

Large Polygons - a dermoscopic feature of Lentiginous Melanoma

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Introduction

The incidence of lentiginous melanomas, including the lentigo maligna subtype, appears to be increasing, and indeed may be becoming the most common melanoma sub-type in some regions of the world^{1,2}. These lesions may be difficult to diagnose clinically and dermoscopically. The dermoscopic features of lentigo maligna occurring on facial skin, and acral lentiginous melanoma have been well described^{3,4}, but not the features of lentiginous melanomas occurring elsewhere on the body. There has been considerable recent interest in the definition of lentiginous melanomas histopathologically^{5,6} and clinically^{7,8}.

A Small Study

In a case series of 90 melanomas detected and treated in self-referred patients over a 2 year period in an open-access skin cancer clinic in a coastal town in regional Australia, 27 were non-facial lentiginous melanomas of which 25 were in-situ lesions. Lentiginous melanomas were defined as all those described in histopathology reports as: lentigo maligna; Hutchinson's Melanotic Freckle; lentiginous melanoma; or melanoma arising in any atypical lentiginous melanocytic lesion (including Kossard nevus, lentiginous junctional dysplastic nevus of the elderly).

Many of these were initially selected for biopsy/excision as a result of change detected on digital dermoscopic monitoring of atypical pigmented skin lesions, rather than the presence of any described dermoscopic feature of melanoma.

On review of dermoscopic images of these lesions by the author, 21 (78%) of these melanomas showed evidence of a dermoscopic appearance previously undescribed in the literature, the presence of "large polygons".

These polygonal shapes may be obvious and complete or subtle and incomplete. They are defined by darker grey or brown relatively straight lines, or by darker (sometimes only barely so) surrounding lesional pigment or a combination of the two. They are much larger than the rhomboidal structures seen in facial lentigo maligna and may be rhomboidal, pentagonal, or hexagonal. In some cases the large polygons do appear to be centred on follicular openings, as in lentigo maligna of the face, but this is not a constant.

I have termed these shapes "large polygons", in contrast to the smaller rhomboidal structures seen in facial lentigo maligna.

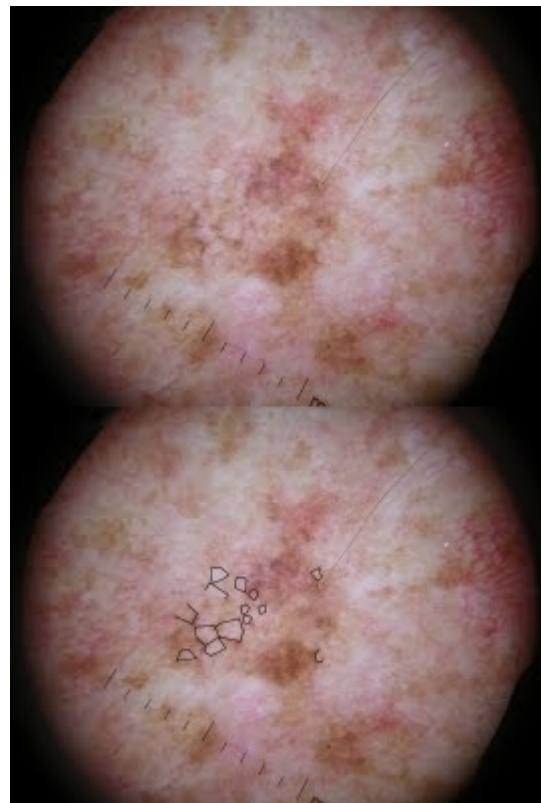
Large polygons usually occurred within a pigmented lesion that had lentigo-like pigment patterns, but lacking the sharply defined scalloped edge usually seen with solar lentigo. Grey dots or other grey

structures were a frequent accompanying finding. Occasionally lesions also had a few asymmetrically pigmented follicular openings, a feature also described with facial lentigo maligna, but not previously described in other locations.



Figure 1. A 7 mm diameter lesion on the forearm of a 67 year old female. There are obvious large polygons in this in-situ lentiginous melanoma. The background pattern of the lesion appears to be a solar lentigo-like homogeneous light brown, but with some edges lacking the typical sharp cutoff of solar lentigo. *Detailed image available on DermoscopyAtlas.com (image 479).*

Figure 2. A 7.5 mm diameter lentiginous melanoma in situ on the upper back of an 80 year old male. Note the background pattern of light brown network with some “fingerprinting”, a pattern described as present in solar lentigo; but the sharply demarcated scalloped border of solar lentigo is absent. To the left of the image there are obvious large polygons defined by grey lines (formed of aggregations of grey dots). More subtle polygons defined by darker surrounding pigment are present elsewhere. *Detailed image available on DermoscopyAtlas.com (image 480).*



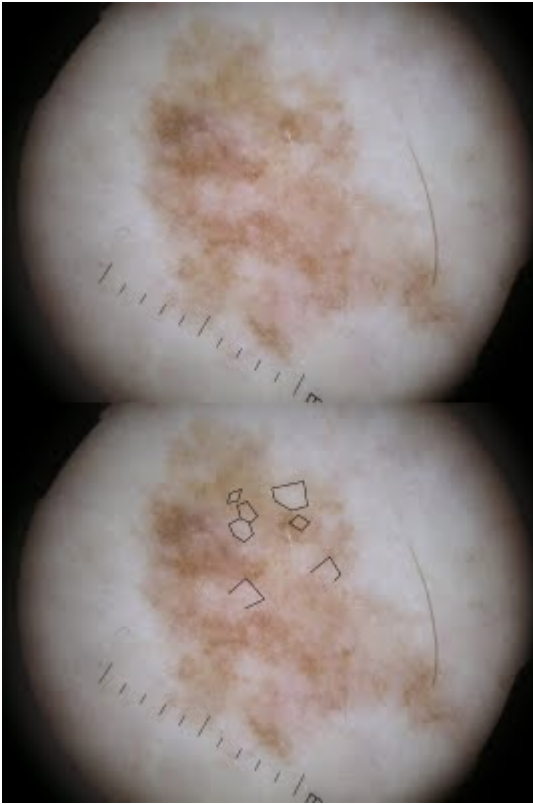


Figure 3. A lentiginous melanoma in situ on the lower leg of a 69 year old female. Not all large polygons are obvious and defined by darker lines (as in Figures 1 and 2 above), but careful inspection reveals the presence of paler large complete and partial polygonal shapes bounded by slightly darker lesional pigment. Again, the background pigment pattern of this lesion is that which is described for solar lentigo, but lacks the typical border of solar lentigo. *Detailed image available on DermoscopyAtlas.com (image 481).*

Discussion

Early diagnosis and surgical treatment remains the standard of care for melanoma and results in the best survival outcomes. Not all lentiginous melanomas-in-situ are as innocuous as is postulated by some: lentigo maligna is a frequent association with desmoplastic melanoma, and other invasive melanomas can arise in lentiginous melanomas, including invasive naevoid lentiginous melanoma. Non-facial lentiginous melanoma may be subtle, especially on sun-damaged skin. Such lesions may well be passed over as lichen-planus like keratosis or as solar lentigo if the specific features described are not sought or recognised.

It is sometimes easier to perceive the shapes and outlines of these large polygons when looking at a lesion's overall morphology, rather than focussing on the details or on zoomed photographic views. The author has found the lower resolution screen images rendered by the MoleMax computerized videodermoscope useful in this regard, although other equipment should be able to give similar effects.

It has been suggested that the combination of the following could be considered useful in the diagnosis of these lesions:

1. lentigo-like lesion without lentigo like border *and*
2. large polygons (which may be subtle) *and*
3. grey dots/structures.

Use of these features has been informally trialled by colleagues who have reported them useful in identifying non-facial lentiginous melanomas that may otherwise have been overlooked, but the sensitivity and specificity of these features has not been determined. In the experience of the author, there are very few non-melanocytic false positives, nor is the NNT increased by applying these criteria.

The range of polygonal shapes formed by the straight line/borders may also be more complex and irregular than has been described and this bears further examination and possible inclusion in the criteria.

Histopathological correlation with the features observed is difficult, but the darker lines in some cases appear to correspond to linear collections of melanophages and the lighter areas at times are reported as showing some papillary dermal fibrosis and may represent a stage in regression. Why the patterns in these lesions should form these geometric shapes bound by straight lines and why some of these shapes appear to be centred around follicles is unknown and bears further study.

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