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Case Report

Isolation of Fluconazole Sensitive Stephanoascus Ciferrii in BAL Fluid from Renal Transplant Patient Presenting with Pneumonia

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Abstract

Introduction: The introduction of newer immunosuppressive agents has led to a shift in the spectrum of infections occurring after kidney transplantation. This may be due to blunted inflammatory response in such patients and a timely diagnosis and institution of therapy is essential in such cases. Among fungal agents, Candida is the most commonly isolated species. A new teleomorphic species of Candida, Stephanoascus ciferrii has been associated with systemic mycosis in immunocompromised hosts. This species is particulary resistant to fluconazole. Here we report a case of fluconazole sensitive Stephanoascus ciferrii isolated from BAL Fluid in a kidney transplant patient. *Materials and Methods:* BAL Fluid was inoculated on Blood and MacConkey agar plates and for fungus isolation on Saboraud's Agar. After 24 hrs of incubation at 37^0C, Blood and MacConkey agar plates showed growth. Growth was also observed on Saboraud's Agar. Gram's staining of growth from MacConkey Agar showed growth of gram negative bacilli and from Saboraud's Agar showed growth of budding yeast forms suggestive of Candida species . For identification and susceptibility of these organisms Gram negative panel and YST panel was selected and performed on Vitek II (Biomerieux). *Results:* The bacteria were identified as Klebsiella Pneumoniae and yeast was identified as Stephanoascus Ciferrii. *Conclusion:* Candida ciferrii or Stephanoascus ciferrii as it is known is a new strain of Candida, which has rarely been associated with human infection. However it can cause opportunistic infection in immuno compromised patients and a high index of suspicion is required for a correct diagnosis to be made.

Keywords: CKD; Stephanoascus Ciferrii; Renal Transplant; Fluconazole.

Introduction

The introduction of newer immunosuppressive agents has lead to a shift in the spectrum of infections occurring after kidney transplantation. This may be due to blunted inflammatory response in such patients and a timely diagnosis and institution of therapy is essential in such cases. Infections are a major cause of morbidity and mortality in patients of kidney transplant. The major infections in kidney transplant patients range from bacterial, viral, tuberculosis and fungal infections. Among fungal agents, Candida is the most commonly isolated species. A new teleomorphic species of Candida, Stephanoascus ciferrii has been associated with systemic mycosis in immuno compromised hosts [1]. This species is particulary resistant to fluconazole.

Here we report a case of fluconazole sensitive

Stephanoascus ciferrii isolated from BAL Fluid in a kidney transplant patient.

Case Report

A 45 year of old female, diabetic patient with history of Koch's renal transplant (spousal) presented with progressive increase in dyspnoea and cough with copious mucopurulent expectoration for 2 days . On general examination there was tachypnea (respiratory rate 35/min) with cyanosis.

Respiratory system examination showed decreased breath sounds and rhonchi all over the chest. She had a case of new onset diabetes after transplantation secondary to Tacrolimus (NODAT) and had CKD Grade 5 since last 7 years. So she had received a kidney transplant and was on triple maintenance a Immunosuppressive therapy.

She was admitted to ICU and a battery of blood tests including blood culture and fungal culture were sent to our diagnostic Centre for evaluation. Tests for CMV and Pneumocystis carinii infection werenegative. Meanwhile she was put on immunosuppressive drugs and Inj.Meropenem and Levofloxacin was started empirically..

Chest X-ray showed mild accentuation of marking. Her blood parameters are shown in Table 1.

Bronchial alveolar lavage was performed and BAL Fluid was sent for culture and routine examination. Gram's Stain showed budding yeast cells and Gram negative bacilli. Z.N Stain was negative for Acid fast bacilli.

BAL Fluid was inoculated on Blood and MacConkey agar plates and for fungus isolation on Saboraud's Agar. After 24 hrs of incubation at 37^{0}C, Blood and MacConkey agar plates showed growth. Growth was also observed on Saboraud's Agar. Gram's staining of growth from MacConkey Agar showed growth of gram negative bacilli and from Saboraud's Agar showed growth of budding yeast forms suggestive of Candida species (figure1). For identification and susceptibility of these organisms Gram negative panel and YST panel was selected and performed on Vitek II (Biomerieux). The bacteria was identified as Klebsiella Pneumoniae and yeast was identified as Stephanoascus Ciferrii. Susceptibility pattern of both organisms is shown in Table 2 and 3.

Microscopic examination of fungal colonies showed extensive branches and blastoconidia ,oval chains of different sizes, arranged along pseudohyphae and true hyphae. The confirmation of S. Ciferrii was done through automated Vitek II system (Biomerieux).

Based on the culture reports, Fluconazole was started for fungal infection and the antibiotics were continued for Klebsiella pneumoniae. She responded well to the treatment and was discharged from the hospital at a creatinine of 1.8 mg%.

Table 1: Investigative findings

Investigations CBC	1st day	3rd day	5th day
Hb gm%	10.9	12.6	12.6
RBC$10^{6/}$uL	3.31	3.78	3.73
PCV%	32.8	38.3	38.5
Total WBC count	2.2	2.4	4.7
10^3/uL	82	46	82
Neutrophils %	14	45	14
Lymphocytes %	02	03	02
Monocytes %	02	06	02
Eosinophils %	241	433	163
Platelets 10^3/uL	1.84	1.80	1.80
Creatinine mg%			

Table 2: Drug sensitivity report of Bronchial Lavage

Organism : Klebsiella Pneumoniae

Drugs	MIC	Interpretation
Amikacin	<=2	S
Amoxicillin		R
Ampicillin	>=32	R

Amox/K Clav	16	I
Cefepime	>=64	R
Cefoperazone/Sulbactum	16	S
Cefotaxime		S
Ceftriaxone	>=64	R
Cefuroxime	>=64	R
Cefuroxime Axetil	>=64	R
Ciprofloxacin	>=4	R
Colistin	< 0.5	S
Ertapenem	<=0.5	S
Gentamicin	<=1	S
Imipenem	<=0.25	S
Meropenem	<=0.25	S
Pip/Tazo	64	I
Tigecycline	<=0.5	S
Trimethoprim/Sulfamethoxazole	320	R

Table 3: Fungal Culture in Bronchial Lavage

Organism- Stephanoascus ciferrii		
Drugs	**MIC**	**Interpretation**
Fluconazole	<=8	S
Voriconazole		
Caspofungin	>=4	
Micafungin		
Amphotericin B	8	R
Flucytosine	<=1	S

Fig. 1: Colonies of Stephanoascus ciferrii in Saboraud's agar

Discussion

S.ciferrii was first identified by Smith et al in 1976 [1]. In humans, infection by S.ceferrii is on the rise and is associated with ear infections, non-insulin dependent diabetes mellitus, vascular disorders, val vular heart disease and mostly with cases of onychomycosis [2,3,4]. There are reported cases of infection with S.ciferrii in immune compromised patients[5,6,7].

The prognosis of infections caused by S.ciferrii is good especially in otitis patients. However in immuno compromised patients, it is an opportunistic pathogen as is the case with our patient. However most of the cases show resistance to fluconazole and miconazole [8]. There are few reported cases of S.ceferrii infection resistant to fluconazole. Kaushik Shah et.al in 2013 reported a case of fluconazole sensitive Candida ciferrii infection in a diabetic COPD patient presenting with pneumonia [9].

Candida is a part of normal flora of the oropharynx and GIT, so growth of Candida from upper respiratory samples is frequently considered to be a contamination. Although Candida species can be

isolated from Bronchial washings, tracheal aspirates and the BAL samples of patients but accompanying lung parenchymal invasion is rarely found. Isolation of Candida species with lung parenchymal involvement proves the pathogenecity of the organisms.

Conclusion

Candida ciferrii or Stephanoascus ciferrii as it is known, is a new strain of Candida, which has rarely been associated with human infection. However it can cause opportunistic infection in immuno compromised patients and a high index of suspicion is required for a correct diagnosis to be made.

Conflict of Interest

None

References

1. Smith MT, Van der Walt JP, Johannsen E. The genus Stephanoascus gen. nov. (Ascoideaceae). Antonie van Leeuwenhoek J Microbiol Serol. 1976; 42: 119-127.
2. De Gentile L, Bouchara JP, Cimon B, Chabasse D . Candida ciferrii: clinical and microbiological features of an emerging pathogen. Mycoses 1991; 34: 125-128.
3. Furman RM, Ahearn DG Candida ciferrii and Candida chiropterorum isolated from clinical specimens. J Clin Microbiol 1983; 18(5): 1252-1255.
4. Hazen KC. New and emerging yeast pathogens. Clin Microbiol Rev. 1995; 8(4): 462-478.
5. García-Martos P, Ruiz-Aragón J, García-Agudo L, Saldarreaga A, Lozano MC, Marín P. Aislamento de Candida ciferrii en un paciente inmunodeficiente. Rev Iberoam Micol. 2004; 21: 85-86.
6. Gunsilius E, Lass-Flöri C, Kähler CM, Gastl G, Petzer AL.Candida ciferrii, a new fluconazole-resistant yeast causing systemic mycosis in immunocompromised patients. Ann Hematol. 2001; 80:178-179.
7. Agin H, Ayhan Y, Devrim I, Gullfidan G; Tulumoglu S, Kayserili E. Fluconazole, Amphotericin-B, Caspofungin and Anidulafungin Resistant Candida ciferrii: An Unknown Cause of Systemic Mycosis in a Child. Mycopathologia. 2011; 172(3): 237-239.
8. Kano R, Makimura K, Kushida T, Nomura M, Yamaguchi H, Hasegawa A. First isolation of Stephanoascus ciferrii from a cat. Microbiol Immunol. 2000; 44 (8): 711-713.
9. Saha K, Sit NK, Maji A, Jash D. Recovery of fluconazole sensitive Candida ciferrii in a diabetic chronic obstructive pulmonary disease patient presenting with pneumonia. Lung India. 2013 Oct; 30(4): 338-40.