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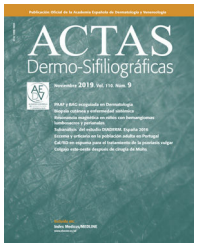

CASE AND RESEARCH LETTER

Melanoma Detection Patterns and Their Association With Breslow Thickness: The Dermatologist's Role

Los patrones de detección del melanoma se relacionan con el espesor de Breslow: el papel del dermatólogo

To the Editor,

Despite representing only 4% of skin cancers, cutaneous melanoma (CM) accounts for more than 80% of skin cancer-related deaths.[1] Prognosis is impacted by Breslow thickness (BT), which determines the T category in the AJCC TNM classification.[2] CM can be detected during a routine skin examination.[3] However, many of them are still diagnosed with a high BT.

This study aims to compare BT based on the individual who initially detects the CM (patient, relative, general practitioner (GP), dermatologist, or other medical specialists). Associations between detection groups and clinical, epidemiological, and histological features were analyzed as well.

We conducted a cross-sectional multicenter study in Galicia (Spain) predominantly including a white population. CMs diagnosed from 2021 through 2022 were included. Data were drawn from the Galician Melanoma Registry, including demographic, clinical, histological, and genetic variables. Evaluations were conducted by specially trained dermatologists using a detailed questionnaire (Appendix A). The study was approved by the Pontevedra-Vigo-Ourense ethics committee with Code No. 2023/023.

Data analysis was performed using SPSS software (29.0.2.0 version). P values = 0.05 were considered statistically significant (Supplementary data).

A total of 928 CMs were reported from 2021 through 2022, with their characteristics being shown in Table 1. The individual detecting the melanoma was recorded in 685 cases: most CMs were detected by the patient (255; 37.2%), followed by the dermatologist (232; 33.9%), relatives (114; 16.6%), the patient's GP (63; 9.2%), and other medical specialists (21; 3.1%).

Major statistical differences were reported among melanoma detection groups: dermatologists identified melanomas with the lowest BT. In the self-detection group patients were younger, with a higher percentage of women, and a higher level of education. The most common location was the lower limbs and the most common subtype was nodular melanoma. Results are shown in Table 2, including a post-hoc analysis.

In our study, 37.2% of melanomas were self-detected, which is consistent with a recent work reporting a 30.4% self-detection rate.[4] In contrast, former studies, such as the one conducted Avilés-Izquierdo et al. reported a 53% self-detection rate.[5] The lower rate in our study may reflect the older mean age of our sample, underscoring the importance of promoting early detection in this high-risk group.

Dermatologists identified melanomas with the lowest BT, while those detected by patients or relatives were thicker. Former studies reported thinner BT in melanomas identified by dermatologists vs. other professionals,[5–7] though most were published 20 years ago. Our study, being more recent, may better represent current dermatological clinical practice.

Patients who self-detected melanoma were younger vs. those identified by a relative or their GP. Additionally, patients whose melanoma was detected by dermatologists were also younger than those identified by GPs. As far as we know, this relationship has not been previously studied. Moreover, older patients tend to exhibit thicker melanomas,[5,8] which reinforces the importance of educating this population on self-examination and promoting regular checks by relatives and GPs.

Women self-detected melanoma more frequently than men did, as previously reported.[5] Additionally, male sex has been associated with thicker melanomas at diagnosis.[5,8,9] These data highlight the need to raise awareness among men about regular self-examination.

College education was associated with increased self-detection, whereas those with lower educational levels relied more on their relatives or GPs. Although this relationship has not been previously studied, it is consistent with findings of thicker BT in patients with lower educational levels.[8] This underscores the need for accessible dermatological care across all socioeconomic groups to ensure timely detection and intervention. However, the association between education and self-detection should be interpreted

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Table 1 Characteristics of patients and melanomas in the entire study group ($n = 928$).

Characteristics	Results N (%)
No. of patients	928 (100.0)
Age, mean (SD), years	66.2 (±16.5)
Sex	
Male	372 (40.1)
Female	556 (59.9)
Education level	
Primary or less	293 (49.5)
Secondary	80 (13.5)
PE	70 (11.8)
University	149 (25.2)
Total	592 (100)
*LV**	336
Anatomic site	
Face and neck	179 (21)
Scalp	13 (1.5)
Anterior trunk	76 (8.9)
Posterior trunk	236 (27.6)
Upper limbs	
Right	57 (6.7)
Left	76 (8.9)
Lower limbs	
Right	67 (7.8)
Left	105 (12.3)
Acral	
Palmar	3 (0.4)
Plantar	23 (2.7)
Finger nails	14 (1.6)
External genitalia	2 (0.2)
Mucosae	3 (0.4)
Total	854 (100)
*LV**	74
Breslow thickness, mm	
Median	0.9
Percentiles	
25	0.4
50	0.9
75	2.5
Total	626
*LV**	302
Histological type	
Infiltrating melanoma	615 (69)
Melanoma in situ	278 (31)
Total	893 (100)
*LV**	35
Histological subtype	
SSM	390 (44.5)
SSM in situ	111 (12.7)
NM	85 (9.7)
ALM	33 (3.8)
ALM in situ	9 (1)
LMM	70 (8)
LM in situ	114 (13)
Spitzoid melanoma	1 (0.1)
Nevoid melanoma	4 (0.5)
Desmoplastic melanoma	2 (0.2)
Other	9 (1)
Other in situ	13 (1.5)
Not classified	13 (1.5)
Not classified in situ	23 (2.6)
Total	877 (100)
*LV**	51

PE: professional education; SSM: superficial spreading melanoma; NM: nodular melanoma; ALM: acral lentiginous melanoma; LMM: lentigo maligna melanoma; SD: standard deviation.

* Lost values.

with caution, as younger individuals are usually better educated, which may act as a confounding factor.

Melanomas detected by dermatologists and relatives were more commonly located on the posterior trunk, whereas self-detected melanomas were more common on the lower limbs, which is consistent with former studies.[5,9] It has been demonstrated that melanomas in less visible areas tend to have greater BT,[5] highlighting the importance of thorough skin examinations by dermatologists and general practitioners, and educating patients on checking less visible areas.

Histologic subtype also influenced detection, with nodular melanomas more likely to be self-diagnosed, while melanoma in situ, lentigo maligna, and superficial spreading melanoma were predominantly identified by dermatologists. This is consistent with former studies,[6,8,9] and may be due to the more rapid growth and symptoms of nodular melanoma, which make it easier for patients to detect these.[10]

The strengths of our study include its multicenter design and prospective data collection. Limitations include its retrospective statistical analysis, reduced precision due to the weighted mean for BT, non-mandatory reporting in the public health registry, and potential data collection challenges during the COVID-19 pandemic.

In conclusion, our study provides novel insights into melanoma detection, revealing that younger patients and those with higher educational levels are more proactive in self-detection, which happen to be findings not previously reported. While dermatologists detect melanomas with the lowest BT, they assess only a small percentage of the population. It is crucial to ensure GPs are trained to identify suspicious lesions and have proper referral pathways to dermatologists. Educational campaigns targeting high-risk groups – such as men, older adults, and individuals with lower educational levels – focusing on promoting regular self-examination can enhance outcomes as an effective strategy for secondary prevention.

Table 2 Analysis of clinical, histologic, and prognostic variables based on the individual who detected the melanoma.

Characteristics	Patient *N* (%)	Relative *N* (%)	General practitioner *N* (%)	Dermatologist *N* (%)	Other medical specialists *N* (%)	*P* value	Post-hoc analysis
No. of patients (*n* = 685)	255 (37.2)	114 (16.6)	63 (9.2)	232 (33.9)	21 (3.1)		
Age, mean (SD), years	61.74 (16.02)	72.18 (16.10)	70.84 (14.75)	64.93 (17.13)	69.05 (16.50)	<0.001	- Patient vs. relative (61.74 ± 16.02 vs. 72.18 ± 16.10; *P* < 0.001). - Patient vs. general practitioner (61.74 ± 16.02 vs. 70.84 ± 14.75; *P* = 0.001). - Dermatologist vs. relative (64.93 ± 17.13 vs. 72.18 ± 16.10; *P* = 0.001). - Breslow thickness increased significantly with patient age (*r* = 0.241).
Sex						0.023	- Self-detection, women vs. men (41.6% vs. 31%; *P* = 0.023). - Breslow thickness, women vs. men (1.81 ± 2.62 vs. 2.30 ± 3.02; *P* = 0.040).
Male (n = 281)	87 (31)	48 (17.1)	33 (11.7)	101 (35.9)	12 (4.3)		
Female (n = 404)	168 (41.6)	66 (16.3)	30 (7.4)	131 (32.4)	9 (2.2)		
Education level						<0.001	- Self-detection, university education vs. primary education or less (44.8% vs. 30.9%; *P* < 0.001). - Relatives, university education vs. primary education or less (5.5% vs. 11.9%; *P* < 0.001).
Primary or less (n = 285)	88 (30.9)	71 (24.9)	34 (11.9)	78 (27.4)	14 (4.9)		
Secondary (n = 78)	25 (32.1)	14 (17.9)	3 (3.8)	32 (41)	4 (5.1)		
PE (n = 67)	29 (43.3)	7 (10.4)	4 (6)	27 (40.3)	0 (0)		
University (n = 145)	65 (44.8)	15 (10.3)	8 (5.5)	57 (39.3)	0 (0)		
Anatomic site						<0.001	- Posterior trunk, dermatologist vs. patient (34.1% vs. 20.2%; *P* < 0.05). - Posterior trunk, other medical specialists vs. patient (52.6% vs. 20.2%; *P* < 0.05). - Lower limbs, patient vs. relative (17.8% vs. 6.7%; *P* < 0.05).
Face and neck (n = 112)	35 (31.2)	20 (17.8)	10 (8.9)	46 (41.1)	1 (0,1)		
Scalp (n = 11)	3 (27.3)	2 (18.2)	3 (27.3)	2 (18.2)	0 (0)		
Anterior trunk (n = 65)	32 (49.2)	6 (9.2)	5 (7.7)	20 (30.8)	2 (3.1)		
Posterior trunk (n = 188)	49 (26.1)	35 (18.6)	20 (10.6)	74 (39.4)	10 (5.3)		
Upper limbs							

Table 2 (*Continued*)

Characteristics	Patient *N* (%)	Relative *N* (%)	General practitioner *N* (%)	Dermatologist *N* (%)	Other medical specialists *N* (%)	*P* value	Post-hoc analysis
Right (*n* = 44)	15 (34.1)	8 (18.2)	2 (4.5)	19 (43.2)	0 (0)		
Left (*n* = 59)	26 (44.1)	11 (18.6)	6 (10.2)	15 (25.4)	1 (1.7)		
Lower limbs							
Right (*n* = 47)	26 (55.3)	9 (19.2)	4 (8.5)	8 (17)	0 (0)		
Left (*n* = 85)	43 (50.6)	7 (8.2)	6 (7.1)	29 (34.1)	0 (0)		
Acral							
Palmar (*n* = 1)	0 (0)	1 (100)	0 (0)	0 (0)	0 (0)		
Plantar (*n* = 17)	8 (47.1)	3 (17.6)	1 (5.9)	3 (17.6)	2 (11.8)		
Finger nails (n = 10)	5 (50)	1 (10)	1 (10)	1 (10)	2 (20)		
External genitalia (n = 1)	0 (0)	0 (0)	0 (0)	0 (0)	1 (100)		
Breslow thickness, mm (median, interquartile range)	3 (1–8.75)	5 (3–9.5)	1 (1–2.5)	0 (0–1)	6 (0.5–6.5)	<0.001	- Dermatologist vs. patient (0 [0–1] vs. 3 [1–8.75]; *P* = 0.001). - Dermatologist vs. relative (0 [0–1] vs. 3 [3–9.50]; *P* < 0.001).
Histological subtype						<0.001	- Patient: NM > Melanoma in situ (LM, MES, unspecified subtype) (*P* < 0.05). - Relatives: NM/LMM > Melanoma in situ (SSM subtype) (*P* < 0.05). - Dermatologist: ○ Melanoma in situ (any histological subtype) > NM/SSM/ALM (*P* < 0.05). ○ LMM/MES > NM (*P* < 0.05). ○ ALM > NM/SSM/LMM (*P* < 0.05).
SSM (n = 296)	121 (40.9)	51 (17.2)	33 (11.1)	84 (28.4)	7 (2.4)		
SSM in situ (n = 87)	28 (32.2)	4 (4.6)	10 (11.5)	45 (51.7)	0 (0)		
NM (n = 59)	36 (61)	15 (25.4)	2 (3.4)	4 (6.8)	2 (3.4)		
ALM (n = 21)	7 (33.3)	4 (19)	2 (9.5)	2 (9.5)	6 (28.6)		
ALM in situ (n = 11)	2 (40)	2 (40)	0 (0)	1 (20)	0 (0)		
LMM (n = 57)	18 (31.6)	13 (22.8)	7 (12.3)	18 (31.6)	1 (1.8)		
LM in situ (n = 76)	20 (26.3)	9 (11.8)	3 (3.9)	44 (57.9)	0 (0)		
Spitzoid melanoma (n = 1)	1 (100)	0 (0)	0 (0)	0 (0)	0 (0)		
Nevoid melanoma (n = 3)	2 (66.7)	0 (0)	0 (0)	1 (33.3)	0 (0)		
Desmoplastic melanoma (n = 1)	1 (100)	0 (0)	0 (0)	0 (0)	0 (0)		
Other (n = 5)	4 (80)	1 (20)	0 (0)	0 (0)	0 (0)		
Other in situ (n = 11)	0 (0)	0 (0)	1 (9.1)	9 (81.8)	1 (9.1)		
Not classified (n = 10)	2 (20)	4 (40)	2 (20)	1 (10)	1 (10)		
Not classified in situ (n = 22)	4 (18.2)	2 (9.1)	0 (0)	14 (63.6)	2 (9.1)		

PE: professional education; SSM: superficial spreading melanoma; NM: nodular melanoma; ALM: acral lentiginous melanoma; LMM: lentigo maligna melanoma; SD: standard deviation.
Variations in total number of patients in each category are due to missing data.

Conflict of interest

The authors declare that they have no conflict of interest.

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Appendix A. Supplementary data

Supplementary data associated with this article can be found in the online version available at https://doi.org/10.1016/j.ad.2025.02.026.

Appendix C. Galician Melanoma Group

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