cautious with high potency and ultra high potency agents



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Treatment Considerations

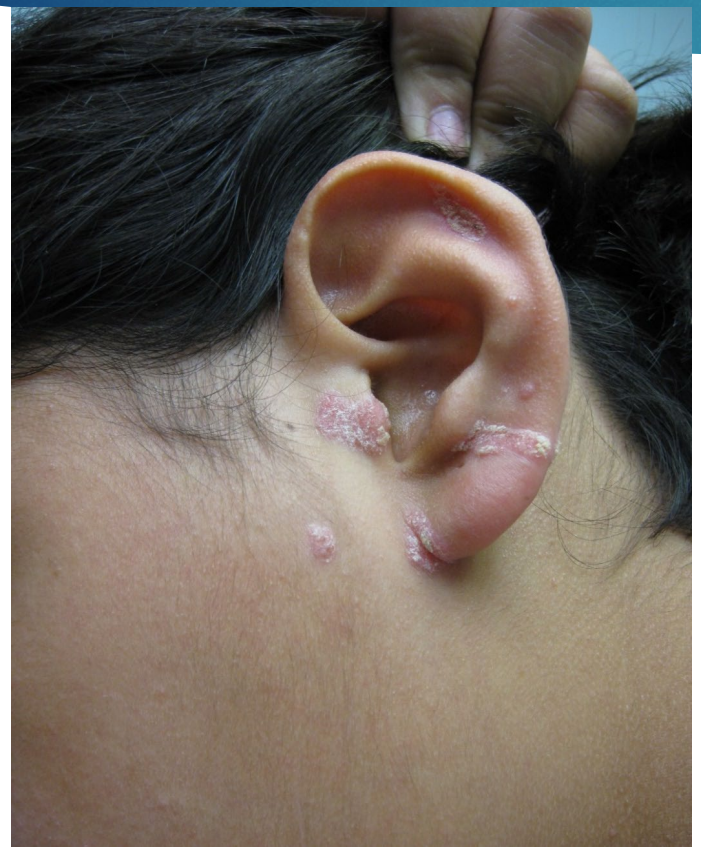
- Methotrexate
  - 0.2-0.7mg/kg per week
- Phototherapy
- Biologics off label?
- Considerations: live vaccines
  - MMR and Varicella

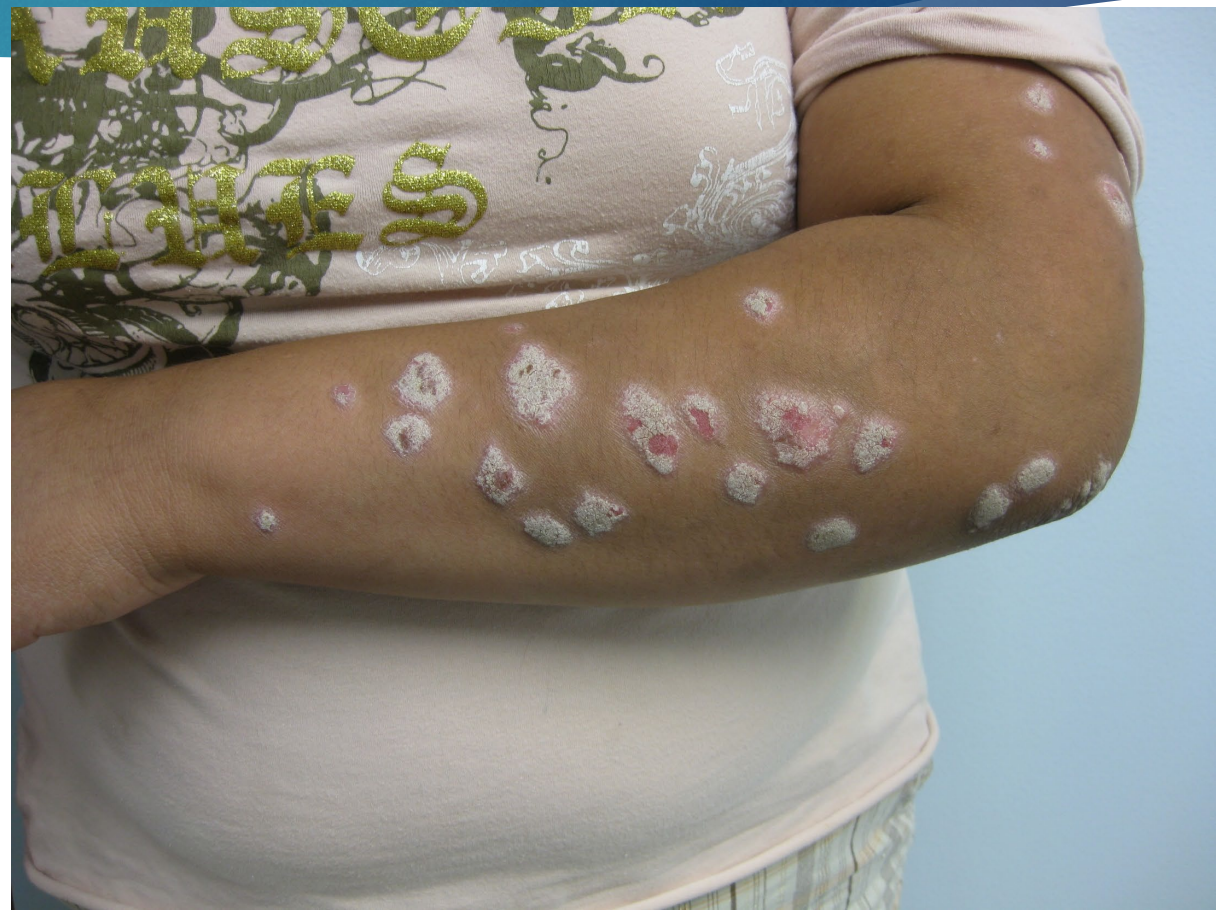
Case Based Discussions

Adelaide Hebert, MD

UTHealth McGovern Medical School-Houston

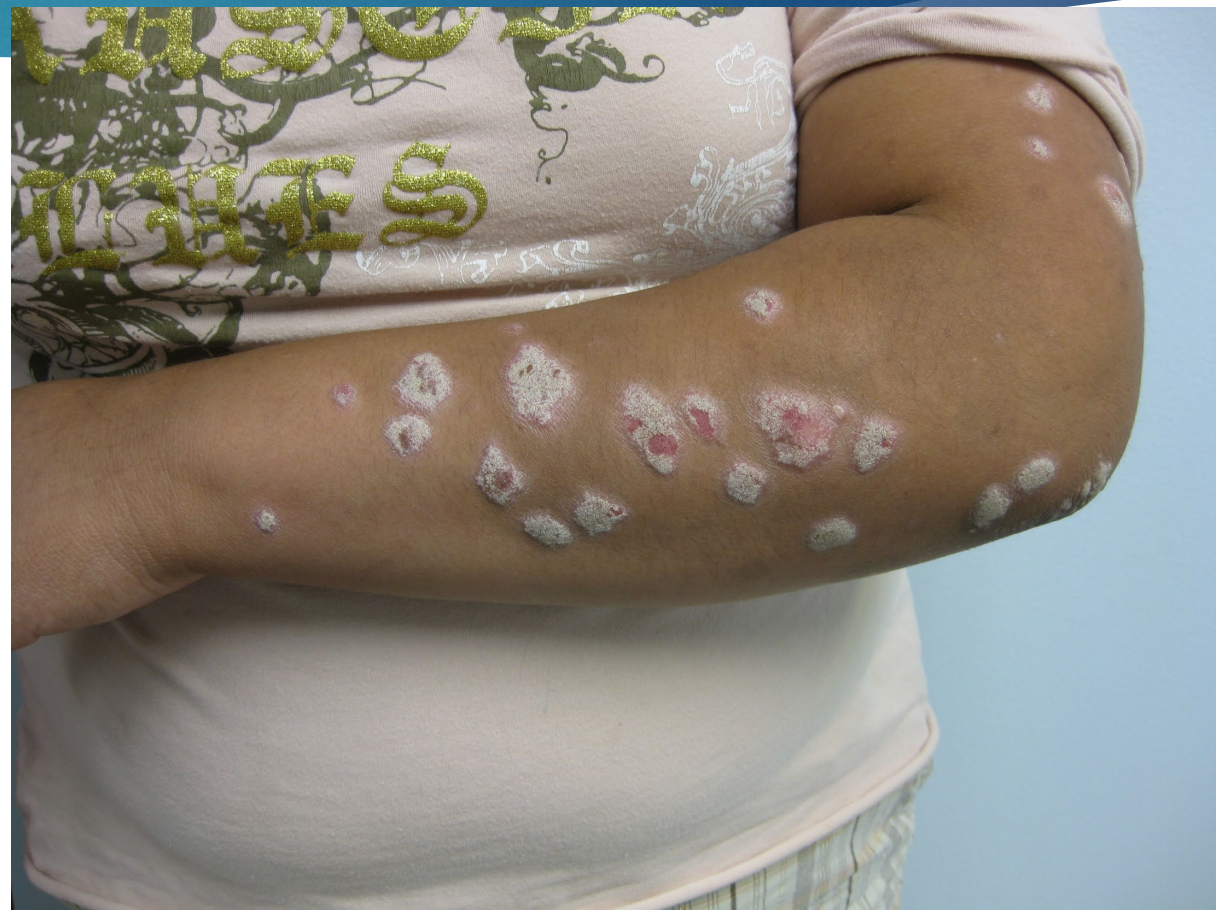
16 year old female with plaque psoriasis x years



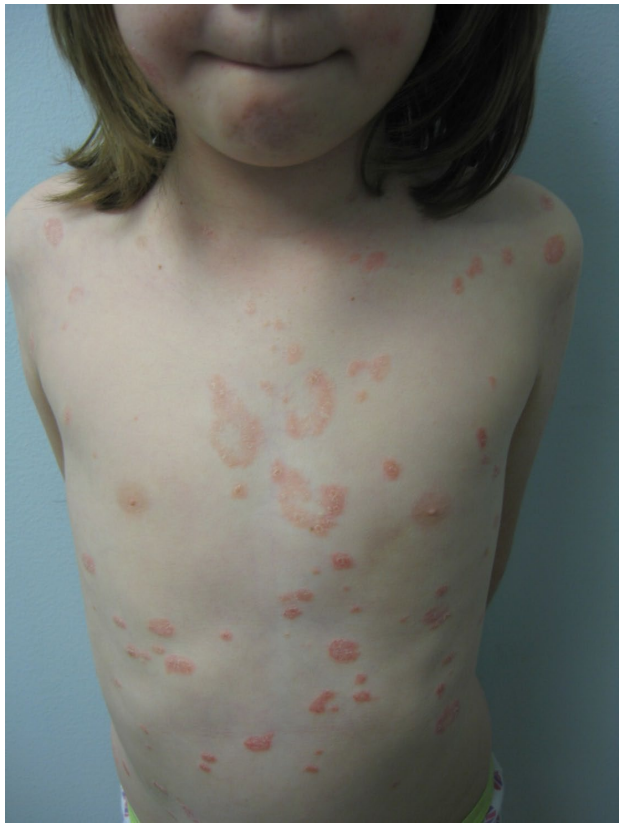


sixteen year old female with plaque psoriasis x years

- Does not love "shots" and wants as few as possible
- High BMI
- Low self esteem
- Rx: Ustekinumab
- Today: I would consider weight loss counseling and therapy
- Rx: birth control pills



6 year old female with new onset of psoriasis



- Assess for Strep infection
- Roflumilast 0.3% daily
- Rapid response to therapy

Treatment Considerations- Cyclosporine

- Cyclosporine
  - Off label in pediatric psoriasis, FDA approved in transplant patients down to 6 mos of age
  - Dosing: 2-5mg/kg
  - Fast!! Improvement in 1-2 weeks though full effect is seen between 4 and 8 weeks
  - Due to concerns about renal toxicity, begin gradual tapering after 1-2 months of stable psoriasis
- Vaccinations
  - May have difficulty launching appropriate humoral response
  - Avoid live vaccines

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PEDIATRIC PSORIASIS THERAPY

Biologics:newest: **apremilast: ≥ 6 years**

- Etanercept: ≥ 6 years
- Ustekinumab : ≥ 6 years (approved for Ps arthritis down to age 6 years)
- Ixekizumab: ≥ 6 years
- Secukinumab: ≥ 6 years (May 2021)(approved for PsA down to 2 years)

Topicals: Roflumilast cream 0.3% ≥ 6 years

- Calcipotriene Foam 0.005%: ≥ 4 years scalp and body
- Calcipotriene 0.005% and betamethasone 0.064% **foam**:
  ≥12 years: mild to severe plaque psoriasis
- Calcipotriene 0.005% and betamethasone 0.064%
  suspension: scalp and body: ≥ 12 years

The Future is Bright!

- Undergoing clinical trials:
  - Brodalumab
  - Tildrakizumab
  - Guselkumab
  - Rizankizumab
  - Deucravacitinib
  - Tapinarof 1% cream (approved ≥ 18 years of age)

Take Home Points

- Fewer FDA approved options in children
- Patient and parent education is a key component of management
  - Review etiology, natural history, triggers, comorbidities
- Psoriasis is difficult to diagnose in children but can be particularly challenging in patients with skin of color
- It is important to balance the risks of systemic therapy and the consequences of uncontrolled inflammation and through shared decision making, decide on the right treatment for each patient

THANK YOU!