Red scaly rash:
the papulosquamous eruption
Case One
Case One: History

- **HPI:** Sali is a 31-year-old woman who presents with red circles on her arms and trunk for the past 7 months. They don’t itch.
- **PMH:** none
- **Allergies:** erythromycin (rash)
- **Medications:** none
- **Family history:** noncontributory
- **Social history:** stay-at-home mom
- **ROS:** negative
Case One: Skin Exam
Case One, Question 1

Mrs. Sali’s exam shows annular erythematous patches with scale on the advancing edges and central clearing. Which is the best test to confirm the diagnosis?

a. Bacterial culture  
b. Direct fluorescent antibody (DFA) test  
c. Fungal culture  
d. Potassium hydroxide (KOH) exam  
e. Wood’s light
Case One, Question 1

Answer: d

- Mrs. Sali’s exam shows annular erythematous patches with scale on the advancing edges and central clearing. Which is the best test to confirm the diagnosis?
  
a. Bacterial culture (would only get normal skin flora)
b. Direct fluorescent antibody (DFA) test (for herpes virus)
c. Fungal culture (more expensive, takes longer)
d. Potassium hydroxide (KOH) exam (can make the diagnosis in the office; inexpensive test)
e. Wood’s light (this does not fluoresce)
KOH exam

- Excellent choice.
- You decide to do a KOH exam in the office.
- Scrape the leading edge for fine scale
Case One, KOH exam

Translucent branching, septate hyphae
Potassium hydroxide exam

- The first step in diagnosing a scaling annular rash on the body is to perform a KOH exam to rule out fungus
- “All that scales must be scraped” is a common mantra in dermatology
- Rule out dermatophyte infections before moving forward on scaling rashes
Mrs. Sali’s KOH exam is positive. Which of the following questions are important to ask?

a. Do you have a rash in your groin?
b. Do you have a rash on your feet?
c. Do you have any pets?
d. Do you take care of young children?
e. All of the above
Case One, Question 2

Answer: e

- Mrs. Sali’s KOH exam is positive. Which of the following questions are important to ask?
  a. Do you have a rash in your groin? (associated tinea cruris)
  b. Do you have a rash on your feet? (associated tinea pedis)
  c. Do you have any pets? (cats can transmit a type of ringworm)
  d. Do you take care of young children? (kids may have fungal infections on the scalp)
  e. All of the above
Tinea corporis

- Tinea corporis (“ringworm”) classically presents as annular patches with peripheral scaling at the advancing edge and central clearing
  - Complete skin exam often reveals tinea cruris (“jock itch”) and tinea pedis (“athlete’s foot”). **Check these areas on full skin exam.**

- Tinea corporis is usually caused by *Trichophyton* and *Microsporum* species.
  - These dermatophytes appear as translucent branching, septate hyphae. They do not have yeast forms.
Tinea cruris
Tinea pedis
Tinea capitis
Case One, Question 3

- Mrs. Sali has athlete’s foot and extensive tinea corporis on her abdomen, chest, back, and arms. What is the best therapy for her?
  a. Nystatin cream
  b. Oral terbinafine
  c. Terbinafine cream
  d. Triamcinolone cream
  a. Ultraviolet B (UVB) phototherapy
Case One, Question 3

**Answer: b**

- Mrs. Sali has athlete’s foot and extensive tinea corporis on her abdomen, chest, back, and arms. What is the best therapy for her?
  
  a. Nystatin cream *(only works for Candida species)*
  
  b. **Oral terbinafine** *(necessary for extensive tinea corporis)*
  
  c. Terbinafine cream *(not good for extensive involvement)*
  
  d. Triamcinolone cream *(could worsen infection or create tinea incognito)*
  
  e. Ultraviolet B (UVB) phototherapy *(will not kill fungus)*
Tinea corporis treatment

- Counsel on foot care to prevent recurrence
- Localized involvement
  - Azoles (miconazole, clotrimazole) are **fungistatic** and must be used BID
  - Allylamines (terbinafine, naftifine) and benzylamines (butenafine) are **fungicidal**
    - Better cure rates and lower recurrence than azoles
- Extensive involvement may require oral antifungals (14-28 days of terbinafine)
Case Two
Case Two: History

- **HPI:** Ali is a 17-year-old student. He presents for a routine college physical but mentions a scaly patch on his abdomen for the past few days. It itches a little bit.
- **PMH:** tonsillectomy as a child
- **Allergies:** penicillin (rash)
- **Medications:** none
- **Family history:** noncontributory
- **Social history:** college student; plays lacrosse; sexually active; moderate alcohol intake
- **ROS:** recent cold symptoms after moving into dorms
Skin Exam
Question 1

- Ali’s exam shows a single erythematous oval plaque with scaling. What is the first test should you get during his office visit?
  a. Bacterial culture
  b. Gonorrhea culture
  c. Potassium hydroxide (KOH) exam
  d. Rapid plasma reagin
  e. Shave biopsy
Case Two, Question 1

Answer: c

- Ali’s exam shows a single erythematous oval plaque with scaling. What is the first test should you get during his office visit?
  a. Bacterial culture
  b. Gonorrhea culture
c. Potassium hydroxide (KOH) exam
d. Rapid plasma reagin
e. Shave biopsy
Potassium hydroxide exam

- Great job! You remembered that “All that scales must be scraped”
- Rule out dermatophyte infections before moving forward on scaling rashes
- In this case, the KOH exam is negative
- This does not bother him much, so you give him a mid-potency topical steroid cream to use BID as needed for itching
Case Two, continued

- Ali returns in 3 days for a rash on his chest, abdomen, and back
- It only itches a little bit
- Exam shows oval salmon-colored patches with minor scale; the oval patches follow skin tension lines on the back
- Palms and soles are normal
- Repeat KOH exam is negative
Case Two, Question 2

Ali’s exam shows oval, salmon-colored scaling plaques on his trunk. What is the most likely diagnosis?

a. Guttate psoriasis
b. Nummular dermatitis
c. Pityriasis rosea
d. Secondary syphilis
e. Tinea corporis (tinea incognito)
Case Two, Question 2

Answer: c

- Ali’s exam shows oval, salmon-colored scaling plaques on his trunk. What is the most likely diagnosis?
  
a. Guttate psoriasis (doesn’t follow skin tension lines)
b. Nummular dermatitis (doesn’t follow skin tension lines)
c. **Pityriasis rosea**
d. Secondary syphilis (possible but not as common and does not have a herald patch)
e. Tinea corporis (tinea incognito) (KOH negative)
Pityriasis rosea

- Pityriasis rosea (PR) is an acute exanthematous eruption that mainly occurs in young people
  - Most patients are between the ages of 10 and 35
  - The peak incidence is in late teens and early 20s
  - Some studies suggest a possible viral etiology, but this has not been definitively proven

- Usually asymptomatic, but patients may have associated flu-like symptoms
  - Malaise, nausea, loss of appetite, gastrointestinal upset, upper respiratory symptoms
  - Less commonly fever, swollen lymph nodes, pain, or sore throat are noted
Pityriasis rosea

Classically starts with a “herald patch”
Annular erythematous 2-10 cm patch anywhere on the body, with peripheral scaling and central clearing
Patients often don’t remember or never had a herald patch

The secondary phase erupts in a “Christmas tree” pattern

- Similar oval patches and plaques erupt symmetrically over trunk and proximal extremities
- They follow relaxed skin tension lines, thus giving the appearance of a “Christmas tree” on the back
Now let’s look at a few examples of pityriasis rosea
The elusive “herald patch”
Pityriasis rosea treatment

- Pityriasis rosea is self-limiting
  The mean duration is about 5 weeks
  More than 80% resolve by 8 weeks without treatment
  Most patients only need to be reassured

- About 25% request treatment for mild to severe pruritus
  - Soothing anti-itch lotions available over-the-counter, topical steroids, and oral antihistamines may help
Case Four
Case Four: History

- HPI: Wleed is a 15-year-old who presents with one week of small pink scaly round spots on his chest, abdomen, back, upper arms, thighs, and forehead. They itch somewhat.
- PMH: none
- Allergies: none
- Medications: none
- Family history: sister had strep throat a month ago
- Social history: lives with mother, father and three siblings (ages 3, 7, and 9)
- ROS: mild sore throat for past two weeks
Case Four: Skin Exam
Case Four, Question 1

- Waleed’s exam shows many guttate (raindrop-like) scaly pink to bright red papules. They do not follow skin tension lines, and there is no oral, palm, or sole involvement. What is the first test you should perform?
  
a. Fungal culture
b. Potassium hydroxide (KOH) exam
c. Rapid plasma reagin
d. Shave biopsy
Case Four, Question 1

Answer: b

- Waleed’s exam shows many guttate (raindrop-like) scaly pink to bright red circinate papules. They do not follow skin tension lines, and there is no oral, palm, or sole involvement. What is the first test you should perform?
  
  a. Fungal culture
  b. Potassium hydroxide (KOH) exam
  c. Rapid plasma reagin
  d. Shave biopsy
You perform a KOH exam to rule out tinea corporis, and it is negative. What is the most likely diagnosis for Waleed?

a. Guttate psoriasis
b. Nummular dermatitis
c. Pityriasis rosea
d. Secondary syphilis
e. Tinea corporis
Case Four, Question 2

**Answer: a**

- You perform a KOH exam to rule out tinea corporis, and it is negative. What is the most likely diagnosis for Captain Koebner?
  a. **Guttate psoriasis**
  b. Nummular dermatitis (not associated with strep throat)
  c. Pityriasis rosea (follows skin tension lines)
  d. Secondary syphilis (can present this way and it is never wrong to order a screening test; no strep throat)
  e. Tinea corporis (should have positive KOH)
Psoriasis

- Psoriasis is a common, chronic, inflammatory multi-system disease that mostly involves skin and joints.
- Classic plaque psoriasis presents as pink to bright red well-demarcated plaques with silvery scale.
  - Usually located on extensor knees and elbows.
  - Commonly involves scalp, umbilicus, gluteal cleft, and nails.
- Guttate psoriasis presents as small “drop-like” scaly papules and plaques mostly on the trunk and extremities.
  - Often follows group A beta hemolytic streptococcal infections.
Now let’s look at a few examples of different psoriasis presentations
Classic psoriasis
Guttate psoriasis
Inverse psoriasis (in the folds)
Psoriasis treatment

- For limited psoriasis (less than 5% of BSA), topical therapies are first-line choices
  - **Potent topical steroids** should be used once or twice daily for thickened plaques on the body
- For extensive psoriasis, systemic therapy is often necessary
  - Narrow-band ultraviolet B phototherapy is very helpful in guttate psoriasis
Case Five
Case Five: History

- **HPI:** Kamil is a 35-year-old man who presents with three months of an extremely itchy red rash on his arms and legs.
- **PMH:** seasonal allergic rhinitis, childhood eczema
- **Allergies:** peanuts
- **Medications:** loratadine
- **Family history:** brother with asthma
- **Social history:** lives with wife and two children
- **ROS:** negative
Case Five: Skin Exam
Case Five: Skin Exam
Since this rash is scaly, you correctly start with a KOH exam, which is negative.

The round eczematous plaques are on his arms, legs, and back.

His scalp, umbilicus, nails, palms, and soles are unaffected.
Mr. Kamil’s exam shows erythematous, coin-like, scaling, weeping, crusted plaques on his arms and legs. What is the most likely diagnosis?

a. Guttate psoriasis
b. Nummular dermatitis
c. Pityriasis rosea
d. Secondary syphilis
e. Tinea corporis
Question 1

Answer: b

- Mr. Kamil’s exam shows erythematous, coin-like, scaling, weeping, crusted plaques on his arms and legs. What is the most likely diagnosis?

  a. Guttate psoriasis (usually not weeping, crusted)
  b. **Nummular dermatitis**
  c. Pityriasis rosea (does not last this long, or weep)
  d. Secondary syphilis (does not last this long, or weep)
  e. Tinea corporis (KOH is negative, no central clearing)
Nummular dermatitis (discoid)

- Nummular dermatitis presents as multiple coin-shaped eczematous plaques on the extremities and trunk
  - May be scaly but lacks the central clearing seen in tinea corporis and is KOH negative
  - Very pruritic
  - May exhibit weeping, cracking, vesicles, or crusts
  - Pathology shows spongiotic dermatitis
Now let’s look at a few examples of nummular dermatitis
Nummular dermatitis
Nummular dermatitis
Nummular dermatitis
Question 2

You diagnose Mr. Kamil with nummular dermatitis. What treatment would you recommend?

- a. Desonide cream
- b. Clobetasol ointment (potent steroid)
- c. Oral erythromycin
- d. Oral terbinafine
- e. Ultraviolet B (UVB) phototherapy
Answer: b

- You diagnose Mr. Kamil with nummular dermatitis. What treatment would you recommend?
  - a. Desonide cream (not strong enough)
  - b. Clobetasol ointment (potent steroid)
  - c. Oral erythromycin (for pityriasis rosea)
  - d. Oral terbinafine (not fungal)
  - e. Ultraviolet B (UVB) phototherapy (for guttate psoriasis)
Nummular dermatitis

- Treat like atopic dermatitis or any other eczema
- Potent topical steroids are necessary to control this type of eczematous eruption
- Apply emollients twice a day
Now, can you list four common causes of the papulosquamous eruption?

Try it before moving on to the next slide.
Papulosquamous eruption: differential diagnosis

- Common causes:
  - Tinea corporis
  - Pityriasis rosea
  - Psoriasis
  - Nummular (discoid) dermatitis

- Eruptions that do not fit the clinical description of one of these should be referred to dermatology
Approach to red scaly rash

- Is it tinea corporis? First, do KOH to rule out fungus
- If KOH is negative, is it psoriasis?
  ✓ Examine classic areas and ask about streptococcus infections
  ✓ A biopsy at this point could confirm this diagnosis or another skin disease
- Could it be pityriasis rosea?
  • Teens/20s, + herald patch, follows skin lines
Guidelines for consulting dermatology on the red scaly rash

1. not send a dermatology consult without first performing a full skin exam
2. In papulosquamous eruptions, morphology and distribution are clues to the diagnosis
3. All that scales must be scraped
   • For scaly annular patches, do a KOH first
4. Do not prescribe antifungals then consult dermatology.
   - KOH exams are unreliable if the patient is using an antifungal.