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Urinary Bladder Neoplastic Masses Findings through Multidetector-Row CT Urography

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Abstract

Background: Urinary bladder carcinoma is one of the most common tumors among the lower urinary tract, it is the seventh common malignancy and widely distributed in developed countries.

Aim of Study: To elucidate the diagnostic potential and additive imaging data obtained with Multi-Detector Computed Tomography (MDCT) in early detection and characterization of urinary bladder neoplastic masses by comparing the result of the study with the conventional cystoscopy results.

Patients and Methods: This prospective descriptive study was conducted on forty patients, 36 was men and 4 women. The patients referred to Radio-Diagnosis Department, Ain Shams University Hospitals, Radio-Diagnosis Department in a period 6 months of data collection for suspicious bladder mass(es) after clinical assessment of patient or for further characterization of indeterminate bladder neoplastic mass lesion previously depicted on other radiological investigation as ultrasound examination.

Results: A statistically significant difference was found between positive and negative cystoscopic biopsy results for malignancy in relation to presence CT features of malignancy.

Conclusion: MDCT urography is useful for examination of patients especially when the CC is contraindicated such as hemorrhage, perforation, difficult to doing it or unsatisfactory in interpretation, and as a complementary technique in the evaluation of areas difficult to evaluate with CC, especially with the MDCT results satisfactory in finding lesions smaller than 5mm. MDCT urography gives us an opportunity for early detection bladder tumors because its reliability and accuracy and our results support that.

Key Words: *Urinary bladder neoplasm – Multidetector-row CT urography.*

Introduction

PATHOLOGIC conditions of the urinary bladder could manifest as a focal mass or diffuse urothelial wall thickening. Focal masses might be neoplastic or could develop sequent to congenital, inflammatory, idiopathic, or infectious processes. Clinical, macroscopic, and radiologic findings for these masses may superimpose; therefore, histologic interrogation is often a necessity [1]. Benign mass lesions are uncommon; however, some can be suggested by their imaging criteria [2].

Urinary bladder carcinoma is a heterogeneous disease with a variety of pathologic features, cytogenetic characteristics, and natural histories whereas the most common clinical presentation is gross painless hematuria [3]. In Egypt, urinary bladder carcinoma is the most prevalent malignancy among Egyptian males (19%), giving rise to 15.6% of cancer-related deaths that formerly has been assigned to Schistosoma infection, a considerable risk factor for Squamous Cell Carcinoma (SCC). Latterly, Transitional Cell Carcinoma (TCC) incidence has been rising up as a sequence of heavy cigarette smoking, occupational exposures to carcinogens, while SCC has lessened [4]. In Egyptian females, UB carcinoma is the seventh common malignancy (3.8%), bringing about 3.7% of cancer-related deaths [5].

Early depiction of UB carcinoma is of paramount importance, since up to 47% of UB cancer-related mortalities may have been averted [6]. Precise pre-operative staging is the most important element in delineating the appropriate management of UB carcinoma in view of fact that the therapeutic strategy selected and prognosis rely on the clinical and radiological stage at presentation [7]. Moreover, UB carcinoma has a high recurrence rate, necessitating long-term surveillance following initial therapy [8].

Conventional cystoscopy is the mainstay of diagnosis and follow-up of UB neoplasia [9]. None-

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theless, it's famed as an invasive, expensive, time-consuming technique, coupled with urinary tract infections in 5-15% of patients. Another drawback of cystoscopy is the relatively low reported sensitivity of 87% for detection of UB tumors [10].

Clinical staging of UB carcinoma based upon bimanual assessment of tumor bulk and adhesion to nearby structures proved to be imprecise, with an inaccuracy rate of 25%-50%. Thus, accurate detection and staging are the principal objectives of radiologists in evaluation of patients with UB cancer [11].

Computed Tomography (CT) and Magnetic Resonance (MR) imaging are the principal radiologic modalities utilized in assessment of patients with UB cancer. The inherent advantages of CT encompass shorter acquisition time, wider coverage in a single breath hold adding to multiplanar capability. Contrariwise, CT is limited in the characterization of small and early stages of UB cancers, whilst its staging accuracy ranges from 64% to 92%. Furthermore, the enhancement pattern of UB carcinoma regarding peak enhancement time and degree of enhancement on contrast material-enhanced CT images has not been analyzed. It is known, however, that bladder cancers usually enhance more intensely than nearby normal UB wall tissue [11].

In the last decades; recent advances in CT hardware coupled with commercially available software had led to the development of the multi-detector row helical CT scanner, which could provide higher resolution and more compact volume acquisition in a shorter time with anticipated improvement in evaluation of patients with UB carcinoma [11].

Aim of the study:

The aim of this study is to elucidate the diagnostic potential and additive imaging data obtained with Multi-Detector Computed Tomography (MD-CT) in early detection and characterization of urinary bladder neoplastic masses by comparing the result of the study with the conventional cystoscopy results.

Patients and Methods

This is a prospective descriptive study where the data collected from Ain Shams University Hospitals, Radio-Diagnosis Department in a period 6 months of data collection (10/2018 to 4/2019). In our study the patients were (40 patients), 36 was men and 4 women patient age range [mean ± SD] 35-78 [62.48±9.13]. The patients referred to Radio-Diagnosis Department-Body Imaging Unit to perform pelvic CT either for suspicious bladder mass(es) after clinical assessment of patient or for further characterization of indeterminate bladder neoplastic mass lesion previously depicted on other radiological investigation as ultrasound examination.

Inclusion criteria:

- The criteria for selecting a patient in the current study was presence of: Patients have a bladder mass(es) suspected clinically after a digital rectal examination in men or on a vaginal examination in women, and/or radiologically by Pelviabdominal ultrasonography, or a history of bladder carcinoma.
- Both sexes were included.
- No age predilection.

Exclusion criteria:

- Hypersensitivity to iodinated contrast media.
- Poor renal function (Creatinine >2mg/dl).
- Contraindication to ionizing radiation.

All patients were subjected to:

- *Full history taking for each patient, including:*
  - Onset, course, and duration of the main complaint.
  - History of the present illness.
  - Past history of bilharzial infection and occupation.
- General and local examinations.
- Laboratory studies including urine analysis, complete blood picture, renal function tests, liver profile.
- Radiological and imaging investigations include:
  - Plain urinary tract film.
  - Intravenous urography.
  - Real time abdominal ultrasound.
  - CT scanning of the Abdomen and Pelvis.

Ethical considerations: Detailed explanation of the imaging procedure and obtaining informed consent. The consent were contain:

- Explanation of the study aim in a simple manner to be understood by common people.
- No harmful manoeuvres were performed or used.
- All data was considered confidential and it has not gone to be used outside this study without patient's approval.

- All samples were used in the research only.
- Researcher phone number and all possible communicating methods were identified to the participants to return at any time for any explanation.
- All participants were announced by the result of the study.
- Participants have the right to withdraw from the study at any time without giving any reason and shall be excluded from the study.
- Signature or fingerprints of the participants.

Risks and complications: Multi-detector CT scan is considered to be a safe procedure; but if occurred, the possible complications were:

- Anaphylactoid reaction to contrast media.
- Headache and nausea.
- Deterioration/elevation of serum kidney function.

Treatment in cases of risks and complications:

- Bed rest following the procedure.
- Adequate hydration.
- Premedication with steroid, Diphenhydramine 10mg iv,. Epinephrine (1:1,000) 0.5ml subcutaneously if no cardiac contraindications in the acute incident in cases of allergic reactions.

Study tools:

Each patient was undergoing the following:

- Proper history taking encompassing: Personal data (name, age, sex, occupation, address and special habits) and clinical data (pubic pain, hematuria, dysuria, fever).
- Full clinical and laboratory assessment of the relevant data.
- Dynamic contrast enhanced multiphasic CT images were acquired after full distention of the bladder.

Results of MDCT pelviabdominal study were compared with those of conventional cystoscopy with a flexible/rigid cystoscope done previously in less than 1 week.

Patient preparation:

- Pre-procedural assessment of renal function including of blood urea & serum creatinine.
- Administration of an ante-cubital intravenous catheter.
- Patients are instructed not to void for at least 2 hours before the examination.
- Oral administration of 1 litre of water as a contrast agent of which 400ml is to be drunk immediately before going to scanner.
- Un co-operative patients were given oral sedation in the form of trichlorfon in the dose of 50mg/kg.

Patient position: Patient is positioned supine on the CT table.

Method:

- All examinations were done on 80-slice spiral CT scanner (Bright-Speed 80; GE Medical Systems) with a helical thickness of 0.625mm, and the following parameters: 50mAs, 12 0kV.
- Non-enhanced CT scan of pelvis is obtained.
- FOV should be individualized in each patient to allow complete evaluation of the pelvis, with visualization of the bladder and extra-vesical structures (mean FOV 30 X 40 X 40cm).
- A dose that ranged from a minimum of 2ml/kg to a maximum of 160mL/kg of non-ionic intravenous contrast.
- Thereafter dynamic contrast-enhanced multiphasic CT images of the pelvis is obtained with scanning delays of 40, 80, and 180 seconds.
- Post-processing and image analysis data sets obtained were transferred in real time to an advantage workstation and for each scan; MPR should utilized in the sagittal and coronal planes.
- Each examination were analyzed in a blind fashion by a single radiologist with 5 years' experience in body imaging who is unaware of patients' clinical data.
- For each step, a diagnostic judgment was expressed on any lesion identified based on the following parameters: Lesion site (bladder dome, walls, and trigone), size, number and morphology as shall as enhancement pattern. The lesions were described as sessile (broad base tumors), polyploidy (resembling a polyp in shape), or areas of wall thickening. A lesion would be characterized as sessile when it is connected by a broad base to the bladder wall. If it is connected by a narrow stalk, and projecting into the bladder cavity, then it defined as a polypoid lesion. An area of wall thickening were defined when there is no associated distinct masses.
- Bladder lumen and mucosa were studied with a pulmonary window-level setting (1,400/-650 HU); bladder walls and extra-luminal structures had been studied with an abdominal-level setting (420/45HU).

• Findings detected by CT were compared to the results of histopathological obtained by cystoscopic biopsies.

Statistical package: Recorded data were analyzed using the statistical package for social sciences, Version 20.0 (SPSS Inc., Chicago, Illinois, USA). Quantitative data were expressed as mean ± Standard Deviation (SD). Qualitative data were expressed as frequency and percentage.

The following tests were done:

• Chi-square (χ^2) test of significance was used in order to compare proportions between qualitative parameters.

• Evaluation of Diagnostic Performance by Receiver operating characteristic (ROC curve) analysis was: Sensitivity, Specificity, PPV, NPV, Accuracy.

• The confidence interval was set to 95% and the margin of error accepted was set to 5%. So, the *p*-value was considered significant as the following.

Results

Table (1): CT results distribution of the study group regarding malignant features.

CT results	No.	%
Negative	11	27.5
Positive	29	72.5

This table shows that (72.5%) were positive malignant feature on CT and (27.5%) were negative for malignant features on CT results.

Table (2): CT finding distribution of the study group.

CT findings	No.	%
Mass present or absent:		
Absent	16	40.0
Present	24	60.0
Number of mass (n=24):		
1.00	13	54.2
2.00	5	20.8
4.00	1	4.2
5.00	5	20.8
Morphology:		
Irregular wall thickening	13	32.5
Polypoid	18	45.0
Sessile	9	22.5
Location:		
Basal	9	22.5
Dome	14	35.0
Lt lateral	10	25.0
Rt lateral	7	17.5
Size (mm):		
<5mm	15	37.5
6-10mm	12	30.0
>10mm	13	32.5

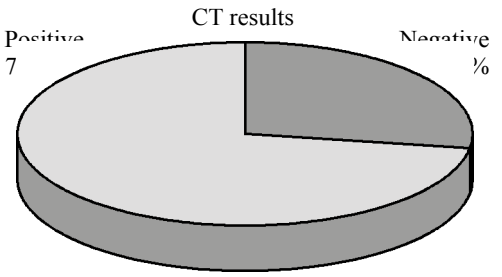

Fig. (1): Pie chart CT results distribution of the study group regarding malignant features.

This table shows that: (60%) show mass lesion on CT, (32.5%) show irregular wall thickening lesion, (45%) show polypoid lesion, (22.5%) show sessile lesion. As regarding the site (3 5%) were dome lesion, (25%) were Lt lateral lesion, (22.5%) were basal lesion and (17.5%) were Rt lateral of lesions. As regarding the size (37.5%) were <5mm, (30.0%) were 6-10mm and (32.5%) >10mm.

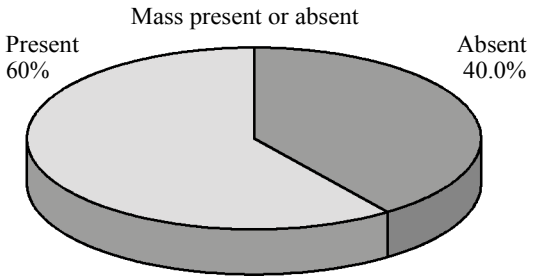

Fig. (2): Pie chart of the study group regarding of the presence of mass onCT.

Table (3): Comparison between positive and negative cystoscopic biopsies results for malignancy in relation to clinical data.

Parameters	Cystoscopy biopsies				Chi-square test	
	Positive (n=40)		Negative (n=10)			
	No.	%	No.	%	χ^2	*p*-value
Clinical presentation by hematuria:						
Negative	2	6.7	1	10.0	0.120	0.729
Positive	28	93.3	9	90.0		
DRE for male or PV for female:						
Negative	20	66.7	9	90.0	2.048	0.152
Positive	10	33.3	1	10.0		
History of urinary bladder CA:						
Negative	23	76.7	6	60.0	1.045	0.307
Positive	7	23.3	4	40.0		

Using: χ^2: Chi-square test; *p*-value >0.05 NS.

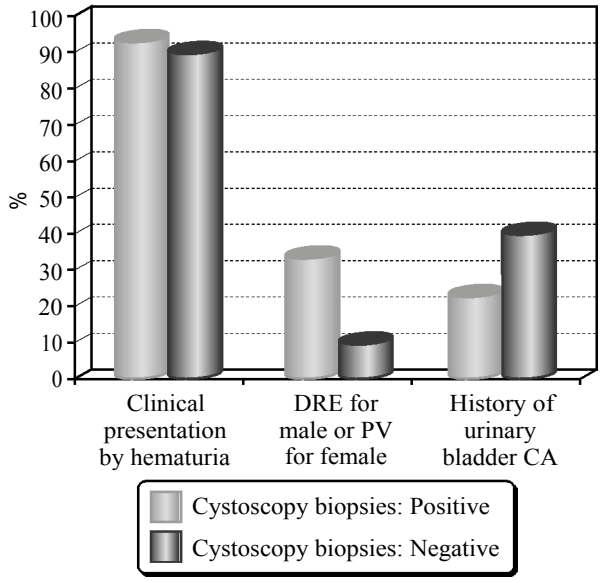

Fig. (3): Bar chart distribution between positive and negative according to cystoscopic biopsies results for malignant cells in relation to clinical data.

Table (4): Comparison between positive and negative according cystoscopic biopsies results for malignancy in relation to CT results.

CT results	Cystoscopy biopsies: Positive (n=30) No.	%	Negative (n=10) No.	%	Chi-square test X^2	*p*-value
Positive	28	70	1	2.5	26.123	<0.001 **
Negative	2	5	9	22.5		

Using: X^2: Chi-square test.
** *p*-value <0.001 HS.

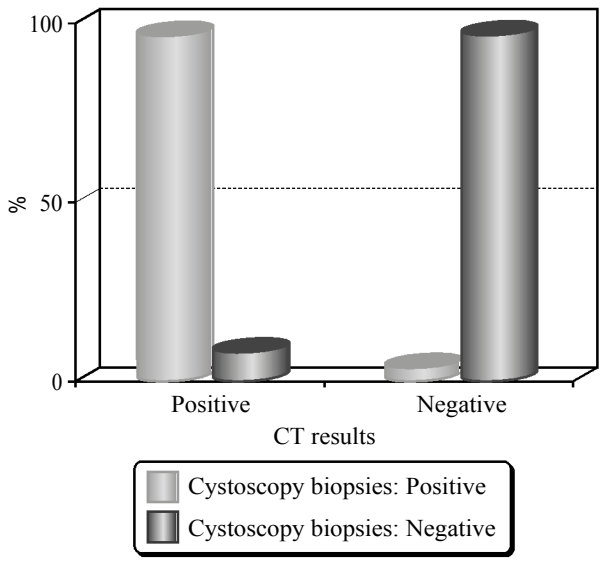

Fig. (4): Bar chart distribution between positive and negative cystoscopic biopsies results for malignant cells in relation to CT result for malignant features.

Table (5): Comparison between positive and negative according cystoscopic biopsies results for malignancy in relation to CT features for the mass.

CT findings	Cystoscopy biopsies: Positive (n=30) No.	%	Negative (n=10) No.	%	Chi-square test X^2	*p*-value
Mass present or absent:						
• Absent	11	36.7	5	50.0	0.556	0.456
• Present	19	63.3	5	50.0		
Morphology:						
• Irregular wall thickening	10	33.3	3	30.0	0.137	0.934
• Polypoid	13	43.3	5	50.0		
• Sessile	7	23.3	2	20.0		
Location:						
• Basal	6	20.0	3	30.0	0.610	0.894
• Dome	11	36.7	3	30.0		
• Lt lateral	8	26.7	2	20.0		
• Rt lateral	5	16.7	2	20.0		
Size (mm):						
• <5	9	30.0	6	60.0	3.603	0.165
• 6-10m	11	36.7	1	10.0		
• >10	10	33.3	3	30.0		

Table (6): Feature of malignant masses by CT distribution of the study group (n=30).

	No.	%
Bladder wall thickness:		
Diffuse wall thickness	4	13.3
Focal wall thickness	6	20.0
Enhancement pattern:		
Early	14	46.7
Late	0	0.0
Extravesical extension:		
Positive	11	36.7
Negative	19	63.3
Lymph node shape:		
Round	6	20.0
Oval	0	0.0
Lymph node hilum:		
Fatty hilum	0	0.0
Low attenuation	6	20.0
Classification (n=40):		
Malignant	4	10.0
Benign	1	2.5
Negative	35	87.5

This table shows that the Bladder wall thickness Diffuse wall thickness (13.3%), focal wall thickness (20.0%); enhancement pattern early (0.0%), late (46.7%); extravesical extension positive (36.7%), negative (63.3%); lymph node shape oval (0.0%), round (20.0%); lymph node hilum fatty hilum (0.0%), low attenuation (20.0%) and classification malignant (10.0%), benign (2.5%) and negative (87.5%).

Table (7): Cystoscopy biopsies results distribution of the study group positive and negative.

Cystoscopy biopsies	No.	%
Negative	10	25.0
Positive	30	75.0

This table shows that (75%) were positive for malignant cells and (25%) were negative for malignant cells.

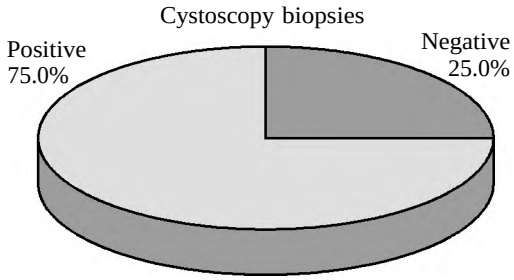

Fig. (5): Pie chart cystoscopy biopsies results distribution of the study group regarding malignant cells.

Table (8): Receiver-Operating Characteristic (ROC) curve for prediction of lesions using the CT results.

Sen.	Spe.	PPV	NPV	Accuracy
93.3%	90.0%	96.6%	81.8%	92.5%

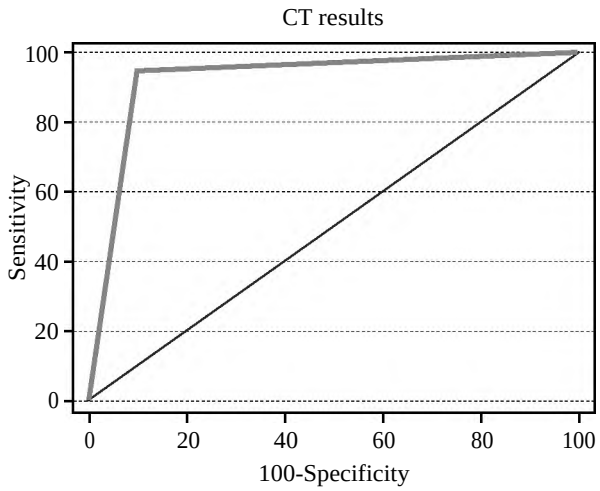

Fig. (6): Receiver-Operating Characteristic (ROC) curve for prediction of lesions using the CT results.

Receiver Operating Characteristics (ROC) curve show sensitivity (sen.) of 93.3% specificity (spe.) of 90% Positive Predictive Value (PPV) of 96.6%, Negative Predictive Value (NPV) of 81.8% with diagnostic accuracy of 92.5%.

Illustrative cases:

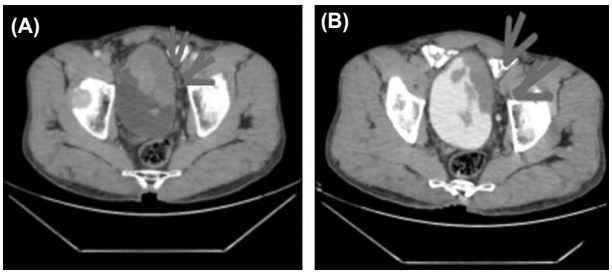

Fig. (7): 64 year patient presented with hematuria for 3 months duration, nocturia, and history of schistosomiasis infection, C.T. axial (A) Early (B) Late phase reveals a heterogeneously enhanced soft tissue mass lesion in the left anterior wall of the urinary bladder, the mass seen as a filling defect in the late phase with extravesical extension (as show in red arrows) and the cystoscopy biopsies reveal high grade transitional cell carcinoma (grade 4) with focal squamous differentiated and invasion of muscularis propria.

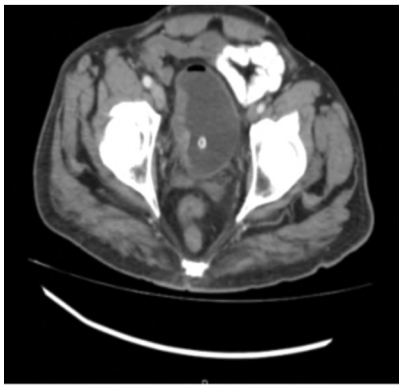

Fig. (8): 74 year old patient presented with frequency, abdominal pain, and intermittent attacks of hematuria axial C.T scan (early phase) shows right lateral urinary bladder wall irregular thickening with mass formation yet, cystoscopic finding reveal it to be of benign nature due to chronic cystitis.

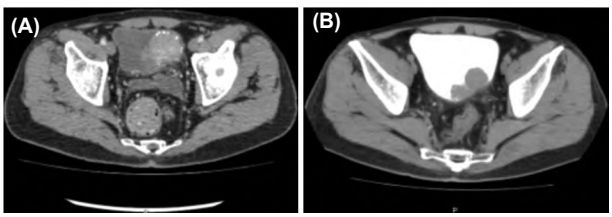

Fig. (9): 57 years old male patient presented with hematuria, frequency, and cachexia, C.T. axial cuts (A) Early (B) Late phase reveals heterogeneously enhancing fungating urinary bladder soft tissue mass arising mainly from the left lateral portion of the trigone, the mass inseparable from the upper portion of the prostate and mass seen as a filling defect in the late phase and Cystoscopy reveals low grade invasive papillary urothelial carcinoma.

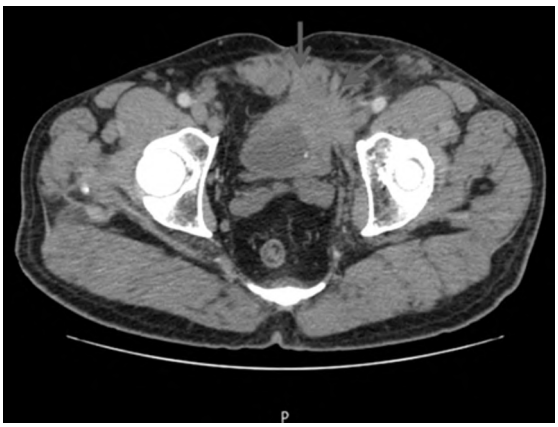

Fig. (10): 74 years old male presented with painless hematuria and urine retention for 1-month duration and C.T. axial cut early phase reveals an irregular heterogenous soft tissue lesion is arising from the left lateral urinary bladder wall with irregular thickening. This soft tissue lesion is seen fungating and extending beyond the perivesical space with invasion of the anterior abdominal wall (red arrows), Cystoscopy biopsies reveals squamous cell carcinoma low grade.

Discussion

Bladder carcinoma is the most common tumor among the lower urinary tract. Conventional cystoscopy plays a key role in diagnosis and local management of bladder carcinoma **[12]**. Conventional cystoscopy is the essential method for the detection and direct visualization of bladder cancer; however, it has many limitations: It is invasive, expensive, and time-consuming technique. Several complications may occur during a cystoscopy examination: Infections, bladder perforation, scarring and stricture of the urethra.

In recent years, CT technology has undergone rapid development,with improvement in diagnostic accuracy of bladder neoplasms **[13]**.

Since its first use, CT cystography has demonstrated promising results for the diagnosis of bladder lesions, the introduction of 16-64 MDCT scanners significantly improved spatial resolution by the use of thinner slice thickness, collimation, and reconstruction increment, which enable fast execution and high resolution of the examination. Moreover, it allows acquisition of Multiplanar Reformatted Images (MPR) very similar to that of axial plane. Combined evaluation by CT cystography, MPR, and virtual images has been shown increase the effectiveness of the technique especially for the detection of small lesions **[14]**.

In our study 11 (27.5%) patients have positive DRE and PV which is consistent with study that revealed (27.1%) of the sample have positive DRE.

In our study 29 (72.5%) patients show malignant features on CT and 11 (27.5%) patients do not reveal a malignancy feature. In the other hand our study show 30 (75%) patients have a malignant cystoscopic biopsy and 10 (25%) patients have a benign cystoscope biopsy Fig.(8), which is consistent with Reem H, Rmon **[15]** study that had a sample of 35 patients showed 34 (97%) patients revealed a malignancy features and only 1 patient with malignancy features.

In our study mass 16 (40%) of cases show irregular wall thickening on CT, with no definite mass lesion that were confirmed to be of malignant nature on cystoscopic biopy. Which is nearly similar result to Reem H, Rmon **[15]** as showed 28 (80%) mass of the total 35 lesion and the miss diagnosis was due to nature of the lesion which is only wall thickening just like in our study, also similar result seen by the study of Jeong K, et al., **[16]** showing 27 (67.5%) mass from the total 40 lesion and the remaining 13 (32.5%) are missed diagnosed for the same previous cause.

In our study the 13 (54.2%) patient has single lesion, 5 (20.8%) patient has 2 lesions, 1 (4.2%) patient has 4 lesions, and 5 (20.8%) patient has 5 lesions, also our study show a morphological variance by CT as 13 (32.5%) has irregular wall thickening, Fig. (8), 18 (45%) patients has polypoidal lesion, and 9 (22.5%) patients has sessile lesion; that is consistent with result of Reem H, Rmon **[15]** showed 14 (50%) has a single lesion, 4 (14%) patient has 2 lesion and 2 (7%) patient has 3 lesions in addition they showed 12 (42%) polypoidal lesion, 14 (50%) sessile lesion and 2 (7%) irregular wall thickening.

In our study the CT shows lesions in different the location in bladder as 9 22.5%) basal lesion location, 14 (35%) dome lesion lacation, 10 (25%) Lt lateral lesion location Figs. (8,10) and 7 (17.5%) Rt lateral lesion location Fig. (8). This is similar to the result of Mohammed F, Amr M **[17]** where 8 (33%) basal, 8 (33%) dome, 4 (16.6%) Rt lateral, and 4 (16.6%) Lt lateral. While Jeong K, et al., **[16]** showed there was 9 (60%) dome, 5 (33%) basal, and 1 (6%) Lt lateral.

In our study the CT shows lesions of different size range divided into 3 categories 15 (37.5%) lesion <5mm, 12 (30%) lesion 6-10mm and 13 (32.5%) lesions >10mm Figs. (7-10) this similar to the result of Masahiro J, et al., **[18]** that showed 12 (20%) <5mm, 17 (29%) 6-10mm and 30 (51%) >10mm, also **[17]** showed 19 40%) <4mm, 21 (44%) 4-9mm, 7 (14%) >9mm.

In our study 4 (13.3%) patients show diffuse wall thickness Fig. (10) and 6 (20%) patients with focal wall thickness as a feature of malignancy on CT which is consistent with Wan song, et al., **[19]** showed 25 (15%) patients with diffuse wall thickness and 20 (11%) patient with focal wall thickness.

In our study 14 (46.7%) masses show early enhancement pattern on CT scan that indicated malignancy features of masses on CT Figs. (7,9,10) which is consistent with Xie Q, Zhang, et al., **[20]** showed 56 (61%) masses with early enhancement pattern on CT scan.

In our study 11 (36,7%) masses showed extravesical extension that indicated malignancy features of masses by CT Figs. (7,10) while 19 (63.3%) masses show no extravesical extension which consistent with Quek L, et al., **[21]** that showed 69 (29%) masses with extravesical extension and 167 (71%) masses with no extravesical extension.

In our study 6 (20%) lymph nodes were round in shape and 6 (20%) lymph node with low attenuated hilum that indicated malignancy features by CT which is consistent with Yong Li, Feiju Diao, Siya Shi **[22]** reported 5 (16%) oval lymph nodes and 4 (12%) lymph node with low attenuated hilum.

This Raman SP and Fishman EK showed 4 (10%) masses with calcification revealed malignancy feature that confirmed by cystoscopy, 1 (2.5%) mass with calcification revealed benignity nature confirmed by cystoscopic biopsy and 35 (87.5%) masses with no calcification which is consistent with Raman SP and Fishman EK **[23]** reported 4 (5%) masses with malignant calcification, 1 (1.5%) mass with benign calcification and 70 (93.5%) masses with no calcification.

In our study the CT detect 28 (70%) malignant lesions that where confirmed by cystoscopic biopsy and 1 case misdiagnosed as a malignant lesion by CT and not revealed malignant by cystoscopic biopsy Fig. (8), 2 (5%) lesions were misdiagnosed as a benign lesion on CT, yet, revealed to be malignant on cystoscopic biopsy and 9 (22.5%) lesions were diagnosed as benign on CT and confirmed on cystoscopic biopsy.

Statistically significant difference is noted between positive and negative results of malignancy according to CT results with a p-value of (<0.001); then the CT showing a sensitivity of 93.3%, specificity of 90%, positive predictive value of 96.6%, negative predictive value of 81.8% with diagnostic accuracy of 92.5% in urinary bladder neoplastic masses detection, a similar result seen by Benjamin W, et al., **[24]** CTU were compared with the histopathological findings, there was one false-positive and there was three false-negative diagnoses, indicating a sensitivity of 0.93 and a specificity of 0.99, with a 0.98 positive and 0.97 negative predictive value for detecting bladder cancer, while (Christopher et al., 2011) showed that CT urography as replicant test for cystoscopy for diagnosing bladder cancer was with a sensitivity of 95%, specificity of 83%, positive predictive value of 58%, negative predictive value of 98%.

Conclusion:

Conventional Cystoscopy (CC) is remaining the gold standard for the evaluation of the urinary bladder, but MDCT urography is useful for examination of patients especially when the CC is contraindicated such as hemorrhage, perforation, difficult to doing it or unsatisfactory in interpretation, and as a complementary technique in the evaluation of areas difficult to evaluate with CC. Especially with the MDCT results satisfactory in finding lesions smaller than 5mm. MDCT urography give us an opportunity for early detection bladder tumors because its reliability and accuracy and our results support that.

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مظاهر آورام المثانة البولية بواسطة الآشعة المقطعية متعددة المقاطع

سرطان المثانة واحد من آكثر الآورام شيوعاً بين المسالك البولية السفلى، وهو سابع مرض سرطانى شائع، ومنتشر على نطاق واسع فى البلدان المتقدمة النمو. التصوير المبكر لسرطان المثانة والتدريج الدقيق قبل الجراحة هو العنصر الآكثر آهمية فى تحديد العلاج الملائم لسرطان المثانة.

هناك العديد من طرائق التصرير لتقييم المثانة، منظار المثانة التقليدى معروف آنه يلعب دوراً رئيسياً فى تصوير ومتابعة سرطان المثانة ولكن لديه قيود كونه تقنية إجتاحية ومكلفة وتستغرق وقتاً طويلاً، بالإضافة إلى إلتهابات المسالك البولية آو إنثقاب الجدار. عيب آخر من المنظار المثانى هو حساسية الكشف المنخفضة نسبياً عن آورام المثانة خاصة ذوات الشكل اللاطئ والمسطحة.

التصوير المقطعى المتعدد الكواشف قد آقترح كآسلوب تصوير بديل مع المزايا المحتملة فى تشخيص وتوصيف آورم المثانة كوسيلة لكسب راحة المريض، والوقت المستهلك آقل من المنظار التقليدى للمثانة ويسمح التحديد الدقيق والكشف المبكر للكتل الصغيرة الحجم، وعدم إنتظام الجدار وإيجاد تصوير نموذجى لسرطان المثانة.