Breslow Thickness and Clark Level Evaluation in Albanian Cutaneous Melanoma

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Abstract

Background: Malignant melanoma (MM) is a neoplasia, derived from melanocytes. This is the most aggressive cancer of skin. The incidence of melanoma is increasing last decades. Melanoma has a high cure rate in the early phases, but a worse prognosis in the late stages.

The aim of this study is to present an overview of malignant melanoma, frequency according to age and sex, clinico-morphologic correlation and reporting of Breslow thickness and Clark level in histopathologic examinations.

Material and Methods: This was a retrospective study. We have analised all histopathologic datas in the Department of Pathology, in The University Hospital Center " Mother Teresa " for years 2005 - 2009 and have compared them, with the period 1985 - 1989. Chi square test and df-test were used.

Results: There were 84 cases of MM for 2005-2009 :(58.3 % male and 41.7 % female. The distribution according to the site was: 71.4 % cutaneous, 16.6 % cerebral (metastases) and 12% ocular .The mean age of melanoma for the above period is 50 years . Breslow thickness was reported in only 8.3% of the cutaneous melanoma. Clark level was reported in 69 % of them. Clinicopathological correlation is 41.7 %.

For period of time 1985-1989 resulted 35 cases of MM : 48.6 % males and 51.4 % females.

Distribution according to the site was : 51.5 % (n =18) cutaneous, 42.8 % (n=15) ocular and 5.7 % (n=2) cerebral metastasis.

The mean age was 43 years. Clark level and Breslow thekness was done in none of the biopsy. Clinicopathological correlation was 51.5%.

Conclusion: Malignant melanoma is confirmed only by histopathologic examination. Malignant melanoma is a growing pathology (p<0.0009). The age of affecting melanoma is also increased.

Breslow thickness and Clark level should be done in every biopsy of melanoma, because they serve also as prognostic factors.

Table 1. Percentage of Melanoma for Each Year of The Study

Year	Number of cases	Mean age	Total of biopsy	% of melanoma
2005	10	41.9	8260	0.12%
2006	23	51	8990	0.26%
2007	16	52.5	9622	0.17%
2008	13	53.1	9765	0.14%
2009	22	50.8	11467	0.19%
1985	10	32.7	5459	0.18%
1986	4	41	5020	0.08%
1987	7	46.1	5282	0.13%
1988	6	45	5426	0.11%
1989	8	36.12	4788	0.16%

Table 2. Percentage of Melanoma for Each Year of the Study

Age	2005-2009	1985-1989
0-10	1	2
11-20	5	1
21-30	8	**9**
31-40	5	8
41-50	14	4
51-60	**26**	5
61-70	19	4
>70	6	2
Total	**84**	**35**

Table 3. Comparison of Features of MM for the Time of Study

	Mean age	Melanoma per year	% Melanoma (melanoma/total of biopsy
5-years 1985-1989	43.1	7	0.13%
5-years 2005-2009	49.8	16.8	0.18%

Introduction

Malignant melanoma is the most aggressive skin cancer, that accounts approximately 4% of skin cancer [1]. There were about 160,000 new cases of melanoma, and about 40,800 deaths from this pathology, worldwide in 2012 [2].

Melanoma derives from melanocytes and there are some risk factors developing melanoma such familiar history of melanoma, dysplatic nevi, an increased number of nevi and sun exposure [3].

Surgical treatment is the treatment of choice in early stage of the disease, while chemotherapy is used in late stage with a worse prognosis [4].

Thera are four types of melanoma; superficial spreading melanoma, nodular melanoma, acral melanoma and lentiginous melanoma.

The main histologic factors of cutanous melanoma are Breslow thicknes, Clark level, mitotic rate, ulceration, vascular invasion and tumor infiltrating lymphocytes.

MM can develop from preecsiting nevi or de novo.

Breslow`s depth and Clark level are two most used prognostic factors of cutaneous malignant melanoma.

Breslow`s depth is used for the first time by pathologist *Alexander Breslow* in 1970, and means thickness from granular layer of the epidermis to the deepest invasion of melanocytes of the skin [5]. Melanomas with a Breslow less than 0.76 mm has an 10-years survival rate about 95 % [6].

Clark level is used since 1969 from pathologist *Wallace H. Clark* ,and is associated with the tendene of melanocytes to infiltrates all layers of skin (epidermis, papillary dermis, reticular dermis and fat tissue). There are five Clark levels [7, 8].

This is a long process which passes in two phases: radial growth phase and vertical growth phase.

The aim of this study was is to present:

Table 4. Clinico-Morphological Correlation of MM 2005-2009

2005-2009	Clinical Diagnosis	Histopathological Diagnosis	%
Melanoma	**35**	**35**	**41.70%**
Skin cancer	14	14	16.70%
Papiloma	3	3	3.50%
Nevus	14	14	16.70%
Others	18	18	21.40%
Total	84	84	100.00%

Table 5. Clinico-Morphological Correlation of MM 1985-1989

1985-1989	Clinical Diagnosis	Histopathological Diagnosis	%
Melanoma	**18**	**18**	**51.50%**
Skin cancer	2	2	5.70%
Papiloma	1	1	2.80%
Nevus	2	2	5.70%
Others	12	12	34.30%
Total	35	35	100.00%

1- An overview of malignant melanoma, frequency according to age and sex, clinico-morphologic correlation.

2- Reporting of Breslow thickness and Clark –level in histopathologic examinations.

Material and Methods

This was a retrospective study. All slides were examined with light microscopy stained with Hematoxyline- Eosine. In special cases was used also Fontana , Trichrom stain.

We reviewed all histopathologic records of patients with malignant melanoma (MM) in the Department of Pathology, in The University Hospital Center "Mother Teresa" for years 2005 -2009 and have compared these data, with the period 1985-1989.

Statistical analysis used, were Chi square test and df-test.

Results

During 2005-2009, there were 84 cases diagnosed with MM. Distribution according to the site was: 71.4 % (n=60) cutaneous, 16.6 % (n=14) cerebral (metastases) and 12 % (n=10) ocular .Male female ratio was : 58.3% (n=49) male and 41.7 % (n=35) female. Mean age of affecting melanoma was 49.8 years.

Breslow thicknes was made only in 8,3% (n=5) of the biopsy.

Clark level was done as in figure below (**Figure 1**).

For years 1985-1989 was found 35 cases with MM. Distribution according to the site was: 51.5 % (n = 18) cutaneous, 42.8 % (n = 15) ocular and 5.7% (n=2) cerebral metastasis. Mean age was 43,1 years.

Breslow thickness and Clark level was not reported in any of cutaneous melanoma.

The table below (**Table 1**) gives us a detailed panorama for each year of the study comparing them, about new cases of MM mean age ant total of biopsy done in the department and percentage of MM.

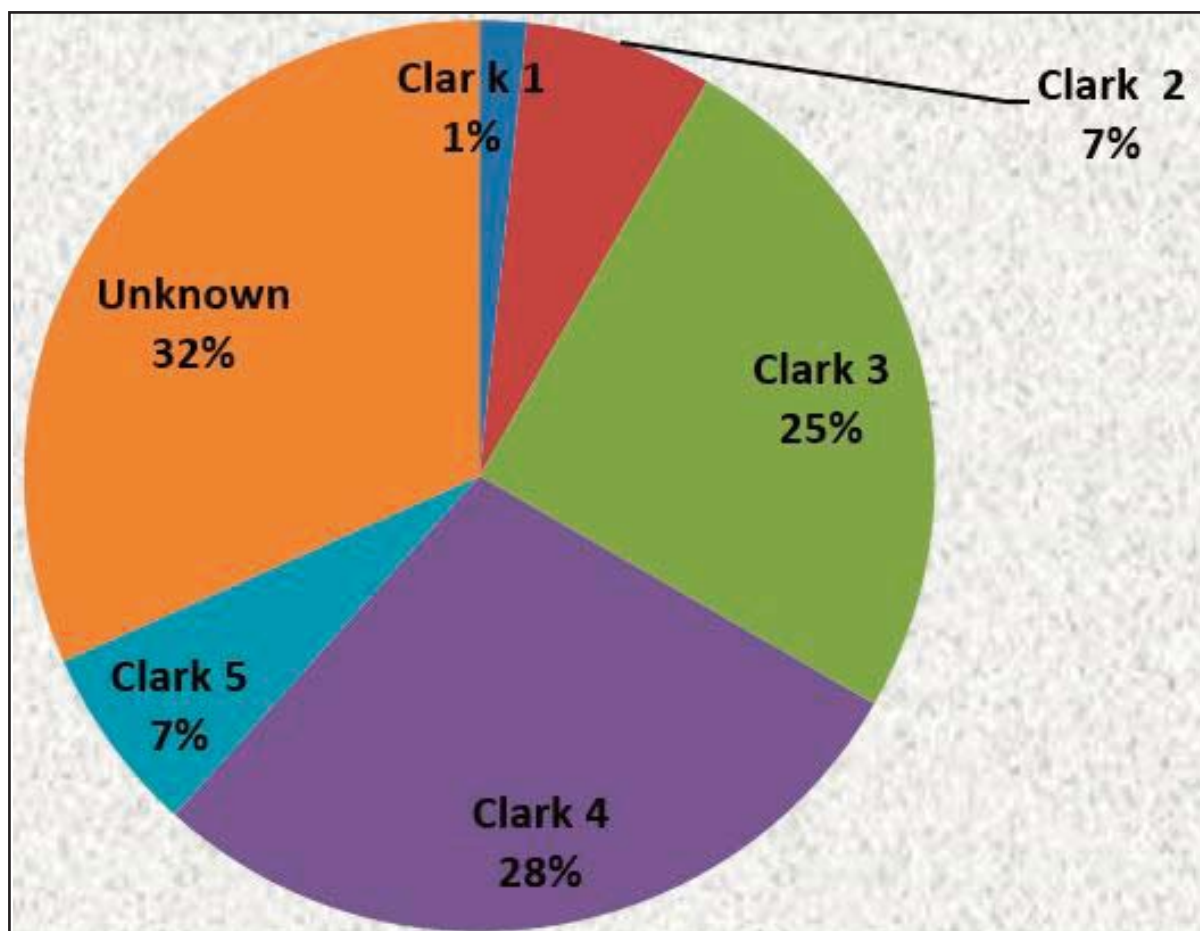As we can see, during 2005-2009 melanoma has an tendence to increase.

Figure 1. Clark level, 2005-2009

Table 2 shows the distribution of melanoma according to decades.

As we can see the most affecting age is 51-60 for years 2005-2009, while in 1985-1989 melanoma is mainly seen in young people (21-30 years).

Extreme ages of our study was 7 –years male and 88 –years old male patient. Most of them belong to 40-70 years old. Patients less than 40 years accounted 22,6 % of cases, and more than 70 years accounted 7% (**Table 3**).

Clinico-morphological correlation for years in the study is 41.7% for years 2005-2009 and 51.5 % for 1985-1989 (**Tables 4 and 5**).

Discussion

From our data is clear that malignant melanoma is increasing pathology (p<0.0009).

The mean age also is increasing from 43 to 50 years old. This may be caused by sun exposure protection of people, the sensibilisation

of population about this dangerous pathology or maybe another factor probably that a lot of people worked as farmers during 1985-1989.

Also in other study refers that mean age is a 53 [**9**].

One of the shortcoming of this study is the low rate of reporting Breslow depth (8.3%) and unknown Clark level (32%), even these two factors are very import in the prognosis of melanoma.

Our study has showed a higher incidence in man than female, also other study [**10**] has showed an higher incidence rate in man than female.

Conclusions

Malignant melanoma is a growing pathology reported in Albania. Biopsy is an important diagnostic tool. All histopathologic prognostic

factors such Breslow depth, Clark level, mitotic index, ulceration, lymphocytic infiltration must be reported.

To reduce incidence of melanoma are necessary routine dermatologic consulting, dermatoscopy campaigns and preventive activities especially in young people, children, teenagers and their parents [**11, 12, 13, 14**].

Conflict of interests

The authors declare that there is no conflict of interests regarding the publication of this paper.

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