"A Digital Dermoscopy Follow-up Illustration and a Histopathologic Correlation for Angulated Lines in Extrafacial Lentigo Maligna."

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ABSTRACT

IMPORTANCE: The diagnosis of extrafacial lentigo maligna can be a challenge because the dermoscopic features are not well described. These features can share some of the criteria of superficial spreading melanoma and some of facial lentigo maligna; however, these features are often absent. A new dermoscopic pattern has recently been described as forming angulated lines. OBSERVATIONS: We report 4 cases of extrafacial lentiginous lesions in 3 patients in whom straight angulated lines have been observed as the only key for diagnosis. This is the first time, to our knowledge, that these lines were seen in the follow-up by digital dermoscopy during a lapse time of a few months. This morphologic change led to the excision of the lesion. The pathologic diagnosis of lentigo maligna was established in each case. Moreover, a histologic correlation of these straight angulated lines is documented. CONCLUSIONS AND RELEVANCE: Angulated lines could be considered as a new warning sign during the fol...

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A Digital Dermoscopy Follow-up Illustration and a Histopathologic Correlation for Angulated Lines in Extrafacial Lentigo Maligna

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ThedermoscopicfeaturesofLMs oftheheadandneckarewellestablishedandarerelatedtotheheadandneck,lessfrequentlyontheextremitiesofelderlyindividuals.ExtrafacialLM(EFLM)wasfirstdescribedbySirJohnHutchinsonin18902andisthereforecalledHutchinsonmaligna. TheseEFLMsaccountfor17.5%ofallcasesofLMaccordingtoa10-yearanalysisoftheScottishMelanomaGroup2.

The dermoscopic features of LMs of the head and neck are well known and are related to the facial skin anatomy characterized by the absence of rete ridges, multiple pilosebaceous units, and photoinduced elastosis. The dermoscopic features of LM were defined in 2000 by Schiffner et al.3 The progressive invasion by malignant cells can be observed in dermatoscopy by the appearance of asymmetrical pigmented follicular openings, a perifollicular annular-granular pattern, pigmented rhomboidal structures, and obliterated hair follicles. Slutsky and Marghoob4 described a zigzag pattern of angulated, linear pigmented lines on facial LMs. Prolong et al5 described 4 additional original criteria: increased vascular network, targetlike images, red rhomboidal structures, and darkening at dermatoscopic examination.

Less is known regarding the dermoscopic features of EFLM. In 2013, Lau et al6 performed a study of 3 cases featuring the dermoscopy of extrafacial LMs. They proposed that they could share a combination of dermoscopic features of LM (pigmented rhomboidal structures and asymmetrical perifollicular pigmentation) and superficial spreading melanoma in situ (irregular dots and streaks and an irregular pigmented network).

Two new EFLM criteria have been described by Keir7,8: a lentigo-like pigment pattern lacking a lentigo-like border and complete or incomplete large polygonal shapes defined by darker gray or brown straight lines or formed by the straight edge of a junction between lighter and darker areas of the lesion.

Jaimes et al9 recently proposed the new term angulated lines to integrate all of the different linear dermoscopic patterns previously described, such as the rhomboidal structures by Schiffner et al13 and the zigzag pattern by Slutsky and Marghoob,4 both features described on facial LMs, and the large polygons described by Keir7 on EFLM. However, even though they may look geometrically similar superficially, it is not proven whether they share the same biological or pathologic process.9

We report 3 cases by digital follow-up in which straight angulated lines were seen on extrafacial pigmented lesions and
how the occurrence of only these lines over time allowed the
diagnosis of LM. In addition, we attempt to explain how this
phenomenon can be histologically correlated.

Report of Cases

Patient 1 was a woman in her 50s who was diagnosed in her teens
as having xeroderma pigmentosum. The patient had been fol-
lowed up in our department for 11 years via digital dermos-
copy. She presented with severe actinic skin damage with a his-
tory of multiple carcinomas and 82 melanomas of different
subtypes. We observed over time the appearance of straight an-
gulated lines on several pigmented lesions, which were ex-
cised because of this morphologic change. All of the lesions were
diagnosed as LM (Figure 1 and Figure 2). On the lesion shown
in Figure 2, the section of the surgical sample was performed
perpendicularly to the lines. At microscopic examination, an
atrophic epidermis and a proliferation of isolated atypical me-
lanocytes along the dermoepidermal junction were observed.
The accumulation of melanophages in the superficial dermis was
seen underneath the clusters of melanocytes. A second nest of
melanocytes was found approximately 1 mm from the first
where the section intersects the second line; underlying me-
lanophages were also observed. An inflammatory infiltration was
also present. The diagnosis of LM was made.

Patient 2 was a man in his 70s with a personal history of
3 superficial spreading melanomas and several squamous cell
and basal cell carcinomas. A pigmented lesion located on the
patient’s back drew our attention because of the occurrence of
straight angulated lines. The lesion was excised, and the
diagnosis of LM was confirmed (Figure 3).

Patient 3 was a woman in her 80s who had been followed
up via digital dermoscopy for the past 2 years because of a large
pigmented lesion on her lower leg. The lesion was stable until
slight modifications displaying straight angulated lines ap-
peared (Figure 4). Histologic examination confirmed the
diagnosis of LM.

Discussion

Little is known about specific dermoscopic features of
EFLM. Keir7,8 described a lentigo-like pigment pattern that
lacked a lentigo-like border and complete or incomplete
large polygonal shapes defined by darker gray or brown
straight lines or formed by the straight edge of a junction
between lighter and darker areas of the lesion. The polygo-
nal shapes appear to be much larger than the rhomboidal
structures seen in facial LM and are described to be rhom-
boidal, pentagonal, or hexagonal and in some cases centered
on follicular openings. However, because the angulated lines
do not always form completed polygons, we believe the term
angulated lines recently proposed by Jaimes et al9 seems to
be the most appropriated. Angulated lines must then be dif-
f erentiated from the zigzag pattern described by Slutsky and
Marghoob, which, according to the authors, probably represents incompletely formed rhomboidal structures related to the facial skin anatomy.

Also known as Hutchinson melanotic freckles, LM occurs histologically in skin with severe actinic damage, manifested by epidermal atrophy and solar elastosis. They are characterized by a proliferation of atypical melanocytes along the dermoepidermal junction and often down the walls of hair follicles and sweat ducts. This proliferation is confined to the basal layer and is formed by a linear accumulation of single cells and/or irregular nests and a slight pagetoid invasion of the epidermis. In addition to solar elastosis, the papillary dermis contains a lymphocytic infiltration, fibroplasias, and telangiectasia. Regression phenomena (fibrosis, hypervascularity, melanophages, and lymphocytic infiltration) may be seen and should prompt a careful search for invasion by atypical melanocytes. Most of these features are observed in all of our cases.

Figure 2 clearly shows an atypical proliferation of melanocytes, focally organized in nests underneath which accumulations of melanophages were found. The localization of these 2 associations exactly matched the perpendicular section of the 2 lines, which had been observed dermoscopically. Indeed, the distance between the 2 lines (1 mm) in dermoscopy was also found during pathologic analysis.

In accordance with the report by Keir, we could clearly see a focal accumulation of melanophages in the superficial dermis. In addition, nests of atypical melanocytes were found right above the melanophages at the dermoepidermal junction. No relation with the hair follicle was observed because it is described for the rhomboidal structures of the facial LMs, which are related to a proliferation of melanoma cells around the hair follicles.

Conclusions

Angulated lines are a pattern observed in LMs, but the physiopathologic mechanisms appear to be different in EFLM than in facial LM. We describe 3 patients in whom angulated lines...
were observed, which were the only criteria in support of their malignant lesion. These angulated lines could correspond to a host reaction against the lesion and therefore be a warning sign that the lesion is becoming malignant. The emergence of these lines in dermoscopy could become a new diagnostic element in the follow-up of extrafacial lentiginous lesions. Their appearance or presence should alert the dermatologist. If the angulated lines change over time, they should be considered as a criterion for excision of the lesion. This new postulate should be confirmed in future studies.

REFERENCES