

Changes in Anatomic Distribution of Melanoma: Clinical Implications

The anatomic distribution of melanoma in both women and men has changed over the last 30 years.

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Both the incidence of melanoma and its common anatomic distribution can vary with time in a particular population, most likely due to socioeconomic and lifestyle changes of the group. Consider that in the latter part of the nineteenth century in the United States, tanned skin signified that one spent a great deal of time out of doors as a laborer. Individuals of “higher status” carefully guarded against sun exposure to maintain pristine skin. By contrast, the opposite can hold true today, with tanned skin signifying leisure and perhaps privilege. Furthermore, differences in anatomic distribution between men and women have been noted.

While numerous factors may influence the anatomic location of melanoma, exposure to UV and other exogenous factors are known to contribute. Differences in fashion and leisure/occupational sun exposure between men and women may account for some variability in anatomic distribution of melanoma between the sexes. Given shifting trends, we anticipate that exposure and associated risk will also change. In light of these anticipated shifts, researchers recently examined the anatomic distribution of melanoma in 2004 compared to the 1970s.¹

Anatomic Location Trends

While the results of this study¹ are based only on one academic center and warrant further study to deter-

mine if they apply more generally to melanoma patients in the US, findings provide some evidence of a change in the anatomic distribution of melanoma in the past 30 years and confirm differences in distribution based on sex. Based on evaluation of 152 patients seen at the University of Pennsylvania in 2004, researchers determined that men have a higher relative risk of developing melanoma on the head and neck compared to women. The team compared findings from the 2004 cohort with those from 397 patients seen at the clinic from 1972 to 1977. In the 1970s men had higher odds of developing melanoma on the upper back, chest, and abdomen while women had higher odds of developing melanoma on the upper and lower extremities, especially the lower legs and feet.

Compared to the 1970s, women in 2004 had a decreased relative risk of developing melanoma on the lower legs but greater odds of developing melanoma on the trunk. Odds of developing a melanoma on the chest had also increased among women since the 1970s. The odds of developing melanoma on the lower legs increased for men since the 1970s.

Anatomic Location and Pathways

Anatomic location may be of some prognostic value for cutaneous melanoma.² This may relate to underlying disease pathways associated with development of melanoma at certain anatomic sites. To help determine whether melanoma develop at different sites via divergent pathways,

New In Your Practice

In-D-eterminant. Although the tanning industry often says UV exposure is a necessary source of vitamin D, results of a recent study show the connection might not be so clear (*Journal of Clinical Endocrinology & Metabolism*). Researchers found that in many people, vitamin D levels can remain low despite abundant exposure to sunlight. Participants in the study had a mean of 11.1 hours per week of total body skin exposure with no sunscreen used. Despite this abundant sun exposure, 51 percent of these individuals were found to have low vitamin D levels.

Consistent Even in Inconsistency. For physicians who routinely deal with issues of compliance, there’s promising news: data suggest that an atopic dermatitis cream remains effective even when patients don’t maintain consistent use. Coria Laboratories recently announced results of a study finding that Cloderm (clocortolone pivalate 0.1%) Cream, is effective in spite of poor patient compliance. All patients had significant response to treatment, with an overall improvement in the severity index of 47.7 percent, a 31.6 percent reduction in investigator global assessment, and a reduction in target lesion score of 43.7 percent. Using monitoring technology, the study found that, while self-reported adherence ranged from one to 97 percent, actual compliance ranged from 18 to 100 percent.

researchers prospectively followed a total 152,949 women and 25,204 men for up to 14 years.³ All subjects were cancer-free at baseline.

The study shows a higher risk for melanoma of the head and neck for men compared with women. Researchers also found increased risk for melanoma spread to the trunk for men. Analysis of 511 incident cases of invasive melanoma revealed that history of painful sunburns was most strongly associated with melanoma of the upper extremity. Patients with 10 or more burns had nearly a seven-fold increase in risk for developing melanoma of the upper extremity compared to individuals with no burns.


For melanoma of the trunk, number of moles seems to be the strongest indicator of risk. Multivariate relative risk for melanoma of the trunk was 4.67 among individuals with 10 or more moles compared with those having no moles. There was no statistically significant association between age, family history, or hair color and anatomic distribution of melanoma. Previous research has also associated high melanocytic nevi counts with increased risk for developing melanoma in both men and women.⁴ That study determined that both melanocytic nevi and melanoma were more prevalent on the lower extremities in women and the trunk in men.

Implications for Patient Counseling

The change in anatomic distribution of melanoma from the 1970s to the present may indeed relate to changes in fashion and associated UV exposure over time. The last half of last century saw more widespread adoption of shorts in various leisure settings by men and the prevalence of open necklines and off-the-shoulder fashions for women. Not surprisingly, data show

that history of sunburn appears to be the strongest single risk factor associated with melanoma development at many of the anatomic sites now demonstrating increased risk of involvement. Such findings simply confirm the need for use of adequate sun protection by patients on a daily basis. In addition, patients should consider sun protective materials and fashions.

The trunk is one anatomic site where number of moles is more closely related to risk of melanoma than is history of sunburn. Given that men have been shown to be at increased risk of melanoma of the trunk compared to women, patient monitoring has perhaps emphasized this risk more

so than for women. However, women demonstrate increasing risk for developing melanoma of the trunk now compared to the 1970s. This finding can have important implications for monitoring of patients in the office and demonstrates the need to educate all patients in the proper conduct of a full skin self-exam. 

1. Clark LN, Shin DB, Troxel AB, Khan S, Sober AJ, Ming ME. Association between the anatomic distribution of melanoma and sex. *J Am Acad Dermatol.* 2007 May;56(5):768-73.

2. Homsí J, Kashani-Sabet M, Messina JL, Daud A. Cutaneous melanoma: prognostic factors. *Cancer Control.* 2005 Oct;12(4):223-9.

3. Cho E, Rosner BA, Colditz GA. Risk factors for melanoma by body site. *Cancer Epidemiol Biomarkers Prev.* 2005 May;14(5):1241

4. Kruger S, et al. Epidemiologic evidence for the role of melanocytic nevi as risk markers and direct precursors of cutaneous malignant melanoma. Results of a case control study in melanoma patients and nonmelanoma control subjects. *J Am Acad Dermatol.* 1992 Jun;26(6):920-6.