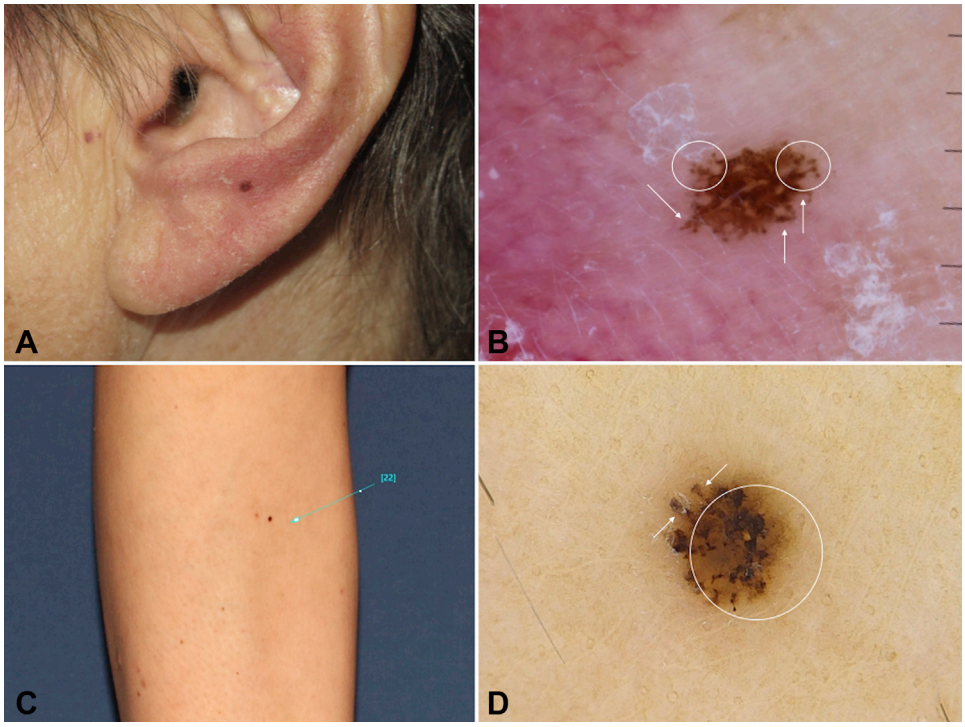

Fig 1. A, Melanoma in situ. Clinical aspect of a 2-mm-diameter melanoma in situ on the ear of an 85-year-old woman. **B,** In dermoscopy, it shows a structureless pattern, irregular pseudopods/radial streaks (arrows), and irregular dots/globules (circles). **C,** Melanoma in situ. Clinical aspect of a 2-mm melanoma in situ on the leg of a 28-year-old woman. **D,** The dermoscopic image depicts a structureless pattern, irregular pseudopods/radial streaks (arrows), and irregular hyperpigmented areas (circle).

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Re-evaluating the ABCD criteria using a consecutive series of melanomas

To the Editor: The ABCD mnemonic describes clinical features of melanoma including asymmetry, border irregularity, color variation, and diameter of more than 6 mm.[1] Prior validation studies used lesion photographs taken because of a clinician's suspicion for melanoma, possibly excluding clinically subtle lesions, including amelanotic melanomas. These criteria were defined before the widespread use of

dermoscopy and may reflect differences in lesions detected currently. In our practice, all lesions are photographed before biopsy, allowing us to evaluate the ABCDs using a consecutive series of melanoma images.

We retrospectively reviewed 290 consecutive cases of primary cutaneous melanomas diagnosed within the University of Pittsburgh Dermatology Department from January 2014 through July 2016. Three unblinded dermatologists independently assessed photographs for ABC criteria. Diameter greater than 6 mm, when unavailable from the electronic medical record, was assessed by the evaluating dermatologists using photographs and surrounding landmarks. The dermatologists also categorized each melanoma as melanotic or amelanotic. Final readings were based on a consensus of 2 of 3 dermatologists.

Among the melanomas, 159 (54.8%) were in situ, and 131 (45.2%) were invasive. The median Breslow thickness was 0.55 mm (interquartile range: 0.4-1.0 mm). The prevalence of each ABCD characteristic was 85%, 85%, 71%, and 60%, respectively. With 1 point assigned per criterion, most melanomas scored 3 (38%) or 4 (41%) (Table I). Higher ABCD scores were not associated with method of detection, melanoma type or thickness, or pigmented versus amelanotic melanomas (Table II). Evaluating dermatologists clinically classified 13 (4.5%) melanomas as amelanotic, 6 of which were invasive with a median Breslow thickness of 1 mm (interquartile range: 0.3-1.8). Amelanotic melanomas did not differ significantly in ABCD features compared to other melanomas within our sample.

Our study is unusual in that, by selecting consecutive cases from pathology reports, we included amelanotic lesions and those for which the clinician had low suspicion for malignancy. We found that more melanomas in our population exhibited the A, B, and C criteria but not D, compared to Thomas et al[2] who, in 1988, reported the presence of the ABCD characteristics as 57%, 57%, 65%, and 90%, respectively, in their population. Thomas et al did not report tumor thickness, so it is not possible to know if thickness partially accounts for these discrepancies. Additionally, compared to this older study, our biopsied lesions differed because all clinicians used dermoscopy, which likely influenced some biopsy decisions.

Overall, 40% of the melanomas in our sample had a diameter of 6 mm or greater, consistent with more recent studies.[3] We agree with other authors that diameter should be used in combination with other characteristics when determining clinical suspicion.[4]

Table I. Patients, detection, and melanoma characteristics

Characteristics	n (%)
Patient characteristics	
Median age (IQR)	63 (51-72)
Female sex	129 (44.5)
Initial detection characteristics	
Patient	141 (49)
Physician	147 (51)
Melanoma type	
In situ	159 (54.8)
Invasive	131 (45.2)
Ulceration present	13 (4.5)
Amelanotic melanomas	13 (4.5)
Presence of ABCD features	
Asymmetry in 1 or more axis	239 (85.4)
Border irregularity	241 (85.5)
2 or more colors	205 (70.7)
Black color	74 (25.5)
Pink or red color	78 (26.9)
Diameter of >6 mm	171 (59.8)
ABCD score (n = 272)	
0	13 (4.8)
1	15 (5.5)
2	29 (10.7)
3	103 (37.9)
4	112 (41.2)
Invasive melanomas (n = 131)	
Median Breslow thickness (IQR)	0.55 (0.4-1.0)
Subtype	
Superficial spreading	98 (74.2)
Lentigo maligna	13 (9.9)
Nodular	10 (7.6)
Nevoid	7 (5.3)
Other	4 (3.0)
Amelanotic melanomas (n = 13)	
In situ	7 (53.8)
Invasive	6 (46.2)
Median Breslow thickness (IQR)	1 (0.3-1.8)
Asymmetry in 1 or more axis	3 (23)
Border irregularity	10 (77)
Presence of 2 or more colors	7 (54)
Diameter of >6 mm	7 (54)

IQR, Interquartile range.

A strength of our study is the evaluation of lesions by 3 independent dermatologists. Additionally, our approach enabled us to estimate the prevalence of clinically amelanotic melanomas at 4.5%, aligning with published population estimates of 2%-8%.[5] Limitations include the exclusion of the evolution criterion because of the retrospective methodology and the use of unblinded dermatologists, which may have influenced lesion assessments, including the estimated diameter measurements. As we reviewed the ABCDs in this postdermoscopy era, we acknowledge the utility of the ABCD criteria but note a

Table II. Melanoma characteristics with ABCD scores of <2 versus ≥2

Characteristics	ABCD < 2 (n = 28), n (%)	ABCD ≥ 2 (n = 244), n (%)	*P* Value
Initial detection			
Physician detected	11 (8.0)	126 (92.0)	.273
Patient detected	16 (12.0)	117 (88.0)	
Melanoma type			
In situ	11 (7.5)	136 (92.5)	.098
Invasive	17 (13.6)	108 (86.4)	
Breslow thickness, mm			
<0.8	23 (9.8)	211 (90.2)	.564
≥0.8	5 (13.2)	33 (86.8)	
Pigmentation			
Amelanotic melanomas	2 (16.7)	10 (83.3)	.361
Pigmented melanomas	26 (10.1)	231 (89.9)	

greater prevalence of melanomas under 6 mm in diameter.

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Efficacy of staged excision with permanent section margin control for melanoma in situ

To the Editor: Treatment of melanoma in situ (MIS) with staged excision has been shown to result in better margin control and lower recurrence rates than wide local excision. The aim of this study was to review our institution's experience with staged excision of MIS and document the margins required for clearance.

We performed a retrospective review of all patients with MIS treated with staged excision from 2014 through 2019 at our institution. The square procedure, as described by Johnson et al,[1] was performed in all cases. The tissue was processed as a formalin-fixed permanent section and analyzed by a dermatopathologist with en face sectioning of circumferential peripheral margins. The first stage was excised with a 5-mm margin around clinically visible tumor, with subsequent stages excised by adding an additional 5 mm to positive margins. Once all peripheral margins were clear (no histologically visible tumor at en face margin), excision of the remaining central tissue (biopsy site and surrounding intact skin) was submitted for vertical sectioning, followed by immediate reconstruction. Any patient with a melanoma less than 50% sampled by initial biopsy underwent a completion biopsy for staging before treatment. A total of 342 cases were reviewed. Three of these cases were found to have an invasive component after the central debulking procedure and were therefore excluded from analysis. The average patient age was 65 years (range, 20-96 years), and the male-to-female ratio was 1.4:1. The majority of cases performed were on the head and neck and were further subdivided into nose (n = 13), ear (n = 12), periocular (n = 11), scalp (n = 14), and other head and neck (n = 120). Further anatomic sites evaluated included the trunk (n = 53), upper extremities excluding hands/feet (n = 56), lower extremities excluding hands/feet (n = 41), and hands/feet (n = 19).