

Aspergillosis of the maxillary sinus associated with a zygomatic implant

Fabio Ricardo Loureiro Sato, DDS, MS; Renato Sawazaki, DDS, MS, PhD; Daniel Berretta, MS; Roger William Fernandes Moreira, DDS, MS, PhD; Pablo Agustin Vargas, DDS, MS, PhD; Oslei Paes de Almeida, DDS, MS, PhD

Aspergillosis of the maxillary sinus is an opportunistic fungal infection that occurs relatively rarely in patients who are not immunocompromised. Clinically, aspergillosis can manifest in three forms: noninvasive, invasive and allergic.

— The noninvasive form is called *Aspergillus mycetoma* and aspergilloma—or “fungus ball”—and it occurs mostly in healthy people. It usually affects only one sinus cavity, especially the maxillary antrum, either symptomatically or asymptotically. According to Loidolt and colleagues,¹ 10 percent of all patients who undergo surgery for chronic sinusitis develop an aspergilloma. It has been suggested in the literature that intrusion of foreign bodies, such as root-filling materials or tooth pulp, into the maxillary sinus may predispose a person to noninvasive aspergillosis.²⁻⁴ Radiographically, a dense opacity in the maxillary sinus associated with a foreign-body reaction is considered a characteristic finding of an aspergilloma.

— The invasive form of *Aspergillus* infection in immunocompromised patients occurs in the lungs via blood vessels, causing necrotic bronchopneumonia. When it involves the paranasal sinuses, it leads to bone

ABSTRACT

Background. The use of a specially designed implant to be anchored in the zygomatic bone has been proposed in the literature as an alternative to bone grafting in the prosthetic rehabilitation of the severely resorbed maxilla, an option that has few postoperative complications. However, some complications can arise, such as the fungal infection the authors describe in this article.

Case Description. The authors report a case of aspergillosis of the maxillary sinus after zygomatic implant placement. Twelve months after placement of the implant, the patient returned with symptoms of sinusitis, and a computed tomographic scan showed failure in zygomatic implant osseointegration and a radiopaque mass in the left maxillary sinus. The implant was removed, as was a friable brownish-yellow mass from the sinus. Histopathological analysis revealed a noninvasive hyphal mass compatible with *Aspergillus*. At a 12-month follow up, the patient experienced no recurrence of fungal sinusitis.

Conclusion and Clinical Implications. Zygomatic implant placement is a safe surgical procedure. Nevertheless, postoperative maxillary sinus infections by bacteria, virus and fungus can occur and therefore need to be considered in the diagnosis of infection in the vicinity of dental and maxillofacial implants.

Key Words. Fungal infection; implants; maxilla; aspergillosis.

JADA 2010;141(10):1231-1235.

Dr. Sato is a doctoral student, Piracicaba Dental School, State University of Campinas, Avenida Limeira, No. 901, Caixa Postal 52, Areião, Piracicaba, São Paulo, Brazil, e-mail “fabio.sato@fop.unicamp.br”. Address reprint requests to Dr. Sato.

Dr. Sawazaki is a collaborative professor, Oral and Maxillofacial Surgery, Piracicaba Dental School, State University of Campinas, São Paulo.

Mr. Berretta is a master’s degree student, Oral Pathology, Piracicaba Dental School, State University of Campinas, São Paulo.

Dr. Moreira is an associate professor, Department of Oral and Maxillofacial Surgery, Piracicaba Dental School, State University of Campinas, São Paulo.

Dr. Vargas is an associate professor, Department of Oral Pathology, Piracicaba Dental School, State University of Campinas, São Paulo.

Dr. de Almeida is the head, Department of Oral Pathology, Piracicaba Dental School, State University of Campinas, São Paulo.

destruction. Cases involving severe invasion correspond to fulminant aspergillosis.⁵

■ The allergic form first was described by Katzenstein and colleagues⁶ in 1983. Symptoms mimic those of allergic bronchitis, with obstruction and chronic paranasitis as in the noninvasive form, but it does not respond to conventional medical management.

In a systematic literature review, Pasqualotto and Denning⁷ found approximately 500 cases of postoperative aspergillosis described in a period of 73 years. Cardiac surgery was the procedure most prevalently associated with aspergillosis⁷ ($n > 180$), followed by dental ($n > 100$) and ophthalmological procedures ($n > 90$). Not among the dental procedures associated with aspergillosis, however, was the placement of zygomatic implants.

Zygomatic implants were developed for patients who had undergone maxillary resection and required retention of an obturator,⁸ and they also are an excellent alternative to grafting procedures.⁸ The zygomatic implant is placed through the palatal bone, penetrates transantrally and is anchored in the cortical bone of the body of the zygomatic bone. Placement of zygomatic implants involves a strict surgical protocol in which at least two, but preferably four, additional implants are placed in the anterior maxilla to assist in retention of a fixed prosthesis.

Our aim in this article is to present what is, to our knowledge, the first case of an aspergilloma in a patient rehabilitated with zygomatic implants to be described in the literature.

CASE REPORT

A 50-year-old male patient received a referral from his general dentist to the Department of Oral and Maxillofacial Surgery of Piracicaba Dental School, State University of Campinas, São Paulo, because of maxillary edentulism. The patient was in good general health and free from symptoms, and he had no history of sinusitis, maxillary sinus pathology or diseases caused by immunosuppression. He had a severely resorbed maxilla, and clinicians (F.R.L.S., R.S. and R.W.F.M.) planned rehabilitation with two zygomatic and four conventional implants (SIN Implant System, São Paulo) in the anterior maxilla. The clinicians performed the surgery under sedation and local anesthesia. The only intraoperative occurrence was the sinus membrane perforation of approximately 2 millimeters that the surgeons closed with a 4.0 catgut suture.

The surgeons instructed the patient not to use his maxillary denture during the first two weeks after implant placement. After this period, a postgraduate student in the Piracicaba Dental School Department of Prosthodontics relined the denture with resilient denture reliner because the denture had thoroughly worn out at the location of the zygomatic implants.

After 12 months, the patient returned to the dental school's department of oral and maxillofacial surgery with a complaint of swelling in the left zygomatic region and symptoms of maxillary sinusitis. A computed tomographic (CT) image was obtained in the department of radiology at the dental school, and it showed a dense radiopaque mass floating on the left sinus floor, encapsulated by thickened schneiderian epithelium. The CT scan also revealed an area of bone resorption around the implant in the zygomatic bone, indicating that the left zygomatic implant was not osseointegrated (Figure 1). The diagnostic hypotheses were zygomatic implant failure associated with fungal infection, chronic sinusitis, giant cell granuloma or odontogenic myxoma.

The treatment plan involved removal of the implant with maxillary sinusectomy and placement of a new posterior zygomatic implant in the area from which the original implant was going to be removed. With the patient under general anesthesia, the oral and maxillofacial surgeons (F.R.L.S., R.S. and R.W.F.M.) used a trephine drill to remove the zygomatic implant. They also removed from the maxillary sinus a pyramid-shaped foreign body mass composed of dark brown and yellow material (Figure 2) and sent it for histopathological analysis to the dental school's department of oral pathology.

Three oral pathologists (D.B., P.A.V. and O.P. de A.) examined the mass removed from the maxillary sinus. They fixed it in 10 percent formalin and processed it routinely for examination under light microscopy. They stained 5-micrometer sections with hematoxylin and eosin, periodic acid–Schiff (PAS) and Gomori methenamine silver (GMS). Histopathological examination revealed areas of necrotic tissue overlaid by a large amount of hyphae and bacteria. Inflammatory cells were apparent on the periphery of the mass, and bone structures were absent (Figure 3A, page 1234).

ABBREVIATION KEY. CT: Computed tomography. GMS: Gomori methenamine silver. PAS: Periodic acid–Schiff.

Download English Version:

<https://daneshyari.com/en/article/3138511>

Download Persian Version:

<https://daneshyari.com/article/3138511>

[Daneshyari.com](https://daneshyari.com)