Microsatellite Instability Analysis of Sinonasal Carcinomas

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Introduction:
In the respiratory epithelium of the nasal cavity and paranasal sinuses predominantly two tumor types occur: adenocarcinoma (ITAC) and squamous cell carcinoma (SCCNC). Both tumor types are relatively infrequent, representing 0.5% of all malignant neoplasms and 3% of head and neck cancers with an age of onset of 55-65 years.

Both ITAC and SCCNC are quite different with respect to their etiology. ITAC is strongly associated to professional exposure to wood dust particles, whereas tobacco, a strong etiological factor for all head and neck squamous cell carcinoma, does not play an important role in SCCNC.

Materials and Methods:
Tumor samples of 41 ITAC and 24 SCCNC patients were obtained from surgical resection specimens avoiding necrotic areas and stored in liquid nitrogen. Approximately two ng tumor DNA was amplified in a multiplex PCR using a MSI analysis kit (Promega Biotech Iberica, Barcelona, Spain). The PCR products were analyzed by capillary electrophoresis using an ABI 3100 Genetic Analyzer (Applied Biosystems, Warrington, UK). Data analysis was done by GeneScan software (Applied Biosystems, Warrington, UK).

Objective:
In this study we wanted to explore the possibility of microsatellite instability (MSI) as a mechanism involved in the development of ITAC and SCCNC.

Results:
All tumors gave interpretable PCR products and their sizes were within the range indicated by the manufactures. One of 41 ITAC (2.4%) and 5 of 24 SCCNC (21%) were found MSI positive. Two cases showed a displacement of BAT-26, two cases of NR-21, and one case had displacement of BAT-25 and BAT-26.

Discussion:
One case MSI positive out of 41 ITAC would suggest that this mechanism does not play an important role in tumorigenesis. On the other hand, 21% MSI positive cases of SCCNC is considerable and would play a role in development of these tumors. We did not find any difference in age, anatomical site, histology or tumor stage between the MSI positive and negative SCCNC cases. MSI positive cases did seem to have a longer disease-free survival time than MSI negative cases (24.2 versus 12.4 months), but due to the low number of patients this finding should be considered preliminary.

Table 1. Clinical features of ITAC and SCCNC.

![Figure 1. Different localizations in nasal cavity and paranasal sinus.](image)

![Figure 2. Development of sinonasal cancers](image)

![Figure 3. Examples of MSI positive cases. A) ITAC and B) SCCNC.](image)