

## Summary

Fungal sinus disease can be classified as invasive and non-invasive based on histopathologic evidence of fungal elements penetrating host tissue. Each type of fungal sinus infection has an individual clinical presentation, prognosis and options for treatment. Invasive infection is characterized by histological destruction of tissue. Early detection and treatment are vital. Non-invasive fungal infections are more indolent. Fungus ball has been interpreted as misplaced dental filings or posttraumatic foreign bodies in the past. A focused endoscopic surgical resection appears to be largely curative of fungus ball, without the need for systemic antifungal therapy.

Controversy surrounding the etiology, pathogenesis, and appropriate treatment emerged in case of AFS. Many authors avoid mentioning the classification criteria. At the present time, two main opinions in terms of the role of fungi in the pathogenesis of AFS emerged: fungi are the main protagonist or fungi are only a catalyst in the development of this disease. Diagnostic criteria for AFS have been reduced to three out of five – identification of allergic mucin, demonstration of fungal elements, and sinusitis confirmed with imaging methods like CT or radiograph. The cornerstone of AFS management is surgical intervention followed with nasal and sinus irrigation postoperatively. Systemic and topical corticosteroid therapy became a standard treatment. The feasibility of topical antifungal agents is being currently studied in in vitro and in vivo experiments.

We retrospectively evaluated a group of 44 patients with fungus ball and we focused on their clinical symptoms including dental problems. We discovered that they suffered from dental problems in 34%. We suggest that fungus ball is of dental origin in some cases.

We evaluated antifungal activity of amalgam in our in vitro experiment. Amalgam showed an antifungal effect in our experiment.

We evaluated the therapeutic efficacy of topical antifungal agent. The group of 31 patients with the presence of fungi applied mycomax (fluconazole) 150mg in the form of nasal drops. The therapeutic effect was evaluated based on the fungi presence and based on patients' symptoms. Our results showed that we achieved 90,3% therapeutic effect. Patients have been followed up for one year.

Our results show that dental origin should be considered in fungus ball. Amalgam has antifungal features in vitro. Topical antifungal therapy is a new therapeutic modality in the therapeutic algorithm of AFS.