

BRIEF ARTICLE

Eruptive Melanocytic Nevi Secondary to Chemotherapy in a Pediatric Patient a Case Report

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ABSTRACT

Introduction: Eruptive Melanocytic Nevi (EMN) is an uncommon skin manifestation of either skin trauma, immunosuppression due to internal disease, or pharmacotherapy. As the use of biological therapy increases and new chemotherapy regimens form, there is potential for an increase in the incidence of EMN.

Case Report: In the case described in this study, a 9-year-old boy presents with EMN, which formed during his chemotherapy treatment for acute lymphoblastic leukemia (ALL). He completed treatment with a relatively new chemotherapy regimen, which was associated with EMN in one prior study. Since the completion of treatment in 2020, the nevi have remained stable and have not developed any gross or dermoscopic features concerning for malignancy.

Discussion: There has not been enough wide-scale research conducted on EMN secondary to chemotherapy to confidently say if these nevi are at a higher risk of malignancy than typical melanocytic nevi. For this reason, current recommendations are to monitor patients with EMN for malignancy closely throughout their lifetime. This case means to increase awareness and understanding of this rare chemotherapy reaction, and potentially contribute to future decision making regarding the management of EMN.

INTRODUCTION

Eruptive Melanocytic Nevi (EMN) are benign groupings of brown-black nevi that appear spontaneously, typically due to skin trauma or immunosuppression. Recent studies have distinguished these two scenarios, with some researchers believing they may follow different clinical courses¹. A 2016 study defined medication associated EMN as the following: “development of at least one of the following over a 6-month period associated with the use of medications: (1) more than five melanocytic nevi on palmoplantar

surfaces at any age, (2) more than ten melanocytic nevi body-wide outside of puberty and pregnancy, (3) more than 20 nevi during puberty or pregnancy.”²

Medication associated EMN can be further classified by which agents led to the outbreak – biologic therapy or chemotherapy. The incidence of EMN secondary to chemotherapy is thought to be low but is difficult to determine due to potential underreporting³. Due to the low number of reports in literature, there are still many questions about this condition left unanswered. Mainly, the question of whether

these lesions lead to an increased risk of malignant transformation when compared to standard melanocytic nevi. Because most available studies describe the lesions as having benign features, the currently accepted treatment plan is close surveillance with or without histologic examination⁴. Our case describes chronic, stable EMN in a 9-year-old boy following completion of the Children's Oncology Group protocol AALL0932 chemotherapy regimen. By describing another case of EMN secondary to chemotherapy, we hope to further the medical community's understanding of this condition.

CASE REPORT

The patient is a 9-year-old male who presented with his mother with twelve dark nevi, located on his palms and soles (**Figure 1 and 2**). He is currently in remission for acute lymphoblastic leukemia. He was diagnosed with ALL in November 2016 and treated with a combination of methotrexate, mercaptopurine, vincristine, and dexamethasone until February 2020. (**Figure 3**) Per the patient's mother, these nevi appeared towards the end of his chemotherapy treatment. The nevi have been stable in size and number since that time.

On physical exam, the patient was alert, well-developed, and not in any acute distress. The patient was a Fitzpatrick skin type III. Regular dark brown macules with no signs of gross atypia were noted on the patient's palmar and plantar surfaces. On the trunk and extremities, several smaller benign appearing nevi were noted. Dermoscopy of the acral sites showed pigmentation along the ridges while dermoscopy of the nevi on the patient's trunk and extremities showed a symmetrical reticular network.

The patient has been seen twice since his initial visit, at intervals of 6 months with no changes noted on physical exam. Due to the benign gross and dermoscopic features of the nevi and the context of presenting during chemotherapy treatment, a histologic exam was not completed. This presentation is most consistent with eruptive melanocytic nevi. This patient will continue to return for close surveillance of these lesions moving forward.

DISCUSSION

Multiple cases of Eruptive Melanocytic Nevi have been reported in association with renal transplant, Crohn's disease, blistering diseases, etc. Due to this pattern noted in research, EMN are thought to appear following skin trauma or because of immunosuppression¹. Though cases of eruptive melanocytic nevi are somewhat increasing with the increased use of biologic medications, there are still not many reports of EMN occurring secondary to chemotherapy.

In this case, the patient completed the Children's Oncology Group protocol AALL0932 chemotherapy regimen, which consists of mercaptopurine, methotrexate, vincristine, and dexamethasone. Per literature review, there has been a single reported case of EMN secondary to this regimen⁵. Both cases describe pediatric male patients receiving the same chemotherapy regimen for ALL, both patients developed EMN during their treatment course, and the nevi on both patients exhibited benign features. In the older case, the nevi were located on the dorsum of the feet bilaterally while in our case the nevi were found on the patient's palmoplantar surfaces. Our case follows the patient after the completion of their chemotherapy regimen while the older



Figure 1. Multiple melanocytic nevi noted on the plantar surface of the patient's feet, bilaterally.



Figure 2. Multiple melanocytic nevi noted on the palmar surface of the patient's left hand.

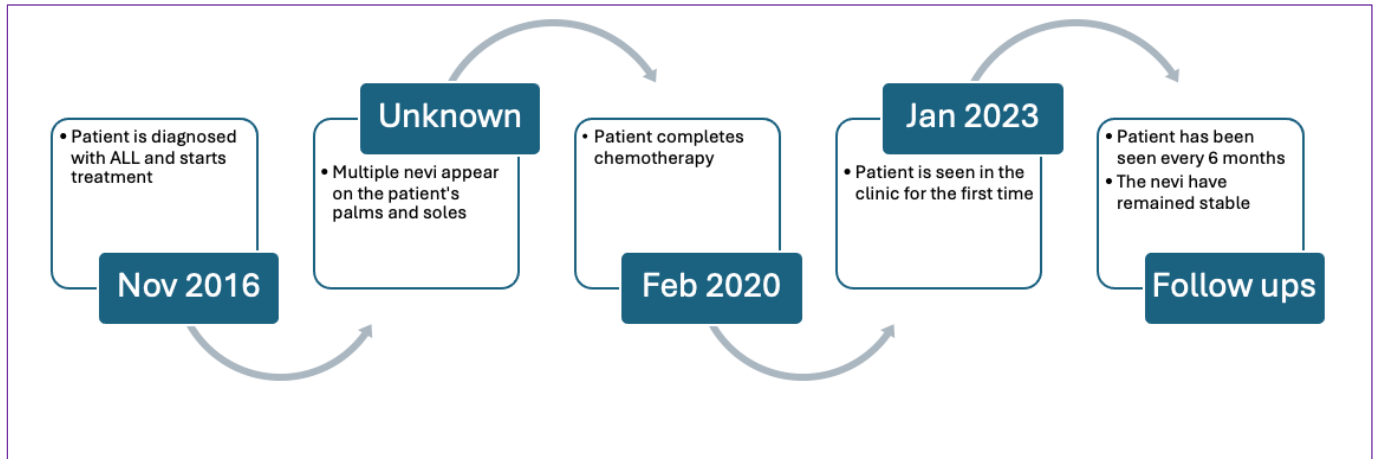


Figure 3. A timeline of the onset and clinical course of this patient's condition.

study follows the patient as they are still undergoing chemotherapy. Following the patient for years after chemotherapy treatment provides further information regarding the course of the condition.

An important research question to consider regarding disease course is the potential for malignant transformation of these nevi compared to standard melanocytic nevi. Previous studies have shown that patients receiving immunosuppressive therapies are more likely to develop dermoscopic changes of their nevi and that these patients are more likely to develop other skin abnormalities. However, these changes are not always malignant, and the risk of immunosuppressed patients developing a dermatologic malignancy compared to control subjects has not been determined. Regular skin checks and continued surveillance of the nevi are suggested for this reason^{4,6}. In our case, the patient's nevi did not change in size or number and did not develop gross or dermoscopic atypia since his development of the nevi in 2020. This case can provide insight into the progression of this condition to help guide future management decisions. We encourage others to report their experience with this reaction as well, so that larger studies about this topic can be conducted. A long-term

prospective study may be especially helpful in understanding the relationship between EMN and the development of malignant melanoma, if any.

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