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TO APPRECIATE THE ROLE OF DIFFUSION WEIGHTED MR IMAGING IN IDENTIFICATION AND CHARACTERIZATION OF RENAL MASSES

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Abstract

Background & Method: This prospective study was done in the Department of Radio diagnosis & Govt. Medical College, Nagpur. A total of 70 patients who were referred to our department with strong clinical suspicion of renal lesion and those diagnosed by ultrasonography. Magnetic Resonance Imaging evaluation of abdomen using MRI Scanner after obtaining informed consent.

Result: Majority of patients in our study group belonged to age group of 50-59 years (37.3%) with mean age of 52.3 years. RCC formed the most common malignant lesion in the kidney and the most common lesion in the study is 25.
Nodal involvement was the commonest associated finding that was identified.

Conclusion: Majority of patients in our study group belonged to the age group 50-59 years (37.3%) with a mean age of 52.3 years. RCC was the most common malignant lesion in our study constituting the renal lesions. Clear cell RCC was the most common histological subtype in our study. Lymph node enlargement was the most common associated finding that was identified on MRI seen in 31.4% of cases.

Keywords: diffusion, renal masses & MR imaging.

Introduction

Magnetic reverberation (MR) imaging is a helpful instrument for the portrayal and arranging of renal masses[1]. The kidneys are seen on cuts from T 12 to L 3 vertebral levels. Posterior (for example stomach, pleura and ribs, psoas, quadrates lumborum and crosses over abdominis muscles) and front relations (for example liver, pancreas, spleen) can be seen on pivotal pictures, yet are all around appreciated on sagittal and coronal MR pictures. For masses at the posts of the kidney, the coronal and sagittal planes are useful[2]. The cross over and sagittal planes best portray a mass in the front or back part of the kidney. The kidneys are encircled by perinephric fat which is most bountiful average to the lower shaft. The renal sash is under 1 mm thick in ordinary subjects and can by and large be checked whether it is at right-points to the imaging plane in a subject with Adequate fat[3].

The kidneys create from three sets - pronephros, mesonephros and metanephros. The metanephros creates in fifth week from the ureteric bud and the metanephrogenic blastema. The metanephros structures the lasting kidneys. The ureteric bud branches inside the metanephrogenic blastema. This structures the ureter, renal pelvis, calices, and gathering channels. The metanephrogenic blastema frames the cortex of the kidneys which comprises of glomerular tissue[4]. At first, the kidneys are found in the pelvis, with fetal development, the kidneys climb upwards and turn medially 90 degrees so the renal pelvis is coordinated anteromedially. The kidneys are in their grown-up area and position by the 10th gestational week. As the kidneys climb, they get their blood supply from close by vessels. At seventh week urogenital sinus framed from the combination of urorectal septum with cloacal film. The bladder creates from urogenital sinus[5].

Material & Method

This prospective study was done in the Department of Radio diagnosis & Govt. Medical College, Nagpur the study was conducted from June 2017 to May 2018. A total of 70 patients who were referred to our department with strong clinical suspicion of renal lesion and those diagnosed by ultrasonography or contrast enhanced CT Scan having a renal mass on either of them, were subjected to a non-contrast. Magnetic Resonance Imaging evaluation of abdomen using MRI Scanner after obtaining informed consent.

Inclusion criteria

1. Patients referred to our department with strong clinical suspicion of a renal lesion.

2. Patient having evidence of incidentally detected/symptomatic renal mass on ultrasound or CT scan.

Exclusion criteria

1. Patients refusing to participate in the study.

2. Patients with mass lesions infiltrating the kidney from outside the kidney.

3. Patients with traumatic injury to kidney.

Results

Table: 1 age distribution of cases

S. No.	AGE(YEARS) (YEARS)	NO.OFCASES	PERCENTAGE
1.	20-29	04	5.7%
2.	30-39	06	8.5%
3.	40-49	14	20%
4.	50-59	26	37.3%
5.	60-69	20	28.5%
	TOTAL	70	100%

Majority of patients in our study group belonged to age group of 50-59 years (37.3%) with mean age of 52.3 years.

Table 2: malignant lesions on MRI

S. No.	TYPE OF LESION	No. OF LESIONS	% OF LESION
1	RCC	25	63%
2	TCC	02	05%
3	METASTASIS	01	02%
	TOTAL	28	70%

RCC formed the most common malignant lesion in the kidney and the most common lesion in the study is 25.

Table 3: associated findings in MRI

S. No.	TYPE OF LESION	No. OF CASES	% OF CASES
1.	NODAL METASTASIS	22	31.4%
2.	PLEURAL EFFUSION	14	20%
3.	ASCITES	13	18.8%
4.	LUNGMETASTASIS	09	12.8%
5.	RENAL VEIN/ IVC THROMBUS	09	12.8%
6.	LIVER METASTASIS	03	4.2%

Nodal involvement wasthe commonest associated finding that was identified.

Discussion

Magnetic Resonance Imaging of mid-region utilizing MRI scanner. The reference standard utilized in our investigation, comprised of histopathological affirmation by biopsy or FNAC. The last investigation bunch included 40 patients as rest of them lost development or needed histopathological relationship.

In the current investigation the most widely recognized age bunch of patients was 50-59 years (35%) with mean period of 50.7 years. The mean time of patients with kind sores was 43.8 years and of patients with dangerous injuries was 54.3 years. Dominant part of patients were guys (26) comprising 65% of cases. In this way dominant part of the threatening renal neoplasm (RCC, TCC, metastases) happened after the age of fifty, particularly in the 6th many years of life and are more normal in guys. These discoveries were additionally found in examinations by Woo et al[6] and Agnello et al[7].Thirty patients had one-sided lesions(75%) in our investigation.

The most widely recognized giving objection which patients introduced was flank torment seen in 60% of cases followed by Gross hematuria seen in 40% of cases. Discernible flank mass was seen in 30% of cases. Gross hematuria, loss of craving and weight, and discernible flank mass were more regular in patients with threatening mass lesions[8]. Fever, dysuria, raised TLC/DLC were more incessant in patients with generous sores. All the more explicitly, these were found in patients with infective/incendiary sores. Comparative clinical discoveries was found in examinations by Silverman et al[8] and Sánchez-Martín et al[9].

On ultrasonography, 12% (5) injuries were analyzed as incendiary sores. There were 33% (13) kind injuries and 55% (22) dangerous sores in our investigation. Less number of provocative sores in our investigation can essentially be credited to the way that not many analyzed cases in ultrasonography justified further assessment by MDCT and MRI assessment.

Conclusion

Majority of patients in our study group belonged to the age group 50-59 years (37.3%) with a mean age of 52.3 years. RCC was the most common malignant lesion in our study constituting the renal lesions. Clear cell RCC was the most common histological subtype in our study. Lymph node enlargement was the most common associated finding that was identified on MRI seen in 31.4% of cases.

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