ORIGINAL REPORT

Description of Some Dermatoscopic Features of Acral Pigmented Lesions in Iranian Patients: A Preliminary Study

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Abstract- Proper differentiation between acral malignant melanoma and benign pigmented lesions like melanocytic nevi is of great value. To avoid unnecessary biopsies, dermatoscopy has been introduced as a non-invasive modality and has improved the clinical diagnostic accuracy in recent decades. We aimed to describe dermoscopic patterns of acral pigmented lesions of patients in the clinic of dermatology in Razi Hospital, Tehran, Iran. This study was conducted as a descriptional study among a total of 62 pigmented lesions located on volar skin of palms and soles. After initial clinical evaluation, lesions were examined entirely by dermoscopy. All the patterns within a lesion were described, and lesions suspicious of malignancy (clinically or dermatoscopically) were selected for histopathological evaluation. Of our 62 lesions, three lesions were not melanocytic. According to our final clinicopathological diagnosis, 47 lesions were benign melanocytic nevi and 12 lesions were malignant melanoma. Parallel furrow pattern was the most frequent among our benign lesions (51.1%) followed by lattice-like pattern (23.4%) and acral reticular pattern (21.3%). Diffuse multi-component pattern, parallel ridge pattern and abrupt edge were respectively most common patterns among malignant melanomas. Acral benign melanocytic nevi and malignant melanomas respectively have well distinctive characteristics in dermatoscopy among our patients.

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Keywords: Dermoscopy; Acral melanocytic nevi; Malignant melanoma

Introduction

Melanoma of acral volar skin, has the most malignant course among all of the cutaneous melanomas (1,2). Since the majority of acral pigmented lesions have a benign nature, we should look for noninvasive methods to screen acral pigmented lesions and narrow down the number of suspicious lesions candidate for biopsy. Dermoscopy is a simple, easy and non-invasive method and has improved the accuracy of clinical diagnosis (3-6). Up to date some dermoscopic features indicating malignant or benign course of lesions have been described (Figures 1-4) (7-12). Previous studies from Spain, Italy and Turkey have considered white population (7,9,12). We describe dermatoscopic features among Iranian patients with skin type III to V and various ethnicities. This is the first and preliminary study in Iran where acral melanoma is our most concern.

Patients and Methods

This study was conducted as a descriptional study among patients visited for their acral pigmented lesions in the dermatology clinic of Razi Hospital, Tehran University of Medical Sciences. Lesions located on glabrous skin of palms, soles and volar aspect of fingers and toes were included (in the report we considered the lesions on volar aspect of the fingers among palmar lesions and the lesions on volar aspect of toes among plantar lesions). Initial impression of the lesions was given clinically, thereafter they were evaluated by dermoscope entirely and digital images of high qualities were stored. Dermoscopic analysis score of the lesions

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were recorded ,too. The device consisted of a dermoscope [microderm, visimetre, Germany) with 15*30*50 magnification equipped with a digital camera [Canon, Japan]. Dermoscopic patterns of each lesion were described by 2 dermatologists and occasionally by great dermoscopy pioneers in the world and only after these interpretations, final decision was made. All of the patterns observed within a lesion were reported. Unclassified pattern is attributed to patterns that do not contribute to any previously described pattern.

Lesions suspicious of malignancy by clinical manifestation or dermoscopic patterns were selected for more evaluation by pathology (one or more pathologists of our academic group).

Dermatologists were not aware of pathology results until final dermoscopic interpretation. Similarly, pathologists were not aware of dermoscopic results, too.

Results

In this study we evaluated a total of 62 acral pigmented lesions in 46 patients, located on acral volar (glabrous) skin (Table1). Except for 3 of them (by the diagnosis of dermatofibroma, lymphohemangioma and ink) the other 59 lesions were melanocytic. Patients were between 2.5-75 years old with a mean of 35.53 years. Dermoscopic patterns and their frequencies are summarized in table 2.

31 Of the 59 lesions, had pathology reports because of the presence of a clinical or dermoscopic impression of malignancy. According to pathology, 19 of 31 lesions were benign melanocytic lesions and 12 of 31 lesions were malignant melanoma. According to our final diagnosis, based on pathology or based on an ensemble of clinical manifestations, clinical course and dermoscopic features in the absence of pathology (as our gold standards), from a total of 59 lesions, 47 lesions were benign melanocytic nevi and 12 lesions were malignant melanoma.

Dermoscopic analysis score of all the lesions is summarized in table 1. We set the cut-points according to our results.

Benign melanocytic nevi

47 Lesions had final diagnosis of benign melanocytic nevi (table1). The frequency of dermoscopic patterns among these lesions is mentioned in table 2. Of all dermoscopic patterns observed in these lesions, parallel furrow pattern was the most common pattern with a frequency of 24 (51.1%).

Table 1. Distribution of lesions among benign and malignant lesions

	Benign melanocytic nevi (n=47) Frequency (%)	**Malignant Melanoma (n=12) Frequency (%)**	**Total**
Sex			
Male	18 (38.3%)	8	26
Female	29 (62.7%)	4	33
Location			
Palmar	22 (46.8%)	1	23
Plantar	23 (49%)	11	34
Missed	2 (4.2%)	0	2
Dermoscopic Analysis score			
<3	34 (72.3%)	0	34
3-7	10 (21.3%)	0	10
7<	1 (2.1%)	10 (83.3%)	11
Missing	2 (4.3%)	2 (16.7%)	4
Diagnosis			
Clinically	38 benign 9 suspicious of malignancy	8 malignant 4 suspicious of malignancy	
Dermoscopically	43 benign 4 suspicious of malignancy	12 malignant 0 suspicious of malignancy	
Total	47 (100%)	12	59

Table 2. Frequency of dermoscopic patterns among benign and malignant lesions

	Benign melanocytic nevi (n=47) Frequency (%=sensitivity)	Malignant Melanoma (n=12) Frequency (%=sensitivity)	Palmar	Plantar	Location missed
Parallel furrow pattern (Figure 3)	24 (51.1%) Simple:19 Dotted: 1 Double lined: 4	0	16	8	0
Latice-like pattern (Figure 1)	11 (23.4%)	0	5	6	0
Acral reticular pattern	10 (21.3%)	0	3	6	1
Homogenous pattern	5 (10.6%)	1	1	4	1
Fibrillar pattern (Figure 2)	4 (8.5%)	1	1	4	0
Transition pattern (acral reticular in combination with parallel furrow or lattice-like patterns)	4 (8.5%)	0	2	2	0
Glubolar pattern	1 (2.1%)	0	1	0	0
Parallel ridge pattern (Figure 4)	2 (4.3%)	10 (83.3%)	1	11	0
Diffuse multicomponant pattern (diffuse irregular pigmentation)	0	11 (91.6%)	1	10	0
Abrupt edge	1 (2.1%)	6 (50%)	1	6	0
Peripheral dot/globules	2 (4.3%)	4	2	4	0
Regression Structure	0	3	0	3	0
Streaks	0	2	0	2	0
Irregular vascular pattern	0	2	0	2	0
Blue-whitish veil	0	4 (33.3%)	0	4	0
Hypopigmentation	0	0	0	0	0
Unclassified patterns	7 (14.9%)	4 (33.3%)			

3 Cases of lattice-like pattern (in 3 patients aged between 20-30 years) converted to parallel furrow pattern after 6 months of follow up.

Among these 47 lesions, there were 5 congenital melanocytic nevi (Table 3). Something reserving special concerns was the presence of parallel ridge pattern (highly suggestive of malignancy according to prior classifications) in 2 benign lesions. One of them was an intradermal nevus confirmed by pathology with a dermoscopic analysis score of 2.56. In this lesion parallel ridge pattern was accompanied with fibrillar/filamentus pattern. Another lesion was an acral lentiginous nevus with a dermoscopic analysis score of 5.24. The parallel ridge pattern was the only pattern observed in the whole of this lesion.

Table 3. Dermoscopic description of 5 congenital nevi

Lesion number	Dermoscopic description
1	Simple parallel furrow pattern
2	Dotted parallel furrow pattern
3	Simple parallel furrow pattern & acral reticular pattern
4	Dotted parallel furrow pattern, lattice-like pattern & fibrillar pattern
5	Benign unclassified pattern

Table 4. Validity indexes of most common patterns

	Sensitivity		Specificity		Positive P.V		Negative P.V	
	Present study	Dr Saida[6]	Present study	Dr Saida	Present study	Dr Saida	Present Study	Dr Saida
Parallel ridge pattern								
Diffuse irregular	83.3%	86.4%	95.7%	99.0%	83.3%	93.7%	95.7%	97.7%
pigmentation	91.6%	85.4%	100%	96.6%	100%	80.7%	97.9%	97.5%
Parallel furrow pattern	51.1%	67.2%	100%	93.2%	100%	98.3%	34.2%	32.4%

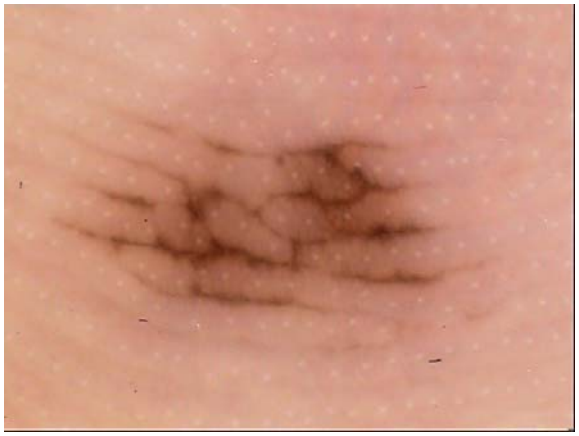

Figure 1. Lattice-like pattern

Figure 2. Fibrillar pattern

Abrupt edge (also suggestive of malignancy) was found in one benign lesion (pathologically confirmed) with analysis score of 2.56, in combination with parallel furrow pattern and dot/globules.

Malignant melanocytic lesions

A total of 12 malignant melanomas were among our lesions (table 1). 10 Of 12 lesions were invasive (thickness > 1mm). Frequency of dermoscopic patterns observed in these malignant lesions and their sensitivities are summarized in table 2. As it is shown in table 2, diffuse multicomponent (diffuse irregular pigmentation) was the most common pattern among malignant lesions (in 11 of 12 lesions) with a sensitivity of 91.6%. Among 11 lesions with diffuse multicomponant pattern, 9 lesions were invasive. 2 of 12 lesions without parallel ridge pattern were both ulcerative. Of patterns highly suggestive of benign course, fibrillar/filamentus pattern was seen in the combination of parallel ridge pattern and abrupt edge in one malignant melanoma and homogenous pattern was seen in combination with parallel ridge pattern, abrupt edge and blue-whitish veil in another malignant melanoma.

Sensitivity, specificity and other accuracy indexes of parallel furrow pattern and parallel ridge pattern are summarized in table 3.

Figure 3. Parallel furrow pattern

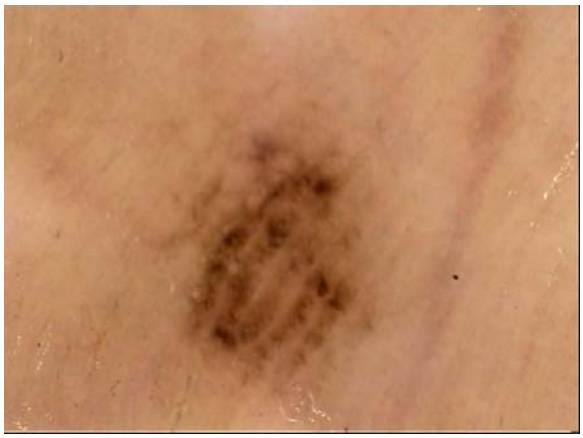

Figure 4. Parallel ridge pattern

Discussion

The order and frequencies of patterns in our study were fairly similar to those reported by Saida, Malvehy, Altamura and Ozdemir who reported parallel furrow pattern in 42-59%, lattice-like pattern in 7-22% and fibrillar pattern in 6-21% of benign lesions as the three major patterns (7-9;11,12). Fibrillar pattern was seen less in our study compared with above studies. In contrast, acral reticular pattern was among our three major patterns. Small limited sample size of the present study may contribute to this difference; however, some other points are of noticeable importance. They may be due to ethnics' variations; as similar to white populations of Spain and Italy. Lattice-like pattern was the second major pattern in our study and fibrillar pattern, the second major pattern in Japanese and Turkish population was not among our three major patterns (11). Since we had evaluated the whole lesion by dermoscope and described all the observed patterns, no pattern was under-measured while in prior studies predominant pattern in each lesion was concerned (7-9;11,12). In addition, Saida considers parallel furrow pattern as the prototype of major dermoscopic patterns and concludes that these variations between different populations are unremarkable (11).

Parallel ridge pattern and abrupt edge that are suggestive of malignant melanoma were found to be pathologically benign in 3 lesions. Seida also did not achieve a positive predictive value of 100% for this pattern (Positive Predictive Value (PPV) =93.7%) (6). At the present time, it is well known that in special entities particularly acral melanocytic nevus, pathology is not as efficient as expected to differentiate benign lesions from malignant lesions and in some cases underlying melanoma can mimic benign features (2,13). It is also likely that melanoma which grows in some parts of the lesion causes a parallel ridge pattern and the specimen provided was belonging to benign sites of the lesion. Thus we recommend that the presence of dermoscopic patterns is suggestive of malignancy but in the absence of pathologic evidence of malignancy, the lesion should be rebiopsied, reassessed and carefully followed clinically and pathologically over time.

Among patterns suggestive of malignancy, parallel ridge pattern and diffuse multicomponent (irregular diffuse pigmentation) are the most frequent reported features to date (4-7;10,14). Some accuracy indexes of these patterns are measured by Dr Saida among 103 malignant melanoma of Japanese population (9, table 4). In our study among pathologically confirmed malignant melanomas (12 lesions), diffuse multicomponent pattern was the most common pattern (in 11 of 12 lesions) with a sensitivity of 91.6% followed respectively by parallel ridge pattern (10/12) and abrupt edge (6/12) . As shown in table 3, diffuse multicomponent pattern has higher indexes than those of parallel ridge pattern in the present study perhaps because of the fact that people of our country are usually visited and managed for their melanocytic lesions in the late stages of their disease (10 of 12 melanomas in our study were invasive). This also simulates Saida's results (6).

Of patterns suggestive of benign nature, fibrillar and homogenouse patterns were found in two malignant melanomas. Saida also found benign dermoscopic patterns including parallel furrow pattern and lattice-like pattern in 7 of 103 malignant melanomas (6). Though, these benign patterns were found focally throughout the lesion and the predominant dermoscopic features supported malignancy. This supports the idea that clinical suspect still remains of a major value and cases with benign dermoscopic features but clinically highly suspicious of malignancy should be more evaluated by pathology.

Our results also suggest that dermoscopic analysis score is a helpful auxiliary option in diagnosis of acral melanocytic lesions (Table 1).

Dermoscopy for acral melanocytic lesions is not well known, described or administered in our dermatology clinics. Based on prior studies and the present study, it is immensely helpful for the diagnosis of acral melanocytic lesions ,though. In certain, further studies on larger populations could help us propose diagnostic algorithms for our population, although according to our study previous algorithms seem useful for our population as well.

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