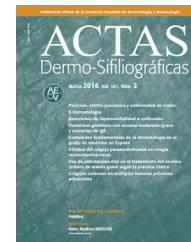




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## RESIDENT'S FORUM

### RF-Acral Melanoma and Repetitive Injury to the Sole of the Foot<sup>☆</sup>



### FR-Traumatismos repetitivos y melanoma acral plantar

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#### KEYWORDS

Foot melanoma;  
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#### PALABRAS CLAVE

Melanoma acral;  
Melanoma del pie;  
Etiopatogenia del melanoma

Although exposure to the sun is recognized as the principal factor in the genesis of melanoma, this tumor also arises in areas of the skin not generally exposed to the sun, as is the case in acral lentiginous melanoma of the sole, in which the role of UV radiation would appear insignificant.

Acral melanomas account for 2% of all melanomas (1.5% for plantar acral melanoma), with an incidence of approx-

imately 1.8 cases per million population, and they appear to present a poorer prognosis than melanomas at other sites. This finding seems to be related to a later diagnosis, although molecular biology studies have shown higher rates of mutation of *c-kit* in this subtype of melanoma.<sup>1</sup>

Several elements unrelated to exposure to the sun have been identified as risk factors significantly associated with the appearance of plantar acral melanoma, in particular a history of deep penetrating wounds in the sole of the foot,<sup>2</sup> exposure to agricultural chemical agents,<sup>2</sup> drinking alcohol, and a body mass index over 25.<sup>1</sup>

Important genetic alterations include amplifications in chromosome region 11q3, with overexpression of gene *CCND1*,<sup>3</sup> which predominates over mutations in *BRAF*, common in sun-induced melanomas and almost absent in the acral form.

The possible role of recurrent trauma to the sole of the foot has also been implicated in the development of these lesions, as the incidence of plantar acral melanoma has been reported to be higher in those areas that bear greater pressure when standing or walking.<sup>4</sup>

In June 2016, Minagawa et al.<sup>5</sup> published an interesting article on this subject in the *New England Journal of Medicine*. They retrospectively analyzed the site of the tumor on the sole of the foot of 123 patients with plantar acral melanoma. Fifty lesions were situated on the heel and 32 on the forefoot, compared with 14 in the midfoot area that made contact with the ground and only 3 in the arch (not in contact with the ground). They found no significant

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differences in the mean Breslow thickness of the lesions in each area. As can be seen, the large majority of plantar acral melanomas (82) were located in the areas of the sole that bear greatest pressure (heel and forefoot), and particularly interesting is the very small number of lesions (3) arising in the arch, an area subject to almost no pressure or trauma. The relationship between pressure and recurrent trauma in some areas of the sole and the development of plantar acral melanoma in these areas is thus more clearly demonstrated.

## References

1. Durbec F, Martin L, Derancourt C, Grange F. Melanoma of the hand and foot: Epidemiological, prognostic and genetic features. A systematic review. *Br J Dermatol*. 2012;166:727–39.
2. Green A, McCredie M, MacKie R, Giles G, Young P, Morton C, et al. A case-control study of melanomas of the soles and palms (Australia and Scotland). *Cancer Causes Control*. 1999;10:21–5.
3. Chang JW. Acral melanoma: A unique disease in Asia. *JAMA Dermatol*. 2013;149:1272–3.
4. Jung HJ, Kweon SS, Lee JB, Lee SC, Yun SJ. A clinicopathological analysis of 177 acral melanomas in Koreans: Relevance of spreading pattern and physical stress. *JAMA Dermatol*. 2013;149:1281–8.
5. Minagawa A, Omodaka T, Okuyama R. Melanomas and mechanical stress points on the plantar surface of the foot. *N Engl J Med*. 2016;374:2404–6.