GEOTRICHUM INFECTION, CLINICAL SIGNIFICANCE

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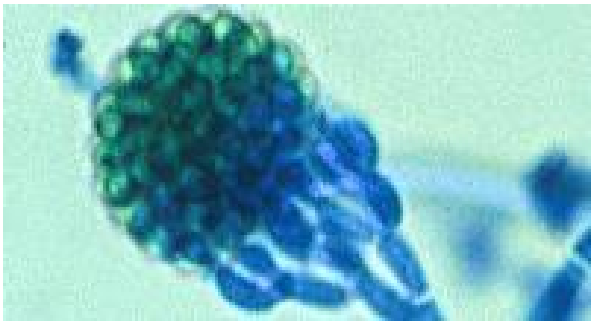
Abstract

Geotrichum is a genus of fungi found worldwide in soil, water, air, and sewage, as well as in plants, cereals, and dairy products; it is also commonly found in normal human flora and is isolated from sputum and feces.The genus Geotrichum includes several species.Geotrichum candidum is the causative agent of geotrichosis. Geotrichosis affects mainly the patients who are immunocompromised due to some underlying disease such as neoplasms, diabeties mellitus, leucosis, renal transplant and HIV. We have a case report of acute eczema. CBC revealed eosinophilia: 23.3% and stool examination – hyphae: Geotrichum. Gastrointestinal infection with Geotrichum is an exceptional infection treated as oral candidiasis.G. candidum may be isolated from the flora of a small proportion of patients, either normal individuals or those with an immunocomprosided status.Hygiene is very important, as well as all public health measures for environmental health.

Key Words: Geotrichum candidum, Geotrichosis, fungi, hyphae, secondary hypereosinophilia, immunocompromised host.

INTRODUCTION

Geotrichum is a genus of fungi found worldwide in soil, water, air, and sewage, as well as in plants, cereals, and dairy products; it is also commonly found in normal human flora and is isolated from sputum and feces.(21)



Domsch, K.H., W. Gams, and T.H. Anderson. 1980. Compendium of soil fungi. Volume 1. Academic Press, London, UK(2)

G. candidum can be isolated as part of the resident microflora in humans and animals. It can cause localized as well systemic disease in humans and animals including birds.(19)

The genus *Geotrichum* includes several species: The most common species is *Geotrichum candidum*. *Geotrichum clavatum* and *Geotrichum fici.(6)*

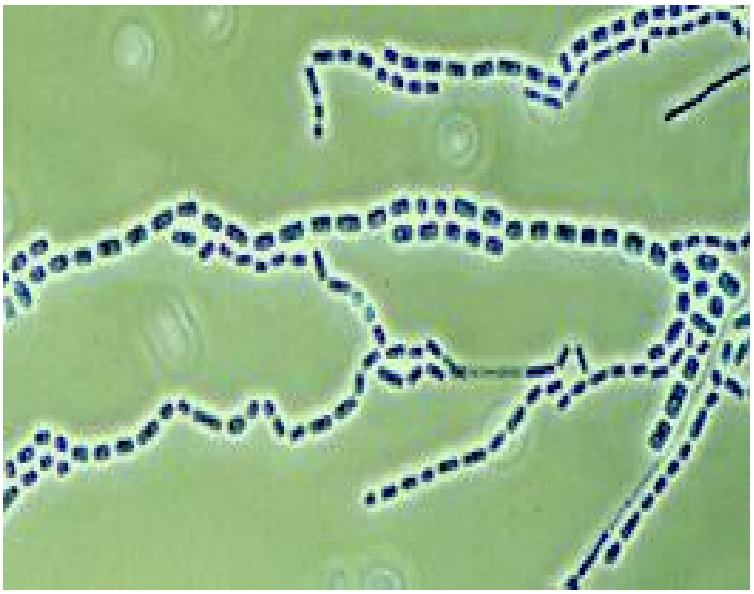
Geotrichum candidum is an extremely common fungus with a world-wide distribution and is the causative agent of geotrichosis(11,18). Pulmonary involvement is the most frequently reported form of the disease, but bronchial, oral, vaginal, cutaneous and alimentary infections have also been reported.(4,8,12)

Geotrichosis affects mainly the patients who are immunocompromised due to some underlying disease such as neoplasms, diabeties mellitus, leucosis, renal transplant and HIV. The clinical diagnosis must be supported by laboratory tests.Direct microscopic demonstration of pathogen in clinical specimens and its repeated isolation in pure and luxuriant growth still remain the gold standard of diagnosis of geotrichosis in humans and animals.(1).

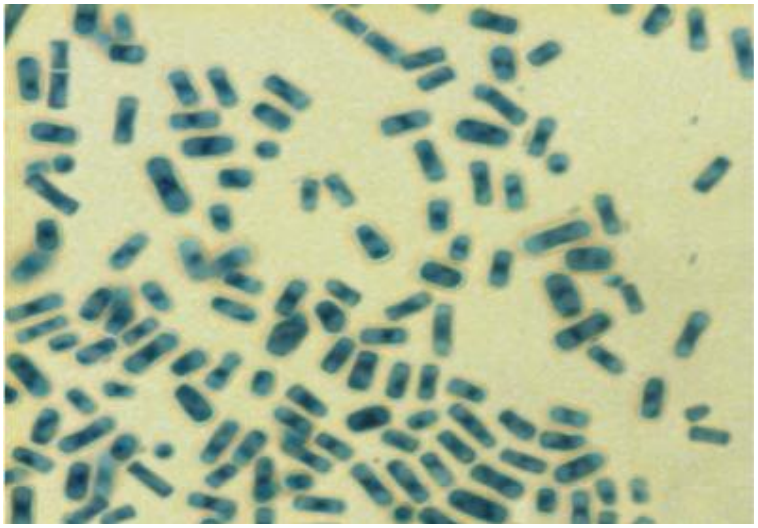
Species of the genus *Geotrichum* produce chains of hyaline, smooth, one-celled, subglobose to cylindrical, slimy arthroconidia (ameroconidia) by the holoarthric fragmentation of undifferentiated hyphae. The arthroconidia, which are quite variable in size, may germinate at one end giving the appearance of a bud. However, the latter develops into a septate mycelium.

True blastoconidia production is not found in the genus. This characteristic distinguishes the genus *Geotrichum* from *Trichosporon*, which usually does produce blastoconidia.(20)

On Sabouraud's dextrose agar, colonies are fast growing, flat, white to cream, dry and finely suede-like with no reverse pigment. Hyphae are hyaline, septate, branched and break up into chains of hyaline, smooth, one-celled, subglobose to cylindrical arthroconidia. They are 6-12 x 3-6 um in size and are released by the separation of a double septum.(7,9)



Arthroconidium development in *Geotrichum candidum.(6,9)*



Geotrichum candidum isolated from feces showingcharacteristic rectangular arthrospores as demonstratedby lactophenol cotton blue staining (×400).(6,9)

MATERIAL AND METHODS

We have a case report of a 78 years old woman who presented Dermatology Department of Clinical Hospital Oradea with papular, vesicular lesions on an erithematous base, generalized eruption, pruritic, associated with face edema.History revealed abrupt unset 2 days ago, no drug intake, no bites, erosions/ulcerations, allergic reactions/asthma.

Clinical diagnosis is acute eczema.

In our attempt to find ethiology of disease we performed lab investigations: blood samples, stool and urine analysis.

RESULTS AND DISCUSSION

Lab investigations revealed eosinophilia: 23.3% . In this situation we had to investigate first all causes of reactive eosinophilia(10): Helminthic (ie, worm) parasitic infections first of all, but also secondary hypereosinophilia(13,15) such as seen in nonmyeloid malignancies (eg, Hodgkin lymphoma; transitional cell carcinoma [TCC] of the bladder; adenocarcinomas of the stomach, colon, and uterus; large cell undifferentiated lung carcinomas; and large cell cervical tumors), allergic reactions, and other conditions(5,17).For this reason stool samples and Computed tomography (CT) scanning of the lungs, abdomen, pelvis, and brain, as well as blood sample for HIV did complete the evaluation.

Surprise came from stool examination - Geotrichum: chains of hyaline, smooth, one-celled, subglobose to cylindrical, slimy arthroconidia (ameroconidia) by the holoarthric fragmentation of undifferentiated hyphae.

No other lab changes were found in order to suspect an immunocompromised host, diabetus mellitus, viral infections, malignancies. Fluconazolum 50mg/day 21 days treatment in association with antihistamines and topical corticosteroids was succesfull. Afer 7 days treatment with Fluconazolum eosinophyles decreased to 6%, and became normal(2%) to the end of treatment.

In this situation, a patient with no history of allergic reactions, asthma, skin diseases, no drug intake, no evidence for malignancy, consider eosinophilia as reactive reaction to infestation. Cutaneous manifestations of acute eczema are justified in this case.

Patient needs several follow-up for candidiasis, oral/systemic, diabetus mellitus, HIV infection, malignancies.

CONCLUSION

Consider this case interesting because of low incidence of the disease thus Geotrichum is a genus of fungi found worldwide in soil, water, air, and sewage, as well as in plants, cereals, and dairy products.

The presented case is rare; infestation with Geotrichum evidenced in stool sample by hyphae and reactive eosinophilia in blood manifested with cutaneous manifestations of eczema to a patient with no history of allergic reactions, asthma, skin diseases, no drug intake, no evidence for malignancy.

Geotrichum candidum may be isolated from the flora of a small proportion of patients, either normal individuals or those with an immunocomprosided status, malignancies, diabetus mellitus.

Gastrointestinal infection with Geotrichum Candidum is an exceptional infection treated as oral candidiasis.

Hygiene is very important, as well as all public health measures for environmental health.

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