Kocaeli Üniversitesi Sağlık Bilimleri Dergisi
Ocak 2016, Cilt 1, Sayı 1, s. 44-46

Journal of Health Sciences of Kocaeli University
January 2016, Vol.1, No.1, pp. 44-46

OLGU SUNUMU

ISOLATION OF ACREMONIUM SP. FROM SUBCUTANEOUS SKIN INFECTION OF A PATIENT WITH CHRONIC LYMPHOCYTIC LEUKEMIA

KRONIK LENFOSITIK LÖSEMILI HASTANIN SUBKUTAN DERI ENFEKSIYONUNDA ACREMONIUM TÜRLERININ IZOLASYONU

[1]Sema Keçeli, [1]Devrim Dündar, [2]Aysun Şikar Aktürk, [2]Rebiay Kıran

ÖZET

Kutanöz Acremonium enfeksiyonları insanlarda nadir görülmektedir. Burada Acremonium sp. Bağlı subkütanöz enfeksiyon gelişen kronik lenfositik lösemili bir olgu sunulmaktadır. Olgunun ilk klinikbelirtisi, sol bacak alt bölge dış yan duvarında meydana gelen yara lezyonu idi. Lezyondan alınan derin doku biyopsi örneğinin mantar kültüründe Acremonium sp izole edildi. Bakteriyel kültürde Enterecoccusfaecalis, E. clocea and Candida albicans izole edildi. Patolojik inceleme sonucu piyodermagangrenosum ve T hücre lenfo proliferatif lezyon olarak sonuçlandı. Bu nedenle olgunun tanısı, combine bakteriyel ve fungal enfeksiyon, ayrıca pyoderma gangrenosum olarak belirlendi. Olgumuza ampisilin/sulbaktam, metilprednizolon, topikalnaftifin, fusidikasid vei trakonazol tedavisi verildi. Aynı zamanda kemoterapi protokolüne devam edildi. Itrakonazol tedavisinden sonar lezyonda iyileşme gözlendi.

AnahtarSözcükler: Acremonium, fungus, lösemi, deri, enfeksiyon, immunsupresyon, ıtrakonazol, amfoterisin B.

ABSTRACT

Cutaneous Acremonium infections in humans is rare. We report a patient with chronic lymphocytic leukemia who developed subcutaneous infection due to Acremonium sp. A wound lesion on distal wall of left lower leg was the first clinical manifestation of the patient. Fungal culture of deep tissue biopsy from the lesion revealed Acremonium species. In bacterial cultures Enterecoccusfaecalis, E. clocea and Candida albicans were isolated. Pathologic investigation resulted as pyoderma gangrenosum and T cell lymphoproliferative lesion. Thus, the diagnosis of patient was considered as combined bacterial and fungal infection plus pyoderma gangrenosum. Thus, the patient was treated with ampicillin/sulbactam, methil prednisolone, topical naftifin and fucidic acid and itraconazole. The chemotherapy protocol was continued at the same time. Healing of the lesion was observed after ıtracanazoleteratment.

Keywords: Acremonium, fungus, leukemia, skin, infection, immunosuppresion, itraconazole, amphotericin B.

Introduction

Fungi of the genus *Acremonium*are enviromental saprophytes in soil but are very rarely pathogenic in humans. In immunocompetent individuals, *Acremonium* species mainly cause foot mycetoma or corneal infections after inoculation during penetrating injuries. *Acremonium* spp. are being increasingly recognised as opportunistic pathogens. They have been reported to be the cause of localized or disseminated infection in immunosuppressed, neutropenic or transplant patients[1,3]. Here, a case of skin infection of which *Acremonium* species isolated from a patient with chronic lymphocytic leukemia (CLL) was reported.

Case Report

A 76 year-old female patient was admitted to our hospital in April 2009 due to skin lesion in her leg. The patient has been a CLL patient since 2003,using chlorambucil and prednisone every month for 5 days. The lesion appeared two months before admission and it was a painless wound lesion appeared on distal wall of left lower leg. She had been prescribed several topical and systemic antimicrobial agents, with a probable diagnosis of pyoderma, without significant benefit. She had been living in a village for a long time and she had The rest of the physical examination was normal. Dermatologic examination revealed an edematous, erythematous and infiltrative 5x7 cm plaque in distal wall of left lower leg. The plaque had irregular borders and 2x3 cm central ulcer surrounded by hemorragic crust. There were no sinus tract or grains (Fig. 1).

She was hospitalized and followed in our Dermatology clinic. The patient's preliminary diagnosis was angiosarcoma, leukemic infiltration, pyoderma gangrenosum or deep fungal infection. During follow up, chemotherapy, (metilprednisolone 64 mg per day) and chlorambucil was continued for 5 days. After 5 days, we continued with only prednisolone for treatment of pyoderma gangrenosum. The laboratory data on admission were as follows: Haemoglobin: 9,6 mg dl-1, haemotocrit: 27%, white blood cell count: 11500cells/mm3. Other blood biochemistry and urin analysis tests were normal. Several swab samples and deep tissue biopsy were obtained for bacterial and fungal cultures. All samples were cultured on sheep blood agar, eosine-methylene-blueagar and Sabouraud' s Dextrose agar (SDA). On routine bacterial cultures, the growth of bacteria and a yeast were detected after 48-hours of incubation at 37 °C. After 72-hours of incubation, mold colonies were also observed in all culture plates. The isolated bacteria and yeast were identified as *Enterecoccus faecalis*, *E.clocae* and *Candida albicans* by VİTEK 2 automatized system (bioMeriéux, France). Then, treatment with topical fucidicacid and naftitinand systemic antibacterial therapy (intravenous ampicillin/sulbactam, 8 gr day-1) were started. All three sets of blood cultures were negative.

[1]Kocaeli Üniversitesi Tıp Fakültesi Mikrobiyoloji AD.

[2]Kocaeli Üniversitesi Tıp Fakültesi Dermatoloj AD.

Geliş
23.12.2015

Kabul
17.01.2016

SorumluYazar
Aysun Şikar Aktürk
Kocaeli Universitesi Tıp Fakültesi
Dermatoloji AD.

Tel:
+90 262 303 74 03
e-posta:
aysun9442@hotmail.com

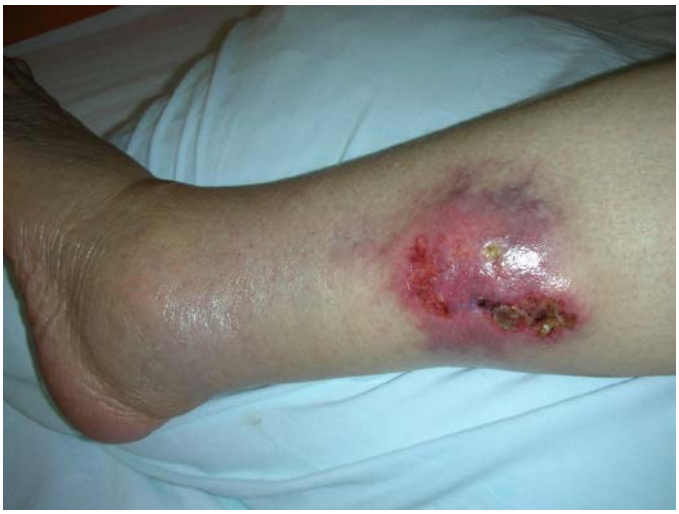

Figure 1. Cutaneous lesion of patient due to *Acremonium* sp.

The isolation and identification of this mold colony was performed in the mycology laboratory of Department of Microbiology. Direct examination of biopsy specimens revealed septated hyphae and several polymorphonuclear leucocytes. The culture of deep tissue biopsy specimen revealed mold colonies on SDA incubated at 26 °C. After one week incubation, downy white tufted colonies with a pink (salmon pink) base had formed (Fig. 2). Direct microscobic investigation with lactophenol cotton blue, revealed septated hyphae, conidiogeneous cells and needle shaped erect slender phialides, clusters of elipsoidal conidia with rounded edges and grouped in slimy heads were observed (Fig. 3). On the basis of colony morphology and its morphology on microscobic observation of the lactophenol cotton blue preperation, the fungus was identified as an *Acremonium* species. The second tissue biopsy culture on SDA revealed the same morphological charecteristics mentioned above. The *in vitro* activities of fluconazole, itraconazole and amphotericin B were determined by E-test (AB BIODISK, Solna, Sweden) using RPMI 1640 medium supplemented with 2% glucose and 0.165 mol l-1 MOPS. Minumum inhibitory concentrations were read after incubation for 72-hours. All antifungal agents tested showed no inhibitory activity.

Pathologic investigation of incisional biopsy revealed pyoderma gangrenosum. Within a week time, the lesion was progresively more infiltrative and edematous, a probable lymphatic system obstruction, therefore lymphedema was suspected. Left inguinal lymph node USG revealed several lymph node (12x6 mm). Superficial skin ultrasonography (USG) revealed 7x8 cm reticular type fluid collection, increase in tissue thickness and inflammatory reaction in cutaneous and subcutaneous tissue. It was considered as T cell leukemic infiltration. Venous doppler USG was normal.

As a result, our case was diagnosed as combined bacterial and fungal infection plus pyoderma gangrenosum. Then, oral itraconazole treatment (200 mg day-1) was started. Few days later, her leucocyte count was detected as 74400 cells/mm^3 and chemotherapy was started (oral chlorambusil) again. In a week time, the lesion began to decrease in size and ulcer in the middle was getting resolved.

Figure 2. Fungal colonies observed in Sabouraud dextrose agar.

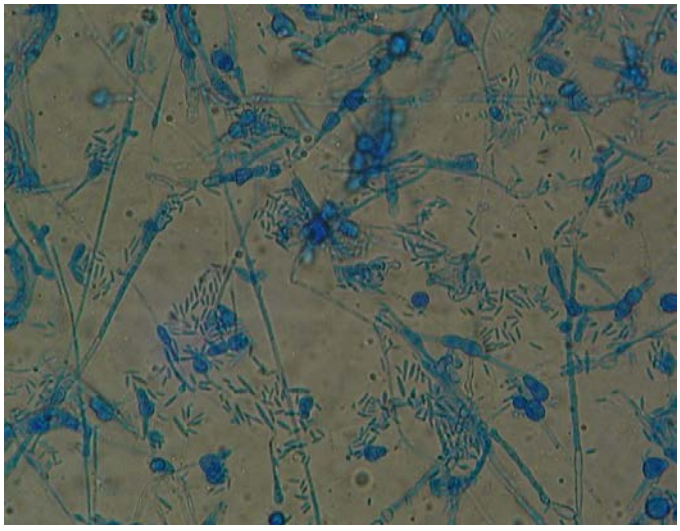

Figure 3. Microscobicappearence of *Acremonium* sp. in lactophenol cotton blue preparation (40x)

One week later, her clinical situation deteroiated, ie. body temperature reached to 39,2 °C, then short of breathness and arythmia occurred while she was on itraconazole (20 days) and ampicillin/sulbactam (22 days) treatment. There was no growth in blood, urine and sputum cultures. Treatment schedule was changed to amphotericin B and imipenem, but unfortunately, she died due to sepsis in June 2009 (within two months of admission) just before this treatment started.

Discussion

This case suggested that *Acremonium* sp. can cause subcutaneous infection in patients with leukemia. The two cases of cutaneous lesions have been published involving transplant patients. The first was described in a heart transplant patient presented a lesion on the knee that was treated with surgery and local therapy.[4] In another case, a subcutaneous infection in a kidney transplant patient was cured with surgical resection of the abcesses and

ketaconazole[5]. In some instances, the species can not be always identified by morphology as described in several reports[6] and in this case.

In most of the cases reported, *A. strictum* is the most commonly identified species. The reason for identification failure include similar morphological appearence among *Acremonium* spp. (*A. strictum, A. kiliense, A. falciforme*) and those of *Acremonium* with other molds such as *Fusarium*. The majority of human *Acremonium* infections have been mycetomas, which are serious chronic infections of distal extremities, presenting with a marked edema, erythema, sinus tract formation, and a granular discharge that usually afflicts young men living in tropical/subtropical regions[6]. It is our opinion that our patient can be considered as an example of subcutaneous infection in which *Acremonium* sp. was isolated and can be diagnosed as pseudomycetoma due to lack of draining sinus tract. In fact, she had a history of working in the garden and contact with soil.

Optimal treatment of *Acremonium*spp. is not well defined. Although Koç*et al*.[3] recommended amphotericin B therapy in invasive infections, certain azoles (fluconazole, itraconazole) were also considered to be effective[7]. Fluconazole resistance was reported in patient with *Acremoniumfalciforme* fungemia[8]. Cure of deep tissue infection has been achieved by posaconazole and voriconazole[3]. However, prolonged voriconazole therapy is recommended for the possibility of recurrence in transplant patients.[9]Itraconazole was used in the treatment of deep tisue infection of our case and the patient had benefit from it. Since she is immunosuppressive and vulnerable to other invasif fungal infections as well, amphotericin B therapy was also planned just before she died.

In conclusion, the incidence of *Acremonium* infection will likely increase with the more frequent use of immunosuppressive agents. Although *Acremonium* spp. are rarely isolated from subcutaneous skin infections, it may cause a deep fungal infection of skin in patients with underlying malignancy as in our case. Therefore, we emphasize the importance of a mycological search for unusual organisms like *Acremonium* species in immunosuppresive patients and early specific treatment against such microorganisms for succesfull outcome.

References

1. Schell AW, Perfect JR. Fataldisseminated*Acremoniumstrictum*infection in a neutropenichost. *J ClinMicrobiol*. 1996; 34: 1333-36.
2. Guarro J, Gams W, Pugol I et al. *Acremoniumspecies*: newemergingfungalopportunists-in vitroantifungalsusceptibilitiesandreview. *ClinInfectDis*. 1997; 25: 1222-1236.
3. Koç AN, Utaş C, Oymak O et al. Peritonitisdueto*Acremoniumstrictum* in a patient on continousambulatoryperitonealdialysis. *Nephron*. 1998; 79: 357-358.
4. Strabelli TM, Uip DE, AmatoNeto V et al. *Acremonium*infectionafterhearttransplant. *RevSocBrasMed Trop*. 1990; 22: 233.
5. Miro O, Fernando J, Lecha V, et al. Abcesossubcutaenospor*Acremoniumfalciforme* en un transplantadorenal. *MedClin (Barc)*. 1994; 102:316.
6. Fincher RME, Fisher JF, Lovell RD et al Infectionduetothefungus*Acremonium* (Cephalosporium). *Medicine*. 1991; 70: 398-409.
7. Fridkin SK, Kremer FB, Bland LA et al. *Acremoniumkiliense*endophtalmitisthatoccurredaftercataractextraction in an ambulatorysurgicalcentrethatwastracedto an environmentalreservoir. *ClinInfect Dis*.1996; 22: 222-227.
8. Koc NA, Erdem F, Patıroglu T. Case report: *Acremoniumfalciforme*fungemia in a patientwithacuteleukemia. *Mycoses*. 2000; 45: 202-203.
9. Tuon FF, Pozzi C, Penteado-Filho SR et al. Reccurrent*Acremonium*infection in a kidneytransplantpatienttreatedwithvoriconazole: a casereport. *RevSocBrasMed Trop*. 2010; 43: 467-468.