

CONGENITAL MELANOCYTIC NEVI: A CASE SERIES

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Nevi represent benign melanocytic neoplasms that have importance as facultative precursors and predictors of cutaneous melanoma. In daily clinical practice high nevus counts help to identify person at risk. In the period between January 2008 and December 2010, 141 patients underwent to nevi excision at the Pediatric Surgery Unit, S Anna Hospital, Ferrara, Italy. Patients included 64 (45.4%) females and 77 (54.6%) males. Age ranged from 1.5 to 18 years with a mean value of 12.4 years at the time of admission. 29, 46, 75 and 19 nevi were located in arms, legs, trunk and head and neck, respectively. 19, 121 and 29 nevi were junctional, compound and dermal nevi, respectively. Nevi were treated with surgical excision: 35 under general anesthesia, 4 under sedation and the remaining under local anesthesia. Melanocytic nevi during the past have been treated with several techniques such as cauterization with carbon dioxide, snow, a heated platinum loop and even by x-ray. Most of these treatments result unsatisfactory because these cause scars whereas leaving few intact melanocytes in the derma. Surgical excision is the method of choice. If the lesion has been injured or infected antibiotic treatment could facilitate healing.

The generic term “nevus” originates from the Latin word “naevus”, possibly indicated the maternal imprinting and still, is primarily used in dermatology for signifier, even if not always in the proper manner, isolated or multiple different clinical entities. Furthermore, the confusion about the meaning of the nevus term is derived from the habit of its widespread use without an adjective, i.e. without a qualification (1).

Nevogenesis is a multifactorial process that involves a complex interplay of genetics and environmental factors. Current models of nevogenesis propose that melanocytic neoplasm arises from a single cell of origin. However, the differentiation state of this cell has not been clearly established. It is already not determined if the progenitor cell is located in the dermis or epidermis or both. One possibility could be that an immature melanocytic stem cell serves as the nevus progenitor cell (1, 2).

Usually benign melanocytic lesions follow an archetypal life circle that consists in four stages: initiation,

promotion, senescence and involution. Initiation occurs when nevus progenitor cell acquires a mutation that will permit future growth, promotion occurs when the mutated cell is activated and proliferation begins. This proliferation is likely investigated by a change in local environmental factors that melanocytic growth on the sustained by the previously acquired mutation. After a period of growth nevi stop proliferating through the activation of senescence pathways (2).

In children like in adults pigmented lesions can pose significant diagnostic and therapeutic challenges. Fortunately, malignant melanoma is exceedingly rare in childhood and many pigmented lesions can be followed safely without surgical management. In the past decade several non invasive techniques allowing more accurate clinical diagnosis of pigmented lesions have been developed. Dermoscopy is one such non invasive in vivo technique. Usually alcohol or oil is applied in the surface of the dermatoscope to improve the clarity

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of the magnified image and subsurface structures (3). Approximately 1% of newborn have melanocytic nevi at birth (congenital melanocytic nevi CMN) (4), all over nevi develop after birth (acquired melanocytic nevi AMN). AMN first usually appears at about one year of age peaking in number during the second or third decades of life and disappearing by the seventh to ninth decades (5).

Classifying nevus as congenital merely by the presence or absence at birth may not be accurate. CMN can be classified according to largest diameter: small (less 1,5 cm), medium (between 1,5 and 19,9 cm) and large (more than 20 cm) (6). Bittencourt et al. (7) showed that malignant potential correlates with size.

Furthermore, CMN management is the same to that of AMN. Actually, small congenital nevus required prophylactic removal but they should be followed closely in order to look for color, shape and diameter changes. In addition, also the site of lesion the number of satellite nevi must be looked with attention. Infants with large CMN and more than three satellite nevi are at increased risk for malignant melanoma.

Considering AMN, most common are these melanocytics, that include dermal nevi, that are round skin papules and are more common in adults than in children (8), junctional nevi, which tend to appear as oval to round maculae, with sharply marginated borders and uniform color. Compound nevi at the end are tan to brown papule and are common in childhood. All these can reach verrucous surface or become peduncles.

AMN are all benign lesions that can be safely followed in most instances. Patient's age, location of lesions and whether or not change is occurring, are factors to consider in the surgical management. Some patients especially during adolescence want nevi removed more for cosmetic reasons than for troubling normal life.

Aim of this retrospective study is to assess the clinical outcome in a series of patients affected by CMN and discuss the pertinent literature.

MATERIALS, METHODS AND RESULTS

In the period between January 2008 and December 2010, 141 patients underwent to nevi excision at the Pediatric Surgery Unit, S Anna Hospital, Ferrara, Italy.

Patients

Patients included 64 (45.4%) females and 77 (54.6%) males. Age ranged from 1.5 to 18 years with a mean value of 12.4 years at the time of admission.

Pathology

29, 46, 75 and 19 nevi were located in arms, legs, trunk and head and neck, respectively. 19, 121 and 29 nevi were junctional,

compound and dermal nevi, respectively.

Treatment

Nevi were treated with surgical excision: 35 under general anesthesia, 4 under sedation and the remaining under local anesthesia.

DISCUSSION

Nevi represent benign melanocytic neoplasms that have importance as facultative precursors and predictors of cutaneous melanoma. In daily clinical practice high nevus counts help to identify person at risk. According to the classical concept of melanocytic nevi, junctional, compound and dermal nevi these represent different stages of a pathogenetic sequence (9).

However, this view has long been debated and it has been suggested that dermal new cells develop from melanocytic precursor cell residing in certain niches i.e. the bulge of hair follicles (10).

The treatment of CMN and AMN is subject to continuing discussion particularly because only the risk of tumor development on the cutaneous nevus can be reduced, and still, if no neuro-cutaneous melanosis is present most expert advice early and complete excision of large and giant CMN or at least to remove areas difficult to control at the end of the first year of life (11). Furthermore, even if the incidence of melanoma increases with age, a third of all cases occurs in people aged less than fifty years; the increased incidence has been attributed to increase exposition to natural or artificial ultra-violet rays.

Other factor risks that must be included are genetic predisposition, characterized in phenotypic features of multiple nodes fair complexion, sun-burnt susceptible skin-type (12).

Grob et al. (13) showed that the diagnosis of dysplastic nevi on the basis of clinical evidence, is difficult and unreliable; in order to have good diagnosis biopsy is generally performed. Dermatopathologists prefer to see the entire lesion to evaluate symmetry, circumscription and overall architecture. For the most part excision biopsy or punch biopsy are recommended as long as the entire lesion can be contained within the biopsy. Biopsy specimens should generally extend to the subcutaneous fat allowing for easier extraction and for less crush artifact, which can sometimes complicate histological diagnosis. Additionally the method used to report these lesions varies from pathologist to pathologist and so further complicating the interpretation (14). In 1992 a consensus conference at National Institute of Health recommended standardization of the nomenclature for reporting atypical nevi in order to have a common language all over the

world. Still nowadays some dermatologists misunderstand the difference between “dysplastic nevus” and “nevus with architectural disorder”.

Melanocytic nevi during the past have been treated with several techniques such as cauterization with carbon dioxide, snow, a heated platinum loop and even by x-ray. Most of these treatments result unsatisfactory because these cause scars whereas leaving few intact melanocytes in the derma.

Surgical excision is the method of choice. If the lesion has been injured or infected antibiotic treatment could facilitate healing. Bodenham (15) considers not necessary for the excision of a benign lesion to be carried out with a margin greater than 3 mm beyond the visible extent of the lesion.

Malignant change in children is so rare under 14 year of age that the majority of medical practitioners will not see one in lifetime.

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