ROLE OF MULTISCLICE CT AND VIRTUAL CYSTOSCOPY VERSUS ULTRASOUND AND COLOR DOPPLER STUDY IN EVALUATION OF URINARY BLADDER NEOPLASMS

Thesis

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LIST OF ABBREVIATION

2D	**:**	Two dimensions
3D	**:**	Three dimensions
CC	**:**	conventional cystoscopy
CIS	**:**	carcinoma in situ
CT	**:**	Computed tomography
F+ve	**:**	False positive
F-ve	**:**	False negative
Fig.	**:**	Figure
HU	**:**	Hounsfield unit
IV	**:**	Intravenous
KVP	**:**	kilovolt peak
mAs	**:**	Milliampere per second
MDCT	**:**	Multidetector CT
MIP	**:**	maximum intensity projection
MPR	**:**	multiplaner reconstruction
MRI	**:**	Magnetic resonant imaging
MSCT	**:**	Multislice CT
No.	**:**	Number
SCC	**:**	Squamous cell carcinoma
TCC	**:**	Transitional cell carcinoma
TUR	**:**	Transurethral resection
US	**:**	Ultrasound
VC	**:**	Virtual cystoscopy

Introduction and aim of work

Cancer of the urinary bladder is one of the most common urothelial neoplasms. ***(Raghavan D. et al 2008)***

It has high rates of recurrence at the initial tumor site and elsewhere throughout the transitional epithelium (30–80% of cases) and of multi-focal manifestations (as many as 50% of cases). Gross painless haematuria is the classic clinical sign of bladder carcinoma**.** ***(Cookson MS et al 2002)***

Replacing invasive diagnostic procedures with non-invasive, sensitive and specific imaging techniques is a growing trend in medicine today. ***(Karabacak O.R. et al 2011)***

Conventional cystoscopy plays a key role in the diagnosis and follow-up of bladder cancer. Virtual endoscopy is a minimally invasive technique that has promising results in the evaluation of the entire urinary tract. CT virtual cystoscopy has been proposed as an alternative imaging technique with potential advantages in the detection of urinary bladder neoplasms and has good patient acceptance. ***(George C. et al 2008)***

It allows accurate localization of a lesion due to its wide field of view and depiction of extra-vesical anatomic landmarks. The size of a tumor is measured objectively, and virtual cystoscopy can be used to monitor treatment response in

a patient with a non-resectable tumor. Patients with a severe ureteral stricture or marked prostatic hypertrophy, who may be poor candidates for conventional cystoscopy, can safely undergo CT cystoscopy. ***(Gualdi GF et al 1999)***

Virtual CT cystoscopy is a promising technique to be used in the detection of bladder lesions. In the future, it may be possible or even advantageous to incorporate it into the imaging algorithm for evaluation of bladder lesion. ***(Arslan H. et al 2006)***

The recent introduction of virtual endoscopy adds to the imaging armamentarium for use in bladder evaluation. The volumetric data obtained with multi-slice CT imaging are computer-rendered to generate three-dimensional images, and with commercially available software, intra-luminal navigation through any hollow viscous is possible. Of the different three-dimensional rendering techniques available, perspective volume rendering provides the most information because the entire data set is incorporated. ***(Calhoun PS et al (1999)***

Multi-detector row CT is the most recent advance in CT technology. An increased number of detector rows and more powerful x-ray tubes result in faster scanning time, increased volume coverage, and improved spatial and temporal resolution. MDCT (multi-detector computed tomography) technology allows superior image quality, decreased