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RESEARCH LETTER

Dermoscopic features of infantile hemangioma during treatment with topical propranolol



To the Editor: Several dermoscopic morphologies have been described in the evaluation of infantile hemangiomas, such as globular, commalike, wavy, and red linear vessels.^{1,2} Reported dermoscopic changes associated with use of β -blockers include decrease of erythema and presence of milky-red areas.³ Herein, we sought to dermoscopically evaluate capillary density, fibrosis, and hemosiderin deposition in infantile hemangiomas undergoing treatment with 2% topical propranolol.

In retrospective review of dermoscopic photographs of 17 infants with infantile hemangiomas treated with 2% topical propranolol, photographs were evaluated for the presence or absence of the following parameters: brown areas, white structureless areas, linear vessels, clustered vessels, and percentage of fading of erythema. Location, age, sex, and diameter were recorded (Table 1). Infants who completed at least 1 follow-up were included; those who did not have satisfactory photographs were excluded. All infants in this study were enrolled in accordance with the requirements of the ethical committee at Instituto Dermatologico y Cirugia de

Table 1. Variables, including dermoscopic and clinical parameters, of 17 infants with infantile hemangiomas treated with 2% topical propranolol

| Sex | Age, months | Location | Size, cm | Months of treatment | Dermoscopic features | Involution dermoscopy (%) | Clinical involution erythema (%) | Clinical involution lesional area (%) | Clinical involution thickness (%) |
|--------|-------------|-------------|----------|---------------------|---|---------------------------|----------------------------------|---------------------------------------|-----------------------------------|
| Female | 29 | Head | 2.7 | 6 | Brown structureless areas, linear vessels, clustered vessels | <25 | <25 | <25 | <25 |
| Female | 7 | Trunk | 3 | 2 | Brown and white structureless areas, linear and clustered vessels | <25 | <25 | <25 | <25 |
| Male | 5 | Trunk | 2 | 2 | None | <25 | <25 | <25 | <25 |
| Female | 3 | Trunk | 1.9 | 1 | Brown and white structureless areas | <25 | <25 | <25 | <25 |
| Female | 2 | Head | 7.3 | 3 | None | <25 | <25 | <25 | <25 |
| Female | 2 | Lower limbs | 10 | 5 | Brown and white structureless areas, linear and clustered vessels | 50-75 | <25 | <25 | <25 |
| Female | 6 | Trunk | 1 | 6 | Brown and white structureless areas, linear and clustered vessels | 50-75 | 50-75 | <25 | <25 |
| Female | 36 | Scalp | 8 | 4 | Brown and white structureless areas | <25 | <25 | <25 | <25 |
| Female | 3 | Upper limbs | 1.8 | 4 | Brown and white structureless areas, linear and clustered vessels | 25-50 | 50-75 | 50-75 | 50-75 |
| Female | 5 | Head | 0.68 | 2 | Brown and white structureless areas | 50-75 | 50-75 | <25 | 50-75 |
| Female | 5 | Upper limbs | 1.4 | 3 | Brown and white structureless areas | <25 | <25 | <25 | <25 |
| Male | 4 | Trunk | 3.4 | 5 | Brown and white structureless areas, linear and clustered vessels | 25-50 | 25-50 | 25-50 | 25-50 |
| Female | 19 | Trunk | 2.8 | 4 | Brown and white structureless areas | <25 | <25 | <25 | <25 |
| Female | 4 | Trunk | 1.6 | 4 | Brown and white structureless areas | <25 | 25-50 | <25 | 25-50 |
| Female | 3 | Lower limbs | 4.6 | 4 | Brown structureless areas | <25 | <25 | <25 | <25 |
| Female | 7 | Trunk | 1.8 | 6 | Brown and white structureless areas | 50-75 | <25 | <25 | <25 |
| Male | 16 | Trunk | 3.3 | 5 | Brown and white structureless areas, linear and clustered vessels | 25-50 | <25 | <25 | <25 |

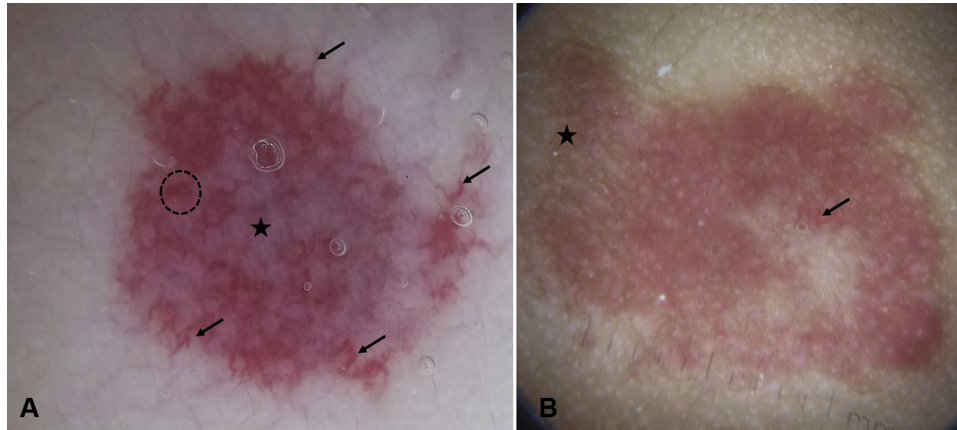


Fig 1. Dermoscopic features of involution. **A**, White structureless areas (star), linear vessels (arrows), and clustered vessels (circle). **B**, Brown structureless areas (star); linear vessels are apparent (arrow).

Piel “Dr. Huberto Bogaert Diaz.” Dermoscopic photographs were evaluated by H.K. and clinical photographs by K.M.K. (not previously involved in the study).

Assessments of clinical photographs demonstrated that 12 lesions showed reduction of erythema of less than 25%; 2, of 25% to 50%; and 3, of 50% to 75%. Fifteen lesions presented surface area reduction of less than 25%; 1 lesion showed reduction of 25% to 50% and 1 showed reduction of 50% to 75%. Thirteen lesions showed reduction in thickness of less than 25%; 2, of 25% to 50%; and 2, of 50% to 75%.

Dermoscopic analyses at last follow-up showed brown structureless areas in 15 lesions, white structureless areas in 13 lesions, linear vessels in 7 lesions, and clustered vessels in 7 lesions. Reduction of redness of less than 25% was observed in 10 lesions, fading of 25% to 50% was observed in 5 lesions, and fading of 50% to 75% was observed in 2 lesions (Fig 1). We observed that higher dermoscopic reduction of erythema correlated with visualization of linear and clustered vessels; these features were observed in 5 cases (70%) in which involution by dermoscopy was more than 25%.

We observed that higher involutinal rates correlated with the visualization of linear and clustered vessels. In addition, we found that 3 cases showed more robust involution (25%-75%) in dermoscopy when clinically rated as less than 25%.

In accordance with the histopathologic features of involuting infantile hemangiomas,^{4,5} we hypothesize that white structureless areas correspond to fibrosis and fat deposits, erythema involution results from a decrease in vessel density, brown structureless areas

are related to hemosiderin deposition, and linear vessels may correlate with enlargement of vascular lumina.

This study has limitations. Given the uncontrolled design of the present study, it is not possible to determine how soon or frequently these dermoscopic features are associated with those under treatment or to those left to natural involution.

In conclusion, we demonstrated that dermoscopy can identify the detail of vascular network in infantile hemangiomas; herein, linear and clustered vessels were associated with more robust response to treatment. Additionally, we identified early dermoscopic changes in vascular pattern when redness reduction was slightly or not appreciated clinically.

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