Title: Vascular pattern assessment of bronchial lesions with narrow-band imaging bronchoscopy

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Body: Introduction: Diagnosis of preneoplastic and early neoplastic lesions is a challenge for current endoscopy. Novel endoscopic techniques such as narrow band imaging (NBI) bronchoscopy allow improving the early detection of preinvasive bronchial tumors. NBI enables to detect vasculature changes, occurs preferentially in dysplastic and neoplastic lesions, but at present there is no integrated classification for NBI use. Aims and Methods: The aim was to determine the association between types of vasculature and histology of bronchial lesions. 94 lesions in 77 patients were entered into the study. The vasculature of abronchial lesions was assessed by using NBI mode (Olympus Exera II BF 1T180, BF P180) and classified into four main types: “tortuous vessels”, “dotted vessels”, “tortuous dilated vessels”, “spiral and screw vessels”. Biopsies were taken from all lesions for histological assessment. Results: From 94 lesions “tortuous vessels” was found in 29 cases (11(37,9%) squamous metaplasia (SM), 8(27,6%) high-grade dysplasia (HGD), 2(6,9%) carcinoma in situ (CIS), 8(27,6%) benign lesions); “dotted vessels” – in 16 cases (1(6,25%) SM, 8(50%) HGD, 2(12,5%) CIS, 5(31,25%) invasive carcinoma(IC)); “tortuous dilated vessels” – in 24 cases (22 (91,7%) IC, 2(8,3%) benign lesions); “spiral and screw vessels” – in 64 cases (4(6,2%) HGD, 2(3%) CIS, 54(84,4%) IC, 4(6,25%) benign lesions). Conclusion: NBI is useful for detection and characterization of vascular pattern of precancerous and cancerous lesions of the bronchial mucosa. Application of this modern endoscopic technique allows predicting the histology of lesions and depth of invasion. Thus it could be used as an “optical biopsy” method.