

SAMPUS, MELTUMP and THIMUMP – Diagnostic Categories Characterized by Uncertain Biological Behavior

SAMPUS, MELTUMP a THIMUMP – diagnostické kategorie charakterizované nejistým biologickým chováním

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Summary

In the dermatopathological practice, there is a group of atypical melanocytic lesions with borderline histological features between benign simulants and malignant melanoma (MM), due to conflicting diagnostic criteria and inter-observer disagreement. In these cases, the dermatopathologist is authorized to seek consult with an established expert in the field, but even the most experienced specialist may not be sure about the correct diagnosis and the subsequent biological behavior. There is general consensus among qualified dermatopathologists that can be helpful to insert these ambiguous cases into two diagnostic categories: SAMPUS (Superficial Atypical Melanocytic Proliferations of Unknown Significance) and MELTUMP (MELanocytic Tumors of Uncertain Malignant Potential). According to the conception of MM progression through two phases, the radial growth phase and the vertical growth phase, it is possible to identify a novel subtype of thin melanoma (THIM) with uncertain metastatic potential, due to the presence of extensive regression ($\geq 75\%$ of the lesion volume), which we here define with the acronym THIMUMP (THIn Melanoma of Uncertain Metastatic Potential) for the first time in literature.

Key words

malignant melanoma – thin melanoma – histology

Souhrn

V dermatopatologické praxi existuje skupina atypických melanocytárních lézí s hraničními histologickými rysy mezi benigními lézemi, podobnými melanomu, a maligním melanomem (MM), při konfliktních diagnostických kritériích a při rozporech mezi jednotlivými vyšetřujícími. V těchto případech je dermatopatolog oprávněn konzultovat s odborníkem v oboru, ale ani nejzkušenější odborník si nemusí být jistý, zda byla stanovena správná diagnóza a následně biologické chování. Existuje obecná shoda mezi kvalifikovanými dermatopatolog, která může pomoci zařadit tyto nejasné případy do dvou diagnostických kategorií: SAMPUS (superficiální atypická melanocytární proliferace nejasného významu) a MELTUMP (melanocytární nádory nejistého maligního potenciálu). Podle koncepce dvoufázové progresse MM, fáze radiálního růstu a fáze vertikálního růstu, je možné identifikovat nový podtyp tenkého melanomu (THIM) s nejistým metastatickým potenciálem v důsledku přítomnosti rozsáhlé regrese ($\geq 75\%$ objemu lézí), které zde poprvé v literatuře definujeme pomocí zkratky THIMUMP (tenký melanom nejistého metastatického potenciálu).

Klíčová slova

maligní melanom – tenký melanom – histologie

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In the dermatopathological practice, there is a group of atypical melanocytic lesions with borderline histological features between benign simulants and malignant melanoma (MM), due to conflicting diagnostic criteria and inter-observer disagreement [1,2]. In these cases, the dermatopathologist is authorized to seek consult with an established expert in the field, but even the most experienced specialist may be not ensured about the correct diagnosis and the subsequent biological behavior [3]. There is general consensus among qualified dermatopathologists that can be helpful to insert these ambiguous cases into two diagnostic categories: SAMPUS (Superficial Atypical Melanocytic Proliferations of Unknown Significance) and MELTUMP (MELanocytic Tumors of Uncertain Malignant Potential) [2,4]. However, some authors have criticized the descriptive provisional value of these diagnostic categories, related to the use of uncertain terminology; therefore, the terms are not universally accepted [5,6]. All primary MMs with a Breslow's depth ≤ 1 mm are defined as thin melanomas (THIMs), while those > 1 mm as thick melanomas [7,8]. According to the conception of MM progression through two phases [9], the radial growth phase (RGP) and the vertical growth phase (VGP), it is possible to identify a novel subtype of THIM with uncertain metastatic potential, due to the presence of extensive regression ($\geq 75\%$ of the lesion volume), which we define with the acronym THIMUMP (THIn Melanoma of Uncertain Metastatic Potential) for the first time in literature.

SAMPUS

SAMPUS category includes ≤ 1 mm thick lesions, in which the distinction lies between *in situ* or THIM and non-tumorigenic epidermal, junctional and/or papillary dermal melanocytic proliferations, such as atypical solar lentigo, junctional or superficial compound dysplastic nevus, pigmented spindle cell nevus of Reed. In these cases, mitoses and tumorigenic dermal growth are absent and, consequently, the lesion is not associated with competence for metastases. The prognosis is excellent and

a wide excision is the curative treatment of choice; if the lesion is not excised, it locally persists and it may evolve towards a frank malignant lesion [1,10].

MELTUMP

MELTUMP category includes dermal melanocytic proliferations > 1 mm in depth that exhibit ill-defined features indicative of possible malignancy, potentially capable of metastatic events, such as atypical Spitz nevus, also designated as Spitz Tumor with Uncertain Malignant Potential (STUMP), pigmented spindle cell nevus with dermal atypia, minimal deviation MM, pigmented epithelioid melanocytoma, atypical blue nevi, dysplastic nevi with dermal atypia, some deep penetrating nevus [1,10]. It is a provisional diagnosis since a definitive diagnosis is not possible at initial presentation, and a long-term clinical follow-up is the only true evidence, in order to clarify its biological behavior. In fact, in these cases, a diagnosis of tumorigenic MM cannot be excluded, due to the presence of increased mitotic activity and cytologic atypia; for this reason, an expert evaluation and an aggressive management with a wide excision, suited for a possible MM, are required, including sentinel lymph node biopsy (SLNB) [1,10]. The above mentioned histological and behavioral ambiguities also reflect molecular aberrations [11], suggesting that these tumors represent a biological entity apart from conventional MM and melanocytic nevus.

THIMUMP

As already stated, two phases of MM growth are scientifically recognized: RGP and VGP. Following this conception, THIM may be classified into three subtypes.

I. Non-metastasizing THIM in RGP (≤ 1 mm in depth): the lesion is characterized by invasion of papillary dermis; there is no evidence of proliferation or tumor node formation; mitoses and regression are absent; a wide excision is the curative treatment of choice, exactly as for SAMPUS; SLNB is not indicated [12–14].

II. Metastasizing THIM in VGP (≤ 1 mm in depth): the lesion is associated with a statistical chance for distant metasta-

ses; a dominant expansive tumor nest of 25–50 cells, largest than any nest within the epidermis, is present in the papillary dermis; mitoses are observable and should be enumerated, employing the “hot spot” method; a wide excision and SLNB are mandatory [15–17].

III. THIM of uncertain metastasizing potential (≤ 1 mm in depth): the lesion is characterized by extensive regression ($\geq 75\%$ of the tumor volume); it is burdened by a significant risk for metastasis, due to the presence of regression, which could contain a VGP clone; a wide excision is mandatory and SLNB is recommended [18,19].

In conclusion, the diagnostic categories here illustrated, even if characterized by an uncertain biological behavior, allow to identify risk categories, which deserve a radical and careful patient management.

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