International Journal of Advances in Medicine
Shankarappa BG et al. Int J Adv Med. 2014 May;1(1):52-54
http://www.ijmedicine.com
pISSN 2349-3925 | eISSN 2349-3933
DOI: 10.5455/2349-3933.ijam20140513

Case Report

Bipolaris: a rare etiology of ureteric mycosis with Double J stent *in situ*

Banashankari G. Shankarappa[1]*, Sandeep Thirunavukkarasu[1], Rudresh H. Kallingappa[2], Shikha Rajan[1]

[1]Department of Microbiology, M S Ramaiah Medical College, Bangalore-560054, Karnataka, India
[2]Department of Surgery, M S Ramaiah Medical College, Bangalore-560054, Karnataka, India

Received: 20 April 2014
Accepted: 27 April 2014

***Correspondence:**
Dr. Banashankari G. Shankarappa,
E-mail: banashankarigs@gmail.com

ABSTRACT

Fungi classified under the genera Bipolaris are dematiaceous hyphomycetes which are rare sources of human diseases. The dematiaceous fungi in other words "black fungi" are so named due to the presence of dark melanin like pigment in their cell wall. Majority of the species of Bipolaris, are either soil saprobes or plant pathogens, however few species of these saprobes like Bipolaris australiensis, Bipolaris hawaiiensis & Bipolaris spicifera are potential pathogens which are capable of causing infections in both immunocompetent & immunocompromised humans. The spectrum of human infections caused by Bipolaris include cutaneous and subcutaneous infections, allergic sinusitis, keratitis, allergic broncho pulmonary diseases, orbitopathy, CNS infections, Peritonitis associated with Ambulatory peritoneal dialysis, infections of implant devices & allografts. Here we report a case of ureteric infection due to Bipolaris species in a patient with Double J (DJ) stent *in situ*. Amphotericin B, itraconazole, voriconazole and imidazole are common antifungals found to be effective in treating Bipolaris infections.

Keywords: Bipolaris, Dematiaceous fungi, Double J stent

INTRODUCTION

Bipolaris is a huge genera of dematiaceous hyphomycetes consisting of more than hundred species, majority being saprobes or plant pathogens. Invariably few of these saprobes are potentially capable of causing infections in humans and animals.[1-3] The salient feature of these dematiaceous fungi is the presence of melanin like pigment in the cell wall of their mycelia.

Mycetoma, chromomycosis and phaeohyphomycosis are the three main type of clinical diseases associated with dematiaceous fungi. Although Bipolaris is a potential plant pathogen, few of its species like Bipolaris australiensis, Bipolaris hawaiiensis & Bipolaris spicifera are responsible for infections in immunocompetent and immunocompromised individuals.[1-4]

The human infections associated with Bipolaris are allergic sinusitis, cutaneous and subcutaneous infections, corneal ulcer, cellulitis, osteoarthritis and pneumonia. Apart from these infections Bipolaris can colonise prosthetic heart valves and continuous dialysis catheters further causing regional fungal infections.[2,5]

In addition to the above, the rarest of the manifestations of Bipolaris infections are mucopyoceles of the sphenoid sinus[6] and invasive mycoses in the transplant patients.[7]

With review of different studies it has been noted that Amphotericin B, itraconazole, voriconazole and imidazole are the best antifungal agents that are effective against Bipolaris infections.[8-10]

CASE REPORT

A male patient aged about 35 years, known diabetic on treatment since 2 years was diagnosed with papillary necrosis of left kidney and had undergone left ureteric DJ stenting. After 6 weeks patient came with complaints of dull aching lower abdominal pain and dysuria associated with passing of white flakes in the urine.

Routine hematological investigations and urine analysis were performed. Urine sugar was 2% and urine albumin being ++, other parameters of the above investigations were within normal limits. The urine culture yielded no bacterial pathogen. The patient was advised cystoscopy for further management.

On cystoscopic examination, it was found that the left DJ stent in-situ had few white flakes on it and even the left ureteroscopy showed plenty of flakes in the mid and upper ureter extending till pelvis. Basketing was performed and approximately 80% of the flakes were removed and were sent to our laboratory for fungal culture.

New DJ stent was placed and provisional diagnosis of fungal infection was made. The patient was started on antifungal therapy with fluconazole 200 mg per day for 4 weeks.

On examination of the specimen, Potassium Hydroxide (KOH) mount showed light brown septate hyphal fungal elements. Specimen was inoculated onto Saboraud's Dextrose Agar (SDA) with antibiotics & Potato Dextrose agar (PDA). After 5 - 6 days of incubation at ambient temperature the colonies on SDA & PDA were greyish white, which later turned brown (Figure 1).

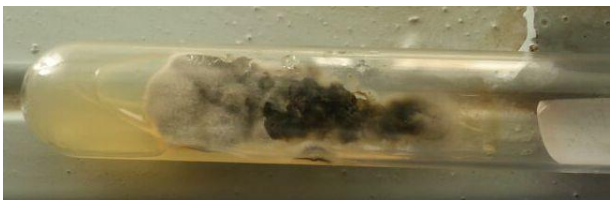

Figure 1: Growth on Saboraud's dextrose agar slant.

Figure 2: Lacto phenol cotton blue mount.

Lactophenol cotton blue mount of the above culture showed dark coloured septate hyphae with geniculate conidiophores and large conidia with transverse distosepta without protuberant hilum (Figure 2). Slide culture of the growth confirmed the above findings.

Based on the above culture and microscopic findings, we identified the isolate as Bipolaris species. The isolate was sent to Kasturba medical college, Manipal, Karnataka, for confirmation, where it was confirmed as Bipolaris.

Follow up of the patient revealed that he had responded positively to the treatment.

DISCUSSION

Dematiaceous fungi are those fungi with melanin like pigment in the cell wall of their mycelia,[2,6,8] due to which they are labelled as 'Black fungi'. Bipolaris is a huge genera of dematiaceous hyphomycetes comprising of more than hundred species, majority of them being either soil saprobes or plant pathogens However few of these saprobes are potential human pathogens like Bipolaris australiensis, Bipolaris hawaiiensis & Bipolaris spicifera.[2]

Bipolaris species grows rapidly on SDA, PDA producing greyish white colonies initially which later turns to brown or black in colour.[9] On microscopic examination with lacto phenol cotton blue stain, Bipolaris species show dematiaceous septate hyphae with geniculate conidiophores. Large conidia are produced by sympodial conidiogenesis and bipolar germination which have transverse disto-septa, usually without protuberant hilum. They can be stained with Fontana Masson stain.[6] Bipolaris may sometimes be misdiagnosed as Drechslera, Exserohilum or Helminthosporium which are other similar dematiceous fungi.[8]

Bipolaris infections are common in warm, humid, tropical and subtropical climates. It has high potential to cause infections in both immunocompetent as well as in immunocompromised humans, majority of the times being overlooked in immunocompetent individuals. Bipolaris infection results either due to inhalation or inoculation of the fungi. Rural life style (e.g. swimming) and some unknown immunological deficits may increase the risk of acquiring Bipolaris infections.[6] It has also been reported that mycotoxin produced by bipolaris can induce lung and liver adenomas in ill mice in addition to causing plant and animal infections.[3]

The wide spectra of human infections caused by Bipolaris includes allergic fungal sinusitis, cutaneous & subcutaneous infections, cellulitis, corneal ulcer, osteoarthritis, pneumonia.[2,3] Other less common manifestations are infections of implanted devices and allografts like ventriculostomy associated meningitis, dialysis catheter associated peritonitis and endocarditis.[9]

The rarest of the Bipolaris infections include mucopyocele of the sphenoidal sinuses, meningoencephalitis and disseminated diseases[6,8] where a high suspicion by neurosurgeon will help in diagnosing the infection. There are increasing case reports in patients with immunosuppression as a result of cancer, HIV infections or solid organ transplants[7,8] Besides these infections Bipolaris species can colonize prosthetic heart valves[2] and long term peritoneal dialysis catheters further leading to regional infections.[5]

The recent increase in incidence of Bipolaris infections suggest that these fungal infections were missed out or were under reported.[3] Because of ubiquitous nature of Bipolaris, it is usually considered as a contaminant, however it is important to consider it as a true infection if the clinical specimen yields pure growth of the fungus and if patients respond favourably to antifungal drugs. Amphotericin B, itraconazole, voriconazole, ketoconazole imidazole are found to be the effective antifungal agents in treating Bipolaris infections.[1,8-10]

Our case assumes its significance as ureteric infection due to Bipolaris species is a very rare manifestation and the patient responded favourably to fluconazole.

CONCLUSION

We conclude that Bipolaris species is an emerging potential human pathogen. A high degree of suspicion and careful examination of the clinical specimen will help in diagnosing these fungi, as these fungi are usually considered as contaminants. We conclude that timely removal or change of the DJ stent along with administration of appropriate antifungal agents will help in the fast recovery of the patient.

ACKNOWLEDGEMENTS

We would like to thank Dr. Prakash from department of microbiology, Manipal, Karnataka, for confirming the identity of the isolate.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: Not required

REFERENCES

1. Cunha da KC, Sutton DA, Fothergill AW, Cano J, Gene J, Madrid H et al. Diversity of Bipolaris species in clinical samples in the United States and their susceptibility profiles. J Clin Microbiol. 2012 Dec;50(12):4061-6.
2. Khizzi N. El, Bakheshwain S, Parvez S. Bipolaris, A plant pathogen causing human infections: an emerging problem in Saudi Arabia. Res J Microbiol. 2010;5(3):212-7.
3. Javaid AK, Tahir H, Sheema H, Arif S. Disseminated Bipolaris infection in an immucompetent host: an atypical presentation. J Pak Med Assoc. 2000 Feb;50(2):68-71.
4. Flanagan KL, Bryceson ADM. Disseminated infection due to Bipolaris australiensis in a young immunocompetent man: case report and review. JSTOR: Clin Infect Dis. 1997 Aug;25(2):311-3.
5. Gadallah MF, White R, el-Shahawy MA, Abreo F, Oberle A, Work J. Peritoneal Dialysis complicated by Bipolaris hawaiiensis peritonitis: successful therapy with catheter removal and oral itraconzole without the use of amphotericin B. Am J Nephrol. 1995;15(4):348-52.
6. Conrad TE, Curtis AD, James MH, William LW, Mark B. Bipolaris sphenoid mucopyocele: three cases and literature review. BNI Quarterly. Spring. 1993;9(2):68-72.
7. Carlos GT, Kevin D, Marsha M. Fatal Bipolaris spicefera infection in an immunosuppressed child. Br Med J Case Rep. 2014;2014: pii:bcr2013009703.
8. Susan MS, Guillermo D, Rudolph JM, Wyatt GP, Martin CR. Diagnostic Dilemmas: cutaneous fungal Bipolaris infection. Wounds. 2006;18(1):19-24.
9. Philip AM. Photo quiz - black fluid from traumatic wound. Clin Infect Dis. 2006;42:1647-9.
10. Christopher WR, Peter JM, Ronald PR. Four cases of dermatomycosis: superficial cutaneous infection by Alternaria or Bipolaris. Cutis. 2003;72:313-6, 319.

DOI: 10.5455/2349-3933.ijam20140513
Cite this article as: Shankarappa BG, Thirunavukkarasu S, Kallingappa RH, Rajan S. Bipolaris: a rare etiology of ureteric mycosis with Double J stent *in situ*. Int J Adv Med 2014;1:52-4.