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Case Report

Dermoscopy manifestations of aquagenic wrinkling of the palms

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Aquagenic wrinkling of the palms (AWP) is a rare acquired cutaneous condition which commonly manifests as symmetrically distributed multiple flesh-colored to yellowish papules on the palms. Transient edematous change of the lesions after several minutes of water exposure is a characteristic sign. The diagnosis is usually made clinically. However, as a non-invasive and convenient tool, dermoscopy can help confirm the diagnosis of AWP. Typical manifestations include enlarged sweat duct puncta, tripe-like structures, and wood's bark sign. We report a case with aquagenic wrinkling on the left palm and its dermoscopic findings.

Keywords: aquagenic wrinkling of the palms, aquagenic palmoplantar keratoderma, aquagenic syringeal acrokeratoderma

1. Introduction

Aquagenic wrinkling of the palms (AWP) , also known as aquagenic palmoplantar keratoderma, aquagenic syringeal acrokeratoderma(1), is an acquired skin condition that mainly affects the palms. The lesions become edematous and look more prominent after water exposure. Water immersion test with positive hand-in-the-bucket sign is also an important clinical manifestation of AWP(1). With its unique clinical manifestations, the diagnosis can be made clinically. However, skin biopsy is usually necessary to make definite diagnosis and differentiate it from other clinically similar diseases such as aquagenic urticaria, aquagenic pruritus, or allergic contact dermatitis. Histopathology typically reveals dilated and tortuous acrosyringium and orthokeratosis(2). Dermoscopy is a tool that can bridge between human eyes and microscopy, offering more information in the diagnosis of AWP. The typical manifestations under dermoscopy includes sweat duct pores(3-5), which indicate dilated acrosyringium in histopathologic specimens, tripe-like structures(6), and Wood's bark sign(7). We report the dermoscopic findings of a 26-year-old female with AWP to show that dermoscopy provides a non-invasive way to help make the diagnosis and is an effective tool to distinguish AWP from other possible differential diagnosis. The purpose of this article is to emphasize the value and usefulness of dermoscopy in dermatologists' daily practice so that we can prevent unnecessary biopsy in diagnosing particular skin diseases such as AWP.

2. Case report

This is a 26-year-old female who denied having any medical history with several asymptomatic yellowish papules and lichenoid plaques over her left palm for 10 years (Fig.1). The plaques became more prominent and swelling after handwashing and bath, which would restore to their original state when the skin areas returned to dry. Dermoscopic examination of the affected areas revealed enlarged whitish to yellowish globules (Fig.2A). Tripe-like structures (Fig.2B) were also noted. Pathologic findings of the biopsy specimens showed dilated acrosyringium with orthokeratotic stratum corneum (Fig.3A, B). According to the information above, the

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Fig. 1 Clinical appearance of the patient's left palm. Note the flesh-colored to yellowish papules and lichenoid plaques around the thenar and hypothenar eminences.

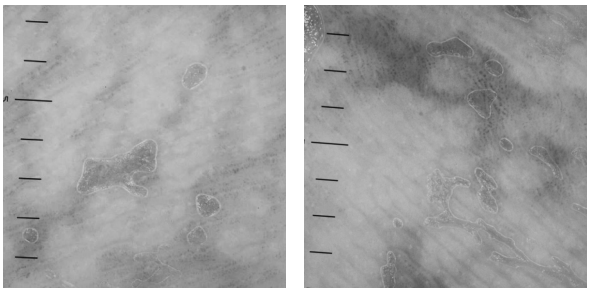


Fig. 2 Dermoscopic images of the lesions on the left palm. A, Closed, large, whitish to yellowish globules. B, Tripe-like structures.

diagnosis of aquagenic wrinkling of the palms was confirmed. It has showed some improvement after topical aluminum chloride application. We suggested the patient to receive botulinum toxin injection if the lesions are refractory.

3. Discussion

Aquagenic wrinkling of the palms (AWP) is a rare acquired skin condition that predominantly affects young women (5). It is characterized by multiple flesh-colored to yellowish papules affecting the distal extremities, with transient edematous change after water or sweat exposure. It usually symmetrically involves the palms or, less often, the soles and dorsal skin. The lesions are commonly asymptomatic. However, symptoms such as pruritus, burning, and pain have been described (8). Though hypotheses such as stratum corneum defect, abnormality of

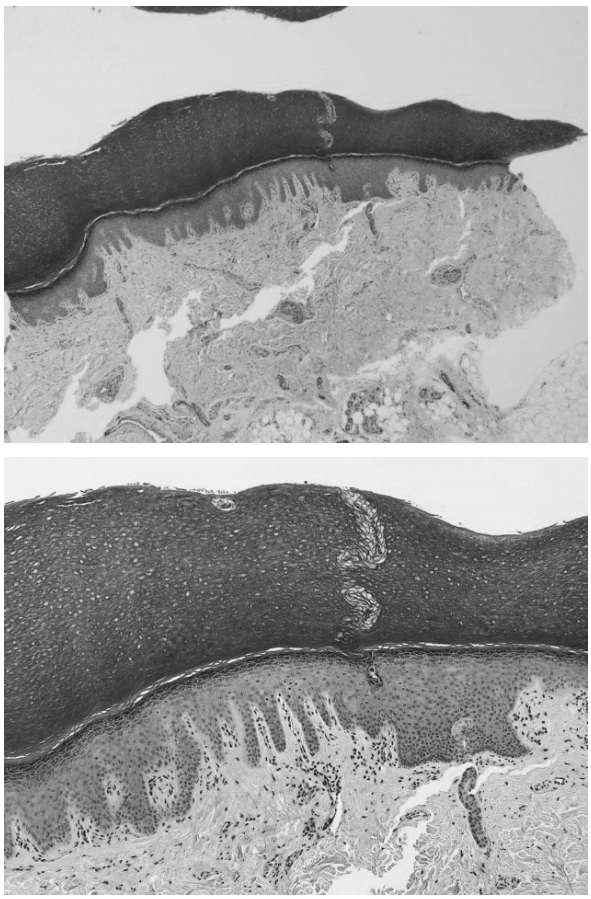


Fig. 3 Pathologic images of the lesions on the left palm. A, Low-power field showed dilated acrosyringium in the stratum corneum (green arrow).(H and E, ×40) B, High-power field showed orthokeratosis. Note the eccrine secretory duct (black arrow) and its dilated acrosyringeal part (yellow arrow). (H and E, ×100)

sweat ducts, and sodium retention within epidermal keratinocytes exist(9), the exact pathogenesis is still poorly understood. Water immersion test can be demonstrated when the hands are submerged into warm or cold water for 3–5 minutes. It indicates a positive hand-in-the-bucket sign(1) if rugated whitish papules or plaques emerge. Histopathologic examination revealed marked dilated and tortuous acrosyringium with orthokeratosis(2). In the biopsy specimen of our case, acrosyringium dilation within orthokeratotic stratum corneum is prominent (Fig.3A, B), which is compatible with the diagnosis of AWP.

Besides clinical and histologic examinations, dermoscopy can be a helpful tool in diagnosing AWP. Normal palmar sweat duct pores, the openings of acrosyringeal structures, locate between the sulcus

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superficialis (the parallel furrows on the palms) and manifest as small, rounded, whitish spots under dermoscopy(5). At AWP lesions, it discloses enlargement of the sweat duct pores compared with those at the unaffected areas(3-5). The enlarged puncta correspond to dilated acrosyringium observed in histopathologic specimens. The enlarged globules, accompanied with parallel furrows can form tripe-like structures(6) under dermoscopy. In our case, dermoscopy reveals whitish to yellowish globules (Fig.2A), which indicate enlarged sweat duct pores, and typical tripe-like structures (Fig.2B). An article also reported wood's bark sign, which is described as translucent globules of AWP arranged in concentric rings resembling the barks of woods. This sign is a dermoscopic finding of patients with whorl pattern of dermatoglyphics(7). Wood's bark sign is not seen in our case. Among the possible clinical differential diagnosis such as aquagenic urticaria, aquagenic pruritus, or allergic contact dermatitis, none of which possesses similar dermoscopic findings mentioned above. Therefore, dermoscopy can improve the accuracy of AWP diagnosis without skin biopsy. However, dermoscopy do have limitations. First, dermoscopy does not provide definite diagnosis. For AWP with ambiguous dermoscopic manifestations, biopsy is still necessary to confirm the diagnosis. Second, secondary epidermal changes such as excoriations, topical agents use, or skin destruction from previous therapy may decrease the accuracy of dermoscopy. Third, dermoscopy reading requires relatively long-term training and experience, which limits its universality. Nevertheless, dermoscopy is a safe, non-invasive and convenient tool. It provides more detailed information in the diagnosis of AWP, which in turn reduces unnecessary biopsy.

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