

Clinical utility of dermoscopy in diagnosing pigmented genital warts: A case report

Deddy Khouw, Muhammad Izazi Hari Purwoko, Suroso Adi Nugroho, Theresia Lumban Toruan, Yuli Kurniawati

Department of Dermatology and Venereology, Faculty of Medicine Universitas Sriwijaya– Dr. Mohammad Hoesin General Hospital, Palembang, South Sumatera, Indonesia.

Abstract Genital warts are the most common benign hyperplastic lesions caused by HPV infection. Diagnosis workup of genital warts is based on history, physical examination, acetowhite test, dermoscopy, histopathology and polymerase chain reaction (PCR). Dermoscopy is a non-invasive tool used to enhance the diagnostic accuracy of genital warts. This case report aims to understand the diagnostic role of dermoscopy in pigmented genital warts. A 24 years old female with widespread verrucous, confluent, pigmented papules in the inguinal region bilaterally and labia majora since last 4 months. Acetowhite test was negative. Dermoscopic examination revealed a mosaic pattern with brownish globular area, knob-like, dan finger-like pattern, and glomerular vessels. Histopathological examination showed hyperkeratosis, acanthosis, papillomatosis, and koilocytes, with increased number of melanocytes in the basal layer. The dermoscopic features of genital warts vary according to clinical manifestations and show correlation with histopathologic features. Specific features are mosaic patterns, finger-like patterns, knob-like patterns, with/ without dots or globules pigmented area, with dotted, glomerular and hairpin vessels. The mosaic pattern correlated with hyperkeratosis, acanthosis and capillary dilatation in the papillary dermis. The finger-like pattern correlated with papillomatosis, hyperkeratosis, acanthosis, dilatation and elongation of vessels. The identification of specific dermoscopic features in correlation with clinical manifestation and histopathology can be used to establish diagnosis of pigmented genital warts.

Key words

Dermoscopy; Genital warts; Pigmented.

Introduction

Genital warts are the most common benign hyperplastic lesions caused by infection of human papilloma virus (HPV) on the vulva, penis, groin, perineum and perianal area. The characteristics of genital warts are long latency, highly infectious and recurrence rate.¹ Human papilloma virus is divided into low-risk and high-risk types. The most common causes of

genital warts are HPV types 6 and 11 which are low-risk types.² Human papilloma virus can enter the human body through microtrauma of the skin and mucous membranes. The risk factors for acquiring HPV infection includes sexual intercourse at an early age; promiscuity; high-risk groups; and poor hygiene.³ Sexual transmission of genital warts is approximately 60%.⁴

In general, the diagnosis workup of genital warts is based on history and clinical features. The typical clinical features of genital warts are papillomatous plaques or flat lesions, which can be solitary or multiple and vary in color from flesh-coloured to hypopigmented, pink and hyperpigmented.⁵ Various forms of genital warts

Address for correspondence

Dr. Muhammad Izazi Hari Purwoko
Department of Dermatology and Venereology
Faculty of Medicine Universitas Sriwijaya– Dr.
Mohammad Hoesin General Hospital
Jl. Jendral Sudirman Km. 3,5, Palembang
South Sumatera, Indonesia.
Email: m_izazi_hp@yahoo.com



Figure 1 Widespread verrucous, confluent, pigmented papules (a) inguinal regions (red circles); (b) labia majora (blue circles); (c) negative acetowhite test (yellow circles).

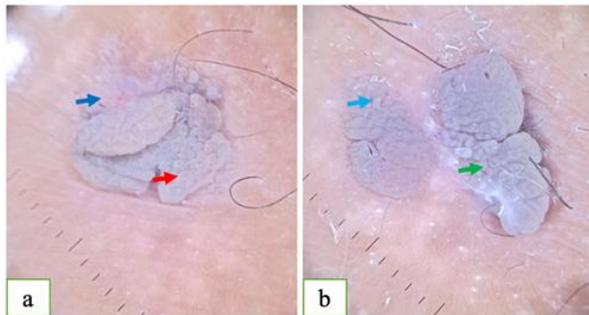


Figure 2 Dermoscopy features (a) mosaic pattern with brownish globular area (→), glomerular vessel (→), (b) knob-like pattern (→), finger-like pattern (→).

consist of acuminata, flat, papular, and hyperkeratotic.⁶ Acetowhite test and dermoscopy can help establish the diagnosis of flat and papular genital warts. Other examinations such as histopathology and polymerase chain reaction (PCR) are performed on atypical genital warts such as pigmented, indurated, affixed to underlying tissue, bleeding or ulcerated lesions.⁷⁻¹⁰ The histopathological gold standard for the diagnosis of genital warts is presence of koilocytes. However, it is not present in every lesion, therefore histological diagnosis may be inaccurate.¹¹

Dermoscopy is a non-invasive tool to capture the microstructure and pigment on the epidermis up to dermis.¹ Dermoscopy can increase the diagnostic sensitivity of genital warts without reducing the specificity, and allow to reduce

unnecessary biopsies in benign skin lesions.^{12,13}

The identified dermoscopic features can assist dermatologists in establishing early diagnoses of genital warts.^{1,12,14} In addition, dermoscopy also can rule out differential diagnosis of genital warts.^{12,15} We report a case of pigmented genital warts in 24 years old, which diagnosed by clinical, dermoscopy, and histopathological examination. This case report aims to understand the diagnostic role of dermoscopy in pigmented genital warts.

Case report

A 24 years old woman presented to our outpatient clinic with brown warts in the inguinal region bilaterally and over labia majora for 4 months. Warts were asymptomatic, soft, without bleeding or difficulty to urinate. General and systemic examination was within normal limits. Physical examination revealed widespread verrucous, confluent, pigmented papules. (**Figure 1a,1b**) Acetowhite test was negative. (**Figure 1c**) Dermoscopy shows mosaic pattern with brownish globular area, knob-like, dan finger-like pattern, and glomerular vessel. (**Figure 2**) Basic screening test for STIs (gonorrhoea, chlamydia, syphilis, and HIV) were negative. Histopathological examination with hematoxylin and eosin staining (H&E) showed stratified squamous

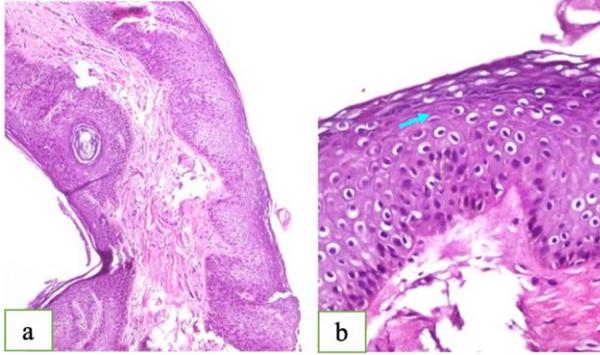


Figure 3. Histopathologic examination (a) stratified squamous epithelium, acanthosis, papillomatosis, hyperkeratosis, and increased number of melanocytes in the basal layer (H&E, X100); (b) koilocytes (→) (H&E, X400).

epithelium, acanthosis, papillomatosis, hyperkeratosis, koilocytes, and increased number of melanocytes in the basal layer. The dermis is composed of fibrocollagen connective tissue surrounded with inflammatory cells, lymphocytes and dilated blood vessels. No signs of malignancy were found. (Figure 3) Patients were treated with combination of 80% trichloroacetic acid and 25% podophyllin tincture every 2 weeks for a total 2 times and complete resolution of the lesion was obtained.

Discussion

The diagnostic workup of genital warts includes a comprehensive history, physical examination, and supporting examinations (acetowhite test, dermoscopy, histopathology, and PCR). Veasy *et al.* report the systematic comparison between clinical findings, dermoscopic features, and histopathologic examination are well-known and accepted to established the diagnosis of genital warts.¹⁶

Dermoscopy is a non-invasive examination tool for the diagnosis of skin diseases. Initially dermoscopy was used as a diagnostic tool for skin tumors, however in the past decade, it has been widely used in dermatology, including skin infection.¹⁵ Parameters that need to be assessed

in dermoscopy are vessels, scales, follicular criteria, other structures such as color or shape, and specific signs.^{17,18}

The dermoscopic features of genital warts vary according to clinical manifestations including finger-like patterns, mosaic patterns, and knob-like patterns. Genital warts have characteristic features of vessels, such as dotted, glomerular and hairpin.^{1,12,19} Genital warts attached to the skin are shown by whitish networks within the dilatation of dotted or glomerular vessels, called a mosaic pattern. Histopathologically, the mosaic pattern is associated with hyperkeratosis, acanthosis and capillary dilatation in the papillary dermis. Verrucous genital warts show an irregular whitish appearance known as a finger-like pattern. This pattern is associated with papillomatosis, hyperkeratosis, acanthosis, as well as dilatation and elongation of vessels.¹⁹ Short and round patterns like buttons with similar length and diameter can also be seen on the dermoscopic features of genital warts, called knob-like pattern. Mosaic patterns are often found in flat genital lesions, while finger-like and knob-like patterns are found in verrucous genital warts.²⁰ Zhang *et al.* reported the sensitivity and specificity rates for dermoscopic features of genital warts were 97.4% and 87.5% and concluded dermoscopy can be used to establish diagnosis of genital warts.²¹ The dermoscopic features in this case showed a mosaic pattern with brownish globular area, knob-like pattern and finger-like pattern. The morphology of the vessels are glomerular. The dermoscopic features obtained are in accordance with pigmented genital warts.

Histopathological examination is an invasive examination to establish diagnosis of atypical genital warts. Atypical genital warts are associated with high-risk HPV infection. In addition, histopathological examination can also be used to rule out the differential diagnosis of

genital warts (e.g. malignancy), and genital warts which do not respond to standard therapy or worsen after therapy.^{8,10} Histopathological features of genital warts include epidermal hyperplasia, parakeratosis, koilocytes, and papillomatosis.¹¹ Keratohyalin granules and koilocytes are scattered in the stratum granulosum. Koilocytes are keratinocytes with a pyknotic basophilic nucleus, surrounded by a halo and cytoplasmic vacuolation.^{9,22} The histopathological features of the case showed hyperkeratosis, acanthosis, papillomatosis, and koilocytes, with increased number of melanocytes in the basal layer. In the dermis there is fibrocollagen connective tissue surrounded with inflammatory cells, lymphocytes and dilated blood vessels. In our case, PCR was not performed due to limitation in our center, and the diagnosis of pigmented genital warts was based on the correlation between clinical manifestation, dermoscopy, and histopathological examination.

Conclusion

The use of dermoscopy is necessary in dermatology practice to enhance the diagnostic utility of skin diseases, including genital warts. Identification of specific dermoscopic features in correlation with clinical manifestation and histopathology can be used to establish the diagnosis of pigmented genital warts. Further research is needed to determine the specificity and sensitivity of specific dermoscopic features for confirming diagnosis of all forms of genital warts.

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