SUMMARY

Current doctoral thesis is dealing with morphology, immunohistochemistry, molecular genetics and biological behavior of head and neck tumors with a particular emphasis on salivary gland and sinonasal lesions. Dr. Martina Baneckova has focused on this topic during her postgraduate studies at Charles University, Medical Faculty in Pilsen, in the years 2017 – 2020. In her publication activity, the author focused on rare tumors of the head and neck. A total of 9 publications were published over a span of three years are presented in a form of a commentary. Four of them are first-author papers and these are introduced briefly below.

The first study entitled "Mammary analog secretory carcinoma of the nasal cavity: Characterization of 2 cases and their distinction from other low-grade sinonasal adenocarcinomas" deals with the relationship of newly described entities, secretory carcinoma (SC) of the nasal cavity and *ETV6*-rearranged low-grade sinonasal adenocarcinoma (LG SNAC). It is important to distinguish these 2 entities because of different clinical behaviors. Low-grade non-ITAC, including *ETV6*-rearranged LG SNAC mostly behave in an indolent manner, whereas SC is a malignancy with metastatic potential. It is important to be aware of the possible occurrence of SC in the sinonasal region, as in this area SC represents a potential mimicker of non-intestinal-type adenocarcinomas (non-ITAC) and the more aggressive intestinal-type adenocarcinomas (ITAC).

In the second paper entitled "Immunohistochemical and genetic analysis of respiratory epithelial adenomatoid hamartomas and seromucinous hamartomas: are they precursor lesions to sinonasal low-grade tubulopapillary adenocarcinomas?" the authors evaluated the morphological, immunohistochemical and genetic profile of respiratory epithelial adenomatoid hamartoma (REAH) and seromucinous hamartoma (SH), and they compared these findings with the morphological and immunohistochemical features of low-grade tubulopapillary adenocarcinoma (LGTA). The serous component of REAH or SH was positively stained with CK7, MUC1 and SOX10 similarly to LGTA. In addition, one case of SH showed *EGFR-ZNF267* gene fusion detected by next generation sequencing, and one case of SH proved to be clonal using HUMARA assay. Our findings suggest that SH and REAH represent the variants of the same lesion. Moreover, SH and serous component of REAH might be precursor lesions of LGTA.

The third paper was entitled "Solitary fibrous tumors of the head and neck region revisited: A single-institution study of 20 cases and review of the literature." The authors dealt with molecular genetic background of solitary fibrous tumor (SFT), particularly the exact participation of the exons included in the *NAB2-STAT6* gene fusion in 20 cases. SFT might be included in the differential diagnosis of a wide spectrum of spindle shape and epithelioid-cell derived lesions, both primary and secondary malignancies. The literature review summarizes data from 579 cases of SFT from different location of the body (200 of them were from the head and neck). Based on the described exons participating in the *NAB2-STAT6* gene fusion, we concluded that the fusion containing a DNA-binding domain (STAT6-full variant) has metastatic potential.

The fourth study entitled "SATB2 is frequently expressed in ossifying and non-ossifying peripheral oral fibroma of the gingival region but not in reactive fibromatous lesions from other intraoral sites" discusses the problem of peripheral oral fibromas (POF) of the gingival region. POF are fibrous nodular lesions likely resulting from persistent localized injury. The presence of centrally located metaplastic woven bone defines the ossifying variant. Ossifying POF and half of non-ossifying POF of the gingival region featured strong and diffuse nuclear SATB2 immunoreactivity. SATB2 was not expressed in other non-gingival locations of the oral cavity.

The described SATB2 positivity is consistent with proposed origin of gingival POFs from periosteal ligaments and explains their tendency for ossification. This finding must be taken into consideration when evaluating SATB2 positive lesions of the oral cavity in order to avoid misdiagnosis of malignancy.