Nevi and pregnancy

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Learning objectives
After completing this learning activity, participants should be able to distinguish physiologic versus worrisome changes in pigmented lesions of pregnant women; describe a biopsy protocol that is safe for pregnant patients; and list the methods for prevention and treatment of pigmentary changes during pregnancy, including melasma.

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Changes in the moles of pregnant women are frequently attributed to pregnancy, but recent studies suggest that pregnancy does not induce significant physiologic changes in nevi. It is common for nevi on the breasts and abdomen to grow with normal skin expansion, but studies that have examined melanocytic nevi on the backs or lower extremities have found no significant changes in size during pregnancy. Several studies have also investigated the belief that moles darken during pregnancy and have found insufficient evidence to support this idea. Dermoscopically, transient changes have been identified, but none are suggestive of melanoma. Results vary in terms of histologic changes seen in samples taken from pregnant women, but all authors agree that any histopathologic features consistent with melanoma should be viewed as melanoma and not attributed to pregnancy. Biopsy specimens should be obtained promptly from any changing mole that would raise concern for malignancy in a nonpregnant patient. Such procedures can be performed safely during pregnancy. (J Am Acad Dermatol 2016;75:661-6.)

Key words: biopsy; dermoscopy; histopathology; melanoma; mole; nevi; pregnancy.

INTRODUCTION

During pregnancy, increased levels of beta and alfa melanocyte-stimulating hormone, estrogen, progesterone, and beta-endorphin are thought to cause increased melanocyte stimulation and therefore hyperpigmentation.[1] The molecular pathways are not well understood, but the altered hormonal state of pregnancy may have distinct effects on melanocytic nevi.[2] Older literature has given rise to the popular belief that melanocytic nevi darken and grow during pregnancy in response to hormonal changes.[3-5] As such, changes in the moles of pregnant women are frequently attributed to pregnancy and are dismissed outright as benign.[6] More recent studies, however, suggest that pregnancy itself does not induce significant changes in nevi. We review the relevant literature regarding melanocytic nevi during pregnancy and clarify best practice when presented with a changing mole in a pregnant patient.

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NEVI DURING PREGNANCY

Many reports have described changing nevi during pregnancy, but many of these are based on patients' own observations rather than objective criteria.[7-10] In an early study by Sanchez et al,[11] 389 pregnant women were interviewed about their moles. More than 10% reported some type of change, including an increase in size and pigmentation, new onset of pruritus and pain, the development of new lesions, hair growth in existing lesions, or crust formation. Although the study did not measure the reported changes, biopsy specimens were obtained from 20 of these lesions and no cytologic atypia were found in any of the specimens. In another early study by Foucar et al,[8] 33% of interviewed pregnant women reported changes in their moles. When examined, the majority of the lesions reported as changing were not melanocytic nevi but rather dermatofibromas and skin tags. One was actually found to be an attached tick. Biopsy specimens were obtained from 7 of the lesions, including those most concerning to the patients. These lesions were less likely to show atypia than lesions that patients did not report as having changed. These studies show the design fallacy of many of the historical studies examining this issue that have shaped the literature.

In recent years, several studies have sought to objectively determine what changes physiologically occur during pregnancy and what should be recognized as pathologic (Tables I and II). Patients with "dysplastic" nevus syndrome have been shown to have a significantly higher rate of nevi change during pregnancy, and are discussed under a separate heading.[12] For patients without dysplastic nevus syndrome or atypical mole syndrome, we have assessed those studies and grouped the findings across 4 categories: changes in size, changes in color, dermoscopic appearance, and histologic appearance.

Patients with dysplastic nevus syndrome

Key point

- **Clinical and histologic changes in nevi during pregnancy may occur in patients with dysplastic nevus syndrome**

Only 1 study has specifically reviewed the effects of pregnancy on the moles of patients with dysplastic nevus syndrome.[12] Seventeen women with dysplastic nevus syndrome were followed during 22 pregnancies and when they were not pregnant, serving as their own controls. Of the 17 women included, 76% were observed to have clinical changes in nevi, substantially higher than the patient-reported changes published by Sanchez et al[11] and Foucar et al[8] for women without dysplastic nevus syndrome. In addition, the rate of clinical change in these women was 3.9 times higher when they were pregnant than when they were not. When biopsy specimens were obtained from these lesions during pregnancy, they were twice as likely to show histologic dysplastic changes.

Changes in size

Key points

- **Changes in the size of nevi most often occur on the front of the body, likely because of stretching of the skin during pregnancy**
- **Nevi on locations unaffected by skin stretching during pregnancy have not been shown to change significantly in size**

When assessing nevi for changes in size, the most important factor to consider is location. In 1 study, 97 nevi measured from 56 pregnant women showed a statistically significant increased diameter from the first to the third trimesters.[13] Of the 20 nevi that grew, 10 were located on the front of the body, 6 on the face and neck, 3 on the legs, and 1 on the back. The degree of enlargement was most significant for lesions on the front of the body. The authors concluded that the normal stretching and expansion of the skin of the breasts and abdomen might explain much of the growth seen in nevi during pregnancy. In support of this conclusion, another study examined changes in 56 nevi between the second and third trimesters and found that changes in size were most appreciable for lesions on the abdomen and breasts but not elsewhere.[14] In the aforementioned study by Sanchez et al,[11] more lesions on the trunk were reported to have changed than in other locations.

To control for the effect of skin expansion during pregnancy, several studies have examined lesions exclusively in unaffected anatomic locations (Table I). One large study examined 129 lesions on the backs of pregnant white women.[15] Of these, 8 were found to have changed in size—4 increased in diameter and 4 decreased in diameter. Overall, the mean change in size was 0 mm. The authors were unable to identify any risk factors for odds of changing given the small number of lesions. They did note that smaller nevi (2 mm in diameter) were more likely to expand, while larger nevi (>6 mm in diameter) were no more likely to increase than decrease in diameter. Other studies that have examined melanocytic nevi on the backs or lower extremities of pregnant women have also found no significant changes in size over the course of pregnancy.[7,16,17]