

## Primary Skin Lesions

### What Are Primary & Secondary Skin Lesions?

I'm sure you remember that revolutionary moment in your health science class when you learned the answer to this question - 'What is the largest organ?' The skin, that's right! Some of the wonder may have rubbed off by now, but the skin is truly an amazing, living organ. And it is busy! Constantly renewing itself and repairing damages.

Unfortunately, there are some things the skin cannot repair completely; otherwise, we'd all be walking around with baby smooth skin and the cosmetics industry would be out of business! Any abnormal growth or area of skin that differs from the skin around it is termed a **skin lesion**, often referred to by medical professionals as 'a lesion' for short.

There are many types of skin lesions found in hundreds of varying skin ailments. However, all skin lesions can be divided roughly into two categories: primary and secondary. Primary skin lesions are those lesions which are the direct result of a disease. These include macules, papules, nodules, plaques, vesicles, bullae, pustules, and wheals. Secondary skin lesions are those lesions that result from an outside force affecting the skin, such as scratching, or an evolutionary change in a primary lesion. Some of which include scale, crust, atrophy, erosion, ulceration, lichenification, fissure, laceration, and purpura.

The distinction between the two categories is not always clear. However, if an individual is able to appropriately label a skin lesion, then he is already halfway towards making the appropriate diagnosis. This is the power of terminology!

### Layers of the Skin

We are going to tackle primary skin lesions in this lesson. But before we do, let's quickly review the layers that make up the skin, as many of the definitions are based upon this information. The top most layer, represented by numbers one and two, is termed the epidermis. The next layer, labeled three, represents the dermis, and finally at the base, labeled four, is the subcutaneous tissue.

### Macules, Papules, Nodules, and Plaques

We'll begin with some of the most common primary lesions: macules, papules, nodules, and plaques. A **macule** refers to a flat, clearly-defined lesion that is different in color from the surrounding skin, measuring less than one centimeter in diameter. If you close your eyes and gently ran the pad of your finger over the affected skin, you would not know there was an abnormality. So, a freckle, for example, is a macule.

A **papule**, on the other hand, is a clearly-defined, solid lesion that is raised, measuring less than one centimeter in diameter. The 'bump' on this person's nose would be referred to as a papule.

So, a macule is a papule's cousin in a way. Both are small in size and clearly defined, but a macule is completely flat. A helpful way to remember this difference is that a lesion that got run over by a Mack truck would be completely flat, and thus it is a macule!

Now, it's time to meet papule's big brother, the nodule. A **nodule** is a solid, firm lesion, measuring more than one centimeter in diameter, which may be located in the epidermis, dermis, or subcutaneous tissue of the skin. So, again, a papule and a nodule are similar in that they are solid, firm lesions, but a nodule is larger. Furthermore, a nodule is not necessarily on the surface layer of the skin like a papule but may be deeper inside the tissue. For example, this woman has

a nodule on her thyroid. In order to feel the nodule, you would need to press down gently on the skin.

A **plaque** is a well-defined, raised, solid lesion that has a flattop and measures over one centimeter in diameter. In the land of skin topography, a plaque would be analogous to a plateau. Plaques are most commonly found in pathological conditions of the skin, such as eczema or psoriasis.

#### Vesicles, Bullae, Pustules, and Wheals

Next, we'll discuss vesicles, bullae, pustules, and wheals. And believe it or not, most of these lesions you've probably experienced yourself! A **vesicle** is a raised lesion, measuring less than one centimeter in diameter on the surface of the skin, filled with a clear fluid. 'Clear' in medical jargon is 'serous,' so you may hear this in some definitions. Does this sound familiar? Well, if you've ever had a blister on the back of your heel, then you've had a vesicle. And although most children are immunized against it these days, chicken pox is another example of vesicles forming on the skin.

A **bulla** (plural **bullae**) is a raised lesion, measuring more than one centimeter, filled with clear fluid. In other words, it's a vesicle's big sister. These can happen sometimes with allergic skin rashes, such as poison ivy or following a severe sunburn, you may develop blisters that are really large. These would be termed bullae.

A **pustule** is a raised lesion, measuring less than one centimeter on the surface of the skin, filled with pus. Can you guess which example I'm going to give? That's right! A pimple is a perfect example of a pustule. And even newborns experience acne. As you can see in this photo, the baby has a cluster of pustules on the left cheek.

One final type of lesion limited to the skin is a wheal. A **wheal** is an elevated patch of skin, confined to the upper epidermis, usually with a reddish border and a pale center. Again, just so you are aware, in medical terminology, redness on the skin is usually referred to as 'erythema,' and when used as an adjective, 'erythematous.' Therefore, a wheal may be described as having an erythematous border. The layman term for a wheal is a 'hive.' And if you've ever had a mosquito bite, then you've witnessed the formation of a wheal first hand.

The next three types of growth that we will discuss are not necessarily limited to the skin but rather can occur in any part of the body, muscle organs or bone. A **tumor** is an abnormal growth of tissue occurring in the body usually measuring more than 2 cm in diameter. It is important to note that when people hear tumor they automatically think of a dangerous malignant growth but some tumors are benign meaning they're harmless.

A **cyst** is a sac that is filled with air or serous fluid, occurring anywhere in the body. Most cysts are benign but some have the potential to evolve into dangerous growth and the major difference between a tumor and a cyst is that a tumor is an overgrowth of tissue. See how it appears a [pic](#) whereas a cyst is more like a balloon filled with either air or fluid.

Finally an **abscess** is a collection of pus in the body usually surrounded by inflamed tissue. Again an abscess can occur anywhere in the skin, in the brain and teeth. If it occurs in the skin like with a localized MRSA infection and is commonly referred as a bulla. Naturally abscesses occurring on the skin or more easily observed and treated than abscesses within organs or body cavities.

And so we have covered all the types of primary lesions found on the skin including macule, papule, nodule, vesicle, bulla, pustule, wheal and plaque. A macula and a papule are both well-defined small lesions measuring less than 1 cm in diameter but a macule is completely flat whereas a papule is raised. A nodule is also a raised solid lesion but it measures more than 1 cm in diameter and it may occur in the epidermis, dermis or subcutaneous tissue of the skin. A vesicle is a small

less than 1 cm raised lesion filled with serous fluid. A bulla is similarly a raised lesion filled serous fluid but it is large more than 1 cm in diameter. A pustule is a small raised lesion filled with pus. A wheal is a raised lesion on the surface of the skin which has an erythematous border and pale center. A plaque is a clearly defined raised lesion with a flat top usually larger than 1 cm. We have also learned about a few types of lesions that occur on the skin and other parts of the body: tumor, cyst and abscess. A tumor is an abnormal growth of tissue. A cyst is a sac which may be filled with air or serous fluid. And abscess is a collection of pus usually surrounded by inflamed tissues. Now if presented with the growth of the skin you'll be able to accurately label it. This enables you to have a marked lineage in diagnosing the problem. You will never find a bump in the medical definition but a papule will surely be there. Be forward in the confidence that any abnormality of the skin will be encompassed by one or more of the terms you have just mastered.

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