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Implant rehabilitation in patients with sinusitis aspergillosis: A retrospective Study of 8 consecutive patients with a 10 year follow up.

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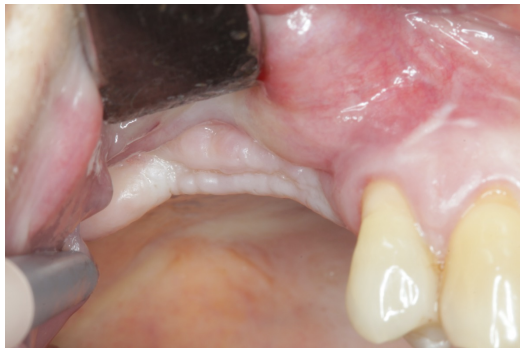

Fig. 1a clinical situation after failed sinus augmentation

Fig. 1b panoramic x ray after failed sinus augmentation

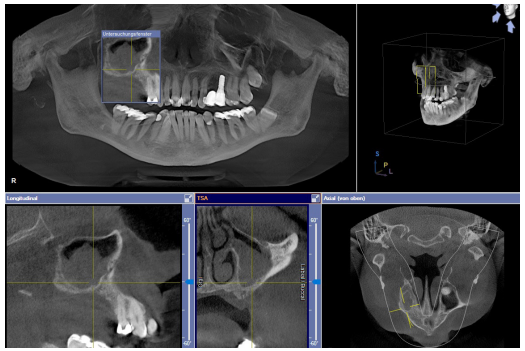

Fig. 1c cbct with pathology in the right sinus

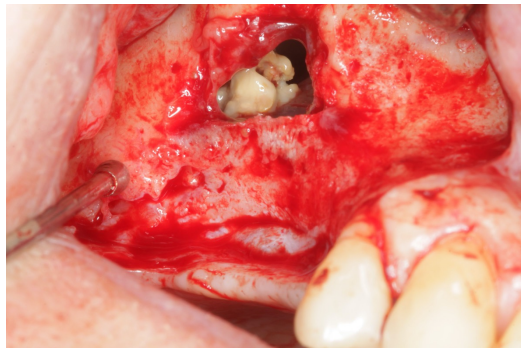

Fig. 1d clinical appearance of the pathology

Background

Aspergillosis is a fungal disease caused by the fungus Aspergillus; this disease frequently involves the lungs and occasionally the maxillary sinus. Aspergillosis in the maxillary sinus usually has the characteristics of a noninvasive form. It has been suggested that spores of aspergillus can be inhaled into the maxillary sinus via the osteomeatal complex or via an oroantral fistula after dental procedures. Sinus aspergillosis is a potential complication after root canal therapy of antral teeth. Materials as zinc oxide-eugenol cement overfilling in the sinus may promote fungal infection (1-2).

Aim

A retrospective study with 8 consecutive patients and a 10 year follow up should suggest a treatment protocol how to treat patients with a severe aspergillosis in the maxillary sinus effectively with dental implants and sinus floor elevation after the removal of the infection (Fig. 1a-d).

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Fig. 2a Rinsing with H202 3%

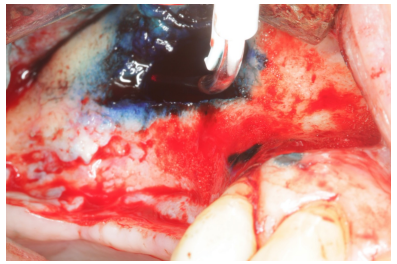
Fig. 2b Photodynamic decontamination

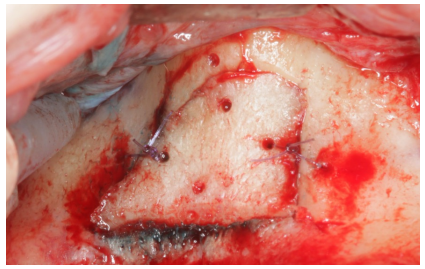
Fig. 2c Bony lid is placed back

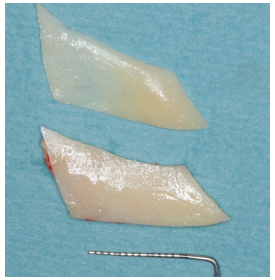
Fig. 2d Retromolar bone blocks

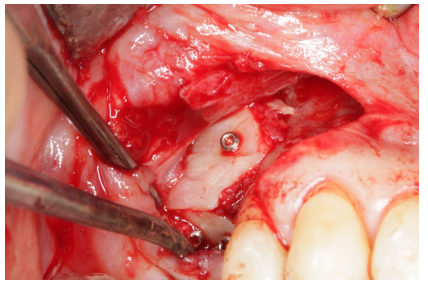
Fig. 2e Augmentation with autogenous bone

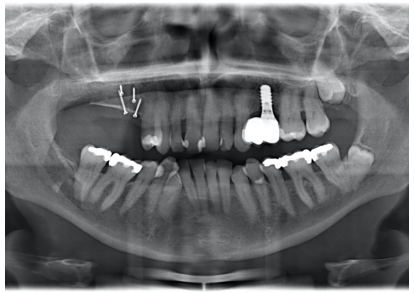
Fig. 2f Post operative panoramic x ray

Methods

Treatment depends on the clinical presentation of aspergillosis. For immunocompetent patients with a noninvasive aspergilloma, surgical debridement may be necessary. In all patients a radiopaque shadow was seen on the panoramic as well as on the cone beam tomography (Fig. 1b-c). Sinus surgery was performed with local infiltration (Articain 4%, 1:100.000 Adrenalin: Ultracain D-S- Forte) and I.V. Sedation (Midazolam, 5m/5ml). A bony lid (Fig. 1d) which is cut with the microsaw (DENTSPLY Implants, Mannheim, Deutschland) allowed a save access to the sinus. After luxation of the bony lid the pathology is completely removed from the sinus and the sinus cavity is rinsed with hydrogen peroxide (H_2O_2 3%) (Fig. 2a). Photodynamic decontamination with the Helbo Laser (HELBO, Bredent, Medical Gmbh, Germany) can be used for additional disinfection (Fig. 2b). At the end of the surgery the bony lid is replaced as a biological closure of the sinus (Fig. 2c). The pathology was examined at the histological institute and was confirmed as aspergillosis. After 2 months healing, the defect was grafted with bone harvested from the retromolar area of the same site, following the split bone block technique and sinus floor elevation (Fig. 2d-f). The sinus was filled with biomaterial (FRIOS Algipore ® DENTSPLY Implants, Mannheim, Deutschland) and autogenous bone in the layering technique. After 12 weeks the implants were inserted (Fig. 3a-b). Second stage surgery was performed after 3 months in combination with soft tissue management. The definitive restoration was inserted 6 weeks postoperatively (Fig. 3c-d) (3).

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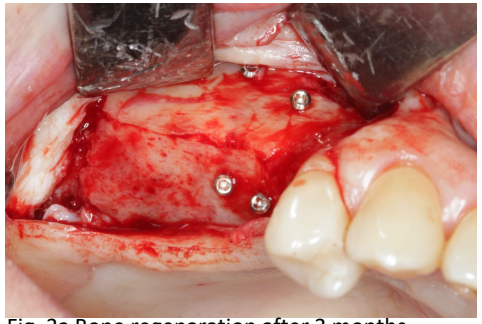

Fig. 3a Bone regenaration after 3 months

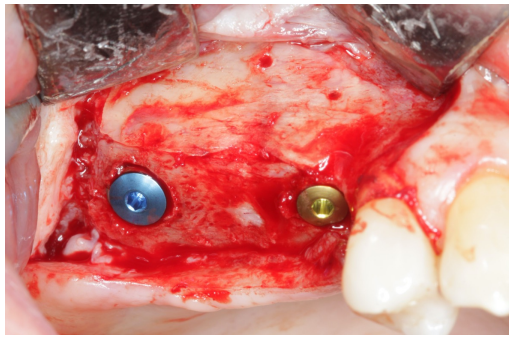

Fig. 3b Implants are inserted in the new bone formation

Fig. 3c panormaic x ray of the final prothetics

Fig. 3d Clinical appearance of the final prothetics

Results

Both the maxillary sinus and bone grafts healed without any complications on both sites. All implants could be inserted three months after the bone grafting procedure (Fig. 3a-d). The patients are following a strict six months recall system and are still under control for 10 years. The implants demonstrate a healthy situation with pocketing not more than 3 mm. The postoperative radiographs show no signs of further sinus infections.

Conclusion

Different types of dental procedures that involve the maxillary sinus may facilitate the occurrence of fungal sinusitis, which shares similar features with other infections of the sinus. Oral surgeons should be aware of the possibility of fungal etiology, especially in cases resistant to treatment. An appropriate treatment strategy to minimize costs, implant failure and other complications is presented by using a biological approach to remove the infection and to reconstruct the compromised area with autogenous bone.

References:
1. Denning DW. Invasive aspergillosis. Clinical infectious diseases : an official publication of the Infectious Diseases Society of America 1998;26:781-803; quiz 804-785
2. Jang SB, Lee ST, Choi SY, Kwon TG, Kim JW. Aspergillosis of the Maxillary Sinus Associated With Dental Implant. J Oral Implantol. 2022 Jun 1;48(3):210-214
3. Khoury F. Bone and Soft Tissue Augmentation in Implantology. Quintessence 2022

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