Endodontic Treatment: As a Considerable Risk Factor for Fungal Ball

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Background and Objectives: Fungal ball of the maxillary sinus is a rare sinonasal fungal disease usually detected after years of having additional risk factors for fungal ball formation. The risk factors for maxillary fungal ball such as endodontic treatment of maxillary teeth have been long noted in past literatures, older individual and female predominance are noted. Recent, the incidence of fungal ball of the maxillary sinus tend to increase. Although, the recurrence of fungal ball is extremely rare after the sinus operation, there is no literatures that noted. The aim of this retrospective study was to evaluate the status of sinus and teeth with CT images. The present study showed that the previous endodontic treatment might be the risk factor for the fungal ball in the maxillary sinus. Endodontic treatment is performed to cure the neural damage of the dental canals. During the procedure, the tooth root is removed with the instruments, and the empty teeth root is filled with inert materials. Recent, incidence of fungal ball of the maxillary sinus tend to increase, and also frequency of endodontic treatment tend to increase due to becoming aging society, also because tooth mortality rate gets higher according to aging process due to gingival recession, loss of gingival epithelium resulting in developing aspergillus fungal ball.

INTRODUCTION

The fungal ball of sinus is usually diagnosed in healthy individuals without any risk factors for infection. The teeth root is removed with the instruments, and the empty teeth root is filled with inert materials. Recently, incidence of fungal ball of the maxillary sinus tend to increase, and also frequency of endodontic treatment tend to increase due to becoming aging society, also because tooth mortality rate gets higher according to aging process due to gingival recession, loss of gingival epithelium resulting in developing aspergillus fungal ball.

METHODS AND MATERIALS

Patient selection

Identification of cases

Pathologists who diagnosed as fungal ball in maxillary sinus in pathology (Fig. 1-A) and

1. Underwent Endoscopic Sinus Surgery (ESS) between May 1996 and January 2006

2. Were able to evaluate all the sinuses and maxillary teeth at Otorhinolaryngological OMU CT

One of them had fungal ball of maxillary sinus bilaterally. Therefore, analysis was performed about 113 maxillary sinuses.

Identification controls

Controls (PNS group) were selected from 1074 patients who were diagnosed as chronic paranasal sinusitis in pathology and

1. Were Age- and Sex-matched with cases (FB group), individually

2. Underwent ESS before same period.

We designed a case-control study and enrolled 112 patients (FB group) who were diagnosed as fungal ball of maxillary sinus at Samsung Medical Center between May 1996 and January 2006, and 112 age group, and sex matched controls (PNS group) were recruited. We evaluated the status of sinuses and teeth with CT images. The aim of this retrospective study was to determine whether endodontic treatment of maxillary teeth was a risk factor for fungal ball of the maxillary sinus. This study was approved by institutional review board (IRB) and institutional committee of this study.

Statistical analysis

The data were recorded and analyzed in using SPSS version 17.0 (SPSS Inc., Chicago, Illinois). P-value of 0.05 or below was considered statistically significant. Statistical analysis was performed by evaluating the null hypothesis that there is no difference between the two groups, that is, statistical differences between the FB group and PNS group.

RESULTS

Pathology

All 41 cases (36.3%) from 113 maxillary sinuses of FB were found to have had endodontic treatment at maxillary teeth compared with 36 cases (32.7%) from 224 maxillary sinuses of PNS group although it showed no statistical difference. The present study showed that the previous endodontic treatment might be the risk factor for the fungal ball in the maxillary sinus. Endodontic treatment is performed to cure the neural damage of the dental canals. During the procedure, the tooth root is removed with the instruments, and the empty teeth root is filled with inert materials. Recent, incidence of fungal ball of the maxillary sinus tend to increase, and also frequency of endodontic treatment tend to increase due to becoming aging society, also because tooth mortality rate gets higher according to aging process due to gingival recession, loss of gingival epithelium resulting in developing aspergillus fungal ball.

CONCLUSIONS

The present study showed that the previous endodontic treatment might be the risk factor for the fungal ball in the maxillary sinus. Endodontic treatment is performed to cure the neural damage of the dental canals. During the procedure, the tooth root is removed with the instruments, and the empty teeth root is filled with inert materials. Recent, incidence of fungal ball of the maxillary sinus tend to increase, and also frequency of endodontic treatment tend to increase due to becoming aging society, also because tooth mortality rate gets higher according to aging process due to gingival recession, loss of gingival epithelium resulting in developing aspergillus fungal ball.