

STRUCTURAL PARTICULARITIES OF THE MELANOCYTIC BENIGN TUMOURS IN CHILDREN

ANTONELLA CHEȘCĂ¹, SORINA ANAMARIA CHEȘCĂ², M. IRIMIE³

^{1,2,3}“Transilvania” University of Brașov

Keywords: children, dermal nevocellular nevus, extirpation, histopathological examination, Hematoxylin Eosin staining

Abstract: The herein study deals with the structural observations of the nevocellular nevi in children. This type of melanocytic benign tumour in children is the most frequent in the medical practice and it often requires surgical extirpation followed by a histopathological examination, for the purpose of establishing the benign character. The correct and complete excise of the tumour structure followed by an accurate histopathological examination, excludes the malignity signs, as the studies revealed a possible malign degeneration of this type of melanocytic tumour.

Cuvinte cheie: copii, nev nevocelular dermic, extirpare, examen histopatologic, colorația hematoxilină-eozină

Rezumat: Studiul de față se referă la observațiile structurale ale nevilor nevocelulari la copii. Acest tip de tumori melanocitare benigne sunt cel mai frecvent întâlnite în practica medicală și impun adesea extirpare chirurgicală urmată de examen histopatologic, în scopul stabilirii caracterului benign. Excizia corectă și completă a formațiunii tumorale urmată de efectuarea unui examen histopatologic de acuratețe, exclude semnele de malignitate, în condițiile în care studiile au demonstrat posibila degenerare malignă a acestui tip de tumori melanocitare.

INTRODUCTION

The medical studies concerning skin pathology constitute a field of great interest, taking into account the malign potential of certain types of skin melanocytic tumours. From this point of view, for the purpose of establishing a benignity diagnosis, the patient addressing the doctor for being extirpated a melanocytic benign tumour, shall receive the confirmation of the diagnosis, after accomplishing the histopathological examination of the excised tumour.(10,11)

According to the research in the field, we may state that the melanocytic tumour present as a structural characteristic, the coverage by the epidermis and superficial derma, that have a normal aspect.(2,4) Within this context, the recognition of the benign or malign nature of the skin tumours is based on criteria concerning the maintenance of the topographical reports both with the skin annexes and also with the location of the structure, aiming to a certain skin region.(3)

The lesions of the melanogenic system are classified in benign tumours or nevi, pre-cancer states, malign tumours and pigmentary non-tumour lesions.(8) The benign juvenile melanomas, known also as nevi, are recognized due to the presence of the nevus cells. The nevocellular nevi are benign tumours of the melanocytic system, being congenital or acquired.(1,7) The dermal nevocellular nevus representing the shape of the most frequent benign melanoma is mainly placed at the level of the large regions of the body. From this point of view, they are met at the level of the head, neck and trunk. (5,9) A dermal nevocellular nevus is characterized by the papule, pedicle or sessile aspect. It presents a smooth or verrucous surface and a soft consistency. The pigmentation varies from brown to black. The sizes of the dermal nevocellular nevus are usually milimetric but it occurs also under larger sizes, being

possibly accompanied by pilosity, fact that can determine the complication with folliculitis.(6)

PURPOSE OF THE PAPER

The study aims at studying the histopathological modifications that occur at the level of the structural elements of the skin, under the conditions of noticing nevocellular nevi in children. The study is achieved on the basis of the idea that certain pre-existent pigmentary lesions can malignly degenerate, under the conditions determined by constitutional factors or by the phenotypic characteristics. These are accompanied by the exposure to ultraviolet radiations, as a major factor of the malignity. In this context, the histopathological examination establishes the benignity diagnosis of the surgically extirpated nevus structure or its malign degeneration.

MATERIAL AND METHODS

The structural analysis of the melanocytic benign skin tumours in children was achieved by the collaboration between the Faculty of Medicine and the Pathological Anatomy Department of the Children's Clinical Hospital of Brasov. There were investigated 18 cases of nevocellular nevi, clinically and histopathologically diagnosed, in the first half of 2010, at different age children. The analyzed nevocellular nevi presented characteristic milimetric sizes, circumstances in which they were accompanied by pilosity. In each case these parts were surgically extirpated and afterwards they were histopathologically examined, for confirming and supporting the diagnosis. The histopathological characteristics of the investigated nevi were emphasized by means of the classical histological technique. After the sample taking procedure, the extirpated parts were kept in formalin 10% and for obtaining the permanent preparations in order to accomplish a

¹Corresponding author: Chesca Antonella, Str Branduselor nr 39, Bl 113, ap 39, Brasov, Romania; e-mail: anto_chesca@yahoo.com; tel +40-0723572878

Article received on 27.09.2011 and accepted for publication on 31.01.2012
ACTA MEDICA TRANSILVANICA March 2012; 2(1):227-228

CLINICAL ASPECTS

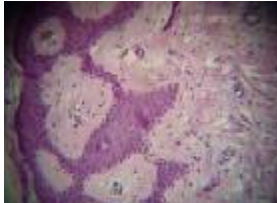
histopathological examination, the stages of the classical histological examination were rigorously followed. For this purpose after the sample taking and fixing procedure of each part, these were included in paraffin, were sectioned by means of the rotator microtome and then they were stained by means of hematoxylin eosin, assembled with Canadian balsam, labelled and kept in the histotech. The analysis of the histopathological aspect of the investigated congenital nevi was possible by means of the photonic microscope type Nikon and of the enhancing objectives x20 and x40.

RESULTS AND DISCUSSIONS

The microscopic aspect that is characteristic to the dermal nevocellular nevi emphasizes the specific cellular types, grouped in nests. These can be of epithelia type and they can present cytoplasm granules with melanin pigment that in certain cases can be achromic. The photonic microscope enables the examination of the atrophic epidermis that covers a dermal nevocellular nevus. (Figure no. 1) By means of the optical microscopy and of the enhancing objectives, we may notice the presence of the nevus cells nests at the level of the dermis. Taking into account the mentioned particularities, the histopathological aspect of this type of nevus can be compared to the normal aspect of the epidermis. (Figure no. 2)

Figure no. 1. Dermal nevocellular nevus-semi-detail Hematoxylin Eosin staining x40

Figure no. 2. Normal Epidermis ensemble Hematoxylin Eosin staining x20



The photonic microscope enables the examination by means of an enhancing objective of certain structural details, concerning the sebaceous gland that is annexed to the pilose follicle that is adjacent to this type of nevus. (Figure 3)

Figure no. 3. Dermal nevocellular nevus Sebaceous gland annexed to the pilose gland – detail, Hematoxylin Eosin staining x40

Within the context, the aspect of the sebaceous gland annexed to an inflamed pilose follicle can be compared in the case of a dermal nevocellular nevus to the structural aspect of a normal sebaceous gland, annexed to each pilose follicle that does not present any structural or functional modification. (Figure no. 4)

Figure no. 4. Sebaceous gland normal aspect – detail Hematoxylin Eosin staining x40

CONCLUSIONS

The study revealed that the benign melanocytic skin tumour structures are highly frequent during childhood.

According to the medical practice, we noticed that the highly increased incidence of the benign melanocytic skin tumour structures found also in children refer to the dermal nevocellular nevus.

For the purpose of establishing the correct histopathological diagnosis of the surgically extirpated benign melanocytic skin tumour structures, it is useful to compare them to the normal tegument structures.

Although all the melanocytic tumours in children present a benign character, the medical practice proved that there are conditions under which certain types of benign melanocytic skin tumour structures may present clinical signs, histopathologically confirmed, that plead for malignity.

REFERENCES

1. Bastian B, Xiong J, Frieden IJ, Williams L, Chou P, Busam K, Pinkel D, LeBoit PE. Genetic changes in neoplasms arising in congenital melanocytic nevi: differences between nodular proliferations and melanomas. *Am J Pathol.* 2002;Oct;161(4):1163-9.
2. Bastian B. Understanding the progression of melanocytic neoplasia using genomic analysis: from fields to cancer. *Oncogene.* 2003;May;19(22):3081-6.
3. Betti R, Inselvini E, Vergani R, Crosti C. Small congenital nevi associated with melanoma: case reports and considerations. *J Dermatol.* 2000;27:583-90.
4. Bittencourt F, Marghoob A, Kopf A, Koenig K, Bart R. Large congenital melanocytic nevi and the risk for development of malignant melanoma and neurocutaneous melanocytosis. *Pediatrics.* 2000;Oct;106(4):736-4.
5. Fujiwara M., Nakamura Y., Fukamizu H. Treatment of giant congenital nevus of the back by convergent serial excision. *J. Dermatol.* 2008; Sep;35(9):608-10.
6. Gosain A, Santoro D, Larson L, Gingrass P. Giant congenital nevi: a 20-year experience and an algorithm for their management. *Plast. Reconstr. Surg.* 2001;Sep 1;108(3):622-36.
7. Jaeger M, Zuker M. Congenital giant nevocellular nevus of the back with deep extension to the fat and fascia. *Can J Plast Surg.* 2006;Spring;14(1):45-8.
8. Marks R. Epidemiology of melanoma. *Clin Exp Dermatol* 2000; 25: 459–463.
9. Pearson G, Goodman M, Sadove M. Congenital nevus: the Indiana University's approach to treatment. *J Craniofac Surg.* 2005;Sep;16(5):915-20.
10. Rigel D, Carucci A. Malignant melanoma: prevention, early detection, and treatment in the 21st century. *CA Cancer J Clin.* 2000;50:215–236.
11. Watt A, Kotsis V, Chung C. Risk of melanoma arising in large congenital melanocytic nevi: a systematic review. *Plast Reconstr Surg.* 2004;Jun;113(7):1968-74.