

Histological Types of Polypoid Cutaneous Melanoma II

Fabijan Knežević¹, Vjekoslav Duančić², Sanda Šitić¹, Anica Horvat-Knežević³, Vesna Benković³, Snježana Ramić¹, Krešimir Kostović⁴, Vesna Ramljak⁵, Danko Velemir Vrdoljak⁶, Mladen Stanec⁶ and Angelina Božović⁷

¹ Department of Clinical Pathology, University Hospital for Tumors, Zagreb, Croatia

² Institute for Cardiovascular Prevention and Rehabilitation, Zagreb, Croatia

³ Department of Animal Physiology, Faculty of Science, University of Zagreb, Zagreb, Croatia

⁴ Department of Dermatovenerology, University Hospital »Zagreb«, School of Medicine, University of Zagreb, Zagreb, Croatia

⁵ Department of Clinical Cytology, University Hospital for Tumors, Zagreb, Croatia

⁶ Department of Surgical Oncology, University Hospital for Tumors, Zagreb, Croatia

⁷ Midwifery and Nursing School, Zagreb, Croatia

ABSTRACT

The aim of this study was to ascertain which histological types of melanoma can clinically and morphologically appear as polypoid melanomas. In 645 cases of primary cutaneous melanoma we have analyzed criteria for diagnosis of polypoid cutaneous melanoma and afterwards we have analyzed growth phase in each polypoid melanoma, histological type of atypical melanocytes, the number of epidermal ridges which are occupied by atypical melanocytes, and distribution according to age, sex and location, as well as the disease free survival. According to the criteria for polypoid melanomas we have found 147 (22.8%) polypoid cutaneous melanomas. Analyzing the growth phases, histological types of atypical melanocytes and the number of affected epidermal ridges in the group of polypoid melanomas we have ascertained 2 (1.4%) ALMs, 4 (2.8%) LMMs, 42 (28.6%) SSMs and 99 (67.2%) NMs. Our conclusion is that polypoid cutaneous melanomas are morphological forms of various histological melanoma types (ALM, LMM, SSM and NM) and they can all display polypoid morphological form. Polypoid cutaneous melanomas are most often of nodular histological type.

Key words: polypoid cutaneous melanoma, histological types

Introduction

Polypoid cutaneous melanoma has been differently defined in the literature depending on various authors. Rosenberg et al. define polypoid cutaneous melanoma as a variant of nodular melanoma which in depth seldom reaches the reticular dermis¹. Mancini et al. also consider the polypoid melanoma a variant of the nodular melanoma whose main part of tumor is located above the nearby epidermis, raised in the form resembling cauliflower, while the lateral spreading into adjacent epidermis is limited to less than three epidermal ridges^{2,3}. It is obvious that this definition is based on the synthesis of morphological pattern of the tumor and the differentiation between the melanoma of biphasic growth (superficially spreading melanoma – SSM, lentigo malignant

melanoma – LMM, acral lentiginous melanoma – ALM) and of monophasic growth (nodular melanoma – NM)³.

McGovern et al. divide polypoid melanomas in pedunculated and sessile – in the latter more than a half of tumor thickness being above the surrounding skin surface.

McGovern et al. claims that most of polypoid cutaneous melanomas are of nodular histological type⁴.

Authors who describe individual cases of polypoid cutaneous melanomas also claim that polypoid melanomas are of nodular histological type^{5–9}.

Reed et al. define the polypoid melanoma as an exophytic lesion, clinically and/or histologically having the stalk or base narrower than the tumor mass above the

base. Reed et al. classify polypoid cutaneous melanomas into superficially spreading (SSM) and into nodular histological type (NM)¹⁰. In our previous researches we have accepted the definition of polypoid cutaneous melanomas as put by McGovern et al. mostly because in the medicine it has been known and accepted that polypoid lesions of any type may be of two kinds, i.e. pedunculated and sessile^{5,12,13}.

In our previous researches we have also ascertained that polypoid melanomas could be of the following histological types (LMM 6.4%; SSM 25.5%; NM 68.1%)^{3,11}.

In the literature, the polypoid melanoma incidence rate ranges from 1.9 to 43.3%^{1–21}.

The mean age of patients with polypoid cutaneous melanoma, listed as a median or as an arithmetic mean is about equal in the examined groups and ranges from 45 to 54 years^{3,4,10,19,22}.

Polypoid cutaneous melanoma is more frequent in men though our study from 1990 shows the prevalence of women. Polypoid melanomas are most frequently located on the trunk, and then – according to the frequency – on lower extremities, upper extremities and then on head and neck^{2,3,4,10,19,22,23}. In this study we have tried to establish histological types of polypoid melanomas on much broader sample than we had in 1990, so that we could establish the exact presence of various histological types of melanoma in the polypoid melanoma group^{3,23}.

Material and Methods

We have used histological specimens and paraffin blocks of primary skin melanomas which have been analyzed in Zagreb University Hospital for Tumors in the period from 1987 to 1996. Tumor tissue was fixed in buffered 10% formaldehyde pH 7.0 for 48 hours and paraffin embedded²⁴. Paraffin blocks were cut serially in ten to fifteen 4 to 5 μm slides and stained with hemalun and eosin. Altogether 645 primary skin melanomas were examined and according to the criteria for the diagnosis of the polypoid cutaneous melanomas, 147 polypoid melanomas have been isolated. The microscopic criteria for the diagnosis of the polypoid skin melanomas were the following: 1. The main part of the tumor is above the epidermal surface², 2. The base of the tumor is narrower than the part above the base¹⁰, and 3. More than half of the tumor thickness in the sessile polypoid melanoma is above the epidermal surface⁴. In this work we have united the criteria for the diagnosis of polypoid melanomas set by Mancini et al., Reed et al. and McGovern et al.^{2,4,10}.

After histologically defining the group of polypoid skin melanomas, we have examined the presence of atypical melanocytes in epidermis, laterally from the main tumor mass. We wanted to see if they were lymphocitoid, spindle-shaped or pagetoid and whether they occupy three or more epidermal ridges. We have also analyzed thickness of the epidermis – epidermal hypertrophy^{4,25–29}, and the type of atypical melanocytes in the main tumor

mass²⁷. Thus, we established the number of nodular, superficially spreading, lentigo malignant and acral lentigo malignant melanomas which displayed exophytic polypoid pattern in the vertical growth phase. After we had examined pathohistological parameters and recorded them in the corresponding protocol, we have looked into the medical history archives to collect the data referring to the age, sex, and tumor location, the date of surgery and clinical stage of the disease during the operation. The patients were controlled every 3 to 6 months. The data on the current patient's conditions were obtained via telephone interviews from patients themselves, their families or their doctors in the primary health care (telephone interviews for monitoring melanoma patient's survival have been also used by Balch et al. in their study in 1978)³⁰. The last data check was carried out at the end of 2006. The date of surgery and the information about entering clinically higher stage of the disease were important to calculate disease free survival in months. All of the data recorded in the protocol were analysed and presented by basic statistic parameters. Disease free survival in months has been calculated according to Kaplan-Meier method.

Results

Out of 645 primary skin melanomas in the period from 1987 to 1996, 147 (22.8%) polypoid cutaneous melanomas were found.

In this group we have found: 1) 2 polypoid melanomas with epidermal radial growth phase of AMM type with spindle-shaped atypical melanocytes, and also with hypertrophic and hyperplastic epidermis on the surface /2/147, (1.4%) (Figure 1 and 2), 2) 4 polypoid melanomas with epidermal radial growth phase of lentigo malignant melanoma type, with spindle-shaped atypical melanocytes, laterally from the polypoid tumor mass / 4/147,

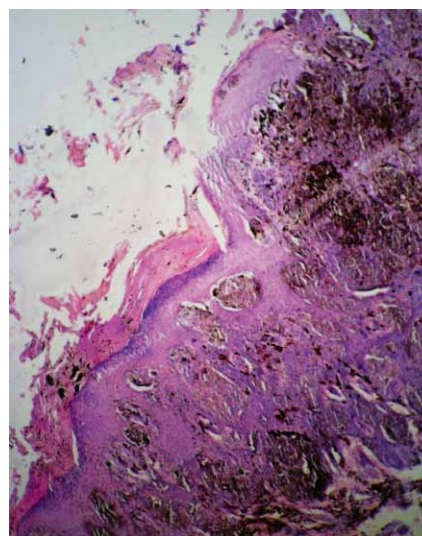


Fig. 1. Polypoid skin melanoma of the acral lentiginous melanoma histological type (HE stain, original magnification $\times 25$).

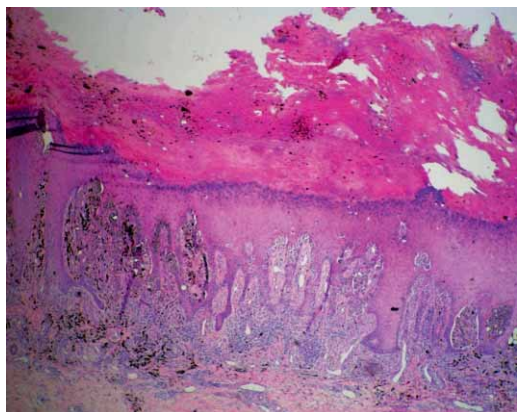


Fig. 2. Radial, intraepidermal growth phase of the polypoid skin melanoma of the acral lentiginous histological type (HE stain, original magnification $\times 40$).

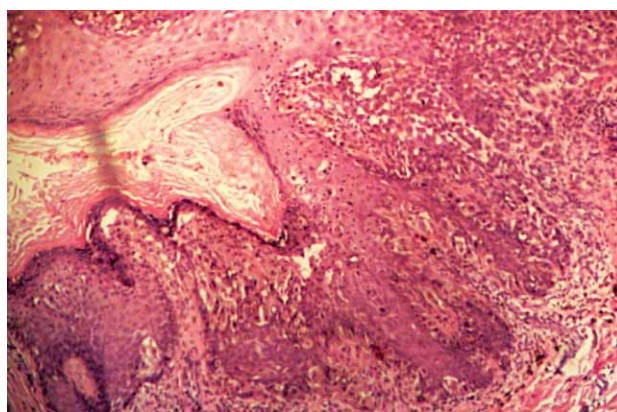


Fig. 5. Polypoid skin melanoma of the superficially spreading histological type (HE stain, original magnification $\times 25$).

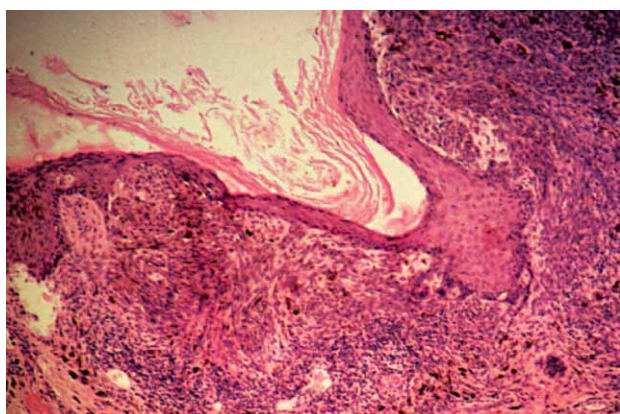


Fig. 3. Polypoid skin melanoma of the lentigo maligna histological type (HE stain, original magnification $\times 25$).

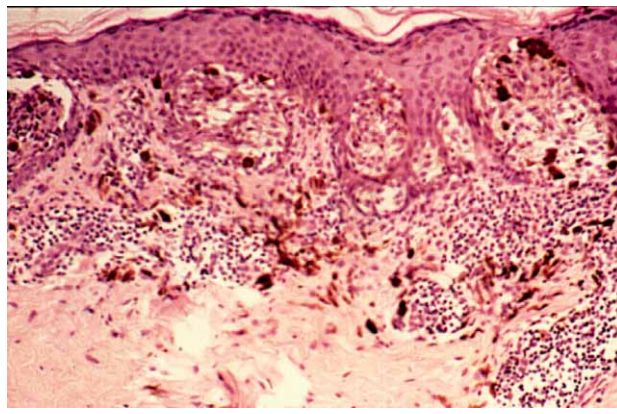


Fig. 6. Radial, intraepidermal growth phase of the polypoid skin melanoma of the superficially spreading histological type (HE stain, original magnification $\times 40$).

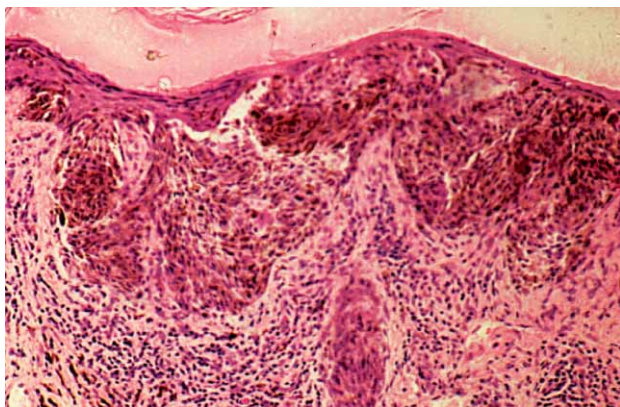


Fig. 4. Radial, intraepidermal growth phase of the polypoid skin melanoma of the lentigo maligna histological type (HE stain, original magnification $\times 40$).

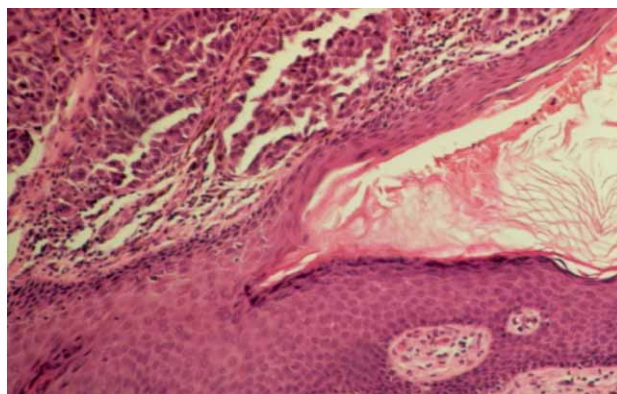


Fig. 7. Polypoid skin melanoma of the nodular histological type (HE stain, original magnification $\times 40$).

(2.8%) (Figure 3 and 4), 3) 42 polypoid melanomas with epidermal radial growth phase of superficially spreading melanoma type with pagetoid atypical melanocytes laterally from the polypoid tumor mass / 42/147 (28.6%) (Fig-

ure 5 and 6). The radial growth phase in polypoid melanomas with biphasic growth occupied 3 or more than 3 epidermal ridges, 4) 99 polypoid melanomas with regular epidermis laterally from the tumor mass /99/147 (67.2%) (Figure 7, Table 1).

TABLE 1
FREQUENCY OF DIFFERENT HISTOLOGICAL MELANOMA TYPES IN A GROUP OF POLYPOID SKIN MELANOMA

Histological type PM	Frequency	
	n	%
NM	99	67.2
SSM	42	28.6
LMM	4	2.8
ALM	2	1.4
Total	147	100.0

TABLE 2
DISTRIBUTION OF POLYPOID SKIN MELANOMA AS TO LOCATION

Location	N	%
Face	16	10.9
Ear	1	0.7
Scalp	3	2.0
Neck	2	1.4
Schoulder	8	5.4
Back	42	28.6
Lower back	3	2.0
Chest	6	4.1
Abdomen	8	5.4
Upper arm	9	6.1
Lower arm	7	4.8
dctlparPalm	0	0.0
Upper leg	10	6.8
Lower leg	25	17.0
Foot	4	2.8
Unknown	3	2.0
Total	147	100.0

147 subjects were 20 to 90 years old, median age was 53 years and average 25±15 years.

Our study revealed higher frequency of polypoid melanomas in women (N=85; 57.8%) than in men (N=62; 42.2%). The most common localisation was on the back, lower limbs and on the face (Table 2).

Disease free period in 24 months is 31.2±5.8% and in 72 months 20.8±5.1% (Figure 8).

Discussion

Polypoid melanoma incidence in our research was 22.8% what fits into the polypoid melanoma incidence range as shown in the literature. Most authors who researched polypoid skin melanomas consider them a variant of nodular skin melanoma^{1,2,5-9}. McGovern et al. consider most polypoid skin melanomas as nodular histological type⁴. Redd et al. think that polypoid skin melanomas

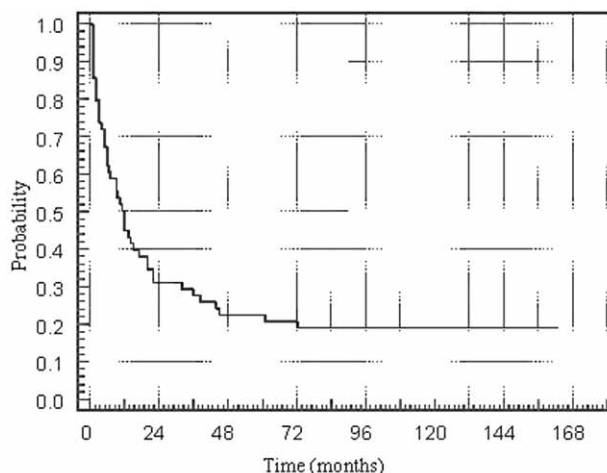


Fig. 8. Probability curve over time – entering a higher clinical stage. Probability curve of disease free survival.

are of superficially spreading and nodular histological types¹⁰. During our previous researches we have found that polypoid skin melanomas have morphological pattern of various histological melanoma types (LMM, SSM, NM) and that all of them can display vertical exophytic growth phase³. Analyzing histological types of polypoid skin melanomas in the examined group it has been established that polypoid skin melanomas can be of various histological types (NM 67.2%; SSM 28.6%; LMM 2,8%; ALM 1.4%). The incidence of various histological types of polypoid melanomas in the examined group of polypoid cutaneous melanomas is almost identical with the incidence of histological types of polypoid melanomas from our previous researches (NM 68.1%; SSM 25.5%; LMM 6.4%)³. It has been ascertained that polypoid skin melanomas are most often of nodular histological type. Other authors do not separately analyze histological types of polypoid skin melanomas. In our previous research we have found that polypoid melanomas could be of LMM histological type³. In this research we have for the first time been able to ascertain that polypoid melanomas could also be of ALM histological type.

Mean age in the investigated group of polypoid skin melanomas stated as the median age (Me=53 years ranging from 20 to 90 years) or as arhythmic mean (x±SD= 52±15 years) corresponds the mean age of polypoid skin melanomas in the examined groups found in the literature^{5,10,19,22}.

Sex distribution shows the prevalence of women (57.8%) in the examined polypoid skin melanoma group – which is identical with our previous researches of polypoid skin melanomas^{3,23}. In the polypoid skin melanoma group of other authors the prevalence is of men^{2,4,10,19,22}. Greater incidence of women in the examined group may represent the geographical influence on sex distribution in the examined group of polypoid skin melanomas.

Polypoid skin melanomas in the examined group are most often located on the trunk – like those in the exam-

ined polypoid melanoma groups of other researchers^{2,4,10,19,22}.

The probability curve of entering higher clinical stage of disease during the research in the examined polypoid skin melanoma group is similar to the probability curve of entering higher clinical stage of disease in our previ-

ous researches³ because both curves show that the probability of entering higher clinical stage of disease is approximately 80% in the period of 48 months^{3,31}. In the future, it will be interesting to investigate possible dermatoglyphs differences between patients with polypoid melanomas and those with endophytic ones³².

REFERENCES

- ROSENBERG L, GOLDSTEIN J, BEN-YAKAR Y, MAHLER D, Journal Dermatology Surgical Oncology, 7 (1981) 123. — 2. MANCI E, BALCH CM, MURAD TM, SOONG S-J, Am J Clin Pathol, 75 (1981) 810. — 3. KNEŽEVIĆ F, PETROVEČKI M, ŠEPAROVIĆ V, Croat Med J, 33 (1992) 220. — 4. MCGOVERN VJ, SHAW HM, MILTON GW, Histopathology, 7 (1983) 663. — 5. KIENE P, PETRES-DUNSCHE C, FÖLSTER-HOLST R, Br J of Dermatol, 133 (1995) 300. — 6. SOUTHERLAND CC JR, WASSERMAN JM, OSTAPCHUK AP, The Journal of Foot Surgery, 30 (1991) 72. — 7. PLOTNICK H, RAICHMANINOFF N, VANDENBERG HJ, J Am Acad Dermatol, 23 (1990) 880. — 8. MEGAHED M, HOFMANN U, FLÜR M, HÖLZLE E, Hautarzt, 44 (1993) 437. — 9. EGAHED M, HOFMANN M, SCHARFFETTER-KOCHANEK K, RUIZICKA T, Pathologie, 15 (1994) 350. — 10. REED KM, BRONSTEIN BR, MARTIN C, MIHM MC JR, SOBER AJ, Cancer, 57 (1986) 1201. — 11. Blakiston's Gould Medical Dictionary (McGraw-Hill, New York, 1979). — 12. SHAW HM, THOMPSON JF, Br J Dermatol, 135 (1996) 333. — 13. VOGLER WR, PERDUEGD, WILKINS SA JR, Surgery Gynecology & Obstetrics, 106 (1958) 586. — 14. FABRIZI G, MASSI G, B J Dermatol, 142 (2000) 128. — 15. KANG S, BARNHILL RL, GRAEME-COOK F, RANDOLPH G, NADOL JB, SOBER AJ, Am J Otol, 13 (1992) 194. — 16. BEARDMORE GL, QUINN RL, LITTLE JH, Pathology, 2 (1970) 277. — 17. SHAPIRO L, BODIAN EL, Arch Dermatol, 99 (1969) 49. — 18. NIVEN J, LUBIN J, Arch Dermatol, 111 (1975) 755. — 19. BEARDMORE GL, Australian Journal of Dermatology, 18 (1977) 73. — 20. SHAFIR R, DAVID E, SLUTZKI S, Arch Dermatol, 114 (1978) 626. — 21. KATO N, KIMURA K, SUGAWARA H, AOYAGI S, KONDO K, YAMISHIRO K, J Dermatol, 27 (2000) 769. — 22. SIMINOVITICH JMP, BERGFELD WF, DINNEN M, Ann Plast Surg, 5 (1980) 433. — 23. KNEŽEVIĆ F, PETROVEČKI M, ŠEPAROVIĆ V, Libri Oncologici, 23 (1994) 27. — 24. ŠVOB M, Histological and histochemical methods ŠIn CroatČ (Svjetlost, Sarajevo, 1974). — 25. COTRAN RS, KUMAR V, COLLINS T, Robbins pathologic basis of disease (WB Saunders Company, Philadelphia, 2005). — 26. CLARK WH JR, EDLER DE, VAN HORN M, Hum Pathol, 17 (1986) 443. — 27. MAIZE JC, AB ACKERMANN AB, Pigmentet lesions of the skin (Lea & Febiger, Philadelphia, 1987). — 28. ELDER DE LEVER'S, Histopathology of the skin (Lippincott Williams & Wilkins, Philadelphia, 2005). — 29. WF LEVER, G SCHAUMBERG-LEVER, Color atlas of histopathology of the skin (JB Lippincott Company, Philadelphia, 1988). — 30. CM BALCH, TM MURAD, S-J SOONG, AL INGALLS, NB HALPERN, WA MADDIX, Ann Surg, 188 (1978) 732. — 31. V DE GORGI, D MASSI, G GERLINI, F MANNONE, L QUERCIOLO, P CARLI Dermatol Surg, 29 (2003) 664. — 32. M RUDIĆ, J MILIČIĆ, D LETINIĆ Coll Antropol, 29 (2005) 1.

HISTOLOŠKI TIPOVI POLIPOIDNOG MELANOMA KOŽE II

SAŽETAK

Istraživanjem smo željeli utvrditi histološke tipove melanoma koji pokazuju kliničke i morfološke karakteristike polipoidnog melanoma. Kod 645 slučajeva primarnog melanoma kože analizirali smo kriterije za dijagnozu polipoidnog melanoma kože. Zatim smo kod svakog polipoidnog melanoma analizirali faze rasta, histološki tip atipičnih melanocita, broj epidermalnih izbojaka koji su zauzeti atipičnim melanocitima te distribuciju po dobi, spolu i lokalizaciji melanoma kao i slobodni period bez bolesti. Po kriterijima za dijagnozu polipoidnih melanoma našli smo 147 (22,8%) polipoidnih melanoma kože. Analizirajući faze rasta, histološki tip atipičnih melanocita i broj zahvaćenih epidermalnih izbojaka u skupini polipoidnih melanoma utvrđena su 2 (1,4%) ALM, 4 (2,8%) LMM, 42 (28,6%) SMM i 99 (67,2%) NM. Možemo zaključiti da svi histološki tipovi melanoma (AMM, LMM, SMM, NM) mogu ispoljiti polipoidni morfološki oblik. Polipoidni melanomi kože najčešće su nodularnog histološkog tipa.