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CASE REPORT

Facial Candidal Abscess in a Patient with Unknown Type 2 Diabetes Mellitus

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Abstract
Introduction Facial candidal abscess is an infection with a fungal cause which was presented in this case such a rarity. We report a rare case of facial abscess due to Candida species in a patient with unknown diabetes.
Materials and Methods The patient presented with a longstanding firm swelling which occurred 2 weeks ago and did not show any improvement of healing process in spite of surgical and medical treatments. MRI examinations were conclusive and compatible with abscess, so she underwent surgical intervention. Facial candidal abscess was the final diagnosis.
Conclusions We concluded that, in persistent abscesses, invasive candidiasis should be considered in the differential diagnosis of bacterial infections as it generally affects individuals with diabetes or general defects in the immune system, or those who use widespread antibiotics and steroids.

Keywords Facial candida abscess · Orofacial candida infection · Uncontrolled diabetes mellitus · *Candida albicans*

Case Report

A 59-year-old female patient was referred to the authors' institution because of a firm swelling in her left cheek that occurred 2 weeks ago. She had no history of systemic disease; however the patient's history included a diagnosis of a buccal-space infection which had been drained after the extraction of left upper second premolar and first molar teeth with the antibiotic prophylaxis. Physical examination disclosed noticeable swelling and rash with a mild trismus, in spite of being treated with oral antibiotics, combined as 1 g penicillin + 500 mg metronidazole for 2 weeks (Fig. 1). The preoperative panoramic radiograph revealed extensive bone loss between the teeth related with buccal abscess (Fig. 2). On intraoral examination, a marked redness and suppuration was evident in the buccal sulcus area and drainage was in progress (Fig. 3). The patient had no other symptoms or signs. Taking into consideration the patient's history and clinical manifestations, she was referred to the Department of Radiology for MRI (magnetic resonance imaging) for further examination. MR images were visually evaluated and the fluid accumulation compatible with an abscess, which was located in the area of masticatory muscle structures reaching the left infraorbital region, determined (Fig. 4). Therefore, a second surgical incision and drainage procedure was performed through masseter muscle fibers to get through to deep tissue infection and an incisional biopsy was performed in that region as well. As a result of the long term use of combined antibiotic therapy, there were no gram (+) or gram (−) bacteria, only *C. albicans* was isolated from the specimen by histopathological examination (Fig. 5). A final diagnosis of facial candidal abscess was made. To this respect, a consultation was made to the Department of Endocrinology for evaluation of the associated underlying medical condition. Also the patient was referred to the Department of Gynecology to detect focal areas of infection. For the treatment of Candida abscess, 100 mg amphotericin B was prescribed once a day by I.V. route for

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Fig. 1 The clinical picture showed a swelling and rush at the left cheek of the patient in spite of the antibiotic therapy

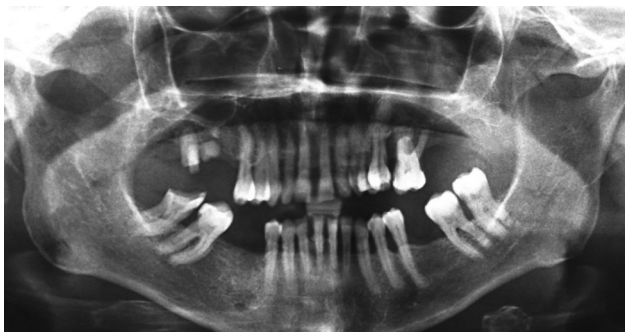

Fig. 2 A panoramic radiograph revealing cause of abscess

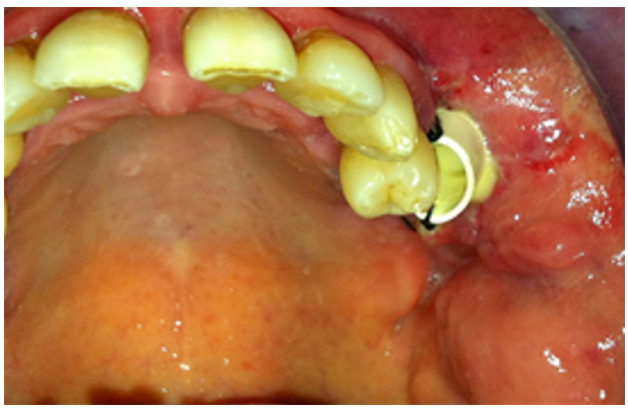

Fig. 3 The intraoral picture of suppuration and drainage

a week and maintenance medication was given as oral fluconazole (2 × 200 mg) for 4 weeks. Concurrently, diabetes mellitus was diagnosed by the results of % 15.9 HbA1c test (glycosylated hemoglobin, normal level 4–7 %) and fasting plasma glucose level of 516 mg/dl (normal level 80–120 mg/dl). We were informed that there was no focal infection area with the result of the gynecologic consultation. The signs and symptoms improved with treatment and management of diabetes mellitus. During the follow-up period of 4 months, there was no recurrence of facial abscess (Fig. 6).

Discussion

Candidal infections increase their importance, especially in immunologically impaired status. The present case is a very rare case of facial candidal abscess in an unknown diabetic patient. Only three cases have been reported in the literature so far. A case of bilateral dacryocystitis caused by *C. albicans* following midfacial trauma with recurrent facial cellulitis was the first report published by Codere et al. [1]. The second one, reported by Chen et al. [2], is an oral submucous fibrosis patient with unknown diabetes mellitus who developed a facial candida cellulitis which was similar like our case. The third one is also a case of facial *C. albicans* cellulites in an uncontrolled diabetic patient that was reported by Kwak et al. [3].

In this case, as in the second and third cases, the patient was diabetic and it is well-known that uncontrolled diabetes mellitus is a predisposing factor for candidiosis; hence it is a superficial opportunistic infection. Different possibilities exist in explaining high oral carriage of Candida for such patients. First of all, high salivary glucose levels induce Candida adherence to buccal epithelial cells. Also, salivary flow rate and pH value of diabetic patients may increase colonization and growth of a variety of organisms including Candida. In addition to this, polymorphonuclear leukocyte adherence, chemotaxis and phagocytosis may be affected in the diabetic person who is more prone to Candida infection [4].

In the literature, it is stated that the possibility of Candida infection should be considered in unimproved infections [5, 6]. Despite the drainage procedure and antibiotics for the treatment of the infection, there was no impairment of the patient status. Therefore a candidal infection was suspected for this patient and an incisional biopsy was performed for histopathological examination. The results confirmed *C. albicans* infection.

Candida albicans infection can occur due to direct contact, inoculation injury or hematogenous spread [7]. Considering hematogenous spread from visceral localization, the patient was referred to other departments for detecting primary foci of infection. As a result of consultation, it was thought to be happening by hematogenous seeding after complete disappearance of primary foci, thus no focus of infection was found.

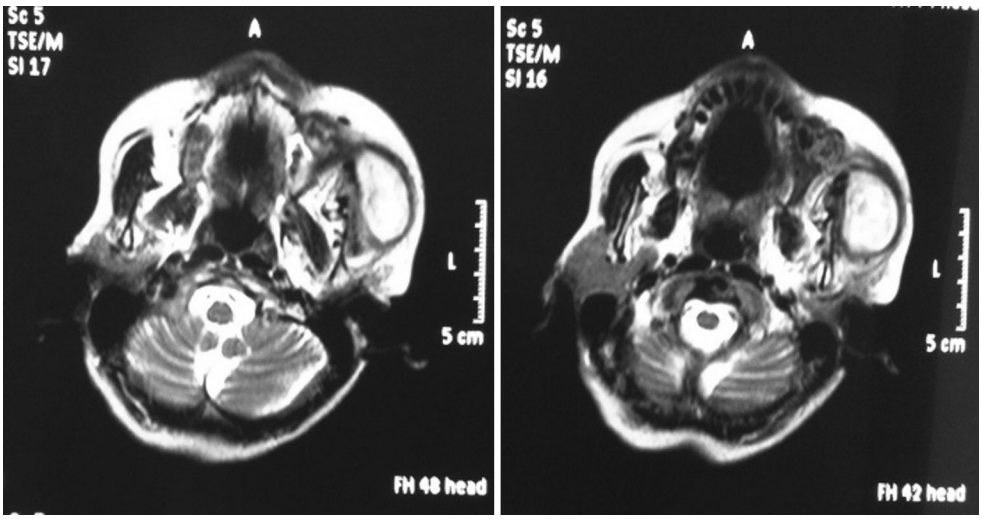

Fig. 4 MRI images showed increased intensity in muscular mass of the left cheek

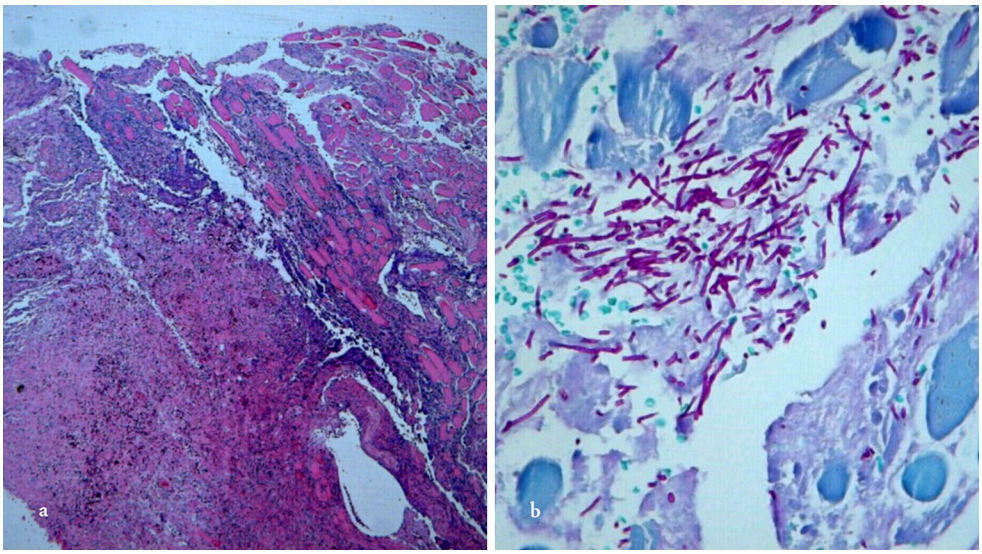

Fig. 5 Histopathologic examination **a** non-specific inflammation of the connective tissue, which extended to collagenated muscle bundles, was observed (HE, ×40). **b** Candida hyphae was observed between the muscle bundles (LGP, ×400)

For defining borders of inflammation, MRI is an excellent tool for soft tissues and muscles as an imaging technique [8]. An MRI contrast dye may be injected to provide better definition of soft tissues. MRI also differentiates normal tissues from pathology with details of millimeters in size. In this case, an MRI with contrast dye was used to eliminate the provisional diagnosis of tumoral lesion and to indicate the presence of infection. With the clinical, radiological and histopathological examination, the final diagnosis was *C. albicans* infection, which is sensitive to amphotericin B, fluconazole, itraconazole, nystatin and ketoconazole.

According to the clinical practice guidelines for the management of candidiasis by the European Society for Clinical Microbiology and Infectious Diseases, "For the targeted initial treatment of candidaemia, liposomal amphotericin B is supported with moderate recommendation, and fluconazole with marginal strength. Treatment duration for candidaemia should be a minimum of 14 days after the end of candidaemia." [9]. Regarding this treatment modality, 100 mg amphotericin B once a day by I.V. route for a week and oral fluconazole (2 × 200 mg) for 4 weeks was prescribed. The patient recovered depending upon surgical drainage, antifungal therapy and diagnosis of diabetes mellitus.

In conclusion; this case emphasizes the need to consider a fungal cause with a persistent facial abscess which were not responsive to broad spectrum antibiotics and surgical

Fig. 6 The clinical picture showed complete healing of the patient with regressed symptoms

drainage. Nevertheless the immunodeficiencies, especially diabetes mellitus, which can provoke fungal cause must be suspected.

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Conflict of interest The authors declare that there are no conflicts of interest.

References

1. Codere F, Anderson RL (1982) Bilateral *Candida albicans* dacryocystitis with facial cellulitis. Can J Ophthalmol 17(4):176–177
2. Chen HM, Shih CC, Yen KL et al (2004) Facial *Candida albicans* cellulitis occurring in a patient with oral submucous fibrosis and unknown diabetes mellitus after local corticosteroid injection treatment. J Oral Pathol Med 33(4):243–245
3. Kwak OS, Kang MI, Kim JB, Kim MW, Kim YK (2009) A rare case of facial *Candida albicans* cellulitis in an uncontrolled diabetic patient. Mycoses 52(4):379–381
4. Soysa NS, Samaranayake LP, Ellepola AN (2006) Diabetes mellitus as a contributory factor in oral candidosis. Diabet Med 23(5):455–459
5. Slots J, Rams TE, Listgarten MA (1988) Yeasts, enteric rods and pseudomonads in the subgingival flora of severe adult periodontitis. Oral Microbiol Immunol 3(2):47–52
6. Waltimo TM, Siren EK, Torkko HL, Olsen I, Haapasalo MP (1997) Fungi in therapy-resistant apical periodontitis. Int Endod J 30(2):96–101
7. Chapman SW, Daniel CR 3rd (1994) Cutaneous manifestations of fungal infection. Infect Dis Clin North Am 8(4):879–910
8. Ruiz-Cabello J, Carrero-Gonzalez B, Aviles P et al (1999) Magnetic resonance imaging in the evaluation of inflammatory lesions in muscular and soft tissues: an experimental infection model induced by *Candida albicans*. Magn Reson Imaging 17(9):1327–1334
9. Cornely OA, Bassetti M, Calandra T et al (2012) ESCMID* guideline for the diagnosis and management of Candida diseases 2012: non-neutropenic adult patients. Clin Microbiol Infect 18(Suppl 7):19–37