

## Chronic Disseminated Candidiasis: The New Face of an Old Disease

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### Abstract

We describe the case of a young female on chemotherapy due to lymphoid leukemia, which developed late persistent candidemia with multiple intra-abdominal microabscesses consistent with chronic disseminated candidiasis, formerly called hepatosplenic candidiasis.

### Case Presentation

14 years-old female, who receive chemotherapy for acute lymphoid leukemia, came to ER on day 6 after her dose of ambulatory chemotherapy, with neutropenia of 500 cells/mL, 38°C of fever and no other symptoms related. Empiric Piperazillin/Tazobactam was started, with initial fever improvement and negative hemocultures. On day 10 after chemotherapy, her neutropenia were absolute (zero cells/mL) and start again with spiking fevers of 38.6°C, but no other symptoms related. Her liver and renal tests were between normal ranges, thorax CT scan was also normal and plasma Galactomannan was negative. Then her antibiotic treatment was empirically switched to Meropenem, Vancomycin and Voriconazol according to local protocol. This time hemocultures were positive for *Candida tropicalis* and she was started on Anfo B; but despite 14 days of treatment, negative hemocultures, resolution of neutropenia and normal bone marrow biopsy, she persisted febrile and complaining of abdominal pain as her unique symptom related, but this time her alkaline phosphatase was 357 UI (upper limit 140 UI), motivating an abdominal CT scan (Figure) which revealed multiple hepatic-esplenic and renal microabscesses, consistent with chronic disseminated Candidiasis, reason why she was switched to Fluconazol 800 mg IV per day with posterior clinical improvement. (Figure 1)

### Discussion

During the past two decades the proportion of patients affected by hematologic malignancies who develop deep fungal infections has increased dramatically. This increase is due to various well known factors as: host defense impairment due to intensive cytotoxic chemotherapies, ablative radiation therapy, use of corticosteroids or cyclosporine, as well as the course of the underlying hematologic disease. Other causes that favor the onset of a deep fungal infection in these patients can be environmental contamination, Total Parenteral Nutrition (TPN), barrier disruption following cytotoxic chemotherapy (mucositis), prolonged use and number of broad-spectrum antibiotics administered, and use of Central Venous Catheters (CVC).

It is well known that infections due to *Candida spp.* remain the most frequent infections in neutropenic patients, being candidemia

the most relevant clinical manifestation, but Chronic Disseminated Candidiasis (CDC) is a distinct form of systemic *Candida* infection, with predominant involvement of the liver, spleen, and occasionally the kidneys.

CDC occurs in a small subgroup of patients with hematologic malignancies who receive intensive cytotoxic chemotherapy schedules and developed profound neutropenia. The incidence of CDC in hematologic patients is highly variable (range from 3% to 7%) according to the different series. In the majority of cases the incidence is evaluated only in patients with acute leukemia, who represent the most relevant population at risk.

Some authors consider CDC a late manifestation of earlier candidemia, but some others suggest that is secondary to the passage of fungal hyphae from a colonized gastrointestinal tract to the portal and systemic circulation, through ulcerations induced by cytotoxic treatment, this dissemination results in seeding of the liver, spleen and some other visceral organs [1,2].

The diagnosis of CDC is often difficult because cytologic, histologic, and microbiological findings may remain negative. In those cases, imaging methods such as CT-scanning and ultrasonography are useful for diagnosis, but these do not always succeed in distinguishing fungal abscesses in active phase from bacterial and tubercular etiologies, then invasive studies are useful.

Although more than 30 years have passed since the first patient was described by Bodey and co-workers 1969, the optimal management of CDC is as yet not well established. Many questions remain with regard to the optimal antifungal agent, dosage, and duration of treatment. In addition, the presence of CDC may potentially constrain the treatment of the underlying leukemia, presenting a management dilemma of whether further Antileukemic Therapy or Hematopoietic Cell Transplantation (HCT) should be delayed or withheld until the infection is completely eradicated, this can pose therapeutic challenges, as several months may be required to adequately control this form of invasive candidiasis.

In this report we showed a demonstrative case of CDC, diagnosed



**Figure 1:** Abdominal CT scan with multiple hepatic-esplenic and renal microabscesses

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by imaging and cultures, in order to call physicians attention to look for this old but fortunately, still rare entity [3,4].

### Conflict of Interests

The authors declared that there is no conflict of interests.

### Consent

The patient's mother signed the informed consent for the case report to be published.

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