

Finding the Role of CT Urography in Case of Haematuria

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ABSTRACT

Introduction: Haematuria is one of the most common presentations of urinary tract pathologies and always warrants serious concern, both to the patient as well as the treating physician.

Objectives: The main objective of the study is to analyse the main role of CT urography in case of haematuria.

Material and methods: This prospective study was conducted in DHQ teaching hospital, Sargodha during 2019. The data was collected from 50 patients of haematuria from the OPD of the hospital. The patients was undergo CECT examination after obtaining detailed clinical history. Patient is advised to be nil by mouth six hours before the study.

Results: The data was collected from 50 patients.

There were 38 females and 12 males. The most common cause of obstructive uropathy was stone disease i.e., renal, ureteric or both and 75.0% patients in group A and 65.0% in group B, presented with it followed by other causes i.e., carcinomas, pyonephrosis and PUJ obstruction as shown in table 1.

Conclusion: It is concluded that multi-detector CT urography detects the entire spectrum of urinary tract pathologies causing haematuria with high accuracy.

Key words: Urography, Haematuria, Obstruction

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INTRODUCTION

Haematuria is quite possibly the most widely recognized introductions of urinary lot pathologies and consistently warrants genuine concern, both to the patient just as the treating doctor. Haematuria is quite possibly the most widely recognized appearances of urinary parcel pathologies like calculi, neoplasm, contamination, injury, drugs, coagulopathy, formative irregularities and renal parenchymal infections and consistently warrants genuine concern (Van Der Molen A, *et al.*, 2008). Until the start of the 21st century, Intravenous Urography (IVU) was the underlying strategy for genitourinary imaging. However, presently a days MDCT urography is arising as imaging methodology of decision (Song JH, *et al.*, 2011).

MDCT urography is dened as multidetector CT assessment of the kidneys, ureters and bladder with at any rate one imaging arrangement obtained during the excretory-stage following. intravenous difference organization CT urography is quickly getting acknowledged as the favored test for diagnosing urinary parcel infection liable for haematuria on account of unrivaled spatial goal, higher speed, isotropic remaking ability, fantastic 3D multiplanar reformats and portrayal of whole urinary lot in single breath hold assessment CT urography consolidates the advantages of excretory urography with those of cross sectional imaging into a solitary report which portrays the renal parenchyma, gathering framework, ureters and bladder (Maher MM, *et al.*, 2004).

CT (Computed Tomography) Urography is an analytic assessment which is upgraded for imaging the kidneys, ureters and bladder with slight cut MDCT (Multi identifier registered tomography), intravenous organization of difference medium and picture obtaining in the excretory stage (Fielding JR, *et al.*, 1997). CT Urography works with multiplanar imaging of the urinary framework, hence is a magnificent strategy in assessing the urinary parcel calculi and renal masses with high affectability and particularity. CT Urography is basically characterized as a CT assessment of the urinary lot which incorporates non-contrast or unenhanced stage imaging and imaging after organization of differentiation (Thomson JM, *et al.*, 2001). As indicated by The European Soci-

ety of Urogenital Radiology CT Urography is a symptomatic assessment which is advanced for imaging the kidneys, ureters and bladder with flimsy cut MDCT, intravenous organization of differentiation medium and picture securing in the excretory stage. The non-contrast or unenhanced pictures are helpful for assessment of fat-containing injuries, calculi and parenchymal calcifications and furthermore to give standard constriction to appraisal of injury improvement (Ketata S, *et al.*, 2008).

OBJECTIVE

The main objective of the study is to analyse the main role of CT urography in case of haematuria.

MATERIAL AND METHODS

This prospective study was conducted in DHQ teaching hospital, Sargodha during 2019. The data was collected from 50 patients of haematuria from the OPD of the hospital. The patients was undergo CECT examination after obtaining detailed clinical history. Patient is advised to be nil by mouth six hours before the study. First phase is the non-contrast phase and second phase is the corticomedullary phase, which was acquired following a delay of 25-80 seconds after administration of 100 ml (2.5 ml/sec) of intravenous non-ionic low osmolar contrast medium to differentiate normal variants of renal parenchyma from renal masses and better depiction of tumor hypervascularity. CT scan performed with a Multi detector row CT scanner and CT scans was obtained from the diaphragm to the bladder. The follow up diagnosis will be established on the basis of histopathologic findings.

The data was collected and analysed using SPSS version 19. All the values were expressed in mean and standard deviation.

RESULTS

The data was collected from 50 patients. There were 38 females and 12 males. The most common cause of obstructive uropathy was stone disease i.e. renal, ureteric or both and 75.0% patients in group A and 65.0% in group B, presented with it followed by other causes i.e. carcinomas, pyonephrosis and PUJ obstruction (Table 1).

Table 1: Causes of Obstructive Uropathy

Causes	No. of patients	Age%
Stone disease	75	75
Renal	40	40
Ureteric	25	25
Renal + Ureteric	10	10
Carcinomas	20	20
Urinary Bladder	3	3
Prostate	2	2
Cervix	5	5.010.0
Others	10	
Pyonephrosis	3	3
PUJ Obstruction	2	2

Extensive ureteral injury was the most common cause requiring urinary diversion among the benign etiologies; cervical cancer was the most common malignancy associated with ureteral obstructions (Table 2).

Table 1: Causes of Obstructive Uropathy

	Ureteral stent	Percutaneous nephrostomy
Benign causes	40	16
Malignancy	26	28
Cervical cancer	19	9
Prostate cancer	4	5
Colon cancer	1	7
Bladder cancer	2	1
Stomach cancer	0	1
Ovarian cancer	0	1
Lung cancer	0	1
Endometrial cancer	0	1
Lymphoma	0	1
Breast cancer	0	1

The two retrospective reviewers identified 24 of the 27 neoplastic foci on MDCT urography, including all 18 urothelial tumors that were identified prospectively and six additional lesions. These six lesions were found in six patients. In four patients, a second focus of malignancy missed during the prospective review was found during the retrospective review. The six foci that were not seen prospectively but were seen in retrospect consisted of three small masses in the intrarenal collecting system (Figures 1 and 2).



Figure 1: CT scan shows upper pole infundibular urothelial wall thickening



Figure 2: CT scan shows upper pole infundibular urothelial wall thickening

DISCUSSION

Early and accurate diagnosis of etiological factor helps in early and effective management. Conventional diagnostic test like IVU is complicated, long and less sensitive and specific compared to MDCT urography for detection of small tumor and calculi. Although ultrasound is very effective in detecting renal cystic lesions, this modality also has poor sensitivity for detecting solid renal lesions less than 3 cm (Feroze S, et al., 2007).

X-ray has been as of late used to assess the urinary framework. Be that as it may, the powerlessness of MRI to get calcination is a characteristic disadvantage of this methodology in its utility in diagnosing urinary pathologies (Bhatt S, et al., 2008). Additionally the expense and absence of simple accessibility limits its utilization. At present the utilization of MR urography is restricted to youngsters, pregnant ladies, in renal deficiency and in 8 patients with contrast sensitivity (Alderson SM, et al., 2011). The capacity of CT urography to assess the renal parenchyma just as the urothelium in a solitary investigation has incited numerous creators to disputable it as a potential one stop investigation for the 1 range of urinary plot problem with haematuria (Silverman SG, et al., 2009).

CONCLUSION

It is concluded that multidetector CT urography detects the entire spectrum of urinary tract pathologies causing haematuria with high accuracy. CT Urography is a precise examination for the evaluation of urinary tract pathologies.

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