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Francisco Sánchez-Amador *

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Case Report

Candida Osteomyelitis Auris in Ecuador: Case Report

Miguel Merejildo [1], Luis Solórzano [1], Fred Luzuriaga [2], Francisco Sánchez-Amador [3]*, Xavier Alvarado [1]

[1]Microbiology Laboratory Technical Analyst. Luis Vernaza Hospital

[2].Laboratory Director, Luis Vernaza Hospital

[3].Molecular Biology Laboratory Technical Analyst. Luis Vernaza Hospital

***Corresponding Author:** Francisco Sánchez-Amador, Molecular Biology Laboratory Technical Analyst. Luis Vernaza Hospital.

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Abstract:

Introduction: Candida (C.) auris is an opportunistic yeast associated with multiple infections and exhibits antifungal resistance in hospitalized patients.

Case Presentation: A 62-year-old man from Guayaquil, Ecuador, presented with a medical history of type 2 diabetes mellitus, chronic renal failure, and a right supracondylar amputation. He had a 30-day history of fever, constant lower back pain, and copious seropurulent drainage from the surgical wound. Multiple debridements revealed stage III sacral ulcers, leading to a diagnosis of osteomyelitis. Several biopsies were performed on sloughed tissue, from which the following organisms were isolated: Enterococcus faecalis, Aeromonas hydrophila, Stenotrophomonas maltophilia, Klebsiella pneumoniae and C. tropicalis. C. auris was ultimately identified using instruments Vitek and MALDI-TOF MS and subsequently treated.

Conclusion: C. auris an opportunistic mycosis that causes degenerative diseases such as osteomyelitis and can spread to other parts of the body if it is not identified, treated, or prevented in a timely manner.

Key words: candida auris; diabetes mellitus; ulcers; osteomyelitis; comorbidity

Introduction

C. auris is an emerging microorganism, first reported in Japan in 2009 from a sample taken from the external auditory canal [1]. and widely distributed. In the Americas, multiple cases were initially reported in Venezuela [2]. and subsequently in the United States [3]., Colombia [4]., Panama [5]., Canada [6]., and Mexico [7]. It has been reported in patients in Intensive Care Units (ICUs) in various hospitals [8,9]. Furthermore, different antifungal resistance profiles have been identified, such as resistance to fluconazole [9]. Studies conducted in Ecuador report non-albicans Candida species responsible for candidemia and other infections, such as C. parapsilosis, C. glabrata, C. tropicalis, and C. guilliermondii, which are resistant to antifungals. At the end of 2024, the first three cases of C. auris infection in Ecuador were reported by the national reference laboratory INSPI, through the National Reference Center for Mycology and Parasitology and the Center for Genomics, Sequencing, and Bioinformatics [10,11]. The aim of this work is to report osteomyelitis caused by C. auris in Ecuador.

Case Report

Patient information

We present the case of a 62-year-old man with a medical history of type 2 diabetes mellitus and chronic renal failure, and a surgical history of right below- knee and left above-knee amputations. He was admitted to the emergency department on February 26, 2025, presenting with generalized weakness, unquantified fever, moderate to severe chest pain, and a 5-day history of seropurulent drainage from the surgical wound on his left stump, which prompted his hospitalization. On physical examination, the patient was awake but drowsy, hydrated, with a soft, non-distended abdomen. Vital signs: blood pressure: 90/55 mmHg, heart rate: 80 bpm, respiratory rate: 19 breaths/min, temperature: 40°C, and oxygen saturation of 96% on room air.

Observations on the lower extremities:

Upper part of the right leg, stump Right infrapatellar : presence of blisters covered by duoderm dressings and decreased tissue. Upper part of the left leg, stump Left suprapatellar: presence of redness, sensation of heat in the area, wound of approximately 20 cm, and seropurulent, non-fetid fluid. Based on these findings, the patient was diagnosed with sepsis secondary to a soft tissue infection. Antibiotic therapy, adjusted to renal function, was prescribed: piperacillin, tazobactam, and vancomycin. Management was performed by general surgery (debridement by debridement of

remaining tissue in both lower extremities). After two days of hospitalization, the left lower extremity was disarticulated, revealing necrosis, drainage of foul-smelling seropurulent material, and erythema extending to the inguinal region. Several biological samples were obtained and reported as follows:

Culture of remaining tissue from the right and left lower extremities: Entecoccus faecalis, gentamicin resistance, and Aeromonas hydrophila, resistant to Ciprofloxacin, Imipenem and Piperacillin / Tazobactam

Culture of fluid from disjoint wound: Aeromonas hydrophila, resistant to Ciprofloxacin, Imipenem and Piperacillin / Tazobactam

Eight days after the first surgical debridement, the patient's clinical condition worsened; he was hemodynamically unstable, requiring vasopressor support and mechanical ventilation. Laboratory data showed leukocytosis and neutrophilia, with elevated acute phase reactants. The disarticulation stump contained abundant purulent tissue, slough, and fibrin scum. The wound was suppurative, purulent, and fetid, and the skin appeared devitalized. Diagnosis: local infection of the skin and subcutaneous tissue. Nineteen days after hospitalization, the patient presented with right thigh pain; laboratory results showed a decrease in white blood cell count and purulent drainage. Surgical debridement was performed, and samples were obtained for laboratory analysis. Serratia was identified. marcenses and C. tropicalis, multisensitive to antibiotics.

Diagnostic approach

Twenty-two days after hospitalization, surgical debridement was performed, revealing fibrin scum and slough, but no purulent tissue. Escharotomy of a grade III sacral ulcer was performed, and vacuum-assisted closure (VAC) dressings were applied. Diagnosis: Osteomyelitis due to an infectious agent (Figure. 1).

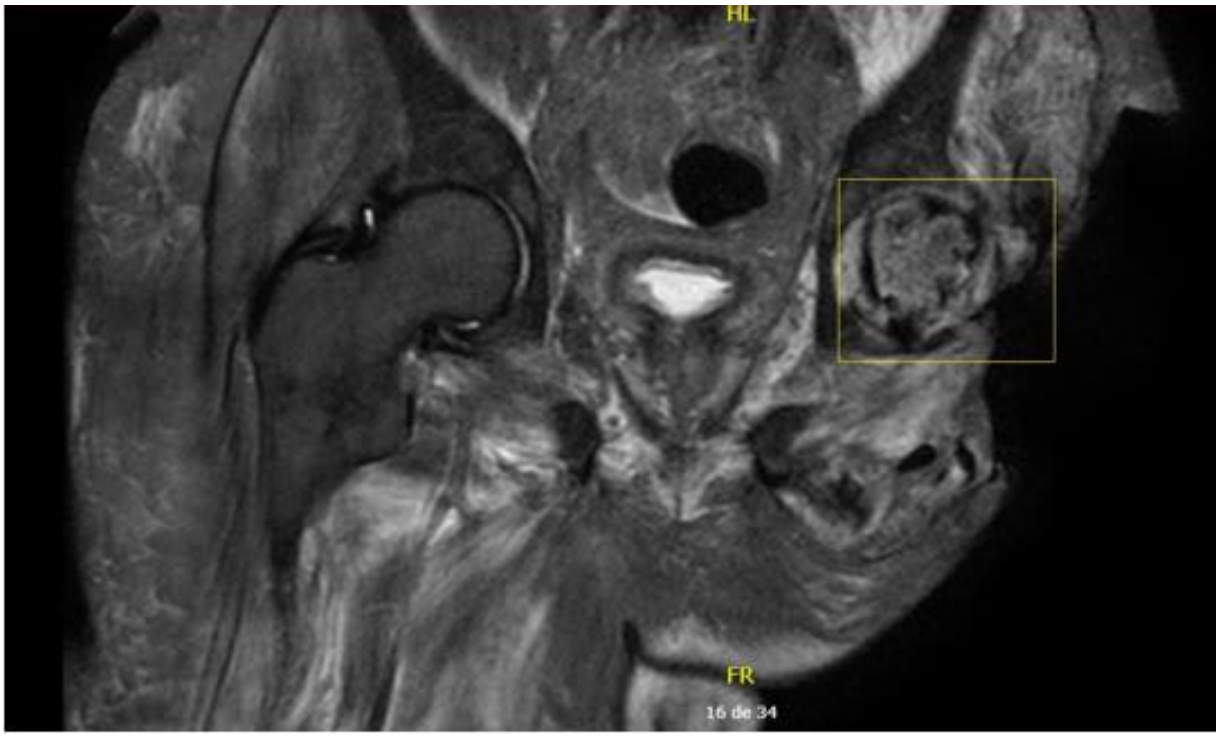

Figure 1: Deformity and alteration of the left femoral head (yellow square enclosed), necrotizing infection of deep soft tissues of the left hemipelvis extending to the hip joint.

The patient has been hospitalized for one month, with a new fever and periods of hyperglycemia; a new tissue culture result was obtained from the left pelvis, Klebsiella pneumonia and extended-spectrum beta-lactamases (ESBLs) were detected in the disarticulation zone. Therapy with meropenem 1g for two weeks, adjusted for renal dose, was determined. Fifty-seven days of hospitalization; patient underwent multiple surgical debridements in the distal pelvic area, ischium, and pubis, with persistent slough and purulent tissue observed in the right femur. A preliminary Candida isolate was obtained. spp, but resistance to fluconazole, with the minimum inhibitory concentration (MIC) being greater than 64 ug /ml.

Clinical findings

The isolates obtained on Blood Base agar presented white, round, mucous, shiny colonies with smooth edges (Figure. 2-3)

Figures 2-3: Isolation of C. auris fungal strains in CHRO Magar medium.

And on CHROMagar, they were characterized as pale violet, round, mucous colonies with smooth edges. Subsequently, the isolated strain was analyzed using the VITEK®2 automated microbial identification system (BioMériux, Inc.), with a YST identification card and susceptibility profiling with an AST-Y08 card. Finally, the strain isolated from the tissue sample was sent to the Roberto Gilbert Elizalde Hospital for identification confirmation, where the C. auris strain was confirmed using VITEK® MALDI-TOF MS mass spectrometry (BioMériux, Inc.). Based on these findings, effective treatment with echinocandins was administered: Caspofungin 50 mg for 2 weeks.

Monitoring the outcome

During the two weeks of intravenous echinocandin treatment, the patient showed good clinical and laboratory progress. Serial follow-up blood cultures were negative; new tissue samples obtained from the pelvis were negative for pathogens. One month after surgery, the patient showed no adequate neurological response, extreme bradycardia followed by cardiac arrest with asystole and died 15 minutes after the start of cardiopulmonary resuscitation maneuvers.

Discussion

According to the CDC-USA, as of January 13, 2021, 45 countries had reported cases of C. auris, of which 14 countries reported single cases, such as Chile, Brazil, and Costa Rica in Latin America, and 31 countries reported multiple cases, such as Colombia, Mexico, Panama, and Venezuela in Latin America [12]. In Ecuador, the Ministry of Public Health issued an epidemiological alert in 2024 for invasive infections caused by C. auris, indicating that it should strengthen its capacity to detect early, report its findings promptly, and implement measures to prevent and control the spread of this pathogen in health services [11]. Sears, Schwartz 2017 [13]. describe risk factors associated with infection by this pathogen similar to those of other types of Candida The patient presented with the following risk factors: immunosuppression, significant medical comorbidities (diabetes mellitus or chronic kidney disease), invasive surgery, continuous exposure to broad-spectrum antibiotics, and prolonged hospital stay in the ICU; all of which apply to the hospitalized patient. The subject presented with: comorbidities

requiring invasive devices (mechanical ventilation and dialysis), prolonged hospitalization in the ICU (more than one month), invasive surgical procedures (debridement by flushing) and highly complex procedures (collection of biological samples), bacterial infections (some concurrent), and was administered broad-spectrum antibiotics plus antifungals. The importance of timely detection and reporting of C. auris in Ecuador lies in the fact that it is an emerging yeast associated with nosocomial outbreaks. Patients can remain colonized for extended periods, it is easily transmitted between patients, has high mortality rates in invasive cases, and exhibits diverse antifungal resistance profiles. Another important aspect to highlight is the difficulty in its phenotypic identification, requiring specialized diagnostic methods based on molecular biology or mass spectrometry (MALDI-TOF) for confirmation , which not all healthcare facilities possess [14,15]. The group of fungi that causes the greatest number of osteoarticular infections is Candida. Candidiasis (C. auris) is a common infection in the Candidiasis family, which includes at least 15 different species, with *C. albicans * being the most common. Furthermore, as immunosuppression and antifungal exposure increase, so does the incidence of candidiasis infections. Fluconazole for the treatment of *C. auris* has shown a high minimum inhibitory concentration (MIC), which in many cases reaches >64 mg/L, and therefore exhibits a high rate of therapeutic failure [6,14], similar to the case reported here. Given this high resistance, treatment with echinocandins, such as capsofungin in this case, was initiated and proved beneficial for the patient. It should be noted that to date there are no published EUCAS and CLSI cut-off points for C. auris officially [16].

In conclusion, this case report mentions the presence of fluconazole - resistant C. auris in an ICU patient. This opportunistic mycosis can cause degenerative diseases such as osteomyelitis of the pelvic bone and can

spread to other parts of the body if not identified, treated, or prevented promptly.

Ethical considerations

This study is a retrospective case report in which the researchers did not intervene in the subject matter. Therefore, it is a minimal-risk study, approved on October 30, 2025, by the Ethics Committee for Research Subjects in Human Beings of the Luis Vernaza Hospital; code 12-EO-CEISH-HLV-2025.

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Conflicts of interest

None declared by the authors.

Authors' contributions:

Conceptualization: Miguel Merejildo, Luis Solórzano, Francisco Sánchez-Amador.

Data curation: Miguel Merejildo, Francisco Sánchez-Amador.

Formal analysis: Miguel Merejildo, Francisco Sánchez-Amador.

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Research: Miguel Merejildo, Luis Solórzano, Fred Luzuriaga, Francisco Sánchez-Amador.

Methodology: Miguel Merejildo, Luis Solórzano, Francisco Sánchez-Amador.

Project Management: Luis Solórzano, Francisco Sánchez-Amador, Fred Luzuriaga.

Resources: Luis Solórzano, Miguel Merejildo, Francisco Sánchez-Amador, Xavier Alvarado.

Software: Luis Solórzano, Miguel Merejildo, Francisco Sánchez-Amador.

Supervision: Luis Solórzano Álava and Fred Luzuriaga.

Validation – Verification: Luis Solórzano and Fred Luzuriaga.

Visualization: Luis Solórzano, Miguel Merejildo, Francisco Sánchez-Amador, Xavier Alvarado.

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