A tiny invasive melanoma: a case report with dermatoscopy and dermatopathology

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We present a case of an early invasive melanoma (Breslow thickness 0.25 mm), 1.6 mm in diameter on the arm of a 38-year-old woman. She was under surveillance due to having multiple (>100) nevi, and the melanoma was assessed as a new lesion by the examining doctor. Clinically the lesion was hyperpigmented compared with surrounding nevi and dermatoscopically it had a clue of pseudopods/lines radial, but they were arranged in an arguably symmetrical circumferential pattern around a structureless blue-gray center. Generally melanomas are expected to be dermatoscopically asymmetrical, but we believe that this case illustrates the fact that small melanomas may be recognized by clues such as pseudopods/lines radial and dermatoscopic gray even when they have not yet developed unequivocal asymmetry.

ABSTRACT

Introduction

The diagnosis of melanomas smaller than 4 mm presents difficulties because the clinical and dermatoscopic features of small melanomas have been reported infrequently.

Case report

A 38-year-old Australian-born woman of Italian descent, with Fitzpatrick type 4 skin, presented for a routine yearly skin examination. She was examined with a Heine Delta 20 dermatoscope (Heine, Optotechnic GmbH, Herrsching, Germany) and had been having total body photography with a Molemax Dermdoc video monitoring system (Derma Medical Systems, Austria). In previous years some pigmented lesions (PSLs) had been observed to change with symmetrical growth of peripheral clods. These were deemed to be maturing nevi and had not been excised. One pigmented skin lesion had been excised in 2007 and was reported by the pathologist to be an irritated dysplastic nevus.

At this visit in May 2012, a new lesion was detected on the left arm (Figure 1A). Clinically it was noted to be darker than surrounding PSLs and dermatoscopically pseudopods and radial lines were arranged circumferentially around a
structureless blue-gray center (Figure 1B); the radial lines were arguably symmetrically distributed, appearing in all quadrants of the periphery while being less clearly defined and sparser in one quadrant. This lesion was new at mature age (evolving), which raised suspicion for malignancy despite the lesion’s small size and equivocal symmetry [1]. The lesion was subjected to excision biopsy and dermatopathologic assessment (Figure 2 composite) showed a small, but asymmetric, nested and single cell proliferation of atypical melanocytes along the dermoepidermal junction with scattered single cell intraepithelial upward spread. There was limited extension into the papillary dermis to a depth of 0.25 mm. Superficial dermal melanosis and inflammation were present along with mild fibroplasia, suggesting a component of regression to a depth of 0.35 mm. In spite of the dermatoscopic appearance of lines radial circumferential, there were no spitzoid features dermatopathologically. The diagnosis of early level 2 malignant melanoma of superficial spreading type was rendered. Physical examination revealed no evidence of lymphatic or systemic metastasis and the patient will have routine clinical and dermatoscopic surveillance in accordance with current guidelines [2].

Discussion

A proportion of melanomas have been found not to fit the D criterion of the ABCD acronym, where D stands for a diameter of 6 mm or greater. Such small melanomas have a reported frequency of 11.4-38.2% of all melanomas [3-6]. One review in particular, published in 2004, found that small melanomas include less than 1 to 38% of all invasive melanomas [1] and it recommended that the ABCD acronym be modified to ABCDE with “E” to stand for “evolving.”

Previously the dermatoscopic features of an in-situ melanoma with a diameter of 1.6 mm were reported [7]. Published dermatoscopy images revealed that even at this minute size there was unequivocal asymmetry of structure and the presence of the dermatoscopic clue to melanoma of gray dots. It satisfied the criteria for malignancy of the 3-point checklist [8], the Menzies method [9] and Chaos and Clues [10]. Teng et al reported the dermatoscopic features of an in-situ melanoma with a diameter of 2 mm [11]. A published dermatoscopy image revealed unequivocal asymmetry of both color and structure with some lines radial segmental and blue-gray structures.

In the case that we report, the lesion was noted to be hyperpigmented compared to surrounding PSLs. One previous study reported that intensity of dark pigmentation was the defining clinical characteristic in each of 13 (including 5 invasive) small melanomas (<4 mm diameter) in a series of 95 melanomas [5], although this may in fact be due to selection bias as minute dark melanomas are more likely to be noticed and assessed in compari-
son to small pale melanomas which may be present but not
detected. The case reported here, unlike the two previously
reported smallest in-situ melanomas \[7,11\] did not exhibit
unequivocal dermatoscopic asymmetry, and this is significant
because dermatoscopic asymmetry is a generally accepted
criterion for all of the published clinical and dermatoscopic
algorithms. However in one study of consecutive pigmented
skin lesions with a maximum diameter of 6mm (range 3-6
mm) excised in a specialized university dermatology depart-
ment over four years, 34 out of a total of 103 melanocytic
lesions were melanomas \[12\], and of those 34 melanomas
only 11 (32.4%) were asymmetrical. This supports the need
to assess small PSLs without the required algorithmic crite-
rion of asymmetry.

In one pilot study of 28 diagnosed melanomas less than
or equal to 4 mm in diameter, there were only 14 (50%) that
were unanimously diagnosed as melanomas by each of three
dermatopathologists \[13\]. The dermatopathologic criteria
of these were evaluated. The criteria regarded as most sig-
ificant included pagetoid spread (n=9/14), irregular nesting
(n=6/14) and cytological atypia (n=13/14). The very small
melanoma we present in this case report exhibited all of these
features as well as poor maturation in the invasive portion
with pigmentation and nesting to the base of the lesion.

Conclusion

The melanoma reported here had the same diameter, of 1.6
mm, as the previously smallest reported melanoma with
dermatoscopic images, but it differed in that it was inva-
sive. As has been previously reported with small melanomas,
it was darker than surrounding nevi but this may be due to
selection bias. We regard it as very significant that this
melanoma did not have unequivocal asymmetry, although
it did have recognized clues to malignancy, including the
presence of gray color and radial lines/pseudopods, albeit
arranged in a circumferential pattern. We believe that very
small pigmented lesions which have any recognized clues
to melanoma should be assessed for biopsy whether or not
unequivocal asymmetry is present.

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