

## Interdigital Bowen's Disease: An Unusual Localization and Literature Review

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### Abstract

Bowen's disease, an intraepithelial neoplasm of keratinocytes, is characterized by a sharply demarcated, asymptomatic, scaly or crusted, erythematous plaque that is slow growing. It may progress into invasive squamous cell carcinoma. It most commonly affects sun-exposed surfaces of elderly females. Herein we report a case of Bowen's disease in the web-space of both feet for 1 year who was initially diagnosed as tinea pedis. The rarity of this presentation in dermatology is emphasized.

**Keywords:** Bowen disease; Interdigital; Web-spaces

### Introduction

Bowen's Disease (BD), also known as squamous cell carcinoma *in situ*, predominantly occurs in patients older than 60 years. The lesions are most commonly located on sun-exposed surfaces, primarily head, neck, and limbs [1,2]. BD of the interdigital space is very rare and may mimic various benign conditions such as tinea pedis or other web space infections [3]. We report an unusual case of BD arising in the interdigital space of both feet and emphasize the rarity of this presentation in dermatology.

### Case

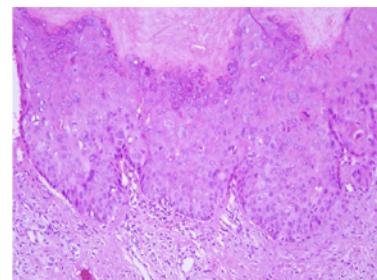
A 84-year-old woman had asymptomatic interdigitinous lesions that had appeared 1 to 2 years earlier on the right foot, and had new lesions on the left foot for the past 3 months. Previous topical and systemic antimycotic treatment had no effect. Examination revealed sharply marginated erythematous and crusted plaques, some of them with central maceration and fissures, in the web-spaces of the second, third, and fourth toes on the right foot and in the web-spaces of the fourth toes on the left foot (Figure 1). Histopathologic findings showing acanthosis, full-thickness epidermal atypia, numerous abnormal mitosis and dyskeratosis (Figure 2) were consistent with a diagnosis of Bowen's disease. The patient refused surgical excision and cryotherapy as treatment, and she had been advised to apply imiquimod cream once daily for 5 days per week but she did not attend the out patient clinic for evaluation.

### Discussion

Bowen's disease is an intraepithelial neoplasm of keratinocytes that may eventually progress into invasive squamous cell carcinoma. It is characterized by a sharply demarcated, erythematous, keratotic or crusted plaque that is slow growing [1,2]. While BD occurs most frequently on sun-exposed areas of the body, interdigital BD affecting the web-spaces of feet has rarely been reported. Kendler et al. described

a case of BD with interdigital presentation, treated by microscopically controlled surgery [3]. Liu et al. reported a case of interdigital BD treated with excision and digital syndactylization [4]. Masuda et al. described HPV type 16 related BD in a 41-year-old man with involvement of the web-spaces of both feet. In their case spontaneous complete regression was achieved. They stated that HPV-infected keratinocytes undergo Fas-induced apoptosis in the event of spontaneous regression of HPV-related Bowen's disease [5]. Wong et al. reported four patients with BD on the digits, two patients had on the fingers and two on the toes, treated with photodynamic therapy and suggested that photodynamic therapy is an effective and noninvasive method to treat digital BD [6]. Although interdigital BD is rare, polydactylous BD described by Baran and Gormley is more rare [7]. Koch et al. described the first case of polydactylous BD, involving both hands and feet, presenting as chronic verrucous lesions [8].

The risk factors of BD include significant sun exposure, arsenic ingestion, immunosuppression and infection with human papilloma virus [1]. Recently, the exposure of skin to perticides are also discussed as a cause of BD in farmers [9]. None of these pathogenic factors had been identified in the present case. Although generally believed to be associated with internal malignancies, patients with BD do not have a



**Figure 2:** Histopathologic findings showing acanthosis, full-thickness epidermal atypia, numerous abnormal mitosis and dyskeratosis.



**Figure 1:** Erythematous and crusted plaques with central maceration in the web-spaces of the fourth toes on the left foot.

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higher general cancer risk; however, they do have a much higher risk for future non-melanoma skin cancer [10]. Many therapeutic options are available to treat BD, including curettage with electrocautery, CO<sub>2</sub> laser vaporization, cryotherapy, photodynamic therapy, topical 5-fluorouracil and imiquimod. Mohs' micrographic surgery is highly effective [1]. However, cases of BD showing spontaneous partial or complete regression have been reported in the literature [11,12]. We report an unusual case of BD arising in the interdigital space of both feet in a female patient. Because interdigital BD can be misdiagnosed due to the benign appearance of the tumour, a neglect of the lesion can contribute to progress to invasive carcinoma. Therefore, it is important to realize that rare cases do occur in interdigital areas and a biopsy is mandatory in these cases.

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