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Title

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Journal

Dermatology Online Journal, 22(10)

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Publication Date

2016

DOI

10.5070/D32210032905

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Peer reviewed

Photo vignette

Cutaneous alternariosis in an immunocompetent patient

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Dermatology Online Journal 22 (10): 12

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Abstract

Alternaria species are a type of dematiaceous fungi that cause a wide spectrum of disease with cutaneous infections being the most common. These infections are most common in immunocompromised individuals. However, only a few cases of primary cutaneous alternariosis have been reported in immunocompetent patients. We present a case of an otherwise healthy 13-year-old male who presented with primary cutaneous alternariosis on his left ankle that responded to the use of topical econazole and oral itraconazole. We also provide a review of previously described cases of primary cutaneous alternariosis in the literature.

Key-words: Cutaneous alternariosis, immunocompetent, phaeohyphomycosis

Introduction

Alternaria species are pigmented filamentous fungi widely found in nature including animals such as dogs and cats. They are also considered soil saphrophytes and plant pathogens. In humans, they cause a broad spectrum of disease including sinusitis related allergic reactions, pulmonary and CNS involvement related to disseminated infection, and cutaneous infections [1]. These opportunistic fungi typically infect immunocompromised hosts. Rarely, *Alternaria* species cause disease in patients that are immunocompetent. We describe a case of primary cutaneous alternariosis in an otherwise healthy individual. We also provide a review of previously reported cases in the literature.

Case synopsis

A 13-year-old African American male presented with a non-healing, crusted lesion on his left ankle. About 9 days prior, the patient had been kicked to the affected area during a sporting event causing a posttraumatic abrasion. It was subsequently contaminated by dog saliva. Over the next few days, the area became painful to touch and formed a crust. The patient had no other medical problems and was not on any medications at the time of presentation. He denied any prior treatment before presentation and bacterial cultures obtained at the emergency room a few days prior to presentation revealed normal skin flora. Examination revealed a 12mm tightly adherent crusted plaque with a rim of indurated tissue.



Figure 1. The left ankle shows a 12mm heme crusted plaque with a rim of induration and scale.

The affected area was nontender, but was draining clear fluid. On histology septal hyphal fungal elements were intermixed with neutrophilic and eosinophilic infiltrates.

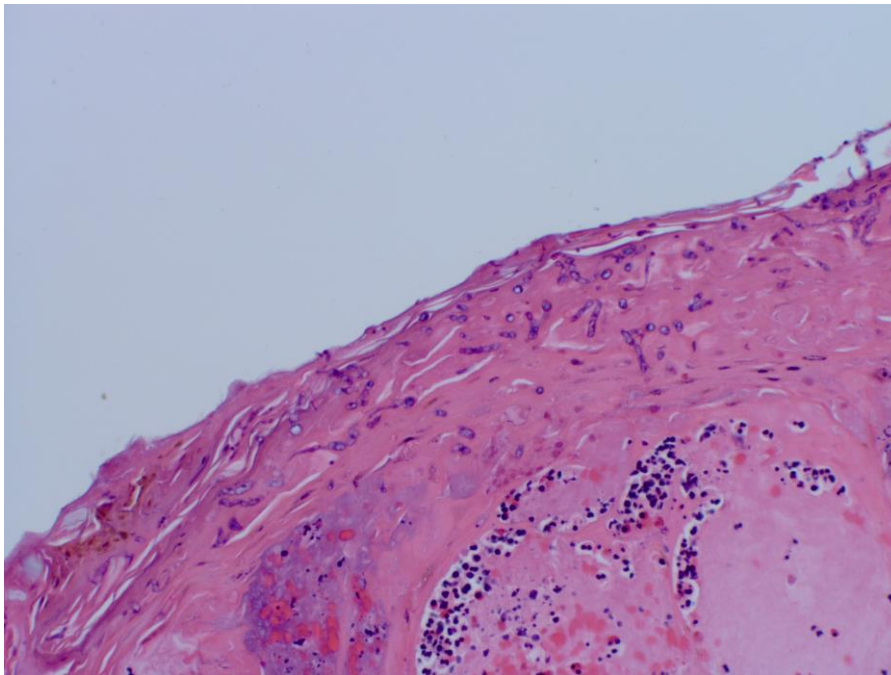


Figure 2. H&E stain at medium power demonstrating branching hyphal elements and pigmented conidia in short chains in the epidermis with a mixed inflammatory infiltrate.

Histology was followed up with tissue cultures that grew *Alternaria spp.* confirming a diagnosis of cutaneous alternariosis. The patient completed four weeks of twice daily topical econazole 1% cream and two weeks of oral itraconazole 200mg once a day. The lesion was noted to be resolved at the 4 week follow up.

Discussion

Alternaria species are a type of dematiaceous fungi found ubiquitously in nature including human and animal skin [2]. They have a characteristic dark pigmentation that results from melanin deposition in their cell walls. They uncommonly cause infection in humans with a wide spectrum of clinical disease from systemic involvement to local organ manifestations. The most common local infections include cutaneous and subcutaneous infections (74.3%), oculomycosis (9.5%), rhinosinusitis (8.1%), and onychomycosis (8.1%) [2]. Cutaneous and subcutaneous infections of *Alternaria* are usually associated with some form of local trauma or immunosuppression [2]. The majority of reported cases occur in patients with a history of solid organ transplant, Cushing's syndrome, or systemic immunosuppression [2]. There has been an increasing incidence of cutaneous alternariosis [1]. This may be a reflection of the parallel increase in the use of immunosuppressive medications.

We describe a case of primary cutaneous alternariosis in an immunocompetent patient with none of the previously described risk factors for immunosuppression. To the best of our knowledge, there have only been seven reported cases of primary cutaneous alternariosis in immunocompetent patients.

Table 1. Previously reported cases in immunocompetent patients.

Authors	Year	Patient Age/Sex	Distribution	Associated Trauma	Species Identified	Treatment
Current Report	2015	13/Male	Ankle	Kicked during sporting event	<i>Alternaria spp.</i>	Oral itraconazole, topical econazole 1%
Hu et al.	2014	28/Male	Leg	Tripped over a stone	<i>Alternaria arborescens</i>	Oral itraconazole, topical amphotericin B 0.25%
Dessioniti et al.	2013	58/Male	Dorsal Hand	Lemon tree thorn	<i>Alternaria alternata</i>	Oral fluconazole, topical bifonazole 1%
Matson et al.	2010	17/Male	Ankle	Laceration	<i>Alternaria spp.</i>	Oral itraconazole
Gurcan et al.	2009	71/Male	Ankle	Not reported	<i>Alternaria alternata</i>	Oral itraconazole, topical bifonazole, oral/topical griseofulvin
Williams et al.	2008	85/Male	Thigh	No trauma	<i>Alternaria spp.</i>	Oral itraconazole
Ono et al.	2004	48/Female	Knee	Not reported	<i>Alternaria alternata</i>	Oral itraconazole
Robb et al.	2003	6/Male	Cheek	Not reported	<i>Alternaria spp.</i>	Oral fluconazole, topical econazole

Most cases involved some form of trauma and involved the lower extremities. There was one reported case involving the dorsum of the hand due to trauma from a thorn [3] and one case with a lesion on the cheek [4]. Two of the cases reported infection of the ankle from a previous laceration [5, 6], one case reported cutaneous infection of the thigh [7] another case involved the knee [8], and one case involved the anterior tibia after an abrasion outdoors [9]. One study concluded that of the 29 total *Alternaria* cases they found in literature, all infections were on the extremities including forearms, legs, hands, knees, thighs, wrists, ankles, tibia, and elbow [9]. Since these areas are more injury prone, it further emphasizes that trauma is likely to be one of the risk factors for cutaneous alternariosis. Moreover, among the 29 cases, two cases (3.5 % each) were infected by *Alternaria tenuissima* and *Alternaria arborescens*, respectively, 18 cases (62 %) were *Alternaria alternata*, the remaining nine cases (31 %) were not identified and reported as, *Alternaria spp.* [9].

Lesions of cutaneous alternariosis have a variety of presentations on examination and include thickening, ulcerations, nodules, plaques, scales, and erosions [3-9]. This variation makes clinical diagnosis difficult and often requires laboratory isolation and identification of the organism via culture or biopsy. There is currently no standardized therapeutic management. Some cases have reported the use of surgery, but systemic or topical antifungals are more frequently used [2]. Itraconazole has become the most common therapy and generally has favorable outcomes [2, 4, 10]. Sharkey et al. reported successful outcomes with itraconazole in 11 of 17 patients with phaeohyphomycosis [10]. Moreover, combined oral and topical azole therapy has also shown success [4]. Oral itraconazole for two weeks with concurrent topical econazole for four weeks elicited clinical improvement in our patient with no recurrence three months after treatment.

Conclusion

Cutaneous alternariosis is becoming increasingly more common. Although it is generally encountered in immunocompromised hosts, our case demonstrates the rare occurrence in immunocompetent patients. It is important to remember that clinical presentations vary and that some patients may not have a history of previous local trauma. Most cases require culture for identification. There is no standardized treatment for cutaneous alternaria, but patients generally do well with oral azole therapy with good outcomes and low rates of toxicity [10].

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