SAS Journal of Medicine
Abbreviated Key Title: SAS J Med
ISSN 2454-5112
Journal homepage: https://saspublishers.com

OPEN ACCESS

Radiology

A Parotid Abscess Due to Candida Albicans: Contribution of MRI and Ultrasound-Guided Drainage

Mohamed El Biadi[1*], Salah Bellasri[1], Nabil Hammoune[1], El Mehdi Atmane[1], Abdelilah Mouhsine[1]

[1]Department of Radiology, Avicenne Military Hospital of Marrakech, Faculty of Medicine and Pharmacy of Marrakech, Cadi Ayyad University of Marrakech, Marrakech, Morocco

DOI: https://doi.org/10.36347/sasjm.2025.v11i03.015 | **Received:** 11.02.2025 | **Accepted:** 14.03.2025 | **Published:** 19.03.2025

***Corresponding author:** Mohamed El Biadi
Department of Radiology, Avicenne Military Hospital of Marrakech, Faculty of Medicine and Pharmacy of Marrakech, Cadi Ayyad University of Marrakech, Marrakech, Morocco

Abstract **Case Report**

Acute suppurative parotitis primarily occurs in elderly individuals weakened by systemic diseases or major surgical procedures. It is generally associated with a favorable prognosis. *Staphylococcus aureus* is the main pathogen responsible for acute suppurative parotitis. Other reported pathogens include streptococci, gram-negative bacilli, and anaerobes. The parotid gland is an unusual site for fungal infections. In our literature review, we found only two published cases of *Candida albicans* parotitis, both in elderly diabetic men. Here, we report what we believe to be the third case of a *Candida albicans* parotid abscess in a diabetic patient with no underlying parotid abnormalities.

Keywords: Parotid Abscess, *Candida Albicans*, MRI, Ultrasound, Drainage.

INTRODUCTION

The parotid gland is the most frequently affected salivary gland in cases of inflammation. Acute suppurative parotitis primarily occurs in elderly individuals weakened by systemic diseases or prior major surgical interventions [1]. Predisposing factors include dehydration, malnutrition, immunosuppression, a septic focus or an oral cavity neoplasm, sialectasis, and medications that reduce salivary flow, such as antihistamines, diuretics, and anticholinergic agents [2].

Staphylococcus aureus is the primary pathogen associated with acute suppurative parotitis. Other reported pathogens include streptococci, gram-negative bacilli, and anaerobes [2]. Isolated cases of parotid infections caused by *Salmonella*, *Mycobacterium tuberculosis*, and *Torulopsis glabrata* have also been reported [3-5].

Although *Candida* species are commonly isolated from the oral cavity, only two cases of parotid abscesses due to *Candida albicans* have been reported in the literature. One occurred following obstruction of Stensen's duct by a foreign body [6], and the other presented as a parotid mass with facial nerve paralysis in an elderly diabetic patient [7]. This rarity may be attributed to the candidicidal activity of salivary proteins and their functional protection of the oral cavity.

We report what we believe to be the third case of a *Candida albicans* parotid abscess in a diabetic patient with no underlying parotid abnormalities.

CASE REPORT

Patient History

A 70-year-old man with a history of type 2 diabetes mellitus, managed with metformin, was referred for suspected right parotid tumor. His symptoms began two months prior with the progressive onset of a painless swelling in the right parotid region. The patient had no fever, and his general condition was preserved.

Clinical Examination

The patient was alert with stable blood pressure and heart rate. His temperature was 36.8°C, and capillary blood glucose was 2 g/L. Examination revealed a right parotid swelling without inflammatory signs. The mass was firm, non-adherent to deep planes, and there was no facial paralysis. The oral cavity examination was unremarkable, and the rest of the ENT and systemic examination showed no abnormalities.

Laboratory Findings: HbA1c was 8%, indicating poor glycemic control. White blood cell count was 11,000/uL.

Imaging

A parotid MRI was performed using the following protocol: axial T1 and diffusion sequences, axial and coronal T2, axial T2 Dixon, and axial and coronal T1 FS with gadolinium contrast. MRI revealed a right parotid lesion extending between the superficial and deep lobes, appearing hyperintense on T2-weighted images, moderately hyperintense on T1-weighted images, with diffusion restriction and an annular enhancement after gadolinium injection. The lesion measured 23x19 mm and had irregular multilocular contours. Surrounding edema extended into the parotid parenchyma, adjacent soft tissues, and the retro- and parapharyngeal spaces (Figure 1). Small infra- and juxta centimetric lymph nodes were noted in the ipsilateral level IIA region. The MRI findings favored a diagnosis of a parotid abscess rather than a neoplastic process.

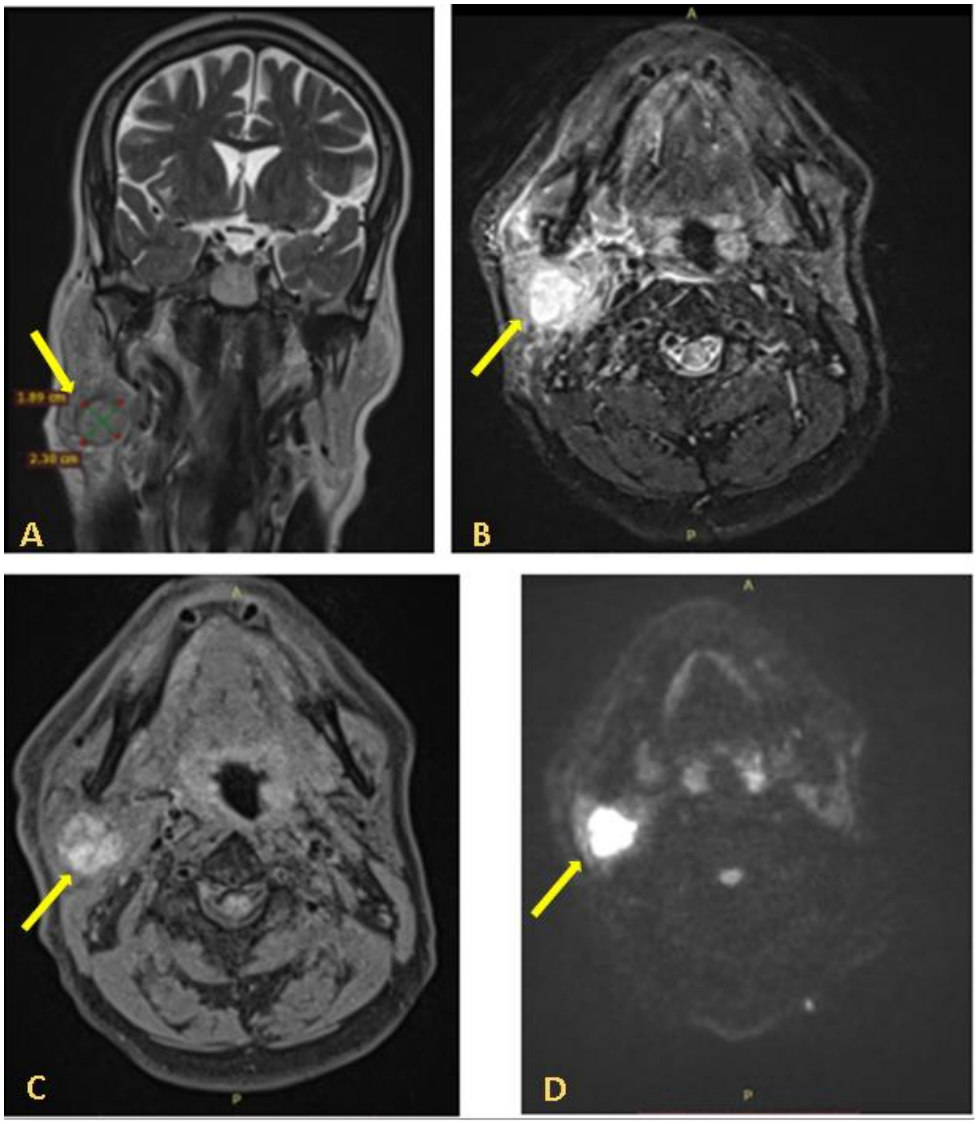

Figure 1: MRI features of the right parotid process on different sequences.
A: Coronal T2; B: Axial T2 Dixon Water; C: Axial T1 Dixon Water showing a hypersignal of the fluid related to a dense proteinaceous content; D: High b-value diffusion sequence showing restricted diffusion.

Drainage Procedure

After strict aseptic precautions, ultrasound-guided fine-needle aspiration was performed (Figures 2 and 3). The aspirated content was thick, pearly white, and was sent for cytobacteriological and histopathological analysis.

Figure 2: Aspiration puncture of the right parotid region swelling under ultrasound guidance.

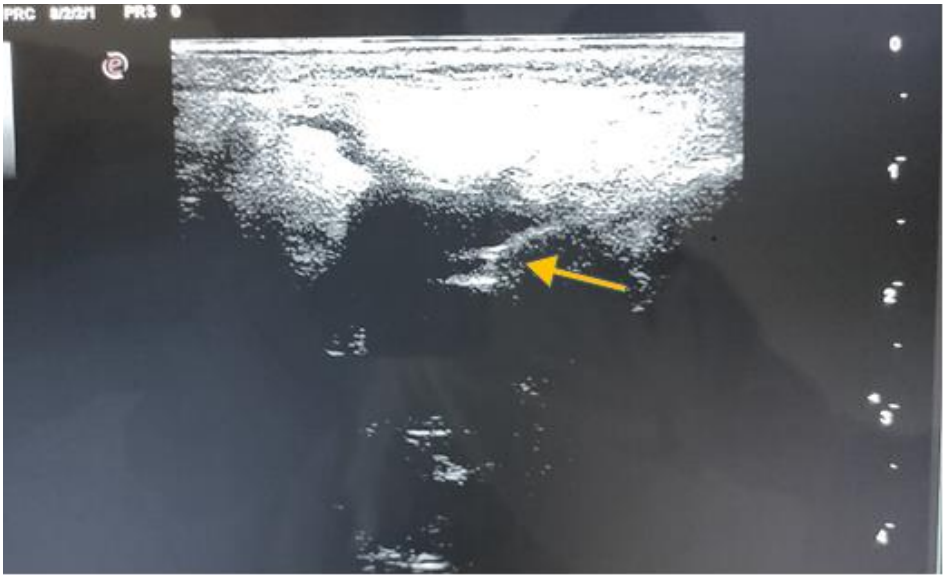

Figure 3: Hypoechoic collection with fine echoes located between the superficial and deep lobes of the parotid gland (yellow arrow = needle tip).

Microbiological Analysis: Culture results identified *Candida albicans*.

Treatment and Outcome

The patient was treated with oral fluconazole 200 mg daily for three weeks, resulting in good clinical improvement. Systemic candidiasis screening, including blood and urine cultures, was negative. The patient also tested negative for HIV.

DISCUSSION

Easts are common colonizers of the oral cavity in healthy individuals [7]. *Candida albicans* is the most prevalent pathogenic fungus in humans, causing severe mucosal and systemic infections in immunocompromised hosts [6].

Diabetic patients have an increased susceptibility to oral *Candida* colonization, possibly due to reduced salivary flow (which is also common in the elderly) or elevated salivary glucose levels [8].

Reduced salivary flow, caused by diabetes-related microvascular impairment, creates favorable conditions for the growth of pathogenic *Candida* organisms in the salivary gland of our elderly patient. Saliva plays a crucial role in regulating *Candida* adhesion and proliferation in the oral cavity. In addition to its mechanical cleansing action, saliva contains antimicrobial proteins, notably histatins, which have antifungal properties [9].

In our case, *Candida albicans* growth occurred within the salivary gland itself, which is highly unusual due to the normal toxicity of saliva to this pathogen.

Some researchers propose that histidine-dependent aerobic conditions are required for histatin activity [10, 11].

A review of the literature identified various bacterial pathogens in parotid abscesses, with the most common being *Staphylococcus aureus*, *Streptococcus pyogenes*, *Mycobacterium tuberculosis*, anaerobes, and *Pseudomonas* spp.

In immunocompetent individuals, rare cases of parotid abscesses caused by *Salmonella typhimurium* [12], *Salmonella enteritidis* [13], and *Chromobacterium violaceum* [14], have been reported. A case of *Bartonella henselae* parotid gland infection associated with facial nerve paralysis (cat scratch disease) has also been described [15].

Viral agents such as Epstein-Barr virus, HIV, and human parvovirus B19 have been implicated in intraparotid lymphadenitis.

Only two cases of *Candida albicans* parotid abscesses have been reported in the literature [6, 7]. Both involved diabetic patients in their seventh decade with poorly controlled diabetes. One case was the first reported instance of a parotid abscess associated with facial nerve paralysis [7]. Diagnosis was based on CT imaging, and the causative agent was identified through culture of surgically drained material.

No standardized treatment guidelines exist for *Candida* parotitis. In the two previously reported cases, surgical drainage was followed by oral fluconazole therapy: 400 mg daily for two weeks in the first case [7], and 100 mg daily for ten days in the second case [6]. Clinical improvement was noted by the second week, with facial paralysis resolving after three months.

Amphotericin B and azoles are commonly used for invasive candidiasis treatment [16]. Due to the high toxicity of amphotericin B and the need for parenteral administration, azoles are preferred. Fluconazole was chosen for its high salivary concentration [17].

In our case, ultrasound-guided aspiration was performed using a peripheral venous catheter and syringe, allowing both bacteriological confirmation and abscess evacuation. Antifungal treatment with oral fluconazole 200 mg daily for three weeks yielded satisfactory therapeutic outcomes.

CONCLUSION

Fungal, particularly *Candida*, parotitis remains exceedingly rare. Local and systemic predisposing conditions are key factors in its pathogenesis. This case highlights the role of diagnostic imaging (MRI) and minimally invasive interventional techniques (ultrasound-guided drainage) in patient management. Although standardized treatment protocols are lacking, imidazole antifungals remain the therapeutic mainstay.

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