



THE CT AND MRI FINDINGS IN STAGING OF URINARY BLADDER CARCINOMA IN CORRELATION WITH HISTOPATH.FINDINGS

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Article history:	Abstract:
<p>Received: May 21st 2022 Accepted: June 21st 2022 Published: August 3rd 2022</p>	<p>Background: More than 12 million new cases of cancer occur annually worldwide. Of those 5.4 million occur in developed countries and 6.7 million in developing countries. Urinary bladder cancer ranks ninth in worldwide cancer incidence. It is the seventh most common malignancy in men and seventeenth in women.</p> <p>AIM of study: To evaluate staging of CA bladder by MRI and CT versus histopathological staging after cystectomy or TUR. To help establish a local strategy and guideline on the use of CT and MRI in staging bladder tumors in medical city in accordance with facility availability.</p> <p>Patients &Methods: Descriptive, cross sectional study performed in Radiology department in medical city teaching complex in the period from August 2012 to August 2013 During the mentioned period ,42 patients were referred to the CT department then MRI department of medical city teaching complex for local staging of diagnosed bladder cancer.</p> <p>Results: Forty two patients were included in this study, all with histopathologically diagnosed bladder cancer, but only twenty eight patients had proper surgical histopathological staging . The mean age of the patients was (56 +-10.76) years ranging (21-75)years , most of them were male 34 (81%) . patients were smokers 28 (66.7) ,13(31%) had a history of recurrent UTI among and 39(92.9%) had haematuria. Majority of cases had TCC on histological study :38 cases out of 42 cases (90.47%) ,while SCC only 4 cases (9.53%).</p> <p>Conclusion: CT is becoming widely accessible in Iraq and considered a primary noninvasive imaging modality for the assessment of patients with bladder cancer. We concluded that MRI staging of bladder cancer is highly reproducible among experienced reviewers with pathological confirmation & MRI was superior in the local staging of bladder cancer.</p>

Keywords: CT- Scan, MRI, Bladder Cancer Staging, Histopathology

INTRODUCTION:

Background: More than 12 million new cases of cancer occur annually worldwide. Of those 5.4 million occur in developed countries and 6.7 million in developing countries (1, 2). Urinary bladder cancer ranks ninth in worldwide cancer incidence. It is the seventh most common malignancy in men and seventeenth in women (3). Primary bladder tumours are mostly epithelial in origin, less than 10% arising from a nonepithelial source. All epithelial tumours are malignant, the majority being of

the transitional cell type, with squamous-cell carcinoma (1.5–10%) and adenocarcinoma (1%) being relatively uncommon (4)

AIM of study:

To evaluate staging of CA bladder by MRI and CT versus histopathological staging after cystectomy or TUR.

To help establish a local strategy and guideline on the use of CT and MRI in staging bladder tumors in medical city in accordance with facility availability.

Patients &Methods:



Descriptive, cross sectional study performed in Radiology department in medical city teaching complex in the period from August 2012 to August 2013 During the mentioned period ,42 patients were referred to the CT department then MRI department of medical city teaching complex for local staging of diagnosed bladder cancer . Patient with bladder masses on US with no previous intervention were enrolled in study .they were examined by CT and MRI ,after surgical intervention (cystoscope and biopsy ,TUR, or cystectomy)was accomplished ,the histopathological results were taken for documentation of staging exclude patient with shell injury ,intraocular implants &aneurysmal clips

STASTICAL ANALYSIS:

Data of all patients were entered and analyzed using Microsoft Excel 2010 software for Windows 7. Descriptive statistics were presented as mean +- standard deviation (SD) for

RESULTS:

Forty two patients were included in this study, all with histopathologically diagnosed bladder cancer, but only twenty eight patients had proper surgical histopathological staging .

The mean age of the patients was (56 +-10.76) years ranging (21-75)years , most of them weremale 34 (81%) . patients were smokers 28 (66.7) ,13(31%) had a history of recurrent UTI among and 39(92.9%)had haematuria table 2.

Majority of cases had TCC on histological study :38 cases out of 42 cases (90.47%) ,while SCC only 4 cases (9.53%)

Table 2 :Distribution of socio demographic characteristics of patients.

variable		Number	Percent (%)
Age	Mean ±std.	56.0±10.7	
	range	21.0-75.0	
Sex	Male	34	81.0
	Female	8	19.0
Smoking habits	Smoker	28	66.7
	Not smoker	14	33.3
Hematuria	Yes	39	92.9
	No	3	7.1
Recurrent UTI	Yes	13	31.0
	No	29	69.0
Total		42	100.0

Local Staging

Only 28 cases had proper histopathological staging 20 of them were evaluated with contrast ,while in 8 cases contrast was contraindicated .

In CT cases with contrast T2A was present in 10 cases (50%),T2B in 4 cases (20%) ,T3A in 2 cases(10%),T3B in 3cases (15%) and T4A in 1 case (5%) .

On MRI with contrast ,out of 20 cases , 8 (40%) were T2b,3 cases (15%) of T3a,4 cases (20%) of T3b,4cases (20%) of T4a and 1 case (5%)of T4b.

The significant difference between MRI and histopathologicaT-staging was not significant (P=0.804) for 8 cases without contrast ,T-staging distribution were 2cases (25%)of T2b,4 cases (50%) of T3a and 2 case



Table 3: MRI T-stage ,CT T- stage versus histopathological T- stage

Stage	With contrast			With out contrast		
	CT-T F. percent. %	MRI-T F percent.%	Histo.T F percent%	CT-T F. percent.%	MRI-T F percent.%	Histo.-T F percent%
TX	0	0	0	8 100%	-	-
T2a	10 50%	0	2 10%	-	1	-
T2b	4 20%	8 40%	12 60%	-	2	-
T3a	2 10%	3 15%	1 5%	-	2	4
T3b	3 15%	4 20%	2 10%	-	3	4
T4a	1 5%	4 20%	2 10%	-	-	-
T4b	0	1 5%	1 5%	-	-	-
Total	20 100%st	20 100%	20 100%	8 100%	8 100%	8 100%
P value 0.804 of MRI-T versus histopath.- T stage			P value 0.132 of MRI-T versus histopath.- T stage			
P value 0.00 of CT-T versus histopath.-T stage			P value not calculated of CT-T versus histopath. -T stage			

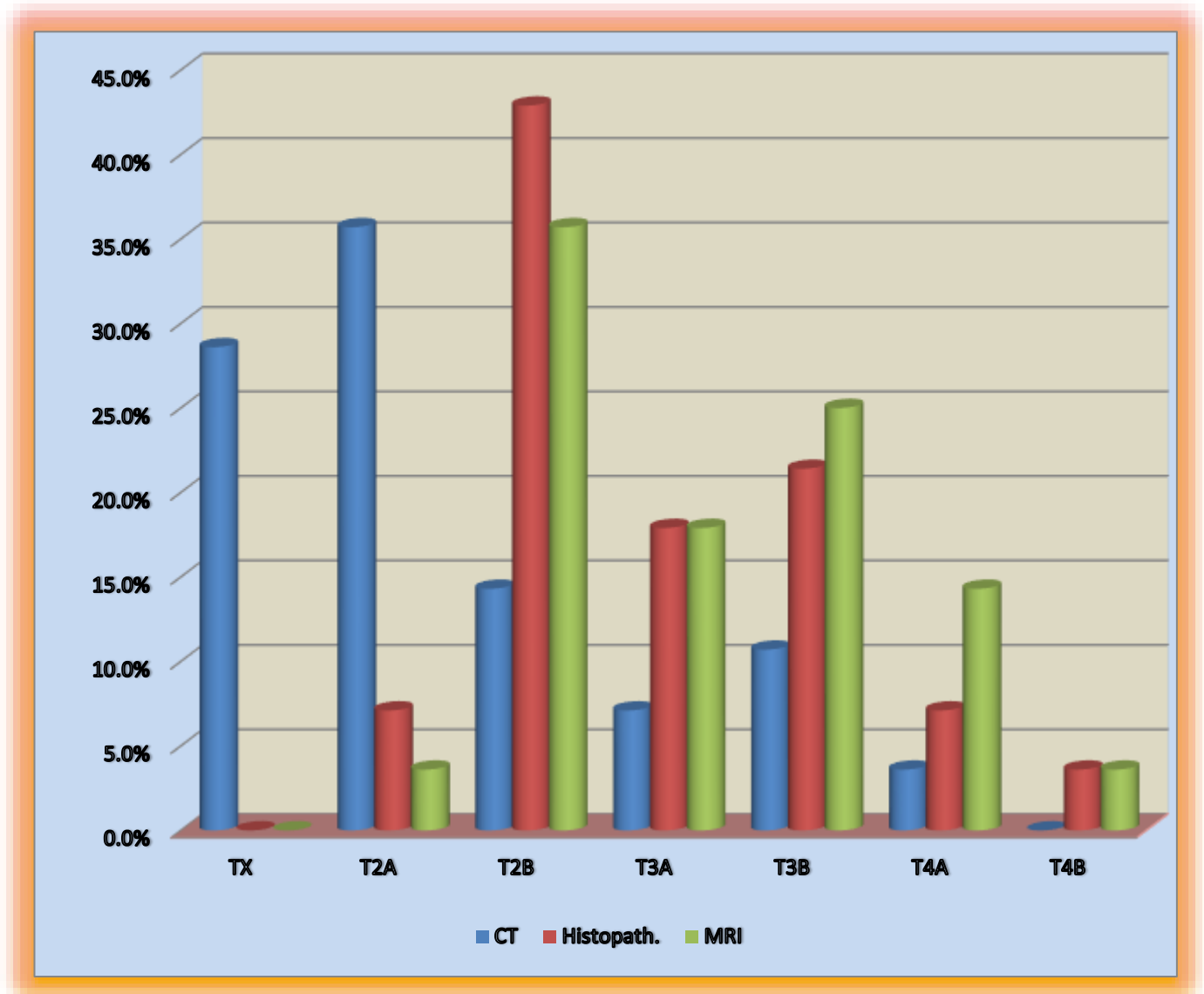


Fig.(15). Show distribution of CT-T stage & MRI-T stage versus histopathological T-stage for 28 cases

DISCUSSION

The treatment and prognosis of urinary bladder carcinoma is largely determined by the depth of tumor growth and the extent of metastases (39). Bladder-saving treatment is used for non-invasive tumors (stages T1-T2a), whereas for stage, T2- T3b tumors, radical cystectomy is performed. The treatment for stage T4a and T4b tumors and for metastatic disease is usually palliative radiation and chemotherapy, respectively (39). To evaluate the use of MR imaging in patients with urinary bladder carcinoma, only its value in staging is important, as the high costs associated with MR imaging make this technique unsuitable for use in early detection.

Furthermore, cystoscopy is more accurate for that purpose (40). Patients with extravascular tumors show significantly higher recurrence rates and worse survival than those with organ-confined tumors (41). Therefore, distinguishing between organ-confined and non-organ-confined tumors is essential.

The age range for the patients included in this study was (21-75), with the mean age (56y). This showed a younger age incidence when compared with the result of previous studies (65y)(42), (64y)(43) & (72y)(44). This could be due to exposure to external radiation as a consequence of wars in Iraq is a possible risk factor in development of bladder cancer.



Male to female ratio was about (4.25:1), comparing this with the others ratios of previous studies (2.5:1)⁽⁴⁴⁾, (3:1)⁽⁴⁵⁾ & (4:1)⁽⁴⁶⁾, all showed high male incidence.

This study showed that 66.7% of the patients were smokers, and 33.3% were non smokers. This agrees with Zeegers, M, Petand, Steiner, Het al who mentioned that cigarette smoking is thought to be the causative factor in 50-60% of men and one third of women who develop bladder CA⁽⁴⁷⁾.

Chronic UTI are another predisposing factor to bladder CA⁽⁴⁵⁾, In this study 31 % of patients had history of recurrent UTI.

Most of the studied cases had TCC (90.47%) this agrees with Messing DM et al in which 90% of epithelial bladder tumor are TCC⁽⁴⁵⁾.

For the role of CT in CA bladder imaging, CT is becoming widely accessible in Iraq and considered a primary noninvasive imaging modality for the assessment of patients with bladder cancer.

Multiplanar reformations and multiphase contrast studies can be performed which may enhance the performance of CT in the evaluation of bladder cancer⁽²⁸⁾.

CONCLUSION

CT is becoming widely accessible in Iraq and considered a primary noninvasive imaging modality for the assessment of patients with bladder cancer.

RECOMMENDATION

Make MRI more readily available for patients bladder tumor in their 1st evaluation.

We recommended that, if the bladder tumor by u/s is in its early stages, then we should do MRI for local staging, & if the bladder tumor of higher stage beyond the bladder wall by u/s, we recommend to proceed with CT scan with contrast which is more readily available, non time consuming & can demonstrate in details the upper abdomen, the kidneys and pelvis including lymph nodes.

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