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**Title:** Sampling of ipsilateral mediastinal nodes by EBUS-TBNA in lung cancer staging

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**Body:** Background: Endobronchial ultrasonography transbronchial needle aspiration (EBUS-TBNA) has shown its usefulness in lung cancer (LC) staging. However, determinants of negative predictive value (NPV) are not well known. Aim: To determine clinical characteristics of LC that are associated to a low NPV, that will allow a more accurate selection of patients needing additional staging techniques before surgery in front of a negative result of EBUS-TBNA. Materials and Methods.- NPV of EBUS-TBNA for the identification of mediastinal spread of LC was calculated in patients staged with EBUS-TBNA and treated surgically, performed lymph node dissection during surgery. Results: 145 patients with T1 (n=55), T2 (n=80) and T3 (n=10) were studied. 48 patients (33.1%) showed mediastinal lymphadenopathy (ML) at computed tomography (CT). EBUS-TBNA got a representative sampling of ipsilateral low laterotracheal and subcarinal regions in 127 patients (87.6%), and 4R, 4L and 7 in 105 patients (72.4%). The result was false negative regarding mediastinal lymph dissemination in 20 patients (13.8%). The identification of mediastinal lymph nodes on CT was significant predictor of false negative EBUS-TBNA exploration (22.9 versus 9.3%, p=0.02). Unrepresentative ipsilateral mediastinal sampling (50 Vs 8.7%, p<0.001) and unrepresentative sampling in 4R, 4L and 7 (32.5% Vs 6.7%, p<0.001) were significant predictors of a FN. In multivariate analysis, ML on CT (OR 3.39,95%CI 1.15-10) and insufficient sampling (OR 10.66,95%CI 3.29-34.55) were independent variables of a low NPV. Conclusions: EBUS-TBNA achieved a successful lymph node sampling of mediastinal regions ipsilateral to the tumor in over 85% of patients. Funded by FIS FIS 0901612.