**Title:** Multiple primary malignancies in Japanese patients with non-small cell lung cancer

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**Body:** [Background] Information on multiple primary malignancies (PMs) is important as it has the potential to clarify etiologic factors and contribute to refining the follow-up of patients (Pts) by effectively screening the associated malignancies. Upper aerodigestive tract cancer often develops in Pts with smoking-related lung cancer, however, little is known with regard to the frequency and types of other PMs in non-small cell lung cancer (NSCLC) Pts without a history of smoking. [Patients and Methods] We retrospectively studied the records of NSCLC Pts at the Institute of Biomedical Research and Innovation between January 2007 and June 2012. [Results] A total of 938 Pts including 599 men (never-smoker/ ever-smoker: 35/564) and 339 women (never-/ ever-: 236/103) were analyzed and 209 Pts (22.3%) had multiple PMs. One hundred and seventy-eight Pts had one histologically-proven PM other than NSCLC, 27 had two other PMs and 4 had three other PMs. Of 209 Pts with multiple PMs, 151 Pts had a history of smoking and 58 were never-smokers. The most commonly found cancer was gastric, colorectal and prostate cancer (43, 33, 29 cases, respectively). In female Pts without a history of smoking, breast, thyroid and colorectal cancer (5.9, 5.1 and 3.0%, respectively) were the most prevalent malignancies. As expected, smoking-related cancer is more common in ever-smoker Pts in both genders. With regard to female NSCLC Pts, never-smoker Pts are more likely to have thyroid cancer compared to Pts with a history of smoking (5.1% and 0%, P=0.021). [Conclusion] Thyroid cancer and NSCLC co-exist in some female Pts without a history of smoking and predisposing factors other than tobacco smoke are implied.