

Dermoscopic Characterization of Zoon Balanitis: First Case Series from Asia

Abstract

Zoon balanitis is a rare chronic inflammatory dermatosis involving genitalia. It is often misdiagnosed or diagnosed late leading to significant patient distress. Dermoscopy can act as a useful modality in prompt diagnosis of zoon balanitis. Herein, we report dermoscopic findings in twelve lesions of zoon balanitis in seven patients.

Keywords: Dermoscopy, genital dermatoses, zoon balanitis

Introduction

Zoon or plasma cell balanitis originally described in 1952 by Zoon, is a chronic, benign, nonvenereal, inflammatory disorder of genitalia.^[1] Though it is believed to be a rare disorder, the reason for that could probably be ascribed to it being underdiagnosed in the clinics.^[2] Zoon balanitis clinically presents as indolent, solitary or multiple, well-defined, red macules to slightly elevated plaques over glans, prepuce, or coronal sulcus, with a characteristic shiny glazed surface.^[3] The erythematous macules can have overlying pinpoint red dots known as cayenne pepper spots. Uncircumscribed males of age group 40 to 80 are typically afflicted. The condition is usually asymptomatic though some patients may have pruritis, pain, or burning sensation.

Zoon balanitis is a concerning disorder for patients owing to the sensitive location of the area involved. It is equally challenging to physicians considering its prognosis and at times difficult management. Dermoscopy has lately come up as a useful modality in diagnosis of inflammatory disorders. The rapid and noninvasive nature of the procedure can make it a valuable modality for prompt diagnosis of zoon balanitis. We described dermoscopic findings in seven patients of zoon balanitis.

Material and Methods

This study was carried out with the aim to describe the dermoscopic features of

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zoon balanitis. Patients presenting to the outpatient department with clinical and histologically confirmed diagnosis of zoon balanitis were recruited in the study. Dermoscopic examination was done at the first visit using non-contact polarized light dermatoscope (DermLite DL4 × 10; 3 Gen, San Juan Capistrano, CA, USA), and images were captured using dermlite adaptor for iPhone X. Dermoscopic examination of two target lesions was done in patients with multiple lesions. Dermoscopic findings were analyzed for the presence of vessels, background color and other findings by two independent dermatologists and tabulated.

Results

A total of seven biopsy-proven patients of zoon balanitis were seen in our outpatient department from July 2018 to July 2020 (average age 57.2, average duration of illness 7.4 months). Five patients had multiple lesions and two patients had a single lesion (involving glans penis in 4, glans and inner foreskin in 2, coronal sulcus and inner foreskin in 1). Thus, dermoscopy of a total of 12 lesions from seven patients were analyzed. The most common dermoscopic findings seen were the presence of focal or diffuse reddish-orange to rust-colored structureless areas (100%, 12/12) along with vessels of various morphologies (100%, 12/12) [Figure 1a-c]. The various morphology of vessels seen was curved, spermatozoa shaped (linear irregular vessels ending in a swollen end),

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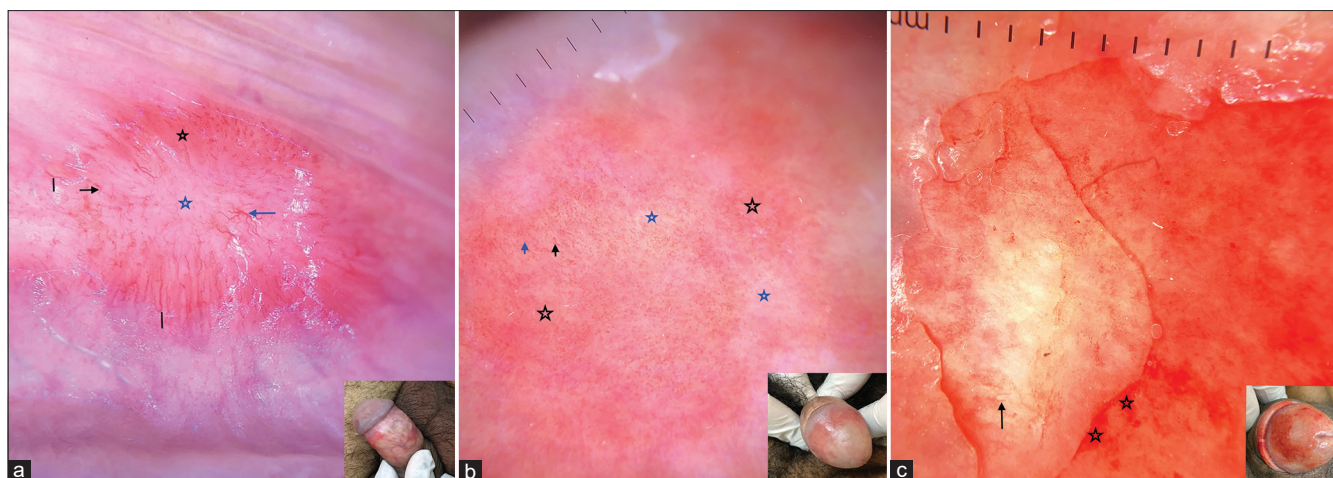


Figure 1: (a) Dermoscopy of zoon balanitis displays focal reddish-orange structureless areas (black star) along with yellow-white areas (blue star). Serpentine (black line), spermatozoa shaped (black arrow), and arborizing (blue arrow) vessels seen. Curved, dotted, linear blurry vessels also visualized; (b) dermoscopy of another patient showing diffuse rust colored areas (black star), yellow-white areas (blue star), serpentine (blue arrow), and spermatozoa (black arrow) shaped vessels; (c) prominent red blotches (black star), polymorphic vessels including looped vessels (black arrow) seen over diffuse rust colored structureless areas. Yellow-white areas also visualized. (inset shows clinical image)

serpentine (spermatozoa shaped vessels without swollen end/linear vessels with bends), linear irregular blurry vessels, dotted, looped vessels (linear vessels forming a hairpin structure), and arborizing vessels. Curved and serpentine vessels were the most commonly visualized, present in all the lesions, followed by linear irregular blurry, spermatozoa shaped, dotted, looped and arborizing vessels, the latter visualized in only one lesion. Other significant dermoscopy finding seen in the study was the presence of yellow-white areas which was present in 10 lesions (83.3%). The dermoscopic findings visualized are summarized in Table 1.

Discussion

Zoon balanitis is a rare, chronic disorder involving the genitalia.^[1] Though the etiology of zoon balanitis is still not completely clear, chronic mucosal irritation stemming from retention of urine and smegma in uncircumcised males along with trauma, friction, and heat are believed to be major factors implicated.^[2] Histopathology of zoon balanitis is characterized by epidermal atrophy, spongiosis, suprapapillary clefts, necrotic keratinocytes, and lozenge-shaped keratinocytes, with dense dermal infiltration of plasma cells, hemosiderin deposition, and red cell extravasation.^[2,4] Vacular dilatation and proliferation are characteristically present with upper dermal fibrosis seen in later stages. It is important to note that there is no keratinocytic dysplasia. Dermoscopy has recently come up as a useful diagnostic modality in inflammatory disorders owing to the rapid visualization of findings and the noninvasive nature of the procedure.

The dermoscopic finding of vessels of various morphologies present over orangish structureless areas

Table 1: Dermoscopic findings of zoon balanitis

Dermoscopic findings	Number of lesions (%)
Reddish-orange to rust colored structureless areas	12 (100)
Focal	6 (50)
Diffuse	6 (50)
Vessels	
curved	12 (100)
serpentine	12 (100)
linear irregular blurry	11 (91.6)
spermatozoa shaped	9 (75)
dotted	9 (75)
looped	2 (16.6)
arborizing	1 (8.3)
Other findings	
Yellow-white areas	10 (83.3)
Red blotches	2 (16.6)

seen in the present study is in line with observations made in previous studies.^[5,6] The presence of reddish-orange structureless areas upon dermoscopy can be attributed to the combination of underlying vascular dilation, red cell extravasation and hemosiderin deposition in the dermis seen in histopathology of zoon balanitis, whereas vessels visualized upon dermoscopy are secondary to epidermal atrophy which makes the underlying dermal vasculature become more prominent.^[3] The finding of yellowish-white areas seen in the present study has not been described earlier. Upon clinical correlation, we found that this finding was present in patients with disease duration longer than 6 months, whereas it was not visualised in early lesions. We believe that yellowish-white areas represent the

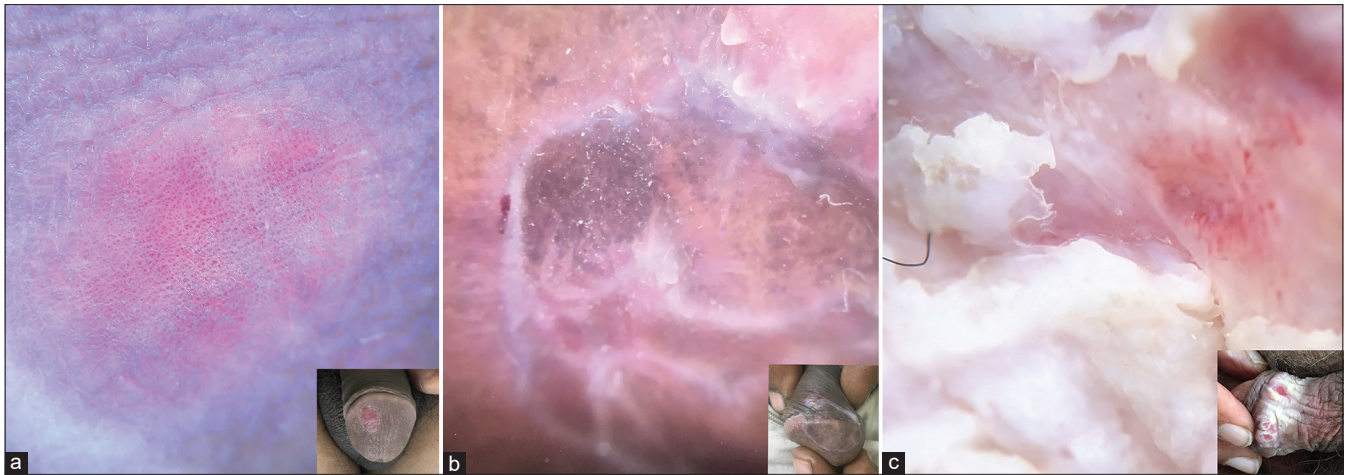


Figure 2: (a) Dermoscopy of psoriatic balanitis shows regular dotted vessels; (b) dermoscopy of genital lichen planus shows pearly white streak representing Wickham striae; (c) dermoscopy of genital candidiasis showing cottage-cheese structures with linear blurry vessels (inset shows clinical image)

underlying dermal fibrosis which is seen in later stages of zoon balanitis, which further explains its appearance in patients who had a longer disease duration. We also found red blotches in two lesions that could be secondary to erosion, hemorrhage and underlying red cell extravasation.

Zoon balanitis needs to be differentiated from disorders such as erythroplasia of queryat, genital psoriasis, genital lichen planus, candidal balanitis, seborrhoeic dermatitis and non-specific balanoposthitis. Erythroplasia of Queryat has presence of scattered glomerular vessels, whereas genital psoriasis and lichen planus can be differentiated from zoon balanitis by presence of regular dotted/bushy vessels and deep pearly white streaks arranged in different patterns representing wickhams striae, respectively [Figure 2a and b].^[7-9] Dermoscopy of candidal balanitis shows cottage-cheese like structures (corresponding to yeast colonies) with linear blurry vessels [Figure 2c].^[10] Zoon balanitis can be differentiated from seborrhoeic dermatitis and non-specific balanoposthitis on dermoscopy as the latter have been observed to show linear irregular unspecific blurry vessels without the reddish-orange to rust-colored structureless areas seen in the former.

Though dermoscopy of zoon balanitis has been described but in a handful of studies from the western part of the world, it is remarkable to note that upon detailed literature research, we could not come across any dermoscopic description of the disorder in Asian patients. The fact that zoon balanitis is often either misdiagnosed owing to the difficulty faced in differentiating it from its clinical mimickers or it is diagnosed late adds to significant distress of the patient. Given the presence of distinct dermoscopic findings, dermoscopy can add as a rapid tool in diagnosis of zoon balanitis thus averting the need for invasive procedures like biopsy, which in itself adds to the anxiety of the patient given the area involved.

In conclusion, dermoscopy of zoon balanitis demonstrates focal to diffuse reddish-orange to rust-colored structureless areas along with polymorphic vessels namely, short curved, spermatozoa shaped, serpentine, linear irregular blurry vessels, dotted, convoluted, arborizing, with or without associated red blotches, and yellow-white areas which are visualized in late lesions.

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Conflicts of interest

There are no conflicts of interest.

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