

One Step Melanoma Surgery for Patient with Thick Primary Melanomas: "To Break the Rules, You Must First Master Them!"

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Abstract

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BACKGROUND: We present to the attention of the medical, dermatological and oncosurgical community data that serves to indicate the indispensability of optimisation of the algorithm and recommendations for diagnosis and surgical treatment of cutaneous melanoma. These recommendations could be referred to different subgroups of patients in different clinical stages as well as to patients with different initial characterisation (histological morphology) of the primary tumours. One step surgery is not a myth, even more, it could prove to be one of the best solutions for some patient collectives with advanced stages of melanoma.

CASE REPORT: We present a case of a 74 - year old patient with a congenital medium sized melanocytic nevus, located directly above the lateral part of the elbow joint. In one month and a half, an achromatic nodular formation evolves with a diameter of 2.7 x 2.3 cm, prominent over the skin level, painful by palpation and spontaneously bleeding. By the anamnestic, clinical and dermoscopic findings the patient was diagnosed with nodular melanoma associated with a congenital medium sized melanocytic nevus. A primary excision with a field of safety 0.5 cm in all directions was performed. After confirmation of the primary diagnosis (tumour thickness 8 mm with no ultrasonographic detection of enlarged lymph nodes), seven days later a re-excision was performed with an additional field of surgical safety of 1.5 cm in all directions.

CONCLUSIONS: In this case remains unclear the following question: For what reason a preoperative high - frequent ultrasonography (HFUS) is not recommended to be used as it will allow only one surgical excision with the elimination of a tumour with a safety field of 2cm in all directions? The enigma about the obstacles preventing such a rational optimisation of the current diagnostic and therapeutic algorithm in patients with melanomas remains unresolved. One step surgery for cutaneous melanoma is widely used in many countries although it continues to be considered as a matter of dispute for some experts. Once again, by a clinical case and the following analysis, we would like to focus the attention of the dermatosurgical community on this crucial and highly significant problem. Innovations are very often resulting from the simplicity of logic, which unfortunately is not always accepted appropriately.

Introduction

Congenital melanocytic nevi (CMN) are benign proliferations of cutaneous melanocytic cells with incidence rate around 1% of the newborn infants [1]. They are composed of melanocytes which are grouped in focal nests in the epidermis, dermis or other tissues [2]. The definition "congenital" is expanded to melanocytic nevi that have occurred 6 months to 2 years after birth, according to different authors who explain this late occurrence with the insufficient melanogenesis or the extremely small size of the nevus postpartum [3]. Clinical classification of CMN is based on their size as following: small nevi

(greatest diameter less than 1.5 cm); medium nevi (greatest diameter between 1.5 - 19.9cm) and giant nevi (diameter 20 cm or more) [4]. The most important concern related to the CMN is their malignancy potential [5]. There are many investigations that serve to evaluate the risk of malignant transformation, and at the current stage of knowledge, it is proven that the larger size of the lesion is associated with a significantly higher risk of malignant melanoma development [6]. The estimated lifetime risk for evolution in melanoma is a matter of controversies, but conforming to most of the reported medical data it is approximately 5%, depending on the size of the primary lesion (1 - 5% for small CMN, to 5 - 10% for giant GMN) [7].

There are several main problematic points in the management of patients with congenital melanocytic nevi: 1) The lack of organized and well - functioning centers for dermabrasio threatening of children in their first weeks to months after birth (concerning mainly giant congenital nevi) [8]; 2) The lack of well - trained dermatopathologists, who can quickly and accurately distinguish pseudomelanomas in infants from true melanomas (pseudomelanomas are dysplastic nevi, which in most cases are congenital small melanocytic nevi that are clinical, dermoscopically and histologically difficult for differentiating from real melanomas) [9][10]; 3) The lack of determination to more aggressive approach when it refers to medium sized melanocytic nevi, which are showing tendency of enhanced malignancy risk associated with increased age [11].

Last but not least, it should be taken into account the reluctance of some dermatologists to perform a preventive surgical resection of medium-sized congenital nevi, due to their insufficient competency level (national observations).

To establish the widespread so-called confocal laser microscopy, it is appropriate the following important facts be presented: 1.) Diagnosis melanoma is based on a clinical examination in 60% of the cases and up to 25% it is based on dermoscopic findings. In only 15% of the cases, confocal laser microscopy can give some clarity for the genesis of the lesions and whether they have to be surgically eliminated [13][14]. 2) Confocal microscopy has its limitations in certain areas of the human body [15][16][17][18].

Additionally, it has been found that the multifactorial genesis of melanomas, particularly in patients with dysplastic nevi syndrome shows various genetic mutations within a single patient, but also in every single lesion [19][20]. In simple terms, different nevi whether dysplastic or not, show diverse tendency and speed of nevus – to - melanoma evolving within the life of each patient. This means that two congenital or dysplastic nevi which seem to have completely identical clinical, dermoscopic, confocal - microscopic and even histological appearance, show entirely different malignisation tendency within an equal period in the same patient. It is interesting to be noted that the mutation analysis of several nevi in one patient shows significant differences [21][22][23]. This leads us to the conclusion that the personalisation of the medicine, in general, is inevitable even though it is still hard to achieve it by now. This particular reasoning underlay the logical statement that algorithms and high technologies could provide some advantages in the treatment of skin tumours, but they could by no means be equivalent or even a percentile equivalent of human logic. Melanoma guidelines suffer from lack of case – by - case personalisation and this leads to an inability of optimising the ultimate results.

Case report

A 74 – year - old female patient presented to the department of dermatologic surgery because of a nodular lesion with signs of malignancy, evolved within the borders of middle-sized congenital nevus. The lesion is located in the lateral brachial region of the right arm and has occurred one month and a half ago. The patient noticed rapidly increase in size and regular spontaneous bleeding. Local pruritus, pain and paresthesia were reported as additional subjective complaints.



Figure 1: Clinical manifestation of nodular melanoma associated with congenital medium sized melanocytic nevus with Breslow thickness 8 mm, located in the lateral brachial region of the right arm of a 74 - year old patient

Clinical examination observed brown pigmented macula with a diameter of 6.3 x 4.1cm, irregular borders and uneven distribution of colour. On approximately half of its size, an elevated nodule with diameter 2.7 x 2.3 cm, asymmetrical shape, dark red colour and irregular borders with central bleeding erosion is situated (Figure 1).



Figure 2: Preoperative surgical skin marking with 0.5cm filed for safety in all directions



Figure 3: Elliptical surgical excision of the lesion under local anaesthesia

No enlarged lymphatic nodes were identified by palpation. Conducted paraclinical examinations revealed elevated ESR – 52 mm/h (< 39 mm/h); WBC – 12.01 / μ l (3.5 - 10.5 / μ l); Neu – 8.990 μ l (1.900 - 7.900 μ l); GGT – 43 U/l (6.00 – 40 U/l); CRP – 5.70 mg/l (< 5 mg/l). Chest radiography detected poorly expressed emphysematous and fibrous changes.



Figure 4: Elliptical surgical excision of the lesion under local anaesthesia

The right paracardial and basal regions are showing linear non homogenous infiltrative changes probably due to small pleural effusion or adhesions. Normal cardiac silhouette was found.



Figure 5: Wound closure with simple interrupted sutures

Ultrasound examination did not detect any axillar, cervical or inguinal enlarged lymphatic nodes. The liver was no focal changes, sharp borders and homogenous structure. The lesion was removed by surgical excision under local anaesthesia, with 0.5 cm field of safety margins in all directions (Figure 2 - 5).



Figure 6: Preoperative surgical skin marking of the re-excision with 1.5 cm field for safety in all directions

Histological examination of the cutaneous lesion revealed nodular malignant melanoma with tumour thickness 8mm (Breslow), Clark IV, with no signs of spontaneous regression, high mitotic activity, epidermal erosion, insignificant lymphocytic stromal reaction and clear resection margins.



Figure 7: Wide elliptical surgical re-excision under local anaesthesia

The patient was diagnosed in stage IIC and underwent reoperation with 1.5 cm field of safety (Figure 6 - 9). Afterwards was referred for registration in oncologic dispensary for regular monitoring.



Figure 8: Wide elliptical surgical re-excision under local anaesthesia

Discussion

In the era of so-called personalised medicine, the current solutions for diagnosis and treatment of various diseases often are and should be challenged.

There are numerous factors that motivate the nation - following of certain guidelines but taking individual decisions for the therapeutic approach of a patient instead. Malignant melanoma should be considered as one of the most illustrative examples of such a non - standard model.



Figure 9: Wound closure with simple interrupted sutures

Critical reviews of the standard surgical treatment should not surprise the so-called experts because of four main facts and circumstances, as follows:

1) In the controversy with the great medical progress, we observe that even though pathogenesis of melanoma is multifactorial, the therapy is often (considered 2 years later) identical, regardless of the newly introduced target therapies.

2) It is unclear why melanomas over 8mm or 16mm do not evolve locoregional or distant metastases compared to significantly thinner melanomas, which show high metastatic tendency and extremely aggressive potential [24][25].

3) Rapidly changing therapeutic strategies for treatment of melanoma indicate a serious deficiency of orientation and a kind of helplessness among the medical community towards this never-ending problem.

4) Medical centres have different access possibilities which are reflecting in diverse approaches to patients in general. Why OMICS analyses are available for certain collectives, and not for others? Isn't this some high - tech personalised medicine which is available for a limited number and types of patients?

All these facts lead our minds to the logical question concerning not the difficulty of the pathogenesis or the target therapy, but the significantly more simplified surgical treatment: Isn't there any possibility for alleviation of the surgical treatment and reduction in the number of therapeutic interventions as well as the chances of incorrect assessment of the preoperative status? It is a simple question whether these factors can be somehow limited? And we believe that the answer is - definitely YES!

By the presented case, we would like to express our critical view regarding the lack of any individual approach in the recommendations of melanoma treatment in Europe, the US and worldwide

at least for some collectives of patients. In the case of our patient two medium - sized surgical interventions were performed with a favourable outcome despite the initial 8 mm tumour thickness. In cases of melanoma, over 4 mm and no locoregional metastases a sentinel lymph node biopsy and lymphadenectomy are not recommended. Re - excisions, however, are. An open question remains - why in this initially clear clinical and dermoscopic case, guidelines do not recommend preoperative HFUS for detecting of the tumour thickness? Then, depending on the ultrasonographically measured thickness, only one single surgical excision could be performed?! In less thick melanomas this approach would lead to primary excision of the lesion with or without a sentinel lymph node biopsy at once, in a single surgical session. The surgical field of safety would be 1 cm or 2 cm in all directions, depending on whether the ultimately established thickness of the tumor is under or more than 2 cm [26]. This approach would be limited in cases of achromatic melanomas so they should be excluded from the category of tumors appropriated for this strategy. A possibility for their inclusion in the one - step melanoma surgery would be the use of confocal microscopy and/or cytological analysis in combination with immunohistochemical methods [27][28].

Although this concept would be considered as "frivolous" by many experts, the number of reduced surgical interventions and the optimization of the approach, in general, would lead to 1) Reduction of healthcare costs, 2) Limited possibilities of different mistakes by the therapists and patients (occurring between the two surgical interventions) and as an ultimate and most important outcome - 3) Long-term survival of the affected patient collectives would be expected.

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