Scholars Journal of Medical Case Reports

OPEN ACCESS

Abbreviated Key Title: Sch J Med Case Rep
ISSN 2347-9507 (Print) | ISSN 2347-6559 (Online)
Journal homepage: https://saspublishers.com

Invasive Trichosporonosis in Immunocompetent Patient, a Case Report and Review of Literature

Nabil Tiresse[1*], Hanane El Ouazzani[2], Ismail Rhorfi[3], Ahmed Abid[4]

[1]Department of pulmonology Military Hospital of Instruction Mohamed V- Rabat
[2-4]Military Hospital of Instruction Mohamed V- Rabat

DOI: 10.36347/sjmcr.2021.v09i10.017 | **Received:** 09.05.2021 | **Accepted:** 15.06.2021 | **Published:** 14.10.2021

***Corresponding author:** Nabil Tiresse

Abstract **Case Report**

Trichosporonosis is an uncommon fungal infection that affects immunocompromised patients and has a very poor prognosis. We present a case of a 23 years-old immunocompetent patient with a history of tuberculous lymph nodes. We observed the patient from admission until discharge from the hospital. There are several diagnostic and therapeutic difficulties. Clinical symptoms and radiological findings may vary according to the affected organ. Symptoms may reflect either superficial or deep infection. Diagnosis is based on microscopic study and culture of superficial specimen. In deep infections, identification of *Trichosporon spp.* depends on biochemical characteristics and cell morphology. Radiological imaging is most important to assess lesion extension. Several evolutions without treatment is recognized due to this disease and his complications. The patient died despite being on fluconazole treatment which confirms the reserved prognosis of the pathology reported in the literature. Several evolutions without treatment is recognized due to this disease and his complications. W. ithout treatment, the evolution occurs in more than 80% of cases towards death. Special attention should be paid to this pathology.

Keywords: Trichosporonosis; microscopic study; culture; immunocompromised patient; multiresistant germ.

INTRODUCTION

Trichosporon species are emerging opportunistic fungal pathogens which can cause both superficial and invasive infections in humans (Foster *et al*., 2018). A poor prognosis is associated frequently with this pathology. Some cases have been reported in the literature treating the disease in immunocompromised patients most often. We report a case of immunocompetent patient diagnosed with trichosporonosis in pulmonology at Military hospital of Instruction Mohamed V in Rabat.

CASE REPORT

23-year-old patient with a history of tuberculous lymphadenitis for 4 years ago. Accuses dyspnea with cough and altered general condition. The clinical examination revealed a BMI at 17kg/m2. The biological assessment shows leukocytosis and elevation of CRP as 150 mg/l. chest X-ray shows mediastinal enlargement with bilateral hilar and axillar infiltrate. Thoracic CT objective dorsal paravertebral condensations taken first for tumor process with intramedullary extension (Figure D), Kokh Bacillus research in the samples is negative. A subcutaneous interscapular tumefaction was appeared confirmed by ultrasound as fluid taken by syringe that brings back greenish pus. Mycological study made discover a trichosporon asahii microscopically (Figure A) confirmed by culture (Figures B, C). There is no immunocompromised field, in particular the serologies (HIV, HVC, HVB) were negative and the osteomullary biopsy that showed a rich bone marrow. The patient was treated by intravenous fluconazole, subcutaneous pus evacuations were made (Figure E) but the evolution was marked by rapid deterioration of the clinical condition of the patient who presented a paraplegia having preceded a disorder of conscience. The patient died in a septic shock.

DISCUSSION

Trichosporonosis is an uncommon fungal infection that affects immunocompromised patients and has a very poor prognosis. In the past, a sole species Trichosporon beigelii was correlated to human pathology but recently, the genus Trichosporon has gone an extensive taxonomic re-evaluation and T. beigelii has been divided into a number of distinct species, The various species that are now

recognized as pathogenic to humans are Trichosporon asahii, Trichosporon asteroids (Negi *et al*., 2015).. Trichosporon species can cause a disseminated invasive infection known as trichosporonosis. Disseminated trichosporonosis is an uncommon but increasingly reported and frequently fatal mycosis in immunocompromised patients (Pini *et al*., 2005) T. asahii has been found to be invariably associated with disseminated or deep-seated trichosporonosis, more so among the patients with granulocytopenia or hematological malignancies (Chagas-Neto *et al*., 2009), whereas superficial infections and allergic pneumonia are found predominantly in immunocompetent hosts (Castano *et al*., n.d.). Risk factors for severe disease include: chemotherapy, malignancy, state of immunosuppression, neutropenia, end-stage renal disease (Castano *et al*., n.d.). Trichosporonosis most often presents with fungemia as part of persistent fever and neutropenia with frequent spread to the skin, eyes, lungs, kidneys and other organs (Foster *et al*., 2018). Invasive trichosporonosis should be considered in HIV-positive patients with disseminated fungal infection since this may be refractory to conventional antifungal treatment (Prasad *et al*., 2016). Another case was reported of patient with nosocomial infection due to T. asahii in a severely ill burned patient (Tamayo Lomas *et al*., 2015). Another patient with underlying acute myeloid leukemia presented with as an exophytic toe lesion found secondary to Trichosporon asahii (Salazar *et al*., 2020). Another case of diabetic patient having trichosporonosis was reported (Negi *et al*., 2015). Assessment of our patient did not found any immunocompromised factor.

Clinical symptoms and radiological findings may vary according to the affected organ. In our patient, cold abscess was found in the axillary region and the patient's back. The most frequent clinical manifestation of Trichosporon infection in humans is a superficial infection known as white piedra, which is characterized by nodules attached to affected hair shafts (Foster *et al*., 2018), white piedra characterizes a superficial infection due to this fungal infection. A patient with dyspnea could suggest that pulmonary involvement is present and can include a productive cough and even bloody sputum. (Castano *et al*., n.d.)

Depending on the organ involved, imaging studies may be necessary. A chest x-ray and a CT scan of the chest, abdomen, and pelvis are done in those with invasive disease. An echocardiogram is performed in patients with suspected endocarditis. If lung involvement is suspected, bronchoscopy with lavage is recommended. Diffuse infiltrates are seen in the chest x-ray with an alveolar pattern. Other findings, such as reticulonodular infiltrates, lobar infiltrates, and cavitation, also can be detected. (Castano *et al*., n.d.)

The diagnosis of superficial infection with cutaneous involvement is based on clinical findings and confirmed by microscopy and culture. In deep infections, identification of Trichosporon spp. depends on biochemical characteristics and cell morphology, some investigational rapid molecular diagnostic methods such as DNA-based microarrays, polymerase chain reaction, and pyrosequencing are emerging methods for faster diagnosis in deep infections (Castano *et al*., n.d.).

Several evolution without treatment is recognized due to this disease and his complications, a study which included 18 pediatric and adult patients recognized that Mortality rates of infants were significantly lower than those for adults (30% against 87.5%, respectively) (Chagas-Neto *et al*., 2009),

In the treatment, the preferred antifungal agent for the treatment of trichosporonosis is voriconazole. Multiple studies have found that voriconazole is highly effective and likely superior to other agents, including amphotericin B, fluconazole, and itraconazole for the treatment of Trichosporon species infection (Foster *et al*., 2018). Given in vitro susceptibility data and good in vivo outcomes in clinical studies, a European guideline recommends voriconazole as the preferred agent for treatment of Trichosporon infections (Arendrup *et al*., 2014). Some experts recommend combination therapy consisting of amphotericin and voriconazole/5-flucytosine (Castano *et al*., n.d.), but Previous in vitro and in vivo studies have found that Trichosporon species are resistant to the fungicidal effect of amphotericin B, whereas antifungal triazoles have been found to be fungicidal against Trichosporon species (Foster *et al*., 2018). In vitro resistance to amphotericin B and a lesser extent, the azoles have been demonstrated (Wolf *et al*., 2001). However, the newer triazoles (voriconazole, posaconazole, ravuconazole) have shown good activity in vitro and are recommended for disseminated trichosporonosis (Bayramoglu *et al*., 2008). The most important condition is an early diagnosis for successful treatment. In our patient, it was decided to put the patient on intravenous fluconazole due to the unavailability of other molecules, treatment failure has been observed by the occurrence of sepsis and paraplegia secondary to invasion of the spinal cord by the fungal process.

CONCLUSION

Disseminated trichosporonosis is usually an insidious disease but can present as an opportunistic infection in susceptible hosts, and the prognosis is quite poor. Early diagnosis is crucial for successful treatment. Voriconazole is the most effective treatment for the disease. However, the diagnosis is likely to be missed due to the general lack of awareness about Trichosporon species as an unusual etiological agent in disseminated fungal infections. High index of clinical suspicion and extensive microbiological investigations can clinch the diagnosis. In this study, we

observe the occurrence of this fungal infection in an immunocompetent patient whose course was severe due to complications.

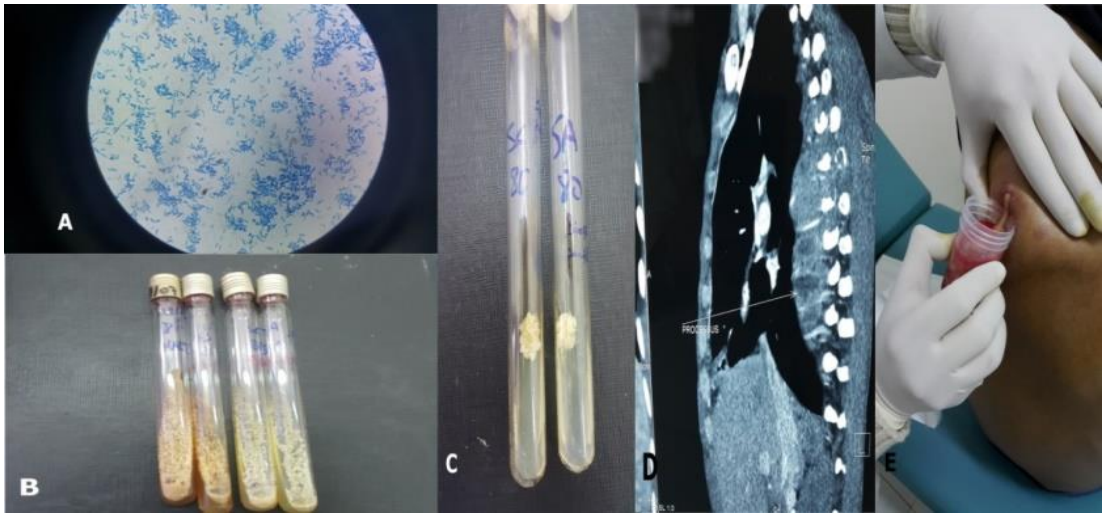

Fig-1: Microscopic imaging (A); species culture (B, C); Chest computed imaging (D); evacuation of subcutaneous pus

Legend

Invasive trichosporonosis : A: Trichosporon in optical microscope colored by blue methylene objective 40. B: Pus culture on media: SS: simple sabouraud, SC: chloramphenicol sabouraud, SA: sabouraud actidione, Transplanting on MALT medium. C: Culture of biopsy on media: SC: "sabouraud- chlronphenicol", SA: "sabouraud -actidione". D: thoracic CT that objective a paravertebral condensation with medullar invasion. E: subcutaneous pus evacuation on interscapular localisation.

Abbreviations

-BMI: body mass index
-HIV: Human immunodefiscience virus
-HVB: Human virus B
-Human Virus C

REFERENCES

- Arendrup, M. C., Boekhout, T., Akova, M., Meis, J. F., Cornely, O. A., Lortholary, O., Arikan-Akdagli, S., Cuenca-Estrella, M., Dannaoui, E., van Diepeningen, A. D., Groll, A. H., Guarro, J., Guinea, J., Hope, W., Lackner, M., Lass-Flörl, C., Lagrou, K., Lanternier, F., Meletiadis, J., … Ullmann, A. J. (2014). ESCMID and ECMM joint clinical guidelines for the diagnosis and management of rare invasive yeast infections. Clinical Microbiology and Infection, 20(S3), 76–98. https://doi.org/10.1111/1469-0691.12360
- Bayramoglu, G., Sonmez, M., Tosun, I., Aydin, K., & Aydin, F. (2008). Breakthrough Trichosporon asahii fungemia in neutropenic patient with acute leukemia while receiving caspofungin. Infection, 36(1), 68–70. https://doi.org/10.1007/s15010-007-6278-6
- Castano, G., S. Yarrarapu, S. N., & Mada, P. K. (n.d.). Trichosporonosis - StatPearls - NCBI Bookshelf. Retrieved June 7, 2021, from https://www.ncbi.nlm.nih.gov/books/NBK482477/#article-528.s3
- Chagas-Neto, T. C., Chaves, G. M., Melo, A. S. A., & Colombo, A. L. (2009). Bloodstream infections due to Trichosporon spp.: Species distribution, Trichosporon asahii genotypes determined on the basis of ribosomal DNA intergenic spacer 1 sequencing, and antifungal susceptibility testing. Journal of Clinical Microbiology, 47(4), 1074–1081. https://doi.org/10.1128/JCM.01614-08
- Foster, C. E., Edwards, M. S., Brackett, J., Schady, D. A., Healy, C. M., & Baker, C. J. (2018). Trichosporonosis in Pediatric Patients with a Hematologic Disorder. Journal of the Pediatric Infectious Diseases Society, 7(3), 199–204. https://doi.org/10.1093/jpids/pix031
- Negi, V., Sharma, M., Juyal, D., Kotian, S., & Sharma, N. (2015). Disseminated trichosporonosis due to Trichosporon asahii in a diabetic patient. Indian Journal of Pathology and Microbiology, 58(2), 246–248. https://doi.org/10.4103/0377-4929.155333
- Pini, G., Faggi, E., Donato, R., & Fanci, R. (2005). Isolation of Trichosporon in a hematology ward. Mycoses, 48(1), 45–49. https://doi.org/10.1111/j.1439-0507.2004.01062.x
- Prasad, K., Singh, M. B., & Ryan, H. (2016). Corticosteroids for managing tuberculous meningitis. In Cochrane Database of Systematic Reviews (Vol. 2016, Issue 4). John Wiley and Sons Ltd. https://doi.org/10.1002/14651858.CD002244.pub4
- Salazar, J., Hardin, K. A., Wiederhold, N. P., & Thompson, G. R. (2020). Trichosporonosis Presenting as an Exophytic Cutaneous Mass Lesion. Mycopathologia, 185(4), 705–708. https://doi.org/10.1007/s11046-020-00477-2

- Tamayo Lomas, L., Domínguez-Gil González, M., Martín Luengo, A. I., Eiros Bouza, J. M., & Piqueras Pérez, J. M. (2015). Nosocomial infection due to Trichosporon asahii in a critical burned patient. Revista Iberoamericana de Micologia, 32(4), 257–260. https://doi.org/10.1016/j.riam.2014.07.005
- Wolf, D. G., Falk, R., Hacham, M., Theelen, B., Boekhout, T., Scorzetti, G., Shapiro, M., Block, C., Salkin, I. F., & Polacheck, I. (2001). Multidrug-resistant Trichosporon asahii infection of nongranulocytopenic patients in three intensive care units. Journal of Clinical Microbiology, 39(12), 4420–4425. https://doi.org/10.1128/JCM.39.12.4420-4425.2001