

# Dermoscopy combined with Wood lamp, a diagnostic alternative for five pigmented lesions on the face: an observational study

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*To the Editor:* Hyperpigmented skin lesions especially facial diseases, such as chloasma, nevus fusco-caeruleus zygomaticus, nevus of ota, freckles, and Riehl melanosis, are clinically common. These diseases are sometimes difficult to identify and seriously affect the appearance of patients. Given that patients often come to hospitals for cosmetic purposes and a histopathological biopsy is difficult, non-invasive diagnosis is very important for treatment options.

Dermoscopy is a non-invasive, real-time, dynamic dermatology technique allowing the *in vivo* observation of skin lesions. With the use of medium or polarized light and optical amplification equipment, dermoscopy can observe epidermal layer and superficial dermis of the skin that are invisible to the naked eye.<sup>[1,2]</sup> The Wood lamp is another non-invasive means for skin disease detection. With the use of a specific wavelength of light source, Wood lamp can distinguish tissues in accordance with the different autofluorescence.<sup>[3]</sup> Dermoscopy and Wood lamp serve as convenient and practical methods for diagnosis and differential diagnosis of pigmented skin lesions. In this observational study, we tried to provide useful evidence for the clinical differential diagnosis of five facial pigmentation diseases by using Wood lamp and dermoscopy.

Ethical approval was obtained from the Affiliated Hospital of Xuzhou Medical University Ethics Committee before the start of the study (No. XYFY2019-KL189). We obtained the consents from patients to display the identifiable facial images in the article. A total of 361 patients with facial pigmented lesions in our outpatient department between January 2017 and July 2019 were included in the study [Figure 1]. The light source of SK-3 dermoscopy (Beining Inc., Nanjing, China) was visible light. The light source of Wood lamp (KN-9000B, Kernel, Xuzhou, China) was a laser beam with wavelength of 320 to 400 nm (peak: 365 nm), and the output power was  $\geq 3.0$  mW/cm<sup>2</sup>. The

patients were informed of the purpose of the examination. Their skin was cleaned and appropriately positioned. A typical lesion area was selected and placed in a hood 5 cm away from the output surface of the light source. Wood lamp was used to acquire an image of the skin lesion areas and surrounding normal skin. The same location was imaged using dermoscopy.

The dermoscopic examination of the nevus fusco-caeruleus zygomaticus reveals pale brown globules (92/108, 85.2%), and its Wood lamp examination shows blue-black spots which are in contrast with the surrounding normal skin. The dermoscopic results of the nevus of ota reveals a light brown homogeneous appearance (39/45, 86.7%), and its Wood lamp exhibits dark blue-brown patches compared with the surrounding normal skin. The dermoscopic examination of chloasma reveals yellowish brown homogeneous appearance (79/85, 92.9%) and sometimes a visible capillary network (63/85, 74.1%), and its Wood lamp examination shows deepened or unchanged color compared with its surrounding normal skin. The incidence of the sub-clinical pigmentation of progressive chloasma is higher than that of stable chloasma. The area of the skin lesion of progressive chloasma obtained using the Wood lamp examination is larger than that observed using the naked eye. The area of the skin lesion of stable chloasma obtained using Wood lamp examination is equal to that observed using the naked eye. The dermoscopic results of freckles reveal round or oval yellowish brown globules (94/99, 94.9%), and Wood light shows a clear boundary and deepened color with scattered black spots. The dermoscopic examination of Riehl melanosis reveals small grayish brown blotches with a pseudo-network (23/24, 95.8%), and its Wood lamp examination shows dark patches [Figure 1, Supplementary Table 1, <http://links.lww.com/CM9/A277>].

As a new non-invasive and painless examination in dermatology, dermoscopy is easy to operate and has wide

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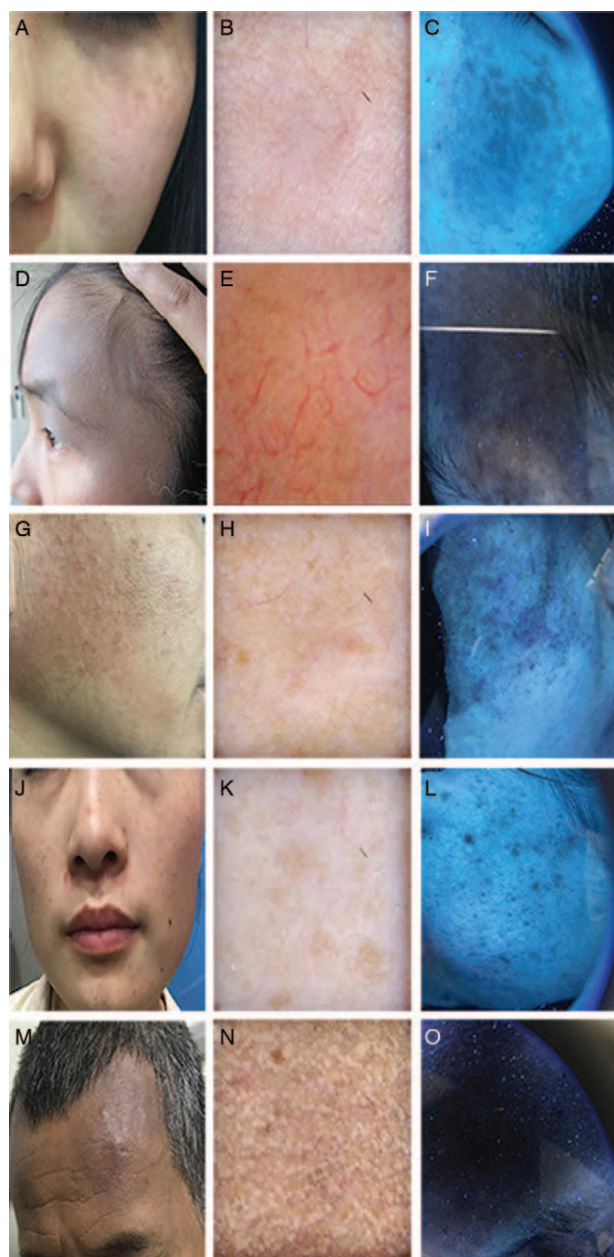
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**Figure 1:** Representative photographs and dermoscopic (original magnification  $\times 20$ ) and Wood lamp features of nevus fusco-caeruleus zygomaticus (A, B, C), nevus of ota (D, E, F), chloasma (G, H, I), freckles (J, K, L), Riehl melanosis (M, N, O).

indications. Results are reported in a timely and rapid manner, and the image collection and storage are convenient, which contribute to the recording of lesion development during long-term follow-up observation. Dermoscopy helps in the multidimensional grasp of the traits of the lesion and improves diagnostic accuracy,

creating a new situation for the development of dermatological diagnostics. The dermoscopic evaluation of lesions to a considerable extent depends on clear histopathological differences which may reflect the distinct correlation. The lesions selected have limited dermoscopic individual signatures and differentiating them on basis of dermoscopy alone is unsatisfactory. The combination of dermoscopy and Wood lamp greatly improves the accuracy of skin pigmentation diseases diagnosis, but still cannot replace diagnosis by using the histopathological examination of disease.

Compared with histopathology, the combination of dermoscopic and Wood lamp examinations of facial skin pigmentation diseases does not damage the skin, can maintain the normal morphology and physiological functions of the cell tissue, and exhibits multiple images of the same tissue.<sup>[4,5]</sup> Therefore, dermoscopy combined with Wood lamp can be used as an effective approach for diagnosing and differentially diagnosing nevus fusco-caeruleus zygomaticus, nevus of ota, chloasma, freckles, and Riehl melanosis, but still cannot replace the histopathological examination of disease diagnosis.

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### Conflicts of interest

None.

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