Morphology:

How to describe what you see

Basic Dermatology Curriculum

Last updated July 16th, 2013

Module Instructions

- The following module contains a number of blue, underlined terms which are hyperlinked to the dermatology glossary, an illustrated interactive guide to clinical dermatology and dermatopathology.
- We encourage the learner to read all the hyperlinked information.

Goals and Objectives

- The purpose of this module is learn how to best describe skin lesions
- After completing this module, the learner will be able to:
  - Develop a systematic approach to describing skin eruptions
  - Utilize the appropriate terms to describe morphology

Morphology

- The word **morphology** is used by dermatologists to describe the form and structure of skin lesions
- The morphologic characteristics of skin lesions are **key elements in establishing the diagnosis** and communicating skin findings
- There are two steps in establishing the morphology of any given skin condition:
    1. Careful visual and tactile inspection
    2. Application of correct descriptors

Visual and Tactile Inspection

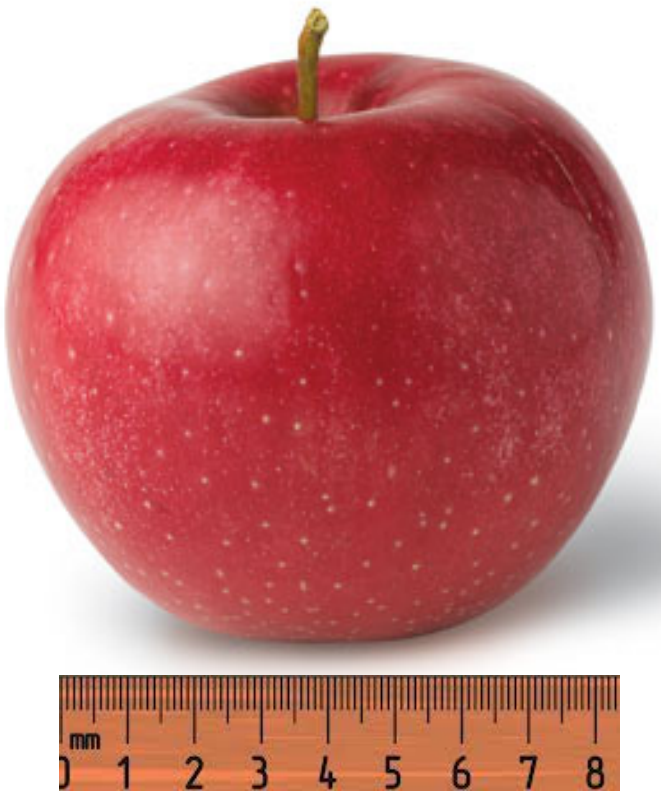
- Accumulate detailed information about the visual and tactile aspects of the skin findings
- Be able to communicate an accurate description so someone on the other end of a phone can get a mental picture of what you see.

- **Question 1**
  - How would you fill in the description of the item depicted on the next slide?

Question 1

- How would you describe the object to the right?
- Be as detailed as you can be!

Question 1



This is a *red, circular, shiny* object with a *small invagination on top.* It measures *8 cm.* It is in a *white background* and casts a *shadow*.

The shadow tells us it is raised (palpable).

Question 1

This is a *red, circular, shiny* object with a *small invagination on top.* It measures *8 cm.* It is in a *white background* and casts a *shadow*.

The above description identifies:

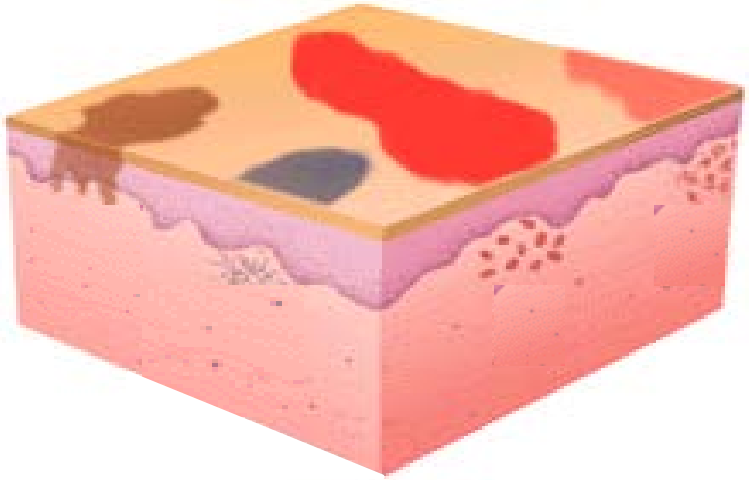
1. Palpability (indicated by shadow)
2. Color
3. Shape
4. Texture
5. Size
6. Location

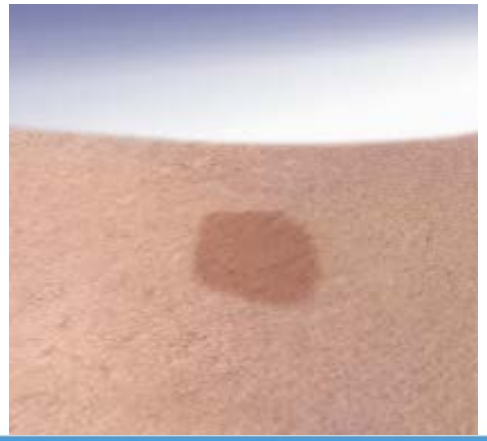
Application of the correct descriptors

- We have just reviewed careful visual inspection
- We will now define the terms dermatologists use to describe skin lesions
- We will then have a series of cases for you to practice describing so you can use the correct descriptors.

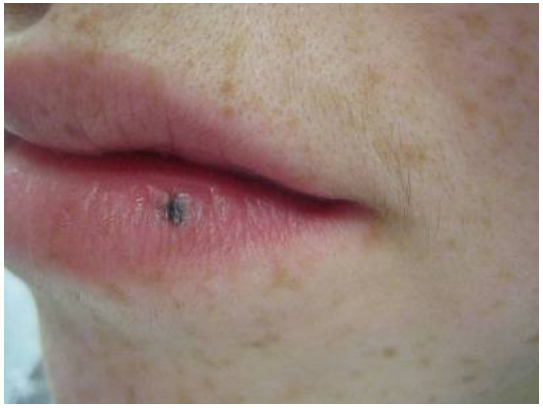
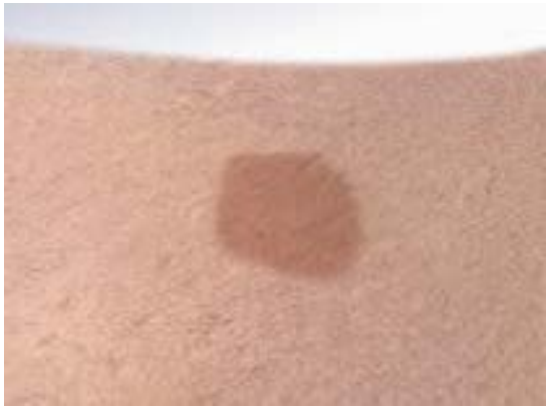
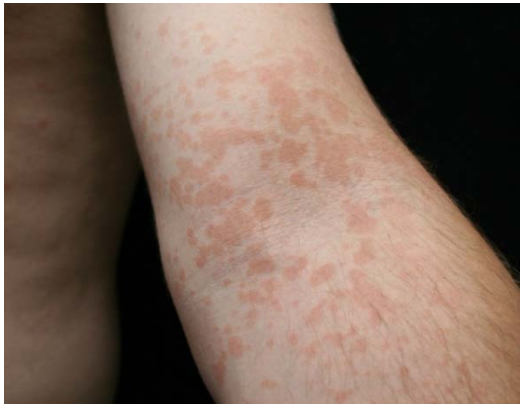
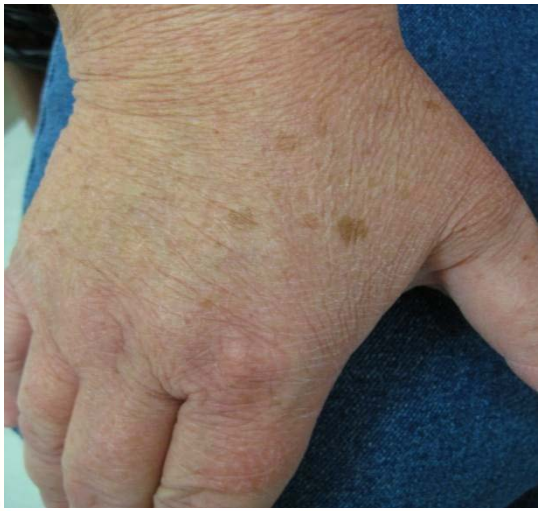
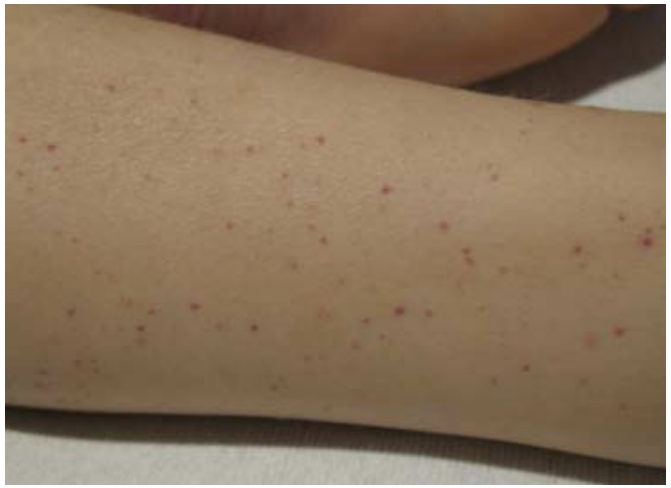
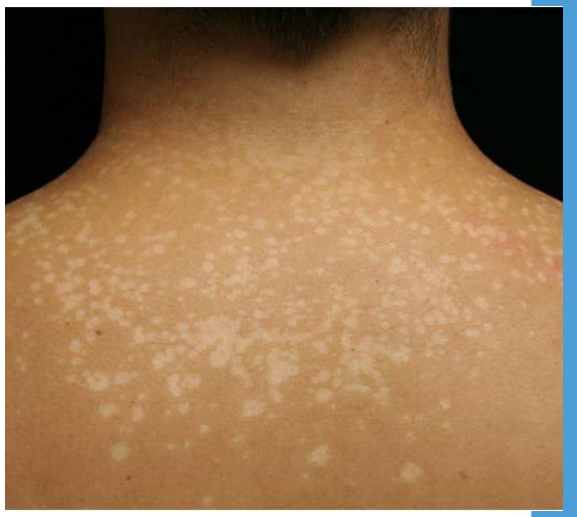
Primary lesion: Macule

- (L. macula, “spot”)
- A macule is flat; if you can feel it, then it is not a macule.



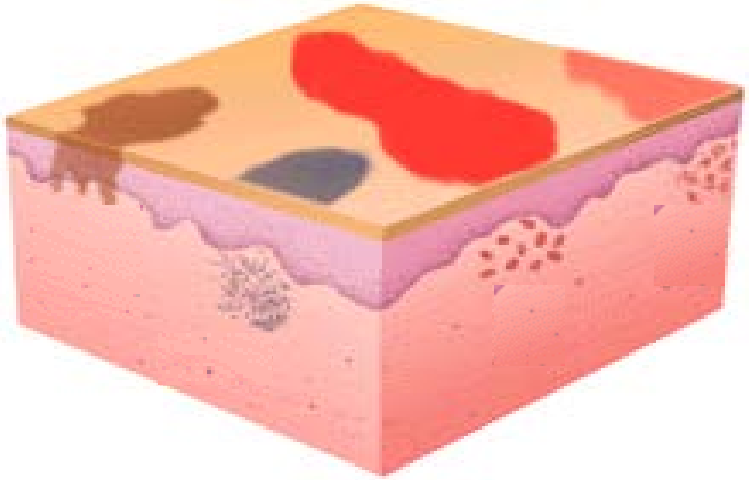


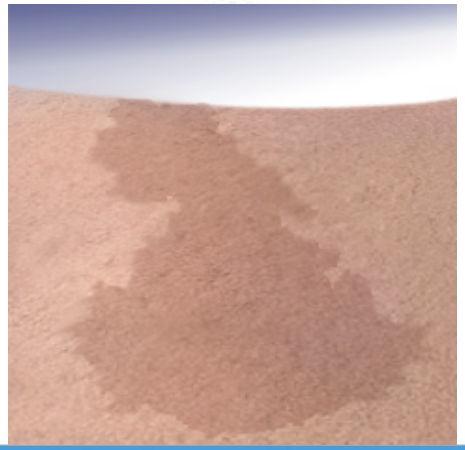
Examples of Macules

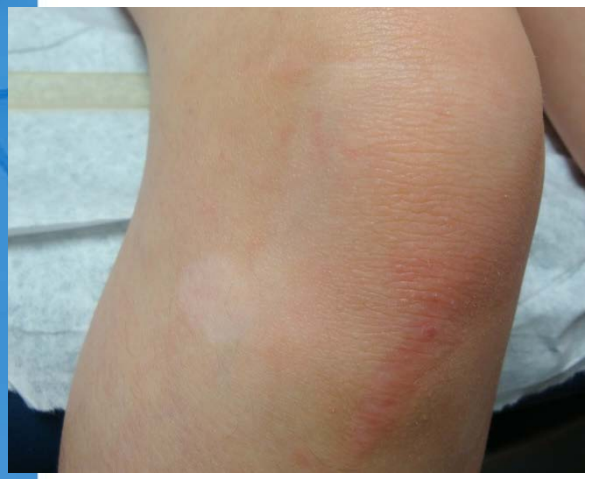
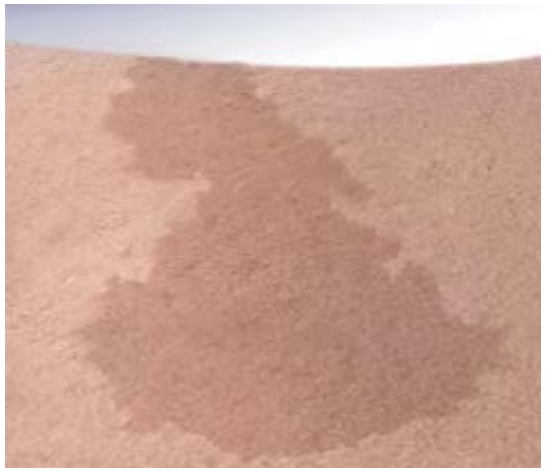
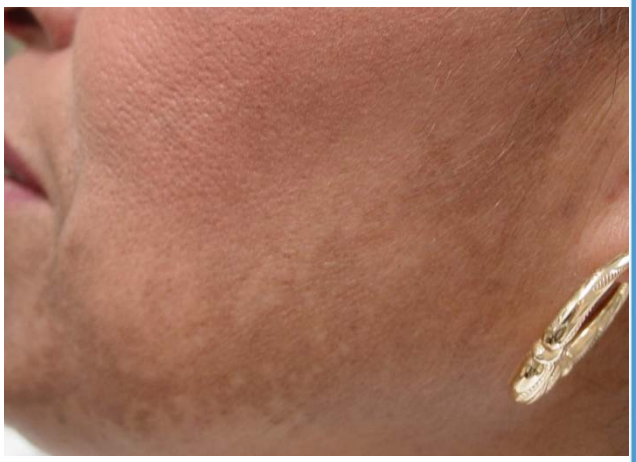
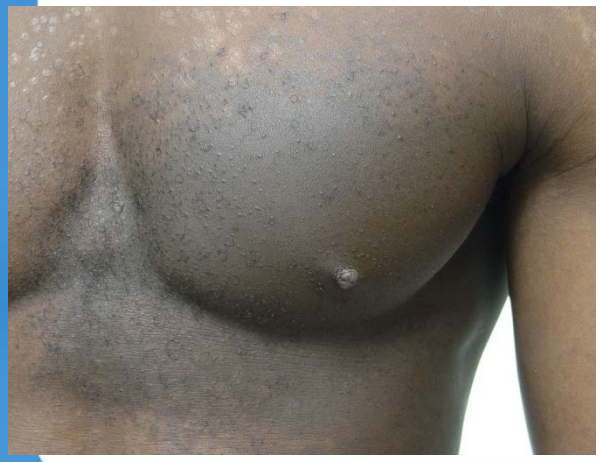
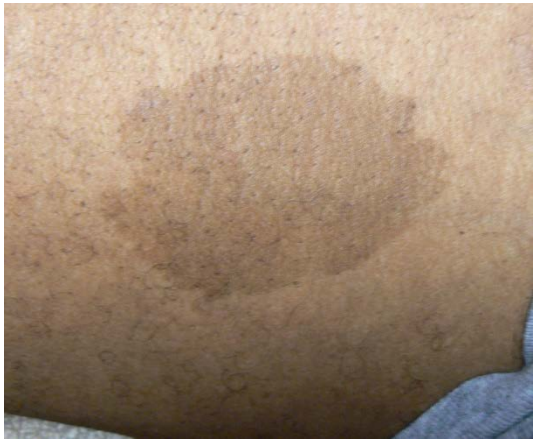
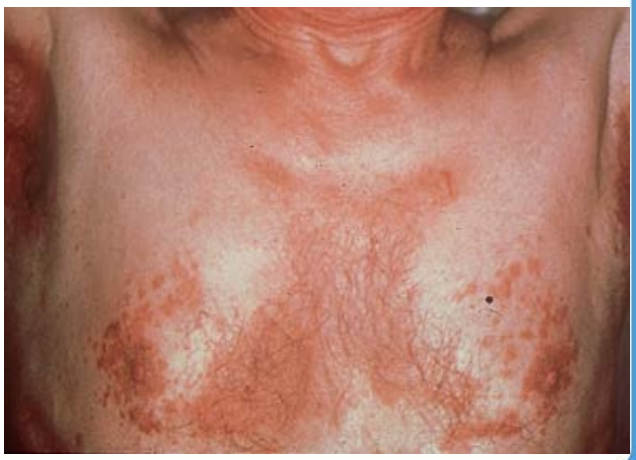
Primary lesion: Patch

- Patches are flat but larger than macules
- If it's flat and larger than 1 cm, it is a patch



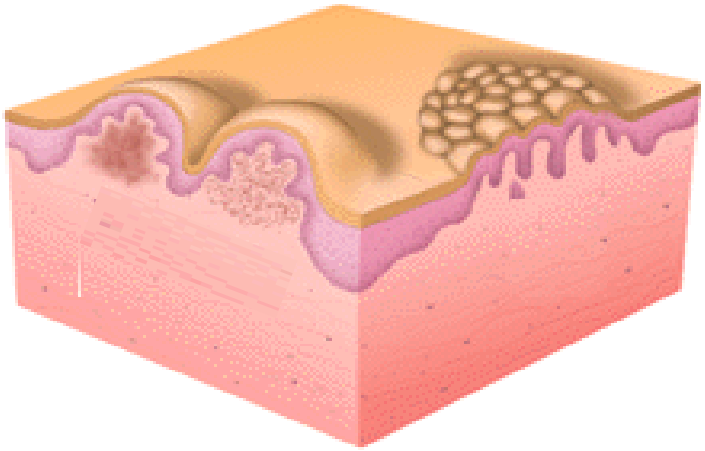


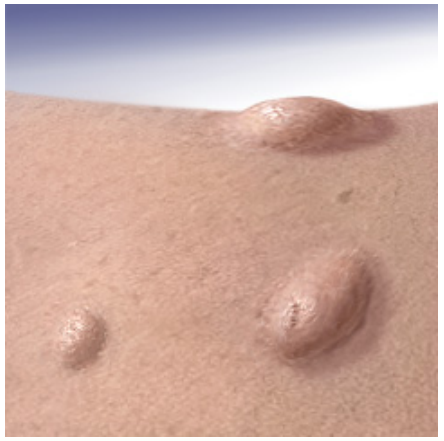
Examples of Patches

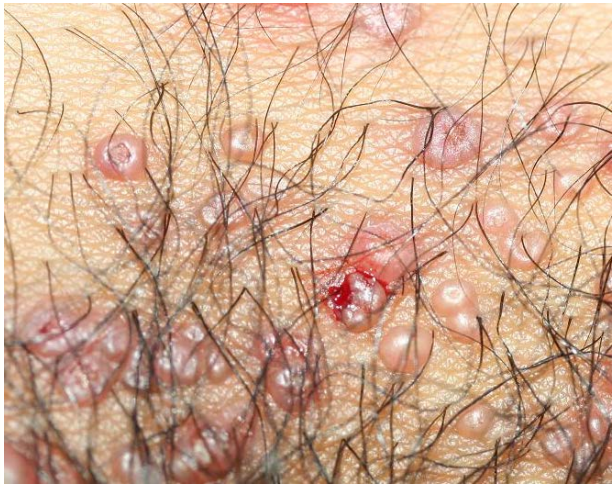
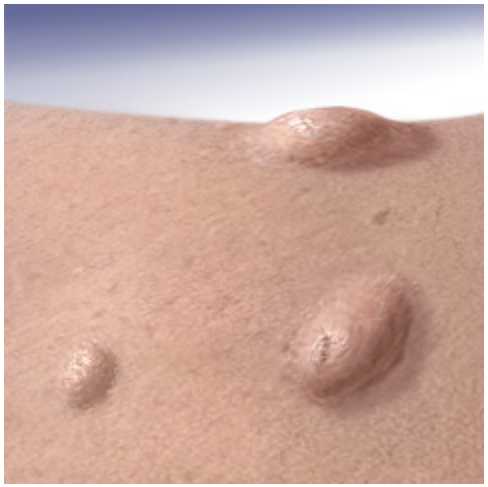
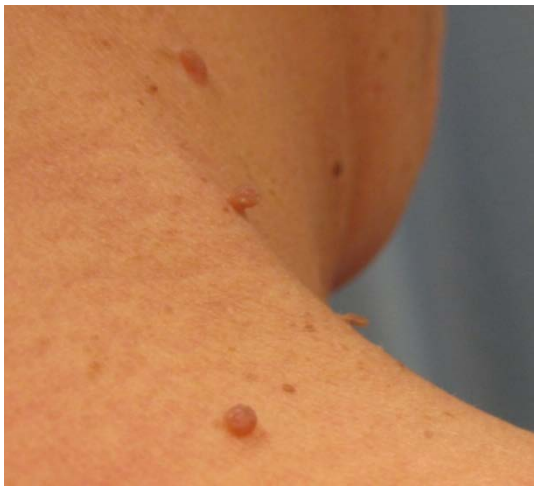
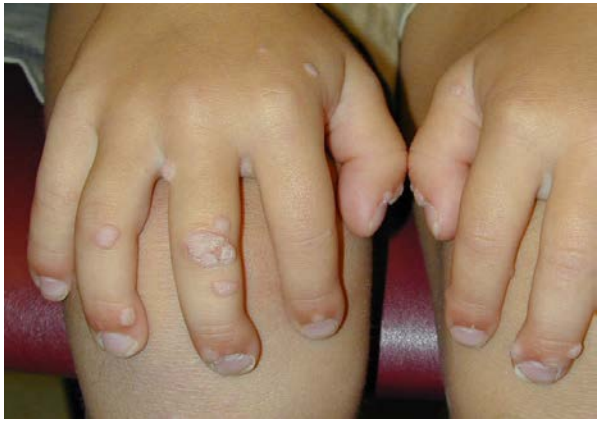
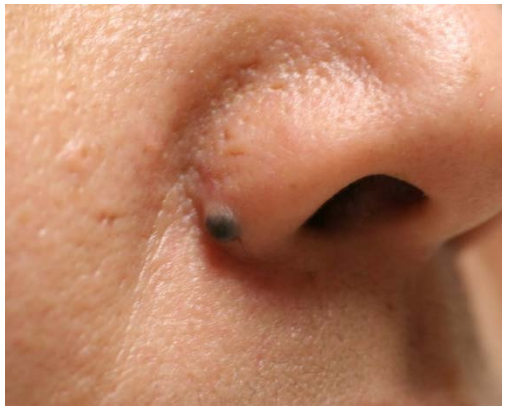
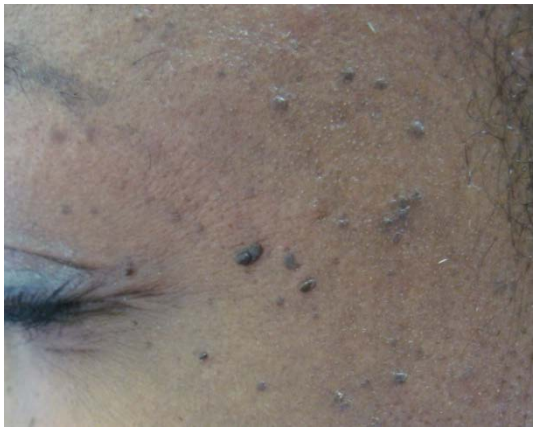
Primary lesion: Papule

- (L. papula, “pimple”)
- Papules are raised lesions less than 1 cm
- It is caused by a proliferation of cells in epidermis or superficial dermis



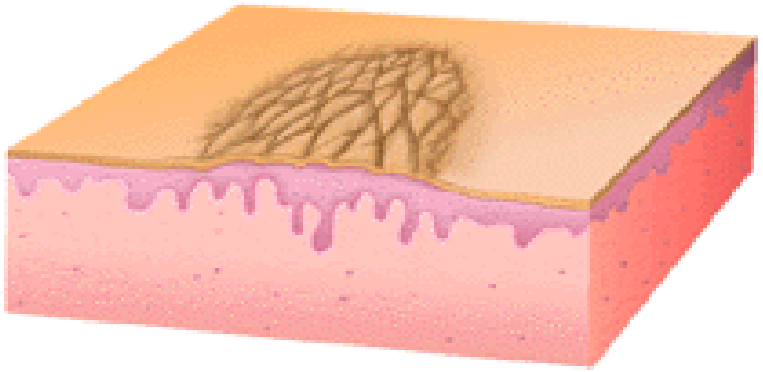


Examples of Papules

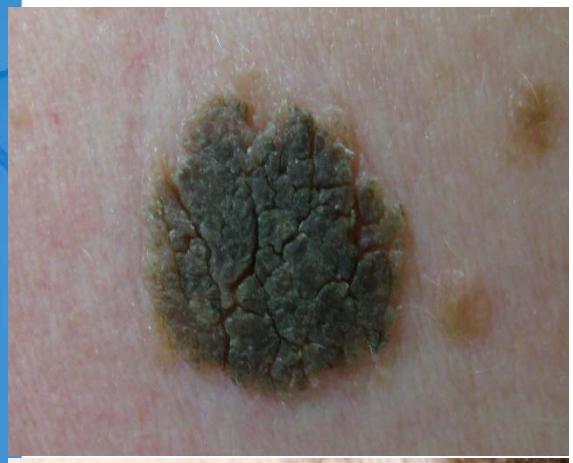
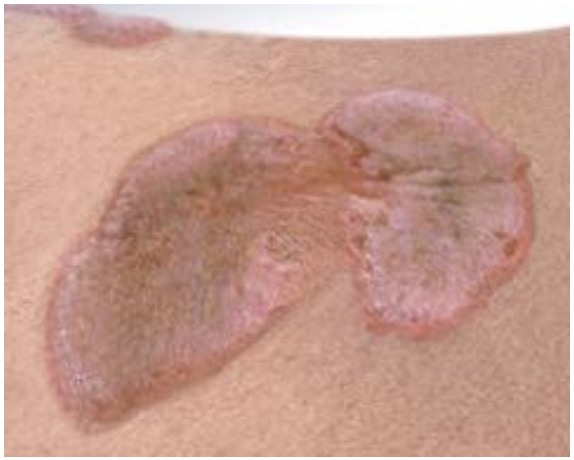
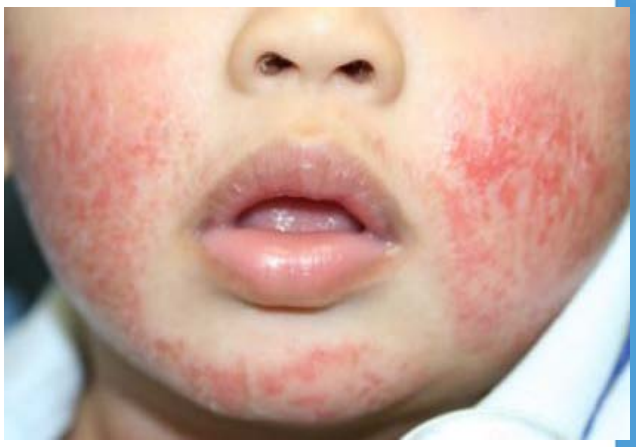
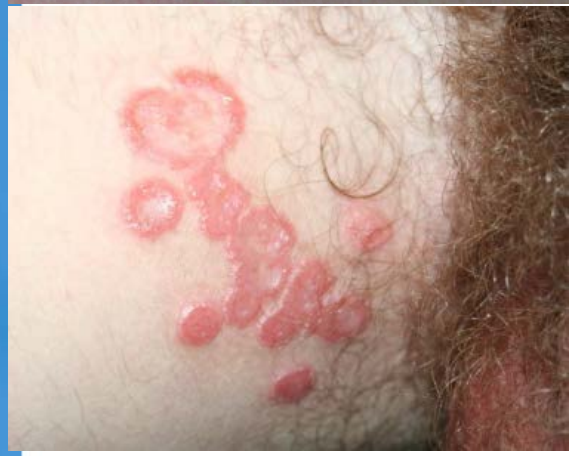
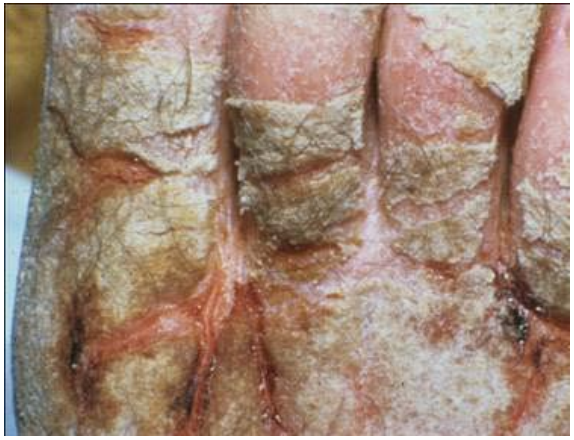
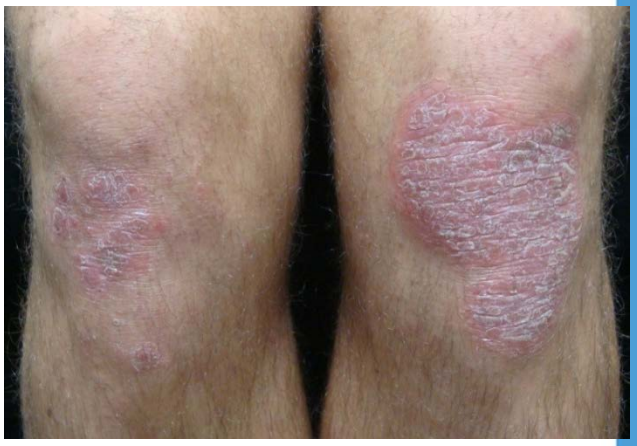







Primary lesions: Plaque

- Plaques > 1 cm
  - You can feel them
  - They cast a shadow with side lighting
- It is also caused by a proliferation of cells in epidermis or superficial dermis

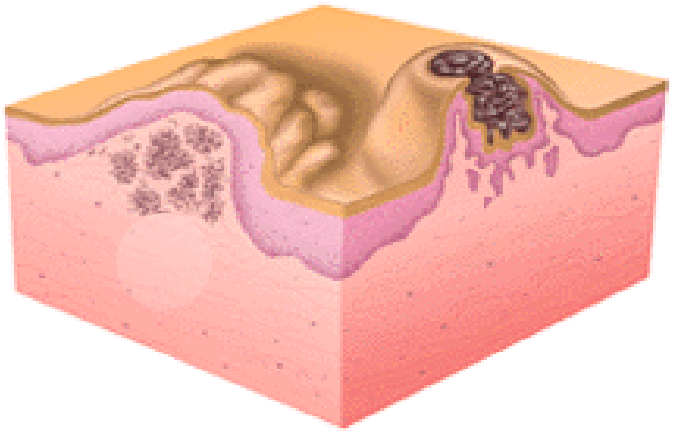


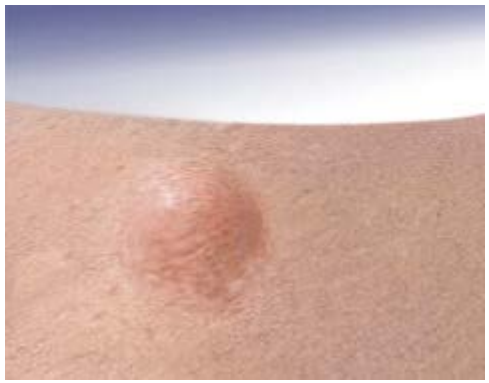
Examples of Plaques

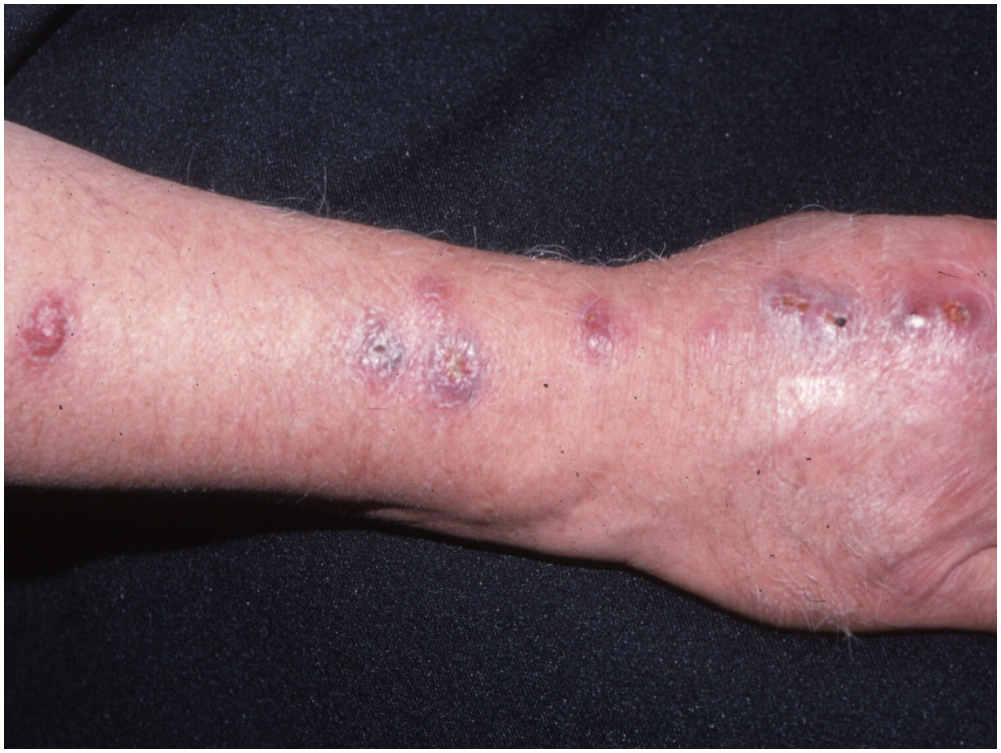
Nodule

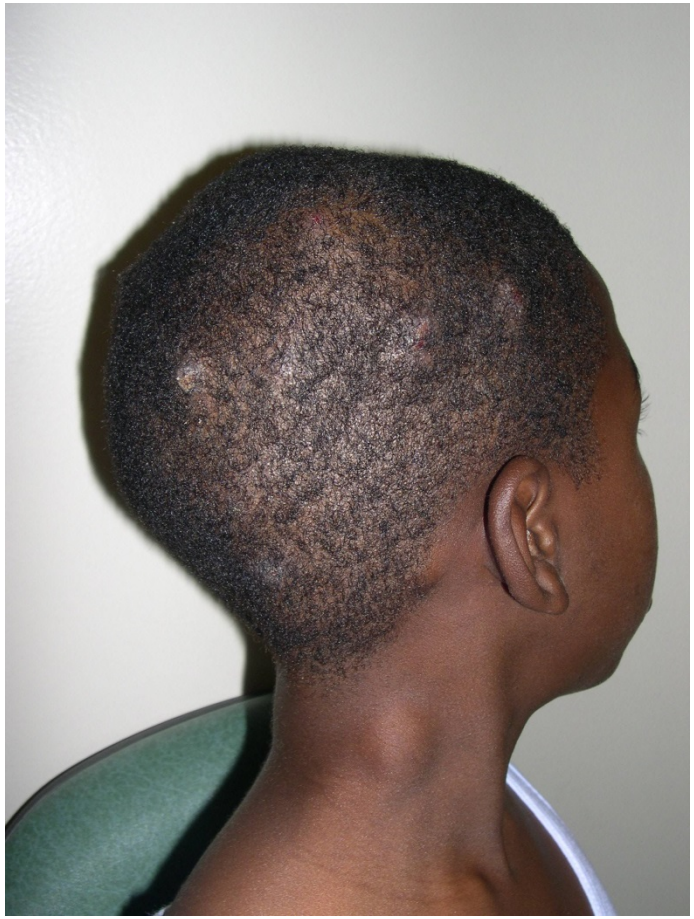
- (L. nodulus, “small knot”)
- It is caused by a prolifera
  the mid-deep dermis





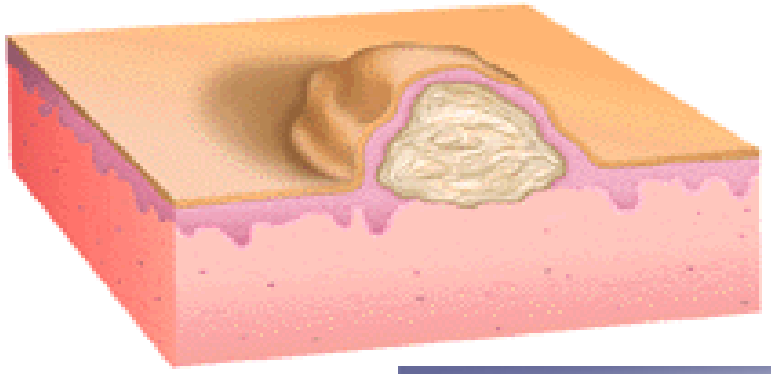
Examples of Nodules

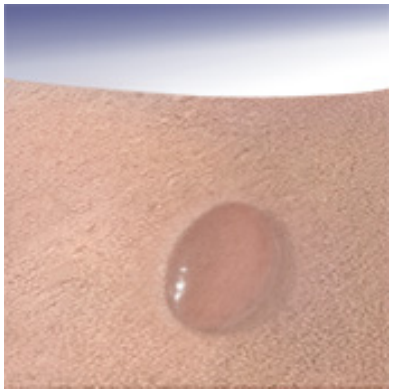




Primary lesion: Vesicle

- (L. vesicula, “little bladder”; bulla, “bubble”)
- Vesicles are fluid-filled papules (small blisters)
- A large (> 1cm) blister is called a bulla

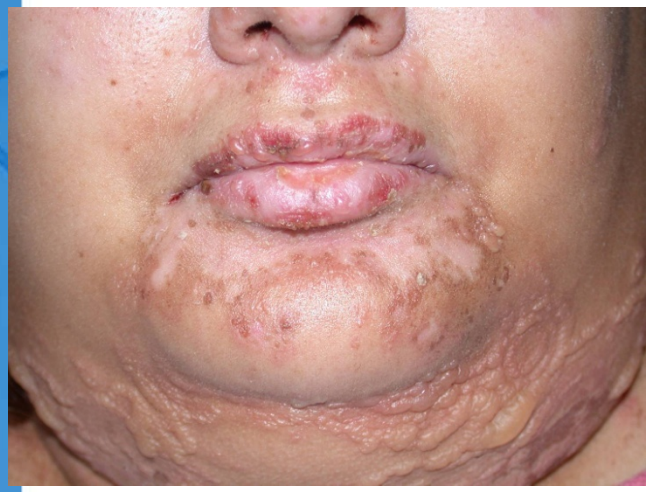


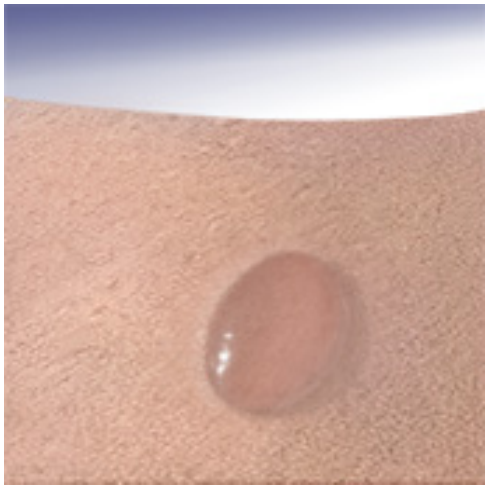


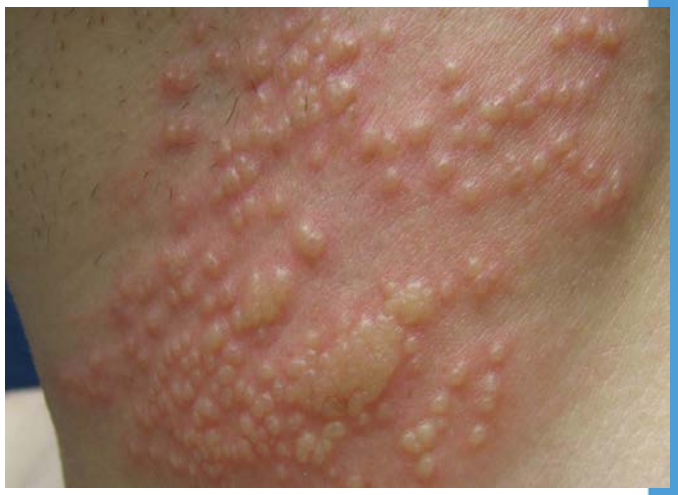
vesicle

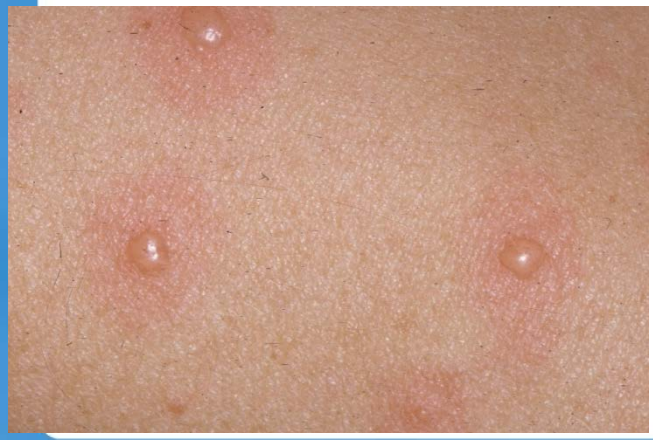
bulla

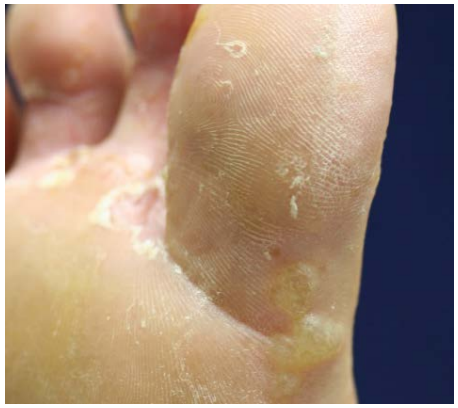
Examples of Vesicles

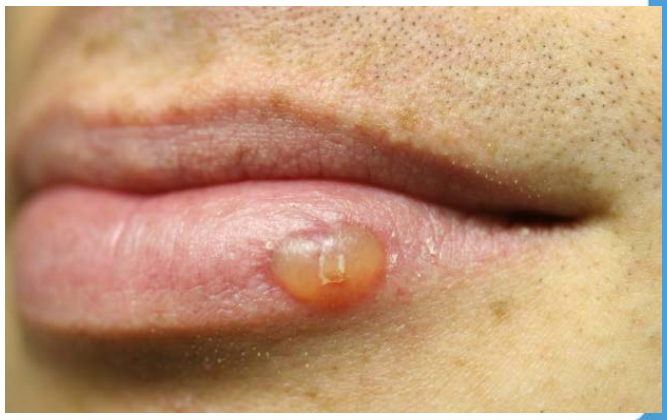






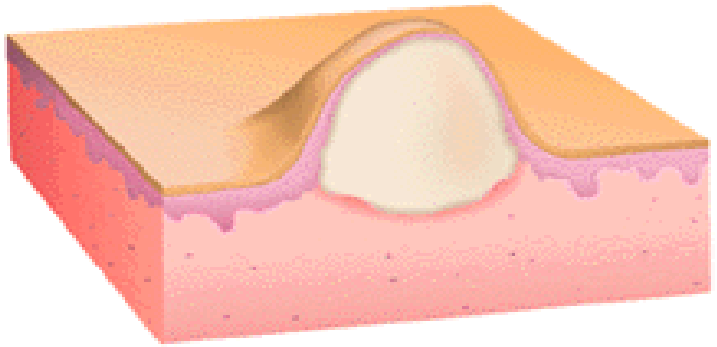


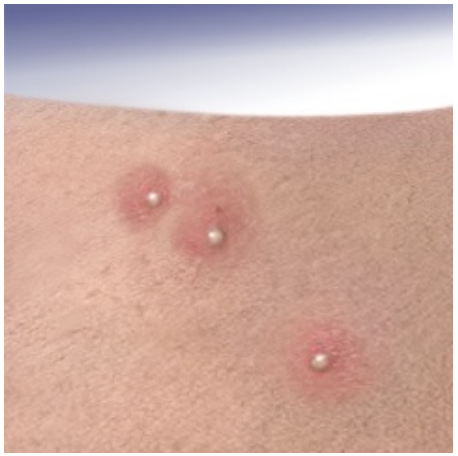


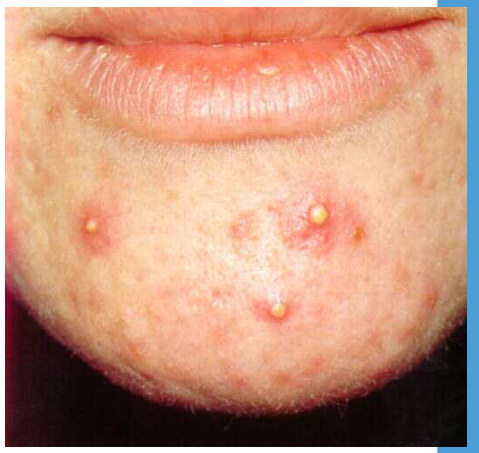


Pustule

- Pus is made up of leukocytes and a thin fluid called *liquor puris* (L. “pus liquid”)
- See also furuncle and abscess

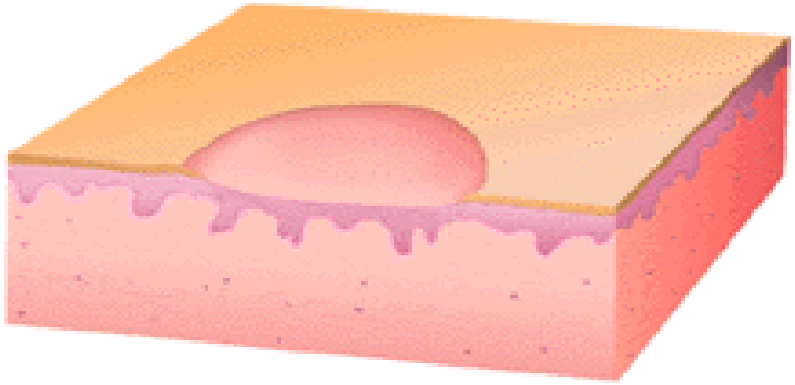


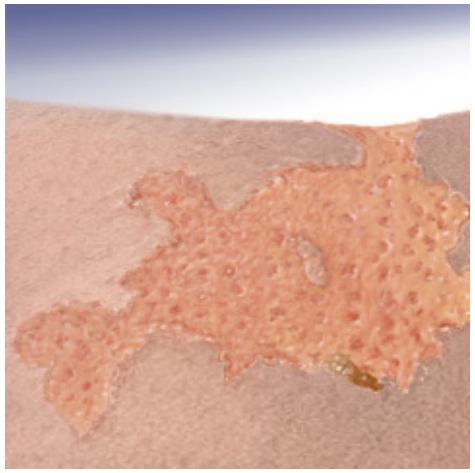




Erosion

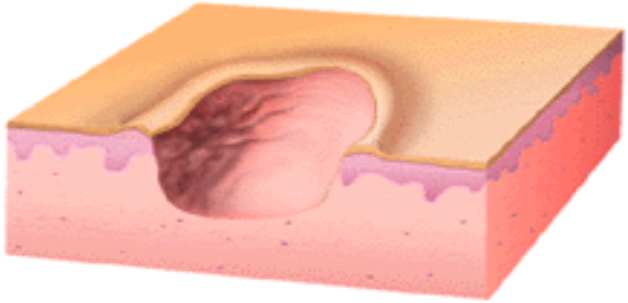
- Erosions are loss of part or all of the epidermis
- They may occur after a vesicle forms and the top peels off
- They weep and become crusted

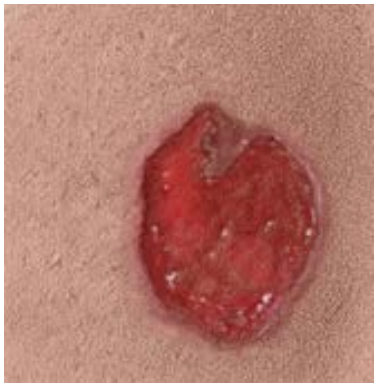




Ulcer

- (L. ulcus, “sore”)
- Ulcers are complete loss of the epidermis in addition to part of the dermis
- They often heal with scarring; erosions usually do not heal with scars





- Now you have the terms you need
- Let’s practice your descriptions with cases
- Do the best you can – like learning any new language it takes practice!

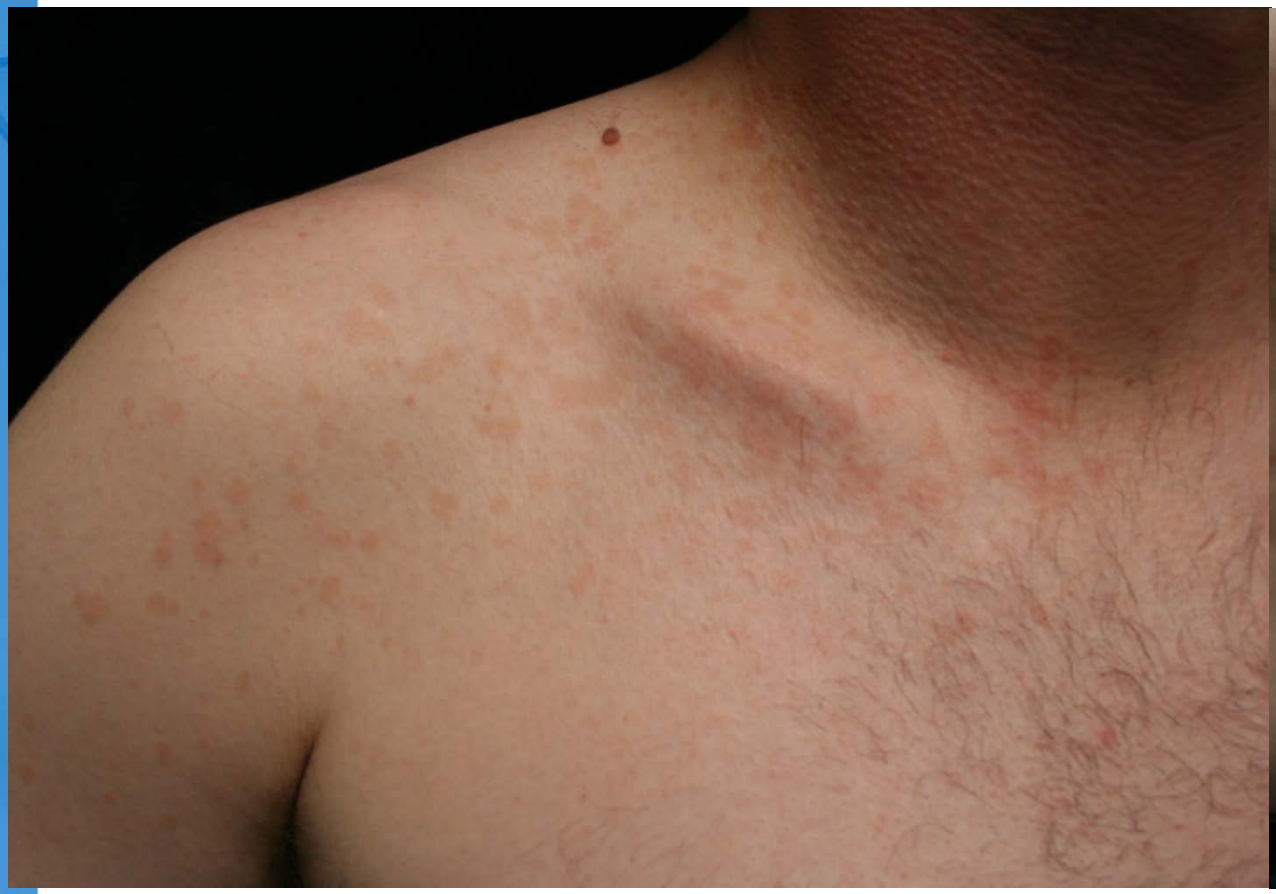
Case One

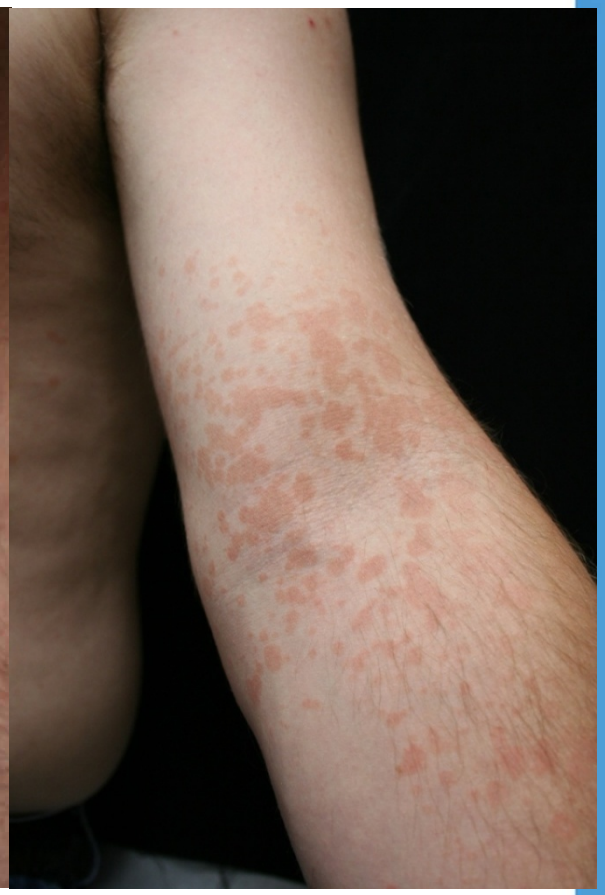
Mr. F

Case One: History

- HPI: Mr. F is a 32-year-old man who presents to his primary care provider with “blotches” on his upper back, chest, and arms for several years. They are more noticeable in the summertime.
- PMH: shoulder pain from an old sports injury
- Allergies: none
- Medications: NSAID as needed
- Family history: not contributory
- Social history: auto mechanic
- ROS: negative

Case One: Skin Exam



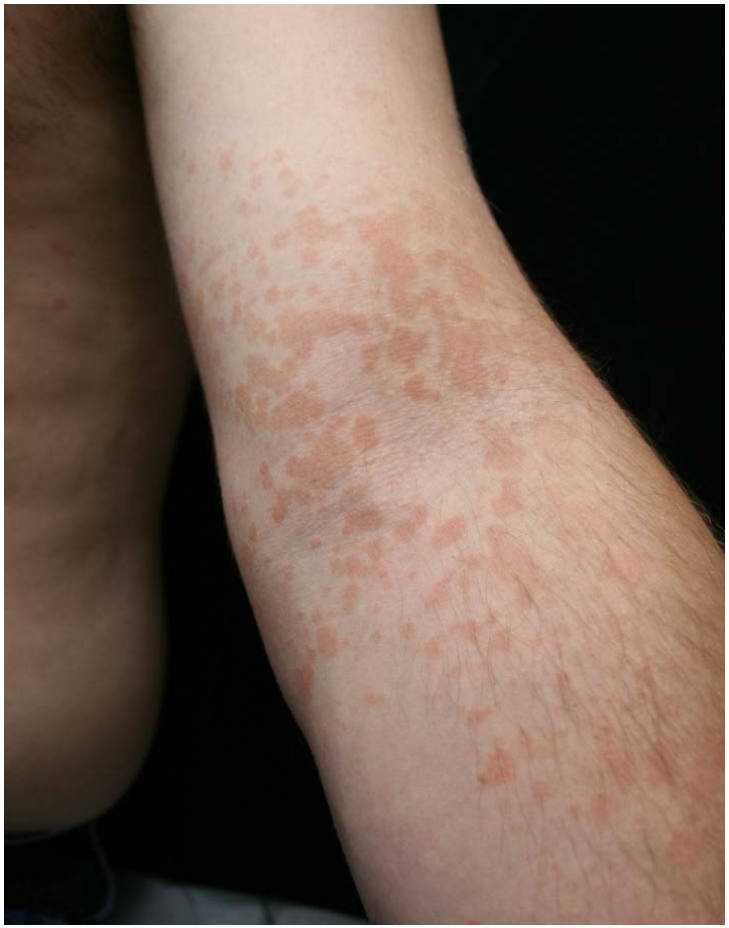


Case One

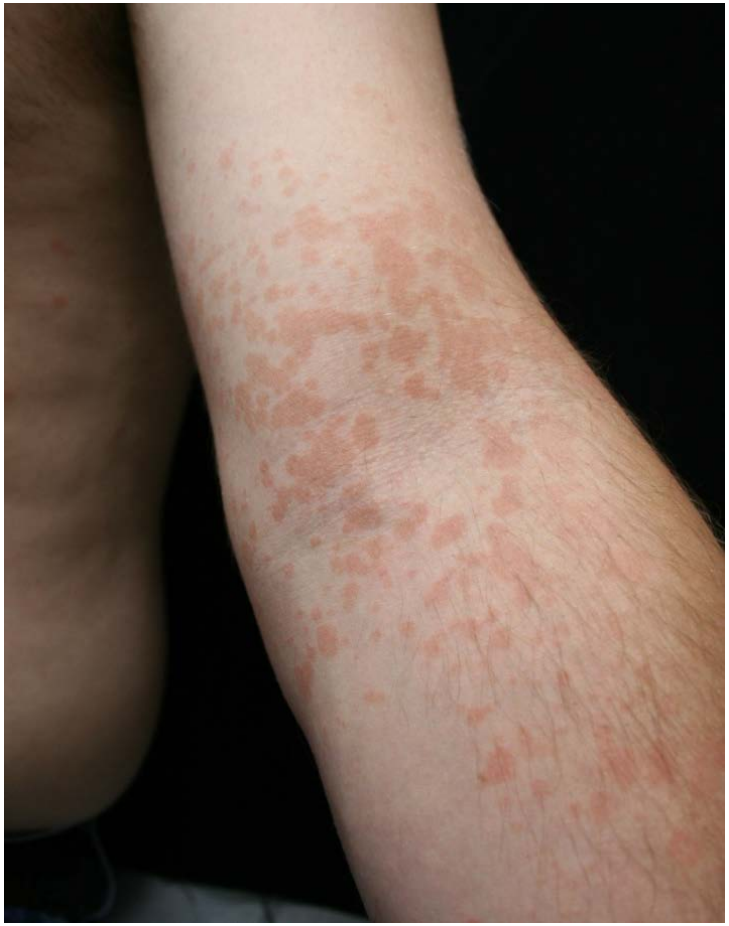
- How would you describe these skin findings?
- What do you see? Look carefully at all clues in the photographs.
- There are many right ways to describe something. Be creative.

Case One, Question 1

Are these lesions elevated, flat, or depressed?



Case One, Question 1



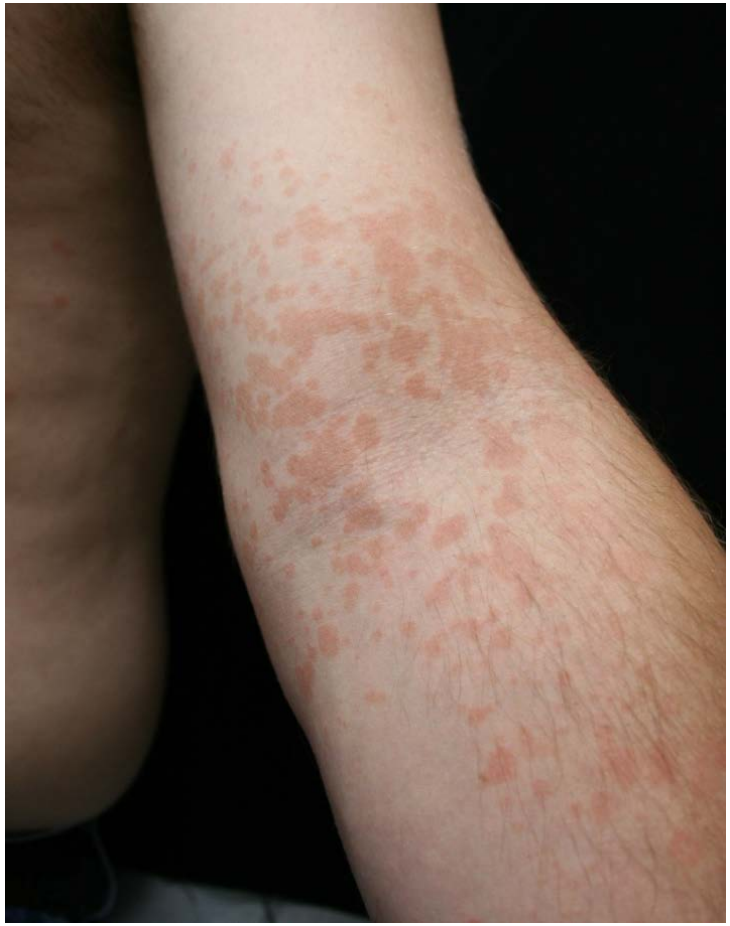
If you don't feel an elevation or depression as your finger runs across the skin, they are flat

- Small, flat lesions are called macules

Case One, Question 2

How else can you describe them?

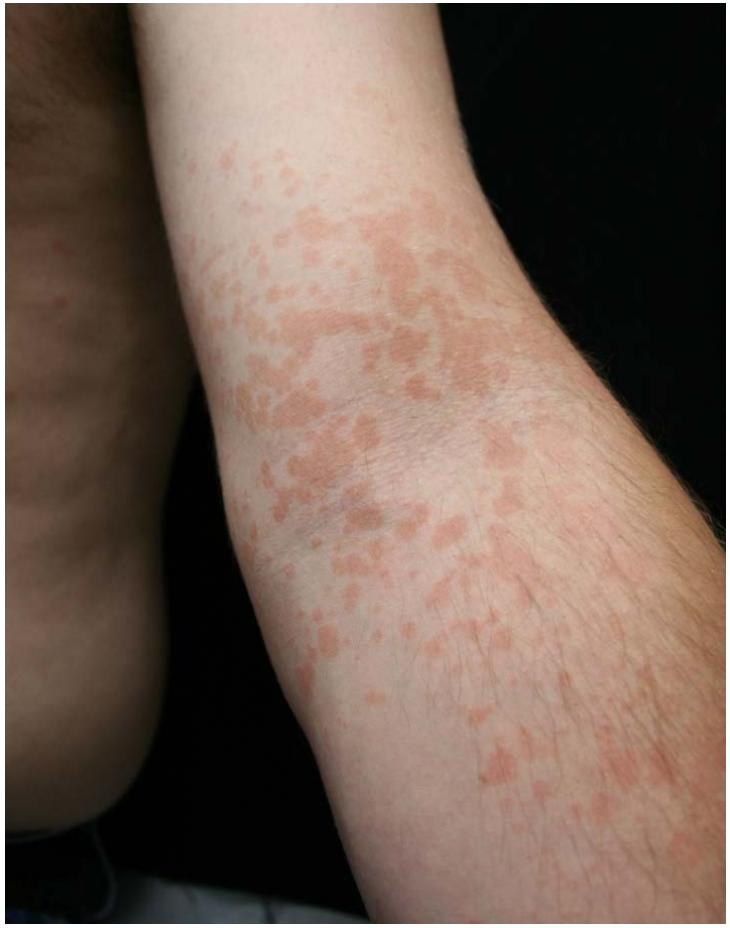
- What size are they?
- What shape are they?
- What color are they?
- How regular and distinct is the border?
- How are they configured?
- How are they distributed?



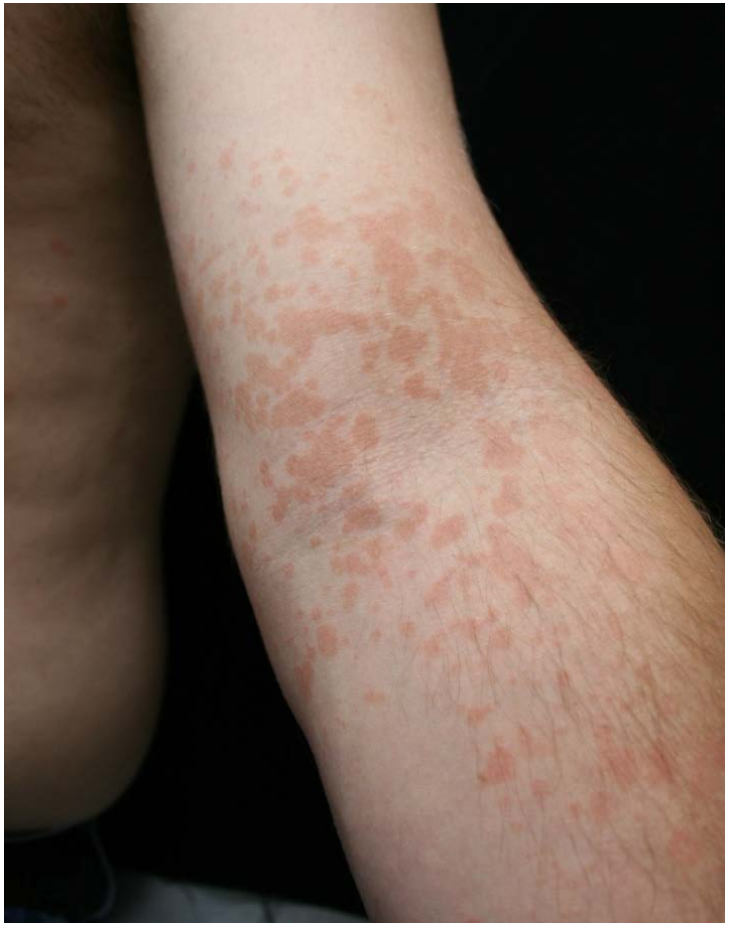
Case One, Question 2

How else can you describe them?

- 3 to 10 mm



Case One, Question 3



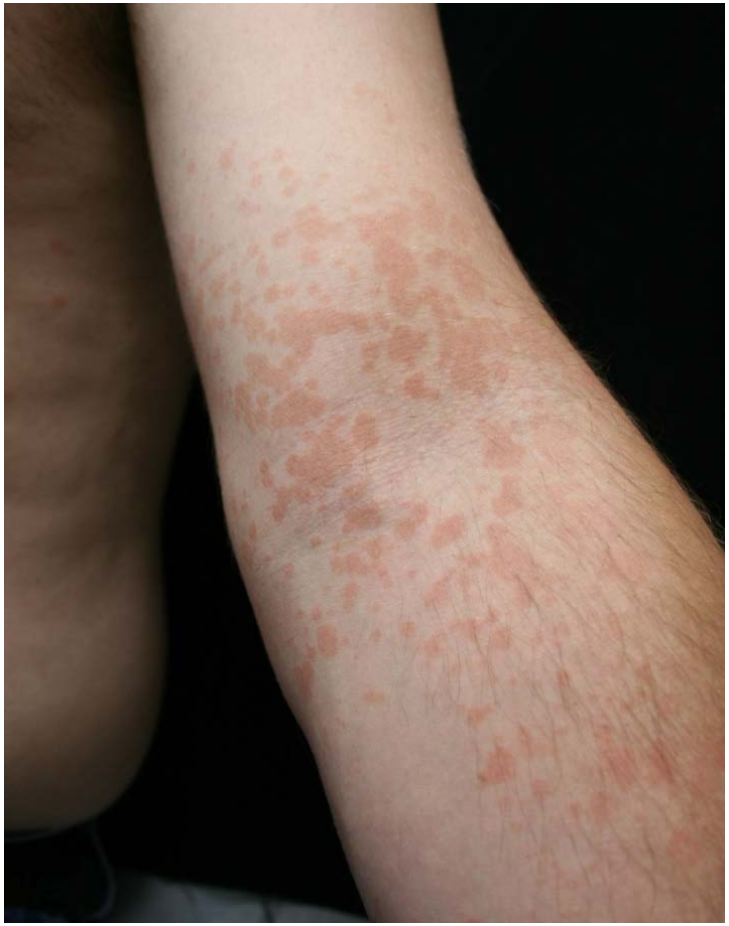
How else can you describe them?

- What size are they?
- What shape are they?
- What color are they?
- How regular and distinct is the border?
- How are they configured?
- How are they distributed?

Case One, Question 3

How else can you describe them?

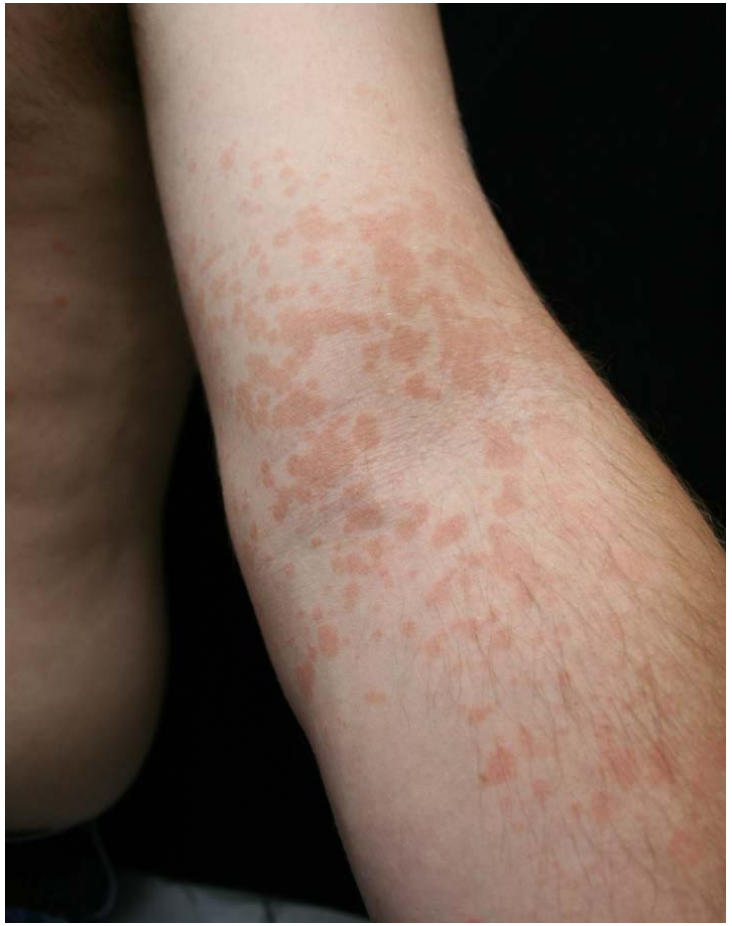
- 3 to 10 mm
- Round to oval



Case One, Question 4

How else can you describe them?

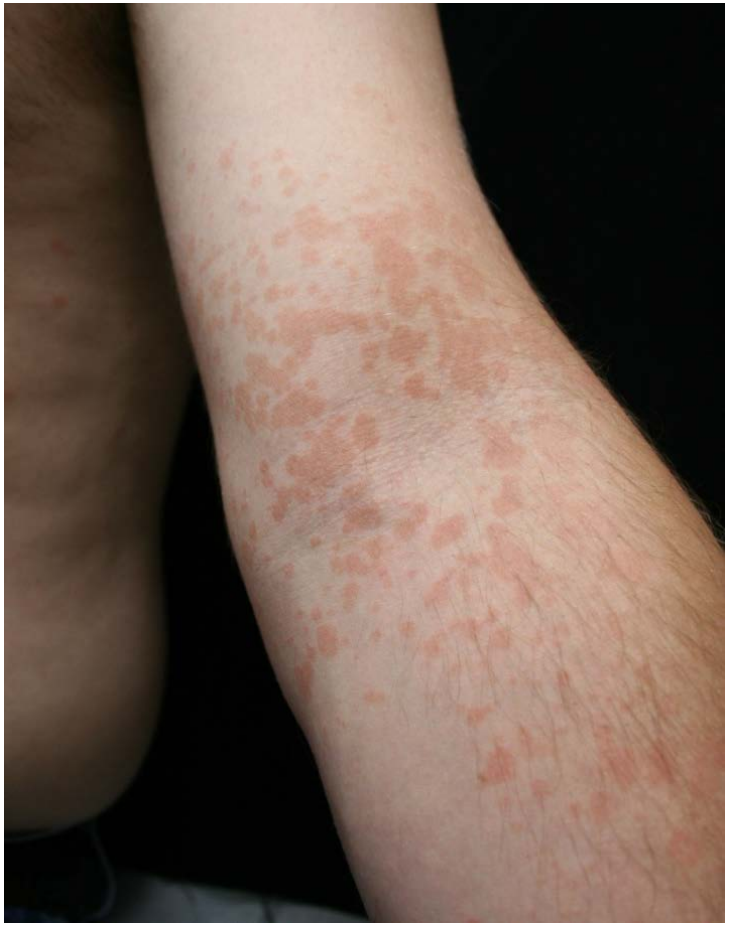
- What size are they?
- What shape are they?
- What color are they?
- How regular and distinct is the border?
- How are they configured?
- How are they distributed?



Case One, Question 4

How else can you describe them?

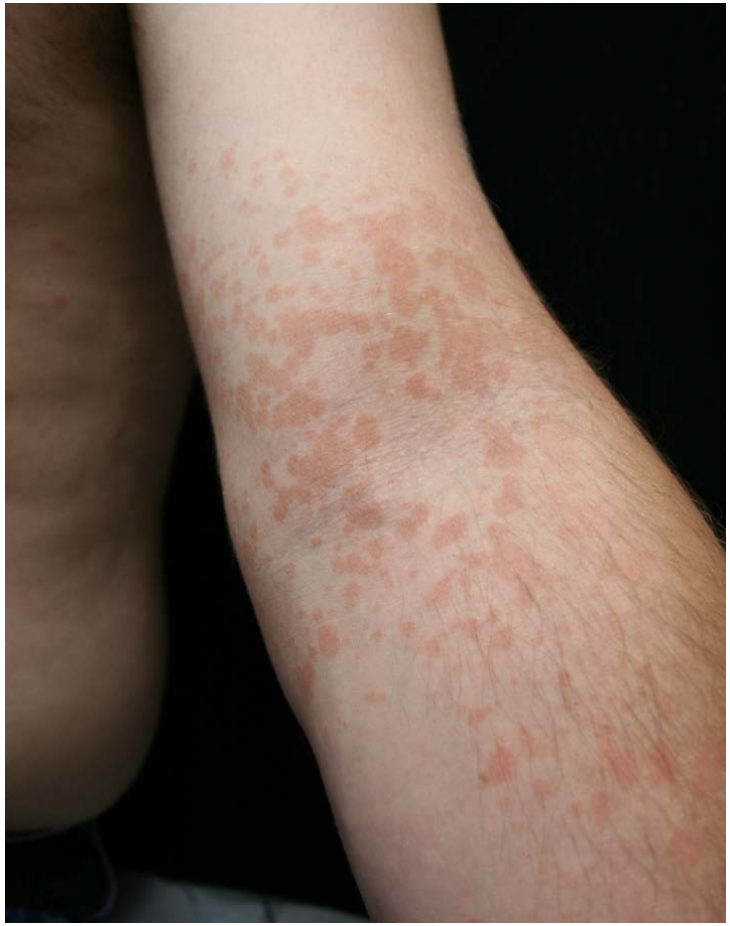
- 3 to 10 mm
- Round to oval
- Pink to tan



Case One, Question 5

How else can you describe them?

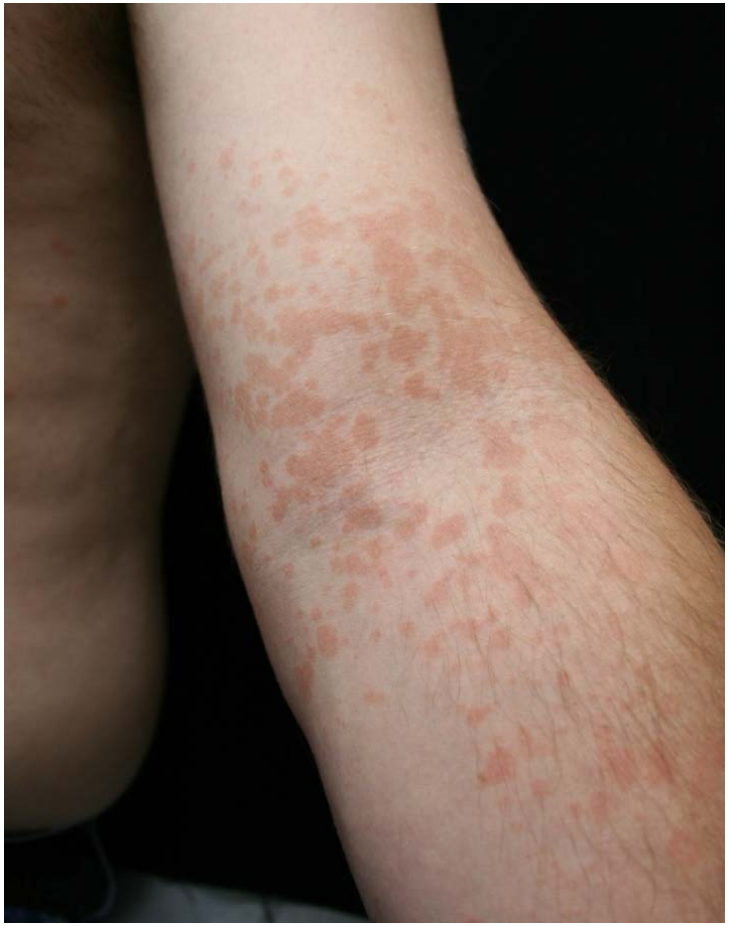
- What size are they?
- What shape are they?
- What color are they?
- How regular and distinct is the border?
- How are they configured?
- How are they distributed?



Case One, Question 5

How else can you describe them?

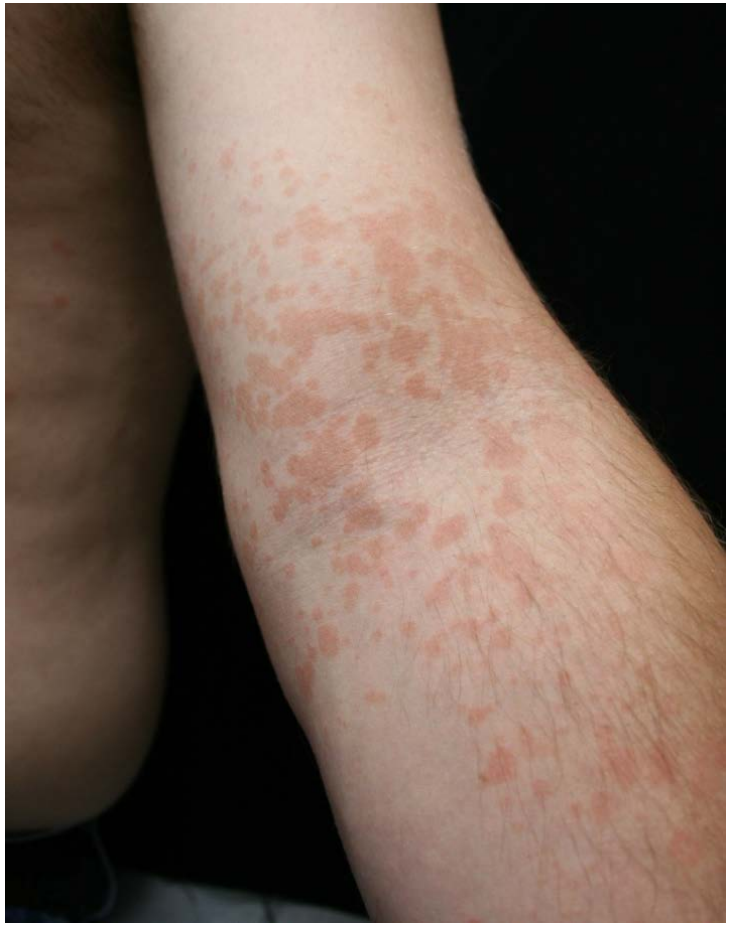
- 3 to 10 mm
- Round to oval
- Pink to tan
- Sharp, irregular borders



Case One, Question 6

How else can you describe them?

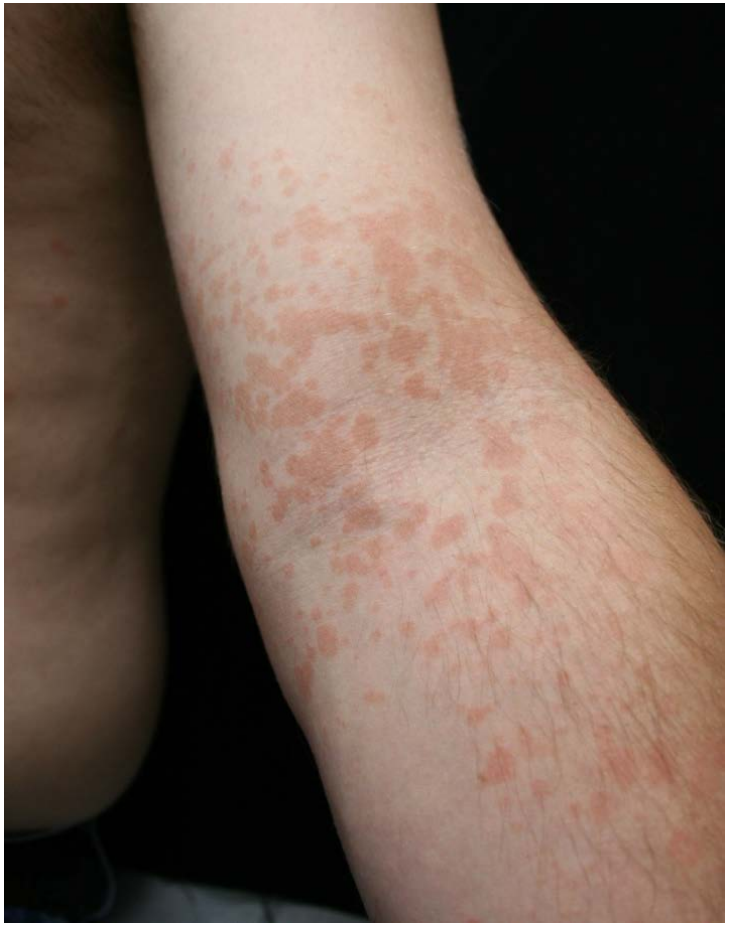
- What size are they?
- What shape are they?
- What color are they?
- How distinct are they?
- How are they configured (how do the lesions relate to each other)?
- How are they distributed (where are they on the body)?



Case One, Question 6

How else can you describe them?

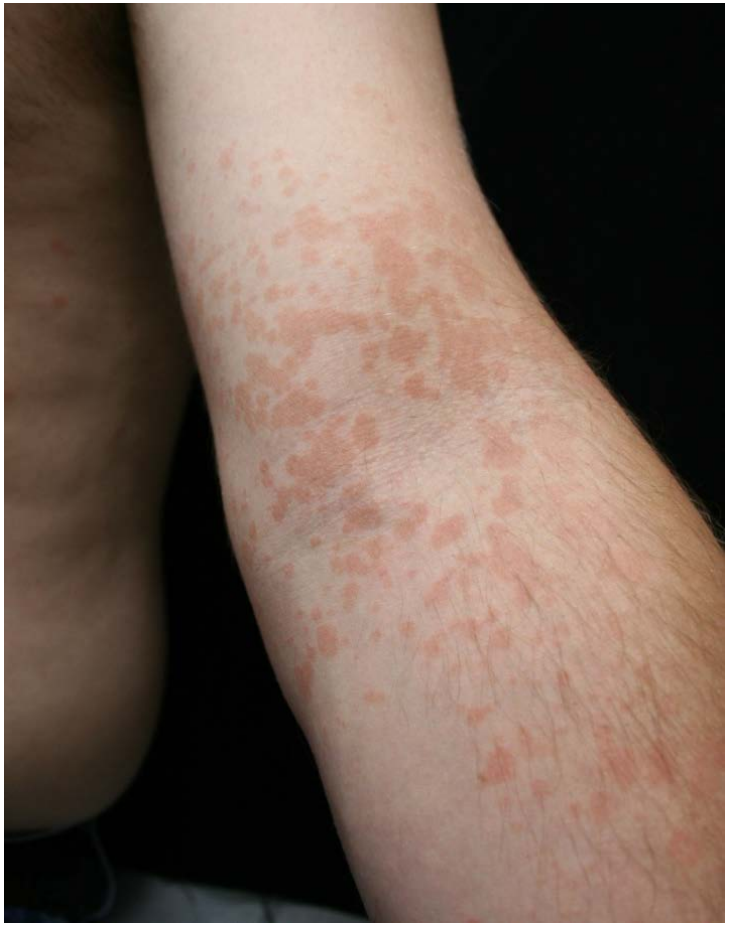
- 3 to 10 mm
- Round to oval
- Pink to tan
- Sharp, irregular borders
- Separate, in no particular pattern



Case One, Question 7

How else can you describe them?

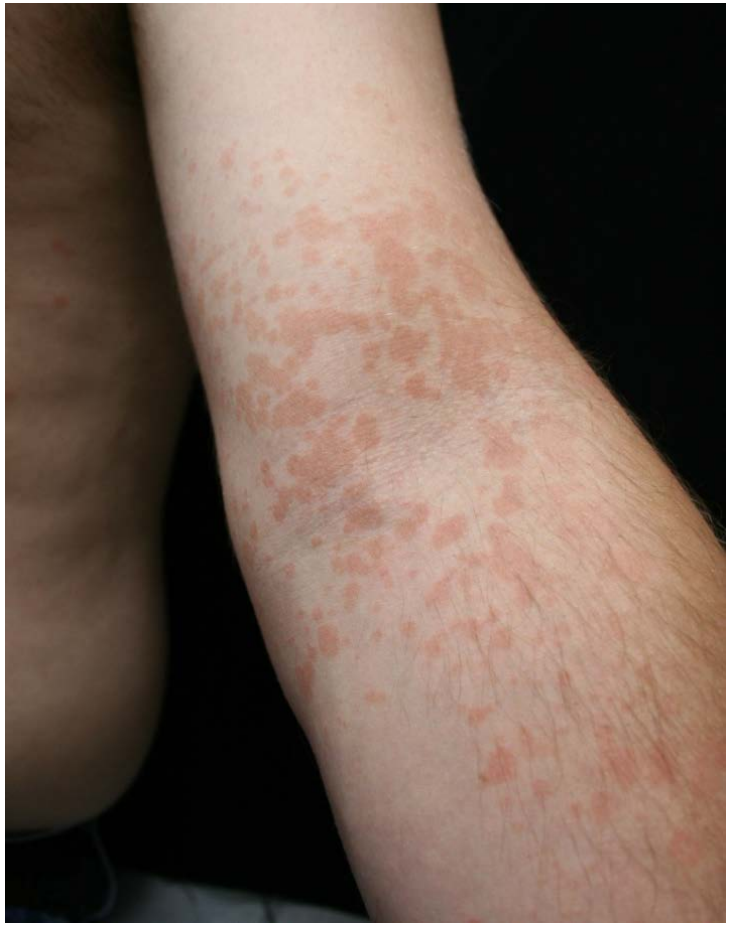
- What size are they?
- What shape are they?
- What color are they?
- How distinct are they?
- How are they configured?
- How are they distributed?

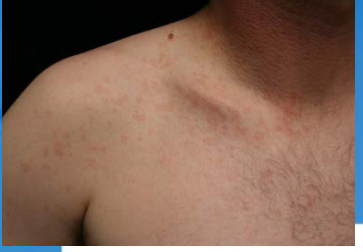


Case One, Question 7

How else can you describe them?

- 3 to 10 mm
- Round to oval
- Pink to tan
- Sharp, irregular borders
- Separate, in no particular pattern
- On the upper chest, back, and flexures of arms



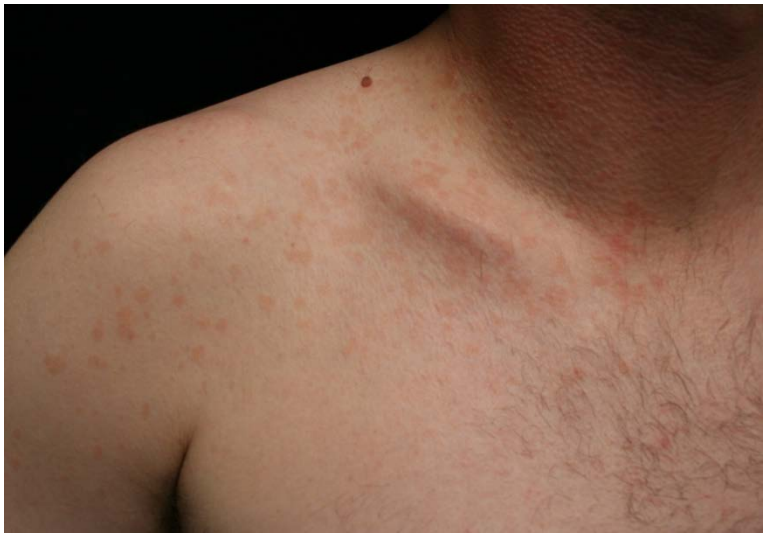


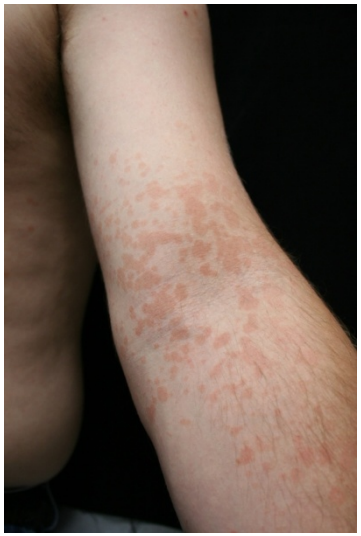
Skin Exam

- Mr. F's skin exam shows:
  - Multiple 3 to 10 mm pink to tan-colored, round, flat lesions with sharp, irregular borders and varying sizes on his upper chest, back and flexures of the arms.
- Small (< 1cm) flat lesions are called macules
- In this case, the primary lesion is a macule

Diagnosis

Dr. D performs a potassium hydroxide exam and based on the findings, diagnoses Mr. F with tinea versicolor. The primary lesion in tinea versicolor is a macule.





Case One, Question 8

Which of the following answers are correct? (More than one may be correct.)

Macules can:

a. Feel raised
b. Feel flat
c. Contain fluid
d. Be any shape

Case One, Question 8

Answer: b & d

Macules can:

a. Feel raised (these are papules or plaques)

b. Feel flat

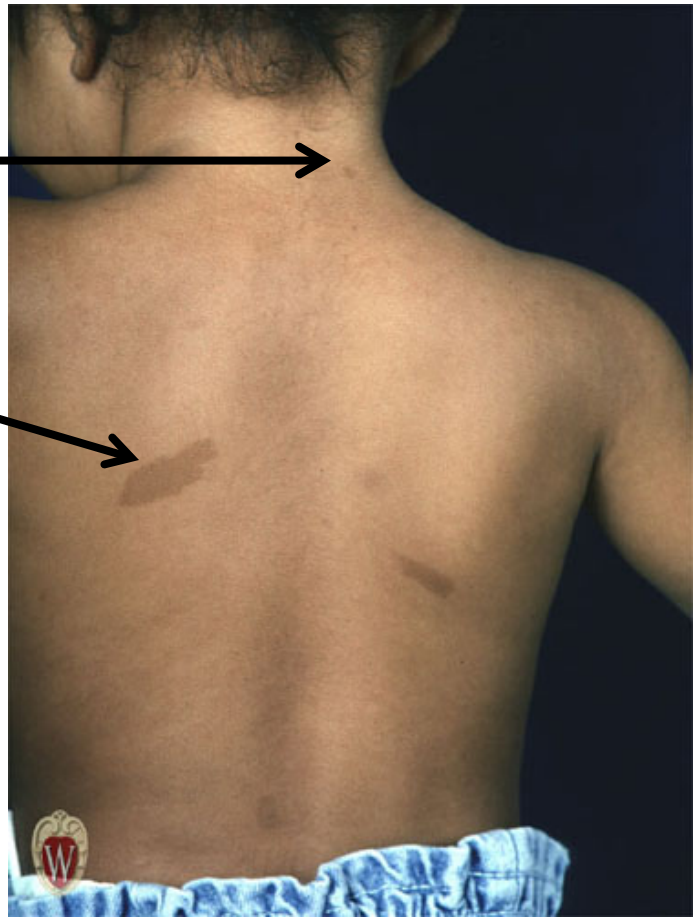
c. Contain fluid (these are vesicles or bullae)

d. Be any shape

Review: Macule vs Patch

MACULE (<1cm)

PATCH (>1cm)



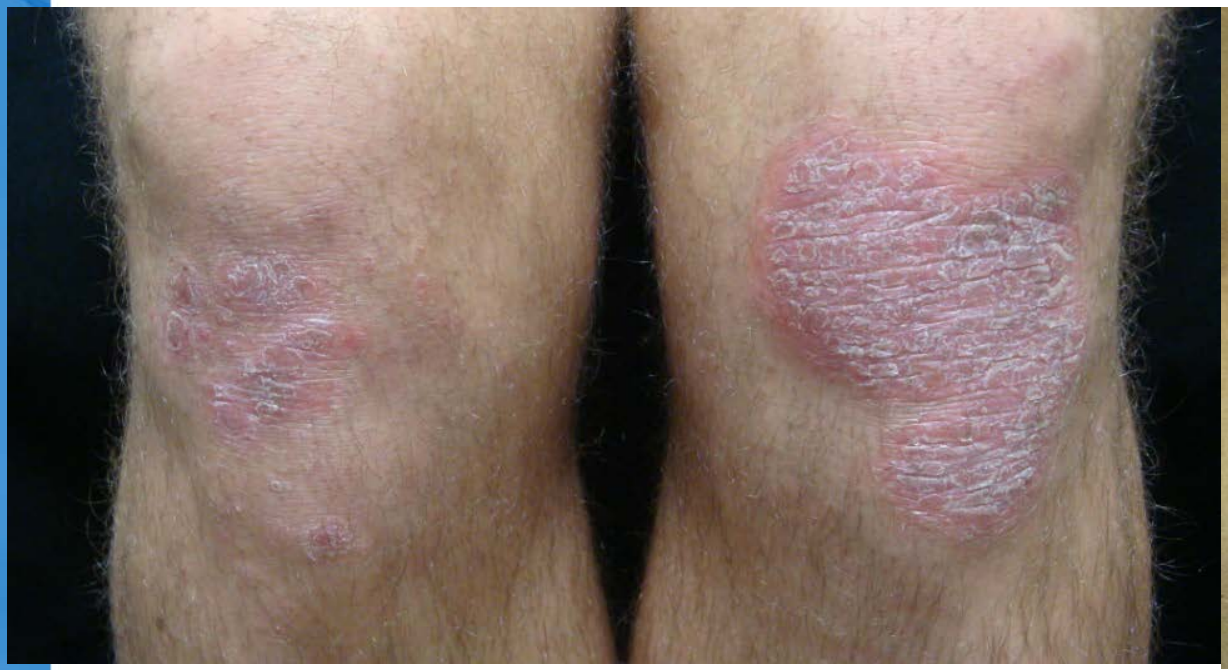
Case Two

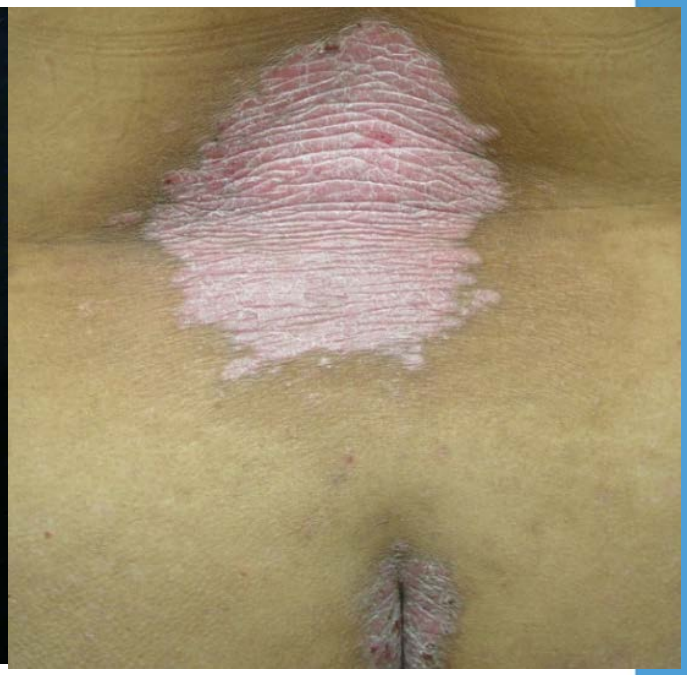
Mr. K

Case Two: History

- HPI: Mr. K is a 36-year-old man who presents with four years of itchy, flaky spots on his elbows, knees, and lower back. They have not improved with moisturizers.
- PMH: none
- Allergies: none
- Medications: none
- Family history: father died from heart attack at age 68
- Social history: delivery truck driver
- Health-related behaviors: drinks 2-3 beers a week
- ROS: negative

Case Two: Skin Exam

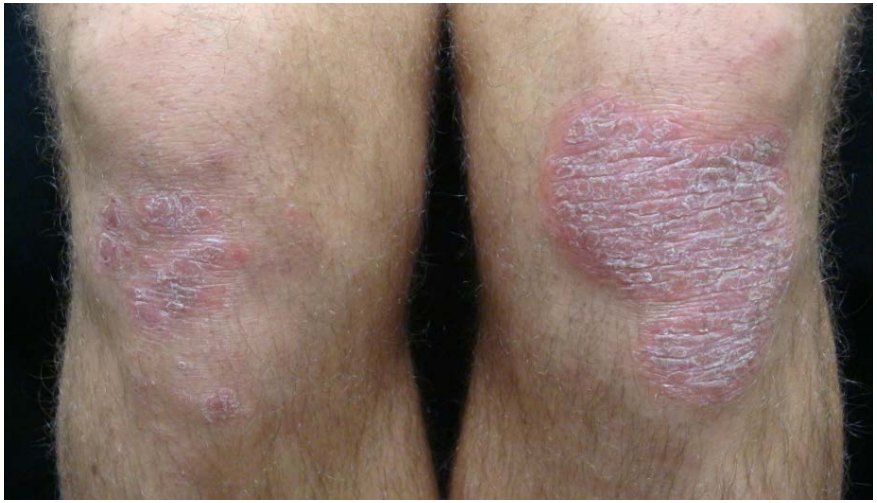


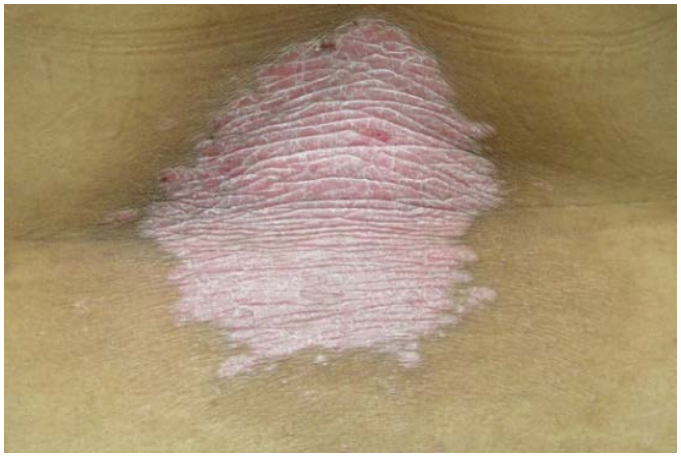


Case Two

- How would you describe these skin findings?
- Be as detailed as you can be!

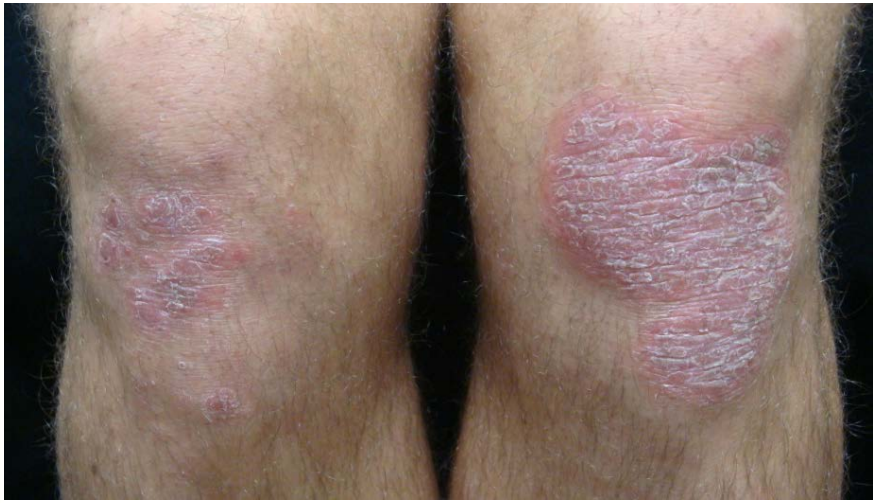
Case Two, Question 1

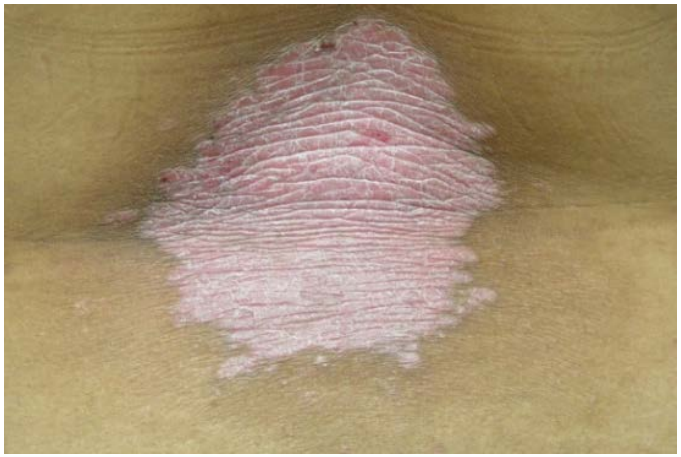




Are these lesions raised, flat, or depressed?

Case Two, Question 1

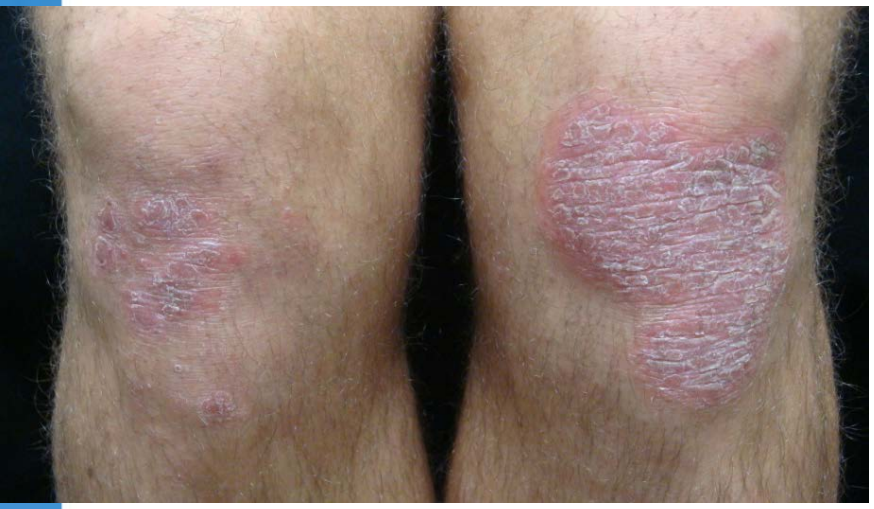


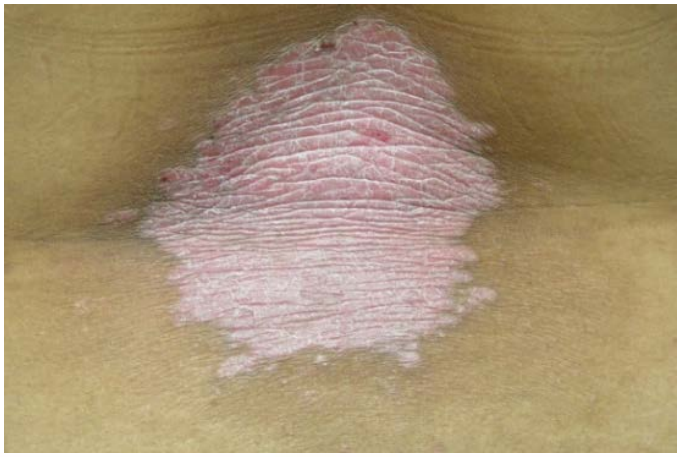


Imagine running your finger over them.

- These are raised
- Large (>1cm), plateau-like, raised lesions are called plaques

Case Two, Question 1

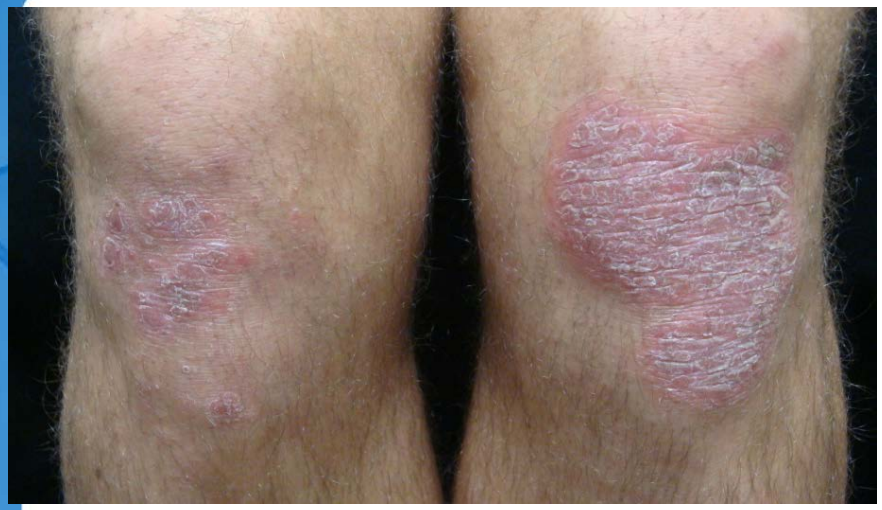


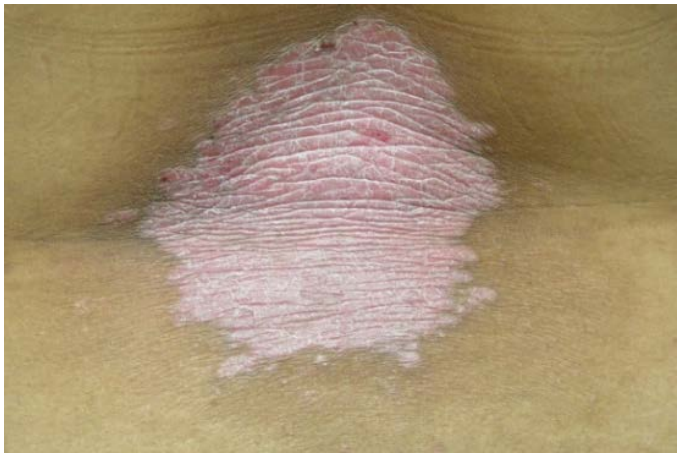


How else can you describe them?

- Size?
- Shape?
- Color?
- Sharp borders?
- Texture?
- Configuration?
- Distribution?

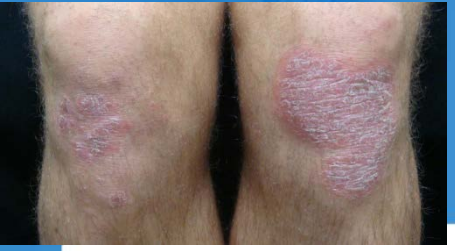
Case Two, Question 1





How else can you describe them?

- 3 to 10 cm
- Round to geographic (like outlines on a map)
- Pink
- Sharply circumscribed
- Scaly
- Symmetrical
- Extensor surfaces (knees, elbows), back, gluteal cleft



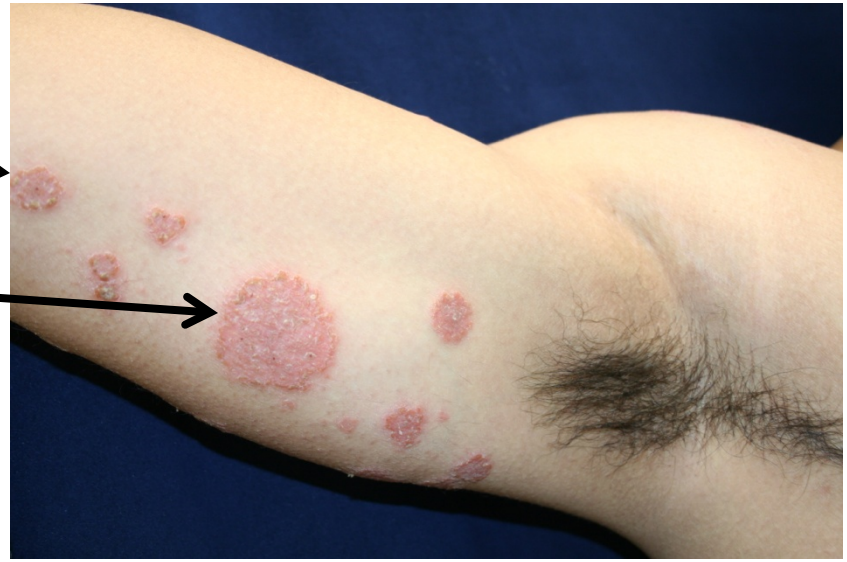
Diagnosis

- Mr. K's skin exam shows:
  - Several 3-10 cm pink round sharply circumscribed scaly plaques on his extensor elbows, knees, lower back, and gluteal cleft
- Mr. K has psoriasis. The primary lesion in this case of psoriasis is a plaque because it is elevated and over 1 cm in diameter.

Review: Papule vs Plaque

PAPULE (<1cm)

PLAQUE (>1cm)



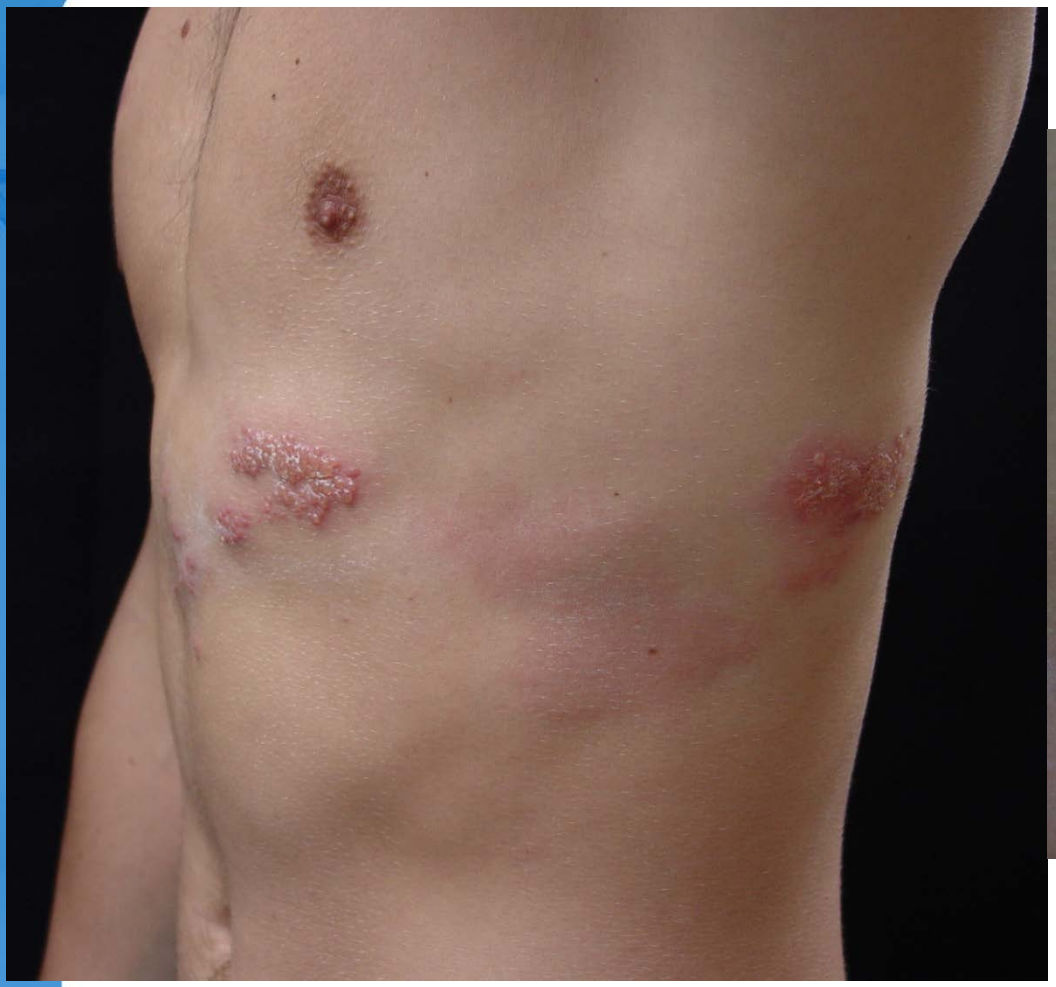
Case Three

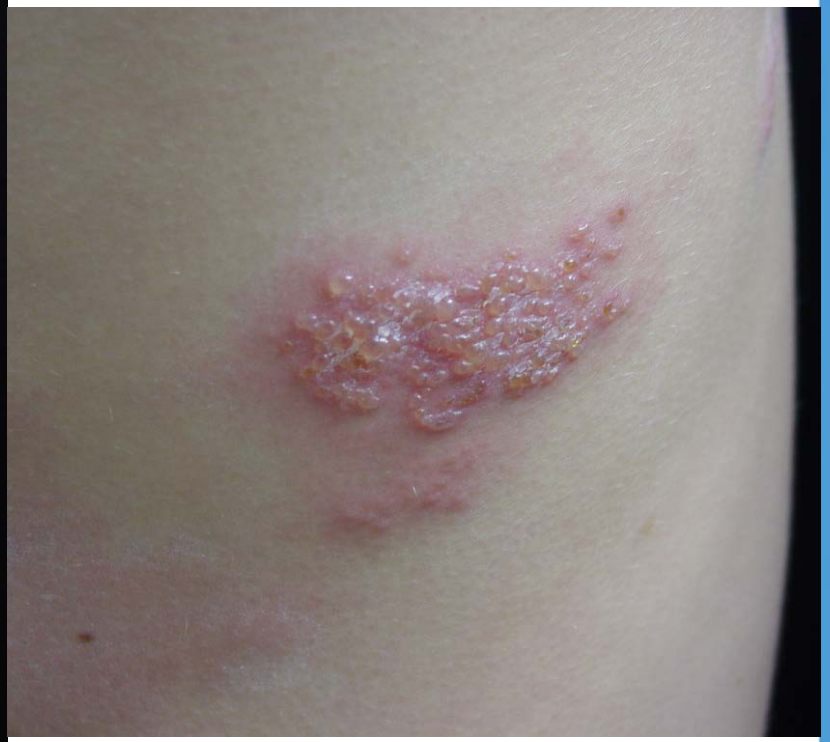
Mr. B

Case Three

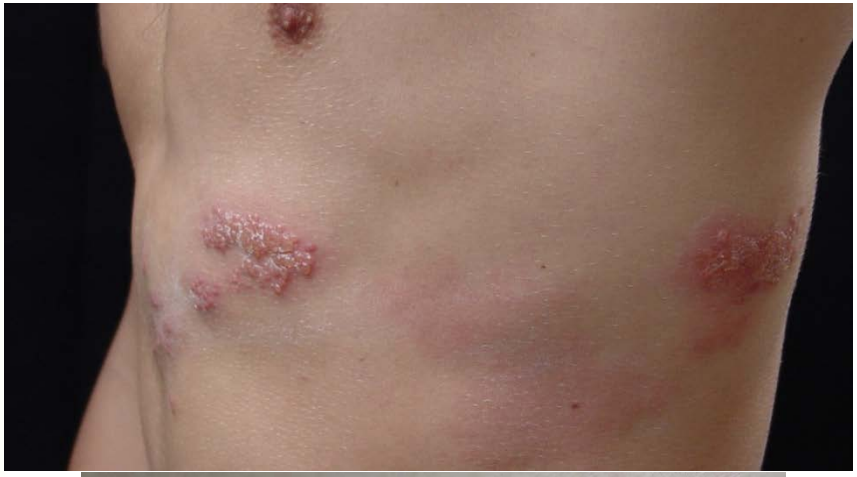
- HPI: Mr. B is a 28-year-old man who presents with four days of pain and blisters on his left chest.
- PMH: none
- Allergies: none
- Medications: none
- Family history: noncontributory
- Social history: single; works as a personal trainer
- ROS: negative

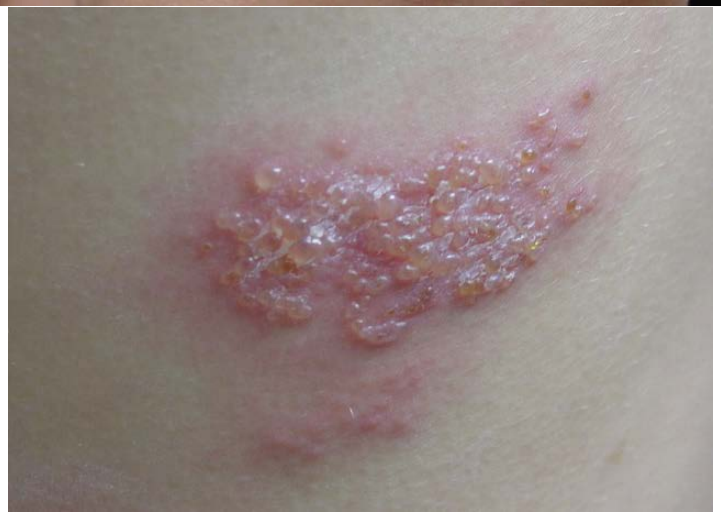
Case Three





Case Three, Questions

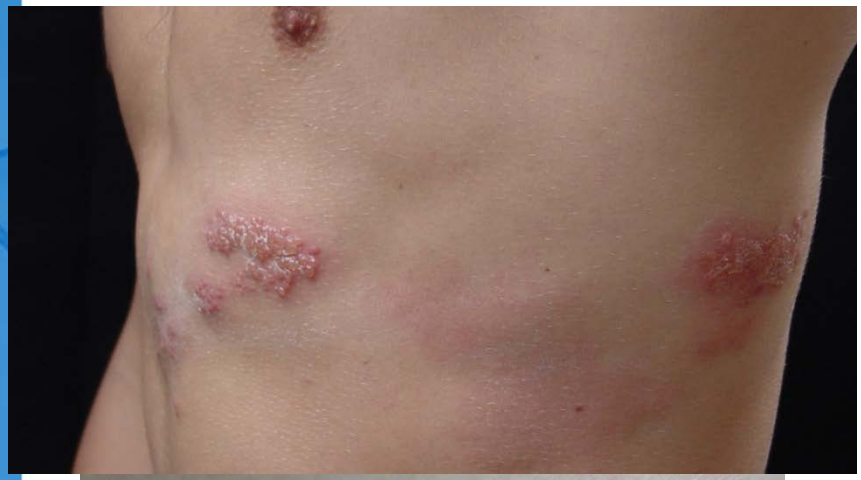


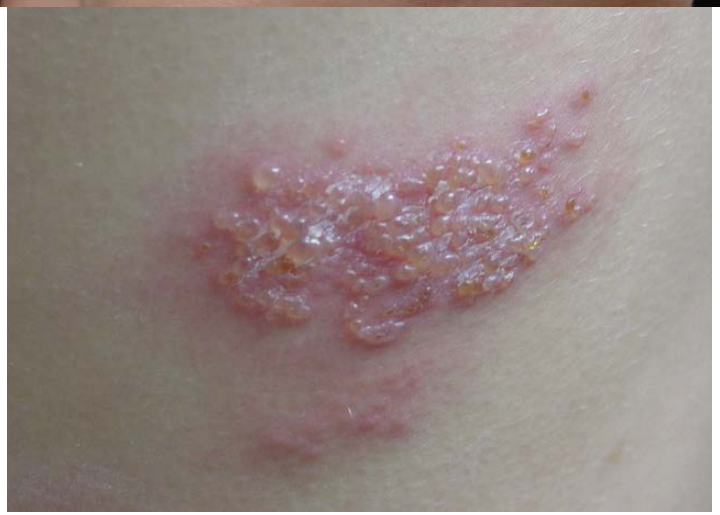


How would you describe these skin findings?

- Are these lesions raised, flat, or depressed?
- Do they have fluid in them?

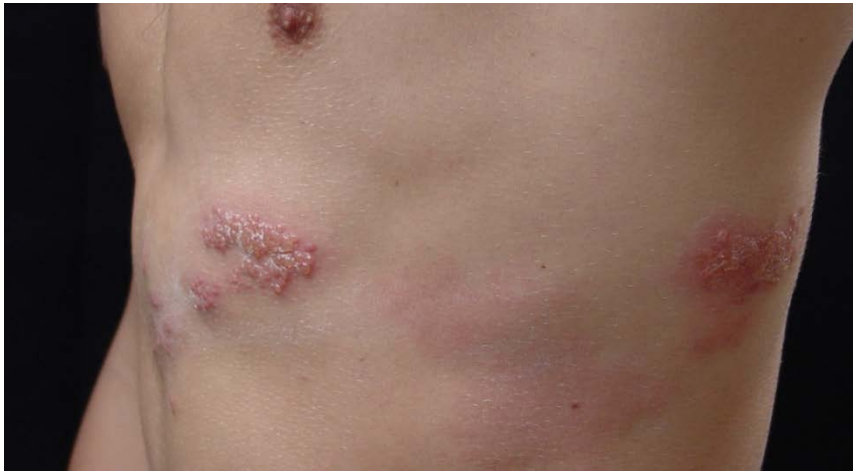
Case Three, Questions

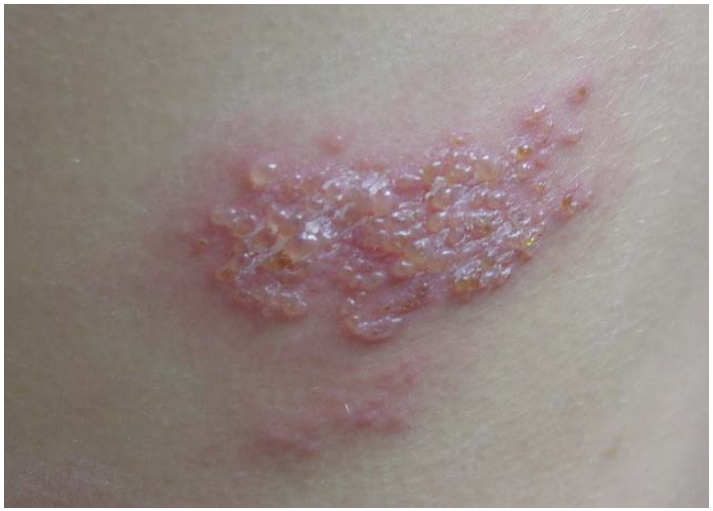




- These are raised
- They also have fluid in them
  - Remember - small, raised, fluid-filled lesions are called vesicles

Case Three

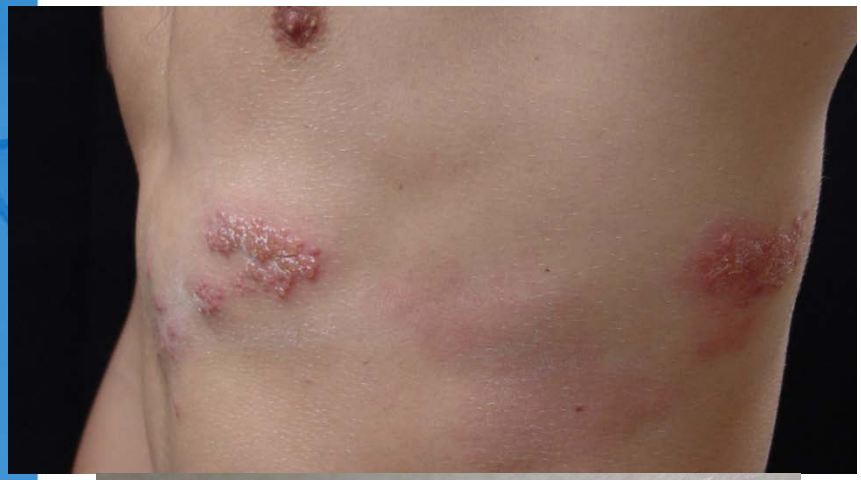


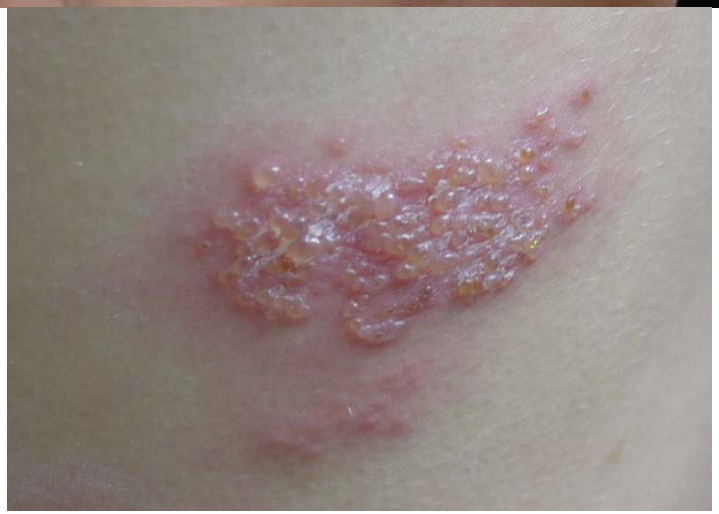


How else can you describe them?

- Size?
- Shape?
- Color?
- Texture?
- Configuration?
- Distribution?

Case Three



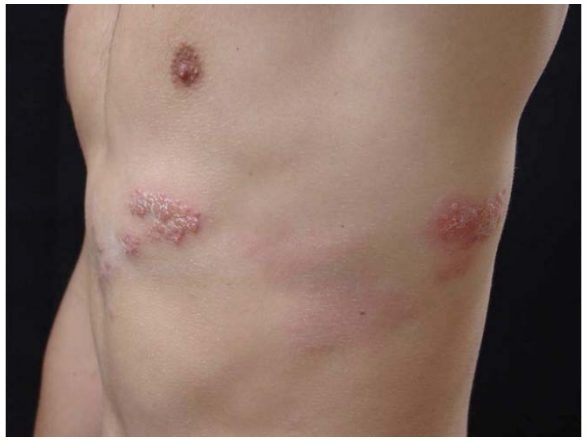


How else can you describe them?

- 2 – 5 mm
- Round to oval
- Clear, with a background erythematous patch
- Fluid-filled
- Grouped vesicles
- Unilateral dermatomal distribution on the left chest

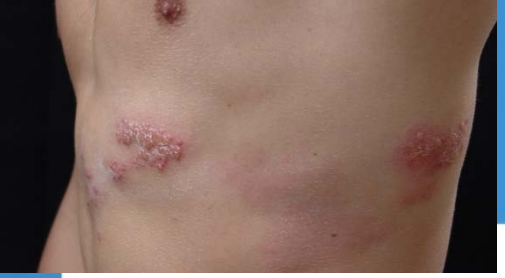
Distribution / Configuration

- Part of describing lesions is noting distribution and configuration
- **Distribution** means location(s) on the body
- **Configuration** means how the lesions are arranged or relate to each other
  - Lesions are grouped but also follow a linear pattern around the trunk
  - This is an example of a segmental or dermatomal distribution

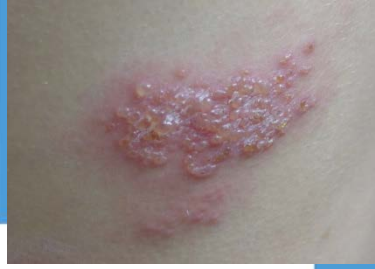


Distribution / Configuration

- To learn more about distributions, click here:
  - http://bit.ly/itkitk
- To learn more about configurations, click here:
  - http://bit.ly/kbRI9Q
- These links take you to LearnDerm, a free resource for learning morphology terms



Diagnosis



- Mr. B's skin exam shows:
  - Grouped 2-5 mm vesicles on an erythematous base in a unilateral, dermatomal configuration on the left chest
- Small, fluid-filled lesions are called vesicles
- Mr. K has shingles. The primary lesion in shingles is a vesicle.

Review: Seeing the skin

- To describe what you see on the skin, first determine the primary lesion
  - Is it raised, flat, or depressed?
  - Is it small or large?
  - Is it fluid-filled?
- The table in the next slide summarizes most of the terms used to describe the skin. We have already reviewed many of them. Click on the others to learn more.

Terms

Raised	Flat	Depressed	Fluid-filled	Vascular
Papule	Macule	Erosion	Vesicle	Telangiectasia
Plaque	Patch	Ulcer	Bulla	Petechiae
Nodule		Atrophy	Pustule	Ecchymosis
Tumor		Sinus	Furuncle	
Wheal		Stria	Abscess	
Burrow				
Scar				

Review: Seeing the skin

In your descriptions, include adjectives that help describe the primary lesions. Make sure to consider:

- Size
- Shape
- Color
- Texture
- Configuration
- Distribution

Take Home Points

- To describe the skin, first inspect closely
- Second, determine if the lesion is raised, flat, or depressed and its size.
- Then pick the term for the lesions that fits best!
- Finally, use adjectives relating to the shape, color, texture, distribution, and configuration to further describe the lesion.
- See the resources at the end for further reading.

Acknowledgements

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- Revisions: Sarah D. Cipriano, MD, MPH, Jessica Kaffenberger, MD, Joslyn Kirby, MD. Last revised July 2013.

Resources

- Berger T, Hong J, Saeed S, Colaco S, Tsang M, Kasper R. The Web-Based Illustrated Clinical Dermatology Glossary. MedEdPORTAL; 2007. Available from: www.mededportal.org/publication/462.
- Morphology illustrations are from the Dermatology Lexicon Project, which is now maintained by the American Academy of Dermatology as DermLex.
- Dolev JC, Friedlaender JK, Braverman, IM. Use of fine art to enhance visual diagnostic skills. *JAMA* 2001; 286(9), 100-2.
- Habif TP. Clinical Dermatology: a color guide to diagnosis and therapy, 4th ed. New York, NY: Mosby; 2004.
- James WD, Berger TG, Elston DM. Andrews' Diseases of the Skin, 11th ed. Elsevier; 2011:12-17.
- Marks Jr JG, Miller JJ. Lookingbill and Marks' Principles of Dermatology, 4th ed. Elsevier; 2006.
- Review primary lesions and other morphologic terms at http://www.logicalimages.com/educationalTools/learnDerm.htm.

To take the quiz, click on the following link:

https://www.aad.org/quiz/morphology--learners