



## MELANOCYTIC NEVUS

A melanocytic nevus (mole) (plural, nevi, moles) is a benign proliferation/hamartoma composed of pigment-producing cells called melanocytes that have clustered together in the skin. Melanocytes migrate to the skin from the neural crest during the first 3 months of gestation. There are two theories of the origin of nevi:

1. nevi originate as epidermal melanocytes residing at the dermo-epidermal junction that then proliferate and migrate into the dermis.
2. nevi originate from dermal pluripotent congenital precursors.

Melanocytic nevi are commonly divided into two major categories, congenital and acquired. Congenital nevi are present at birth or appear within the first year of life and range from a few millimeters to sizes that may cover the majority of a body surface area (e.g. the garment nevus). They typically measure less than 6 mm and usually have one homogenous color, though the color may change over time. It is normal for new nevi to arise at certain times, such as adolescence and pregnancy. It is also normal for pre-existing nevi to undergo normal, benign changes over time. Patients with more than 100 common nevi have a 7-fold increase in risk for melanoma and should be monitored.

In general, the benign melanocytic nevus is a small (less than 6 mm), symmetrical, well-circumscribed proliferation of nested melanocytes, and the melanocytes that are deepest in the dermis are smaller and less likely to be pigmented than superficial melanocytes, a process known as maturation. In contrast to the common nevus, a

nevus that is 'atypical' or 'dysplastic' (with disorganized cells) is one that is at least 5 mm in size with a flat component and has at least two of the following: variable pigmentation, irregular asymmetric outline, and indistinct border. The presence of even a single atypical nevus confers a high risk of sporadic melanoma, increasing 10-fold with presence of 5 atypical nevi. Only a dermatopathologist can distinguish atypical nevi from melanoma.

Nevi are also classified according to the location of the nevus cells within the epidermis (superficial skin) or dermis (deep skin). Nevus cells present only in the dermal-epidermal junction are referred to as junctional nevi; clinically they are flat. Nevi composed of cells present at the dermal-epidermal junction as well as the dermis are referred to as compound nevi, and are often raised. Finally, nevi composed of cells present in the dermis only are referred to as dermal nevi, which are typically flesh colored. Variants of dermal nevi include blue nevus, nevus of Ota, nevus of Ito, and Mongolian spot. Some other nevi also have a unique appearance clinically and or histopathologically warranting a special name, for example, blue nevus, spindle and epithelioid cell (Spitz) nevus, pigmented spindle cell nevus of Reed, deep penetrating nevus, balloon cell nevus, and combined nevus

The malignant counterpart of a nevus is a melanoma, which can be a very aggressive lesion with wide metastases and a poor prognosis. Elaborate criteria exist for distinguishing between melanomas and nevi both clinically and

histopathologically. Along with sun exposure and skin type, total nevus count is the major risk factor for development of melanoma. "Moley" patients should always be followed by a dermatologist. Clinical characteristics suggestive of melanoma include: diameter greater than 5 mm, irregular borders, asymmetry, variable pigmentation, and recent change in appearance. Ulceration is a particularly important sign of melanoma, especially if it is not accounted for by trauma, etc. Although 20-40% of melanomas occur in association with a pre-existing nevus, the risk of any particular nevus becoming a melanoma is very low, because nevi are extremely common, very much more so than melanomas.

Though prophylactic removal of atypical moles has been advocated by some, most believe this to be an impractical and irrational approach because over 65% of melanomas in dysplastic nevus patients arise de novo. One approach to identify melanoma in patients with many moles, while, at the same time limiting the removal of changing but benign nevi, is to first use total body photography to detect new and changing lesions, then add dermoscopy, and/or short-term mole monitoring (every 3 months) to help determine whether a biopsy is warranted. Elliptical excision is indicated for any lesion suspicious for malignancy; however, if necessary, an incision may be made into a nevus to obtain a biopsy. Following an evaluation by a dermatopathologist, a wider excision is performed if the lesion is found to be a melanoma, sometimes also with a sentinel node lymph node biopsy.

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