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Considerations of melanocytic nevi in children

A. CHEŞCĂ [(1)*], M. C. LUCULESCU [(1)], T. SANDLE [(2)]
[1] *Transilvania University of Braşov, Romania*
[2] *Head of Microbiology at BioProducts Laboratory, United Kingdom*
**Corresponding author*
Antonella Cheşcă, Ph.D.
Department of Basic, Preventive and Clinical Sciences, Faculty of Medicine, Transylvania University of Brasov, 39, Branduselor Street, Braşov, 500389, Romania
Phone: +40(0)268.412.185, e-mail: anto.chesca@gmail.com

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Summary

The incidence of melanocytic nevi is increasing, and nevocytic nevi are commonly encountered in childhood. Therefore, the study of these tumors, particularly those that are likely to become malignant, represents an important issue. This paper presents clinical, statistic and structural data on the melanocytic nevi in children, and of adjacent areas when the nevi were surgically excised. The study was made possible by collaboration with the specialty medical stuff of Children Clinic Hospital Braşov. The analysis of the melanocytic nevi was retrospective in relation to 30 patients. These cases were selected from the cases investigated in the first half of 2013. The pathological anatomy diagnosis was conducted following a biopsy of the fragments of melanocytic nevi excised by surgery. This took place within the plastic surgery department of the Children Clinic Hospital Brasov.

Introduction

According to the statistic data gathered from melanocytic nevi excised by surgery at the Children Clinic Hospital Brasov, and in relation to data gathered from numerous studies, an increased incidence of skin pathology was found. From this analysis, we noticed a significant increase in cases of malignant melanoma (Armstrong, 1997; Geller, 2003).

Skin cancer is frequently detected nowadays because of various determining factors (Boyd *et. al*., 2002). Among these factors are, foremost, family predisposition: namely the genetic component (Armstrong, 2001; Geller, 2006). This phenotypically expressed for individual people in relation to their skin appearance and the color of the skin; this in turn relates to the capacity of a person to become tanned (Ramachandran, 2009; Ting, 2007). Supporting this idea, a major risk factor in the occurrence of malignant melanoma is the inappropriate exposure to sunlight (Boniol *et. al*, 2012).

In view of studying benign tegument tumors likely to become malignant, this study refers to the analysis of melanocytic nevi in children. Therefore, we believe that melanocytic nevi or moles are agglomerations of cells called melanocytes that produce the specific pigmentation. Melanocytes are represented by normal skin cells that produce brown pigmentation called melanin that gives the tanned color of the skin. Various studies suggest that melanocytic nevi appear at the early ages of development, more specifically being encountered in children and even in new-born (Roberts, 2009; Veierød, 2003).

Melanocytic nevi grow at slow rates without changing in time and without invading the tissues around them. From this perspective, melanocytic nevi do not affect the individual's health (Wehner, *et. al*., 2012). From the clinical point of view, a melanocytic nevus is recognized by form and appearance. They appear as small brown colored flat or prominent spots, generally round and of

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regular shape. A distinct category of benign moles are the dysplastic or atypical nevi of unusual appearance that may look like melanoma. Attention must be paid to atypical moles as at first they can be mistaken for melanoma (Reisner and Rubin, 2008).

Consequently, we must take into consideration that these tumors may be the beginning of a melanoma that may be mistaken for the atypical benign mole that is insufficiently treated and which, if not placed under proper medical supervision, is likely to endanger the patient's life. From a different point of view, the presence of atypical moles draws the attention on a high risk of developing malignant melanoma. It is considered that the number of atypical moles of an individual is consistent with the high risk of developing a melanoma. From this position, according to the carried out studies, we noticed that, compared to the rest of the population, the individuals having several atypical moles are - to a greater extent - subject to develop melanoma. Moreover, it is worth mentioning that dysplastic nevi are more frequent in melanoma patients compared to their frequency in the rest of the population. Furthermore, both atypical moles and, rarely, typical moles are likely to change into melanoma at a given time. Unfortunately, whilst this rarely happens, it is possible. The melanocytic nevi increased potation of becoming malignant is encountered at congenital nevi of more than 20 cm in size (Kennedy *et. al*., 2013).

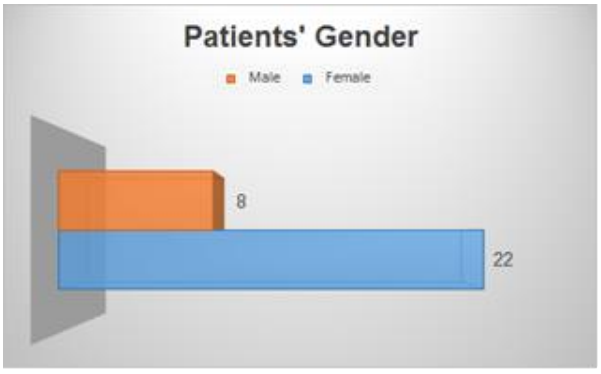
The main factors contributing to a mole becoming malignant are, as indicated above, excessive exposure to the sun; in addition, repeated trauma, including minimal trauma of the moles, is an important factor (Rigel *et. al*., 2008). Although malignant melanoma as type of cancer is considered easy to diagnose and treat in due time, there are many known cases of patients who were not diagnosed in time and who were not surgically cured. This lead to metastasis occurring, which is a fast process due to it being an invasive cancer and one with a high death prognosis. As far as the potential of malignant degeneration of melanocytic nevi is concerned, we must take into consideration the trigger factors, including exposure to sunlight and, at the same time, the issues related to the genetic inheritance of an individual. These genetic factors should not be neglected for they play a determining role in the occurrence of these tegument tumors (Elwood *et. al.*, 1997).

Materials and methods

This study investigated 30 cases of children aged between 1 and 18 years old of both sexes and from different residence environments. The data relating to fragments taken from the patients enabled a statistic analysis of the cases to be undertaken. The structurally analysed centimetric fragments were taken after extirpation within the department of plastic surgery. Subsequently, these fragments were processed according to standard laboratory techniques and analyzed from the morpho-pathological perspective. Diagnosis was possible by the execution of permanent microscopic preparations, Haematoxylin – Eosin staining and observation of structures and their adjacent areas, using Nikon optic microscope and x20 magnifying lenses for the overall images and x40 magnifying lenses for the structural details.

Results and discussions

From the 30 studied cases, 8 were male patients and 22 were female patients (Graphic 1).



Graphic 1. Cases distribution according to the patients' genders.

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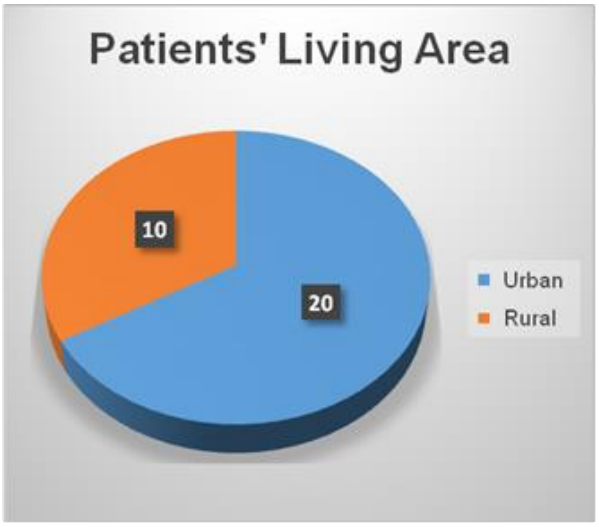
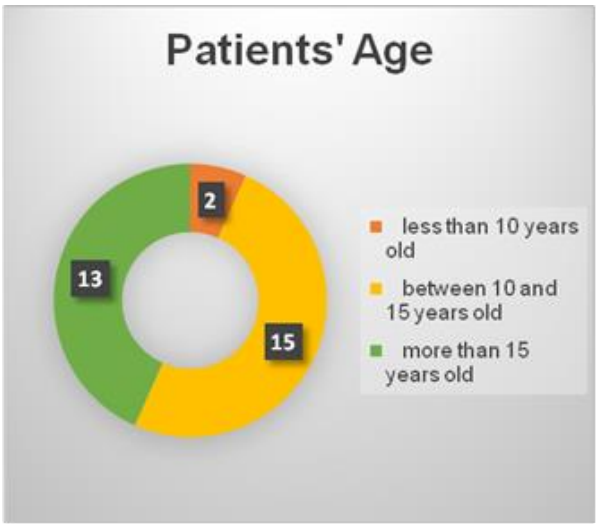
20 patients were from the urban environment and 10 from the rural environment (Graphic 2).



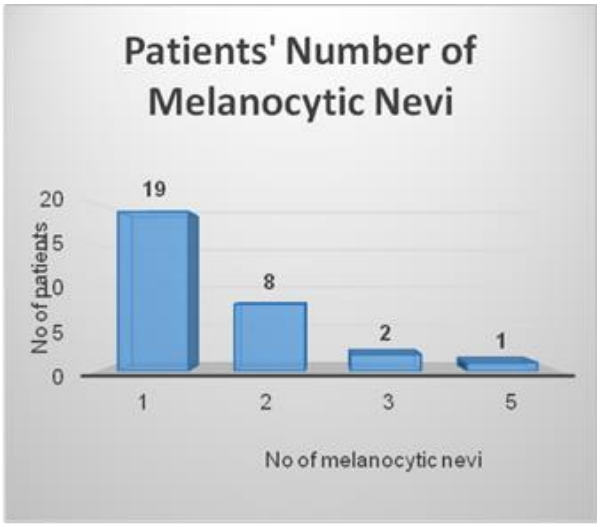
Graphic 2. Cases distribution according to the patients' residence.

2 patients were less than 10 years old, 15 patients were aged between 10 and 15 years and 13 patients were aged over 15 years (Graphic 3).



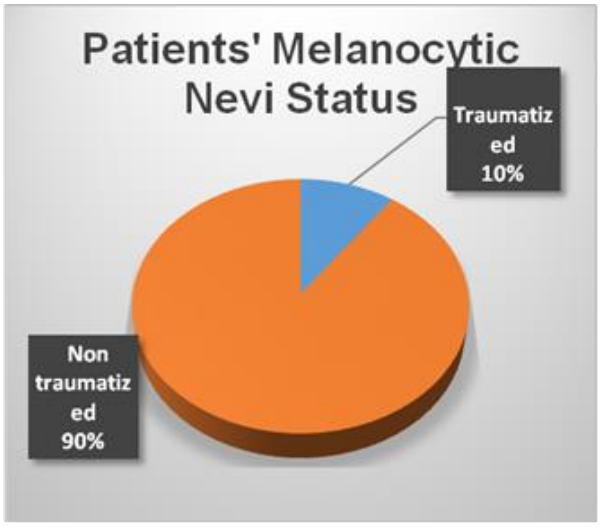
Graphic 3. Cases distribution according to the patients' age.

The locations of the melanocytic nevi in the investigated patients were the scapular, cervical, chin areas, on the arms, in the inguinal and iliac area, in the lumbar, paravertebral, thorax, scalp, occipital, parietal areas, the oral comisure, the nasogenian fold, the axilla. Moreover, 20 cases had sole nevus and 10 cases had multiple nevi (Graphic 4).



Graphic 4. Cases distribution according to the number of the patients' melanocytic nevi.

Of the investigated cases, 27 had non traumatized melanocytic nevi and 3 cases had traumatized melanocytic nevi (Graphic 5).



Graphic 5. Cases distribution according to the trauma of the patients' melanocytic nevi.

After surgery excision, we proceeded to the execution of the permanent microscopic preparations, Haematoxylin - Eosin staining and structural analysis using x20 lenses and x40 lenses of a Nikon optic microscope.

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Conclusions

This study enabled the investigation of what is a nowadays a frequent pathology which affects young children and which is sometimes encountered in the new-born as well. From our analysis we observed an increase in the number of patients with melanocytic nevi locateds in different areas; many of these patients were considered as having multiple melanocytic nevi. This indicates the increase in the frequency of this pathology and shows the importance of the risk factors related to the potential of becoming malignant, due to their numeric extension on the body areas. Moreover, within the investigated patients we found cases of traumatized pigment nevi. From this point of view, we consider that it is very important for 'at risk' patients to be placed under competent medical supervision in order to monitor the potential of these tegument tumors becoming malignant. Consequently, major importance must be placed on this issue, especially considering that in certain conditions, melanocytic nevi are likely to degenerate and become malignant. Therefore, it is important to emphasize that malignant melanoma is a pathology that easily turns into lethal potential metastasis.

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