CT Virtual Cystoscopy in Evaluation of Bladder Mass: Could it Replace the Gold Standard Conventional Cystoscopy?

Introduction and Objective: Urinary bladder cancer ranks ninth in worldwide cancer incidence. Because of its high prevalence, it requires reliable diagnostic techniques. The main purpose of this study is to determine the diagnostic potential and the role of CT virtual cystoscopy in the detection and evaluation of bladder cancer, compared to the standard conventional cystoscopy.
Materials and Methods: Twenty-five patients clinically presenting with bladder mass (es), were selected from our outpatient urology clinic in the period from October 2010 to December 2011. They were all subjected to multi-slice CT of the bladder and virtual CT cystoscopy study. Then comparison study between axial CT images, MPR films, virtual and real conventional cystoscopy, and pathological results was carried out. The time interval between CT cystoscopy and conventional cystoscopy was less than 7 days.
Results: Twenty-one males and four females with a mean age of 63.6 years (mean ± SD = 63.3 ± 7.8) were included in this prospective study. Forty lesions were found at conventional cystoscopy in 25 patients. Our study shows increased sensitivity of MPR films to detect small masses ≤ 5 mm (67%) in comparison with axial films (40% &56%). Also MPR films show increased sensitivity in identification of the location of masses especially the basal masses (100%) compared to axial films (75% &92%). Diagnostic results differed significantly (p = 0.031and 0.039, McNemar test) between conventional cystoscopic and axial images. The difference was slightly significant (p = 0.063) for MPR images and was insignificant (p = 0.99) for virtual images.
Conclusions: Compared to conventional cystoscopy, virtual cystoscopy is much less invasive, with minimum discomfort and risks for the patients. However, it lacks the ability to take biopsy and provide tissue for histopathology. Also, it is unable to depict flat lesions or mucosal color changes. Therefore, the value of performing virtual cystoscopy could be considered in Bladder mapping before conventional cystoscopy, follow-up of patients with superficial TCC after TURT in combination with urine cytology to lessen the frequency of performing conventional cystoscopy follow-up, and cases in which conventional cystoscopy is difficult to perform or contraindicated.