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IS SEPARATE DIAGNOSTIC CYSTOSCOPY JUSTIFIED IN IMAGE PROVEN INTRA VESICAL SPACE OCCUPYING LESIONS (IVSOL)

Urology

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ABSTRACT

The aim of this study was to evaluate the role of separate diagnostic cystoscopy before transurethral resection of bladder tumor following image proven intra vesical space occupying lesions.

MATERIALS AND METHODS: This prospective, comparative, multi centric study was conducted over a period of 12 years. Data from 1430 patients who underwent separate rigid diagnostic cystoscopy under local anesthesia from May 2002- May2014 was collected. Patients with image proven intra vesical space occupying lesions (IVSOL), were identified and their signs symptoms, complications and sequele following imaging and cystoscopy recorded and compared.

RESULTS: 91.5% of patients had same findings on cystoscopy as on imaging, with additional small bladder lesions found in 8% of cases on cystoscopy which did not change the future management. Five patients (0.34%, P-value- >0.05) reported as having polypoid bladder mass on imaging, had intravesical extension of prostatic median lobe. Significant post cystoscopy morbidity was noticed in the form of meatal injury (6%, P-value-0.0001), with extravasation and abandoning the procedure in (0.5%, P-value-0.0001) patients, hematuria (1.25%, P-value-0.0001), precipitated urinary retention in (1.2%, P-value-0.0001) patients necessitating indwelling catheterization, meatal stenosis (1.0%, P-value-0.0001), and stricture urethra in (0.3%).

CONCLUSION: Sonographic/ CECT evaluation is a non invasive technique in detecting bladder lesions, their localization, number of lesions and extravesical extension accurately. Further rigid cystoscopy is invasive, costly, and has significant risk of complications along with discomfort to the patient. Also it delays the definitive procedure (TURBT) by an average of 7 days. Hence we don't recommend separate cystoscopy in an image proven IVSOL.

KEYWORDS

Imaging, Cystoscopy, Intravesical, Tumor

INTRODUCTION:

Bladder tumors are the most common neoplasm of the lower urinary tract, accounting for 6% of all malignancies in men and 2% of those in women.[1] Majority of the patients present with gross painless hematuria, usually as the sole presenting symptom.[2] Bladder carcinoma is unique among human neoplasm in that many of its etiological factors are known.[3] Urothelial cancer of bladder (UCB) presents with microhematuria, painless macro hematuria, and/or irritative voiding symptoms. Carcinoma in situ of the bladder causes irritative lower urinary tract symptoms more often than does papillary UCB. At presentation of bladder tumors, neither stage nor grade can be assessed with sufficient certainty prior to histopathologic evaluation.[4]

MATERIALS AND METHODS:

This prospective, comparative, study was conducted in two tertiary care centres over a period of 12 years. Data from 1430 patients who underwent separate rigid diagnostic cystoscopy under Local Anesthesia in Sheri Kashmir institute of Medical sciences, and Govt. Medical College and associated Hospitals Srinagar, from May 2002-May2014, were collected. Patients with history of irritative lower urinary tract symptoms, history of painless hematuria, its duration, age, gender, occupation of patient and history of smoking with image proved IVSOL were recorded (table.1). For all patients study was explained and written informed consent was obtained. Patients with documented urinary tract infections and urethral stricture disease were excluded from the study. All patients underwent Rigid Cystoscopy under local anesthesia on outpatient basis and parenteral antibiotic was given before any endourological procedure. Different sizes of cystoscope (17fr-22fr), field of view; 0^0,30^0 and 70^0 were used depending on the availability of Cystoscope. Cystoscopy findings were mapped on bladder and findings were correlated with Ultrasound/CECT findings (table.1). All patients were put on oral antibiotics for 3 days and discharged on same day. All patients underwent conventional TURBT under Spinal Anesthesia/ General anesthesia after 1-3 wks time of diagnostic cystoscopy.

RESULTS:

A total of 1430 patients were enrolled in our study. The clinco pathological characteristics of the patients are shown in table 1. Most of the patients were in the age 35-56 (median 53) years. Majority of the patients were males (70.27%) with history of smoking (Cigarette and hukka, 66%). Majority of the bladder tumors were solitary (61.18%) and with dimension of 3-5cms (45.45%). On correlating imaging with cystoscopy, 91.5% of patients had same findings on cystoscopy as on imaging, with additional small bladder lesions found in 8% of cases on cystoscopy which did not change the future management. Five patients (0.34%, P-value- >0.05) reported as having polypoid bladder mass on imaging, had intravesical extension of prostatic median lobe. Significant post cystoscopy morbidity was noticed in the form of meatal injury in 6% (P-value-0.0001), with extravasation and abandoning the procedure in 0.5% (P-value-0.0001), hematuria in 1.25% (P-value-0.0001), precipitated urinary retention in 1.2% (P-value-0.0001) necessitating indwelling catheterization, meatal stenosis in 1.0% (P-value-0.0001), and stricture urethra in 0.3%. Majority of the resected TURBT specimens were having low grade translational cell carcinoma (68%), high grade translational carcinoma in 27%, muscle invasive in 3.2% of patients and no malignant (inflammatory lesions) seen in 0.55% of patients.

DISCUSSION:

Imaging of the upper and lower urinary tract is an integral part of initial hematuria work up.

Many radiologic imaging techniques have been used in patients with painless hematuria and irritative symptoms to detect and evaluate

bladder lesions. Various authors have reported the use of abdominal ultrasonography as the initial radiological investigation for detection of bladder carcinomas in patients with hematuria.[5,6,7] Ultrasonography as an extension of physical examination is safe and easily available and provides images of both upper and lower urinary tract. Virtual cystoscopy is non invasive imaging technique in diagnostic armamentarium of bladder pathology. Transabdominal ultrasonography permits characterization of renal masses, detection of hydronephrosis and visualization of intraluminal filling defects in bladder, while CT and MRI are used mainly for assessing related extravesical pelvi-abdominal manifestations. The diagnosis of bladder carcinoma depends on cystoscopic examination of bladder and histopathological examination of TURBT specimen. Cystoscopy before TURBT can be warranted in patients with hematuria with negative cytology, normal ultrasonography and CT scan.[8,9,10] However if a bladder lesion is visualized in earlier imaging studies diagnostic cystoscopy can be omitted and patient can be subjected to cystoscopy and TURBT simultaneously under anesthesia. Cystoscopy is the standard for detecting bladder cancer, but it is invasive, expensive and has risk of complications, as seen in our study. Any bleeding during diagnostic cystoscopy hampers visibility, as was seen in 1.25% of our cases. The present study was done in tertiary care centers where routinely separate diagnostic cystoscopy was done in all cases of image proven IVSOL. However, in all except 5 (0.3%) patients who were subjected to diagnostic cystoscopy, were having space occupying lesion in bladder on prior imaging. Moreover more than one lesion was noted on cystoscopy in 8% of patients. In our study (table 1) significant post cystoscopy morbidity was noted in the form of meatal injury, extravasation, hematuria, urinary retention, meatal stenosis and urethral stricture. We found that majority of the patients' perceived cystoscopy as unpleasant and were more anxious before cystoscopy under LA. However, a significant delay in definitive treatment occurs about 1-3wks after initial image proven IVSOL. In a study conducted by Ercan Kocakoc et al,[11] the combination of gray scale ultrasonography, multiplanar reconstruction, and 3D virtual sonography had sensitivity of 96.4%, specificity of 88.8%,a positive predictive value of 97.6%,and a negative predictive value of 84.2% for tumor detection, consistent with our results. In a study conducted by Iqbal singh et al,[12] that virtual cystoscopy with axial CT is 96% sensitive in detecting bladder lesions and 85.7% sensitive in detecting the multiplicity of the tumors. To our knowledge no such study is found in the literature till date where separate diagnostic cystoscopy was compared with image in diagnosing IVSOL. Based on our study, we strongly believe that separate diagnostic cystoscopy can be safely omitted in image proven IVSOL to prevent post cystoscopy morbidity and patients should be subjected to TURBT immediately after image proves IVSOL.

CONCLUSION:

Imaging evaluation is a non invasive technique in detecting bladder lesions, their localization, number of lesions, and extravesical extension accurately. An earlier separate cystoscopy before TURBT is not necessary as it is invasive, costly, discomfort to patient, associated with significant morbidity, with no added advantage over imaging.

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Table 1; Demography and results of imaging and cystoscopy

	Imaging (USG/CT)	Cystoscopy	P-value
Age (years)	**29-78 (53)**	**29-78 (53)**	**1.000**
M:F ratio	**2:1**	**2:1**	**1.000**
Tumor/s seen			
False positive (USG)	**3**	**0**	
False positive (CT)	**2**	**0**	
Number of tumors			
single	875 (61.18%)	805 (56.29%)	**1.000**
Multiple	490 (34.26%)	560 (39.16%)	
Focal thickening	65 (4.54%)	65 (4.54%) sessile mass	
Site;			
Posterolateral (L&R)	452 (31.6%)	452 (31.6%)	**1.000**
Anterolateral	376 (26.3%)	376 (26.3%)	
Dome	198 (13.84)	198 (13.84)	
Base	224 (15.66)	224 (15.66)	
Neck	180 (12.58)	180 (12.58)	
Size (cm)			
0.5-1	20 (1.39%)	20 (1.39%)	
1-3	579 (40.48%)	579 (40.48%)	1.000
3-5	650 (45.45%)	650 (45.45%)	
More than 5	181 (12.65%)	181 (12.65%)	
Complications;			
Meatal injury		86 (6%),	0.0001
Extravasation		7 (0.5%)	0.0001
Significant Hematuria	0	18 (1.25%)	0.0001
AUR		17 (1.2%)	0.0001
Meatal stenosis		14 (1%)	0.0001
Stricture urethra		5 (0.3%)	0.0001
Total patients	1430	1430	1.000

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