Objective: We aimed to compare narrow band imaging (NBI) to white light (WL) using the new URF-V Olympus digital flexible ureteroscope (DFU) in detection of the upper urinary tract transitional cell carcinomas (UUT-TCC). Patients and materials: NBI and WL were performed in 27 patients at our university teaching hospital, 14 with known cases of UUT-TCC as follow-up, and 13 patients with first-suspicion of cancer. All patients underwent NBI and WL. Upper urinary tract examination using the URF-V DFU performed by a single urologist. Full renal collecting system examination was performed first under WL and then under NBI. Biopsies were taken from all detected lesions using the biopsy forceps and sent for examination by a pathologist blinded to the gross description of the lesion. Pathology interpretations were then compared to the corresponding WL and NBI images. Holmium laser vaporization was performed for all apparent lesions.

Results: Subjectively, NBI significantly improved the endoscopic visualization of the tumors, providing a detailed description of their limits and vascular architecture. Objectively (out of 35 detected tumors) 5 additional tumors (14.2%) in 4 patients (14.8%), as well the extended limits of 3 tumors (8.5%) in 3 patients (11.1%) were detected by NBI when the findings by WL imaging were considered normal.

Conclusions: This is the one of first report regarding the use of NBI on UUT-TCC. From this study we recommend the NBI as is a valuable diagnostic method, as it considerably improves tumor detection rate by 22.7% comparing to the WL.