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Case report of nodular melanoma within congenital melanocytic nevus- primary closure challenge



Domagoj Eljuga*, Ivan Milas, Iva Kirac, Mladen Stanec, Danko Velimir Vrdoljak

Department for Oncoplastic and Reconstructive Surgery, University Hospital for Tumors, Illica 197, 10 000 Zagreb, Croatia

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ABSTRACT

INTRODUCTION: Congenital melanocytic nevi (CMN) are present in 1–2% of newborn infants. The size of CMN defines the risk of developing melanoma which is estimated from 5–10%, especially in lesions that are located across the spine.

PRESENTATION OF CASE: Herein we report a case where nodular melanoma was discovered on the periphery of medium sized CMN in a high risk patient. After complete excision, the defect was reconstructed with random pattern, triple rhomboid flap.

DISCUSSION: Melanoma that arose within medium sized CMN would leave a complex posterior lower trunk defect. We used a triple Limberg flap which was proven to be straightforward and simple method when large defects are to be covered with vital tissue. We have also showed that this type of reconstruction is suitable for high risk patients that could not withstand any complex procedures.

CONCLUSION: In our case, the method we choose to reconstruct the defect proved to be simple, safe and easy, especially when surgery is performed in a high risk patient.

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1. Introduction

This case has been reported in line with the CARE criteria [1]. Congenital melanocytic nevi (CMN) are present in 1–2% of newborn infants. They result from a proliferation of benign melanocytes in the dermis, epidermis, or both. They typically affect the trunk and proximal parts of the limbs, scalp, and neck, but may involve any other skin surface. The pigmentation of nevi can range from tan to dark brown and depends on concentration and kind of melanin. The histological characteristics may be heterogeneous within single nevus [2]. Congenital melanocytic nevi are usually classified by size. There are several different classifications and the most often used is the classification of congenital melanocytic nevi proposed by Krenzel et al., in which CMN are categorized in four groups according to size [3–6].

The size of CMN defines the risk of developing melanoma. Small and medium sized CMN have a very small risk, usually under 1%. Melanoma is more likely to develop in giant congenital nevi where lifetime estimated risk is from 5–10%, particularly in lesions that are located across the spine or in case of multiple satellite lesions [7–11].

In this case we will present a patient with nodular melanoma that was discovered on the periphery of medium sized CMN. After

complete excision, the defect was reconstructed with random pattern, triple rhomboid flap that was originally designed by Limberg [12].

2. Case presentation

Our patient is 72 years old male that had a long history of alcohol dependence. Five years ago he developed liver cirrhosis and one year before presentation to our Department, he was implanted a pacemaker. He was born with medium sized congenital nevus that was positioned in the midline posterior trunk area. The size of a nevus was 8 × 15 cm (Fig. 1). During life he did not attend regular checkups. Initial consultation was made with a dermatologist after he noticed a nodule in the upper part of a CMN. He was appointed to prompt surgical excision of the lesion and final pathological examination verified that it was nodular melanoma with ulceration, Clark IV, Breslow IV, with 4.9 mm thickness. The mitotic rate was 6 mitosis/mm².

After complete diagnostic evaluation, patient was admitted to our hospital for further treatment. He was planned for reexcision of a cicatrix from previous surgery with a 2 cm margins and one SLNB in each inguinal region. Due to other possible satellites within CMN and patient's wishes we planned a total removal of congenital nevus in a single stage. Due to comorbidities and potential prolonged operative time with any other reconstructive option, we decided to perform a versatile local flap, triple Limberg flap.

* Corresponding author.

E-mail addresses: domagoj@poliklinika-eljuga.hr, deljuga@gmail.com (D. Eljuga), imilas.dr@gmail.com (I. Milas), suncobran@gmail.com (I. Kirac), mstanec@net.hr (M. Stanec), danko.velimir.vrdoljak@kbcsm.hr (D.V. Vrdoljak).

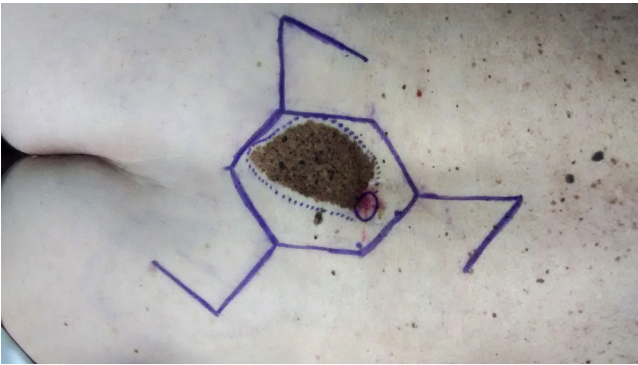


Fig. 1. CMN after excision of nodular melanoma.



Fig. 2. Triple Limberg flap—no tension closure.



Fig. 3. Follow up after 6 months.

2.1. Operative technique

The patient was positioned in a prone position. The markings were done according to Limberg proposition of a rhomboid flap. We used a triple Limberg flap with margins around previously excised melanoma to be at least 2 cm. Surgical margins around CMN were minimum of 0.5 cm and on some parts 2 cm or more. Skin incisions were performed on a triple Limberg pattern to the fascia with preservation of large caliber perforators that were seen

while undermining the flap. The defect was closed without tension (Fig. 2). Negative suction drainage was administered. Prophylactic antibiotics were used. The wound healed with a minor area of demarcation on one part of the flap but healed spontaneously without any need for surgical intervention. After 2 weeks sutures were removed. Final pathological evaluation confirmed free margins, no other melanoma sites were confirmed, and both sentinel nodes in inguinal region were free of tumor cells. In the 6 months follow up period, there was no major or minor complication and the procedure achieved high patient reported satisfaction rate.

3. Discussion

Due to many comorbidities, our patient was categorized as a high risk, ASA III patient. This fact was crucial when decision was made to perform a procedure that has to be fast and simple, oncologically safe and aesthetically satisfactory.

In this case, melanoma that arose within medium sized CMN would leave a complex posterior lower trunk defect. Defects like that continue to present a challenge to the plastic surgeon. Numerous techniques for trunk repair have been described. In the last decade, pedicled and free perforator flaps are becoming more popular in reconstructive surgery, mainly due to understanding of a vascularity of skin territories and minimal morbidity. For those reasons, many surgeons decide to use perforator flaps that can reach this area, which can be more or less complex operative procedures. Probably the best option in regard of perforator surgery are lumbar or subcostal perforator flaps if decision would be in taking tissue from upper part of the defect or SGA perforator flap if taking tissue from lower part of defect [14]. Also, there are some other more complex options, like reversed LD flap based on segmental distribution of vascularization. All before mentioned options are excellent but require prolonged operative time which could not be safely tolerated by our patient. Therefore, we had to choose an option that is fast and reliable. Traditional methods of wound closure using wide undermining of skin flaps and closure under tension are no longer advocated for trunk reconstruction because of high failure rates. Random pattern flaps seemed like a best option for this patient. When the decision has been made to proceed with a local skin flap, exact planning is crucial in order to provide tension free closure. Because we used random pattern skin vascularization, there was no need for preoperative Doppler evaluation or angio CT/MRI what would have to be necessary if pedicled or free flap was planned.

Reconstruction of soft tissue defects using a triple Limberg flap is straightforward and simple method when large defects are to be covered with vital tissue.

Usually there are three types of random soft-tissue flaps and by modification of their advancement, rotation or transposition, many defects can be properly reconstructed. Each design modification changes the angle of rotation, the amount of tissue moved, the distribution of tension, and the orientation of the final scar. Limberg flap is a series of communicating equilateral triangles. All angles are 60° , which means that every side of both the defect and the flap is equal in length. This orientation creates a flap that is the same size as the defect to be excised [13]. In this case, we accomplished satisfactory end result and we have also showed that this type of reconstruction is suitable for high risk patients that could not withstand any complex procedures. This reconstructive option guarantees high patient satisfaction rate because it leaves no or minor donor site morbidity and no functional impairment as it could be the case with other reconstructive options. In well-chosen cases, this method can give results that are comparable to complex defect reconstruction methods. This kind of procedure can be performed in any surgical department, especially where microsurgical procedures are not standardly performed.

In conclusion, the ideal technique to reconstruct the defect should be simple, safe and easy to perform in order to provide vascularized tissue with long-term durable coverage which was all accomplished in our case (Fig. 3).

Conflict of interests

No conflict of interests.

Funding

Nothing to declare.

Ethical approval

Ethical approval is unnecessary for this case report.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Author contribution

Eljuga Domagoj—preparing manuscript text, Milas Ivan—preparing manuscript text, Kirac Iva-taking photos Stanec Mladen—helping in review writing, Vrdoljak Velimir Danko—final interpretation.

Guarantor

Domagoj Eljuga.

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