Histomorphological Spectrum of Kidney Lesions in Autopsy Cases

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Abstract

Introduction: The kidneys are often affected by chronic inflammatory lesions, neoplasm, toxic effect of various drugs and metabolic disorders. The present study reveals interesting & incidental findings of renal pathology in autopsy cases.

Aims & Objectives :The present study was carried out with the aim of finding out histomorphological spectrum of renal lesions at autopsy.

Materials and Method : The present study included kidney specimens of 100 autopsies received in Department Of Pathology, B. J. Medical College, Ahmedabad to find out the frequency of various renal lesions at autopsy. Gross Examination of the specimens was carried out and relevant tissue samples from kidneys were submitted for routine paraffin processing. The Histological Sections were prepared using H & E Stain and Microscopic Examination was done.

Result: Out of total 100 cases, in 16 cases, the microscopic morphology was close to normal histology. Remaining 84 cases had a pathological finding which consisted of non glomerular nephropathies (69%) were higher as compared to that of glomerular lesions (15%). In glomerular alterations focal glomerulosclerosis, segmental glomerulosclerosis , nodular glomerulosclerosis and mesangial cell proliferations were most common. Tubular and interstitium lesions were observed in 46 cases which included acute tubular necrosis, chronic pyelonephritis and interstitial inflammation. Tuberculous inflammation was observed in 4 cases. Simple cysts were observed in 3 cases and Tumor was found in 1 case.

Conclusion: Our study provided relevant & useful data regarding morphological spectrum of various renal lesions in autopsy cases.

Keywords *: Renal lesions, Histomorphological spectrum, autopsy*

Introduction

Histologic evaluation of kidneys at autopsy can help in identifying in renal lesions and unveiling the rare lesions.[1] A wide spectrum of renal pathology namely diabetic nephropathy, chronic pyelonephritis, acute tubular necrosis, chronic granulonephritis, tuberculous inflammation and many more has been observed in autopsy cases. Most glomerular disease are immunologically mediated, whereas tubular & interstitial disorders are frequently caused by toxic or infectious agents.[7] Chronic glomerulonephritis is one of the most common cause of chronic kidney disease.[7] The increased prevalence of kidney diseases is a consequence of the accumulation of risk factors such as hypertension, diabetes, dyslipidemia and obesity.[9] The kidneys are often affected by chronic inflammatory lesions, neoplasm, toxic effect of various drugs and metabolic disorders. The present study reveals interesting & incidental findings of renal pathology in autopsy cases.

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Aims and Objectives

The present study was carried out with the aim of finding out histomorphological spectrum of renal lesions at autopsy and their prevalence with respect to age and gender. Further we also aimed to evaluate and segregate glomerular as well as non- glomerular lesions of kidney at autopsy.

Materials and Method

A retrospective study was carried out which included 100 kidney specimens received at Autopsy section of Department of Pathology, B J Medical College, Ahmedabad during period of June 2018- July 2019. Age, gender and clinical history of the deceased were noted from PM note and then gross examination was done. Findings were noted and then the specimens were fixed in 10% formalin, weight and dimensions measurement were recorded. After proper processing, paraffin blocks were prepared which contained tissue consisting renal cortex, medulla with papilla and a portion of renal pelvis. The Histological Sections were prepared using H & E Stain and Microscopic Examination was done.

Results

The age range of the autopsies was between 7 and 97 years. Seventy one of the 100 autopsies were males, while 29 were females. In 16% cases, the microscopic morphology was close to normal histology. Remaining 84% cases had a pathological finding at autopsy. The percentage of non-glomerular nephropathies (66%) was higher as compared to that of glomerular lesions (18%).

Among, glomerular and non-glomerular lesions, most commonly found pathologies were focal glomerulosclerosis and acute tubular necrosis respectively.

Table 1: Age wise distribution of disease

Age	Acute tubular necrosis	Chronic pyelonephritis	Tuberculosis	Simple cyst	Chronic glomerulo-nephritis	Glomerulo-sclerosis	Tumor	Total
1-10years	-	-	-	-	-	-	-	-
11-20years	2	-	-	-	-	-	-	2
21-30years	9	2	1	-	1	1	-	14
31-40years	9	3	-	-	-	1	-	13
41-50years	2	6	2	2	2	4	-	18
51-60years	4	3	-	1	-	7	-	15
>60years	2	9	1	-	-	3	1	16
Total	28	23	4	3	3	16	1	78

Among, all age groups maximum affected age group were 41-50 years.

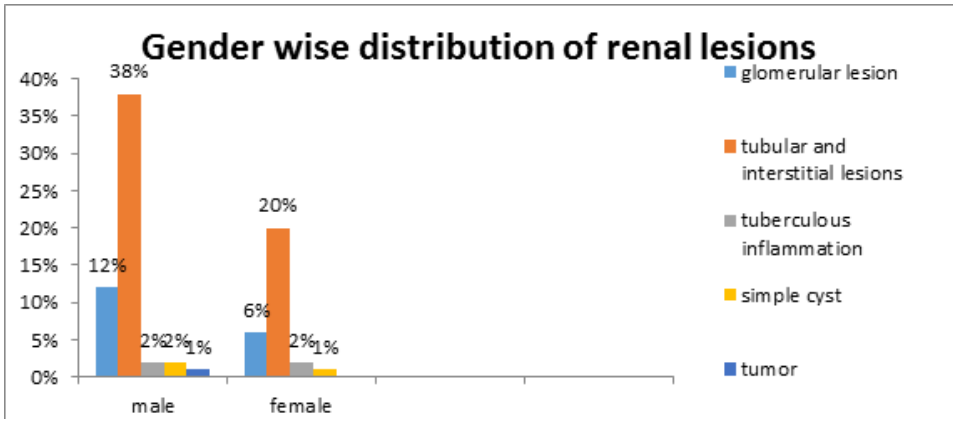

Chart 1 shows gender wise distribution of renal lesions and in present study, males were more affected than females.

Table 2 : Gross findings in kidney specimens and their incidence.

Gross features	No. Of cases
Size	
Normal	82
Small	10
large	8
Cut surface	
Solid , granular	25
Cystic	5
Cortico-medullary junction	
Identified	93
Not identified	7
Pelvicalyceal system	
Normal	97
Dilated	3

Discussion

A retrospective study of 100 cases of renal lesions in autopsy was done, Results were noted and compared with other studies. The youngest case was a 7 years old male and the oldest case was a 97 years old male. In present study, maximum number of renal lesions show between 41-50 years which was in concordance with other studies. Table 3 shows Age wise comparison of different studies.

Table 3 : Age wise comparison of different studies

	No of cases in different studies			
Age range	**Mahjabeen Salma et al6**	**Jagadeeswari Suvvari et al4**	**Kishor H. Suryawanshi et al5**	**Present study**
1-10	10	6	0	0
11-20	3	1	4	2
21-30	8	2	3	14
31-40	8	4	8	13
41-50	10	11	8	18
51-60	7	7	6	15
>60	4	3	4	16

Three peaks of incidence of pyelonephritis : infancy & early childhood, women with childbearing age and both women and men older than 60 year of age.[8] In our study, we observed that pyelonephritis more commonly occurs in childbearing age women and men older than 60 year of age.

Table 4 shows gender wise comparison of different renal lesions in different studies

Sr.no	study	gender	Renal lesions			
			Glomerular lesion	Tubular & interstitial lesions	tumors	Normal histology
1	Vaneet et al9	Male female	12 8	29 12	1 1	13 14
2	Amandeep et al1	Male female	15 2	23 9	0 0	23 2
3	Present study	Male female	12 6	38 20	1 0	10 6

We observed renal pathological changes in 84% of renal autopsies. So higher percentage of renal lesions were obtained than Amandeep et al[1] and Vaneet et al[9], who found renal lesions in 75% and 77.5% cases respectively.

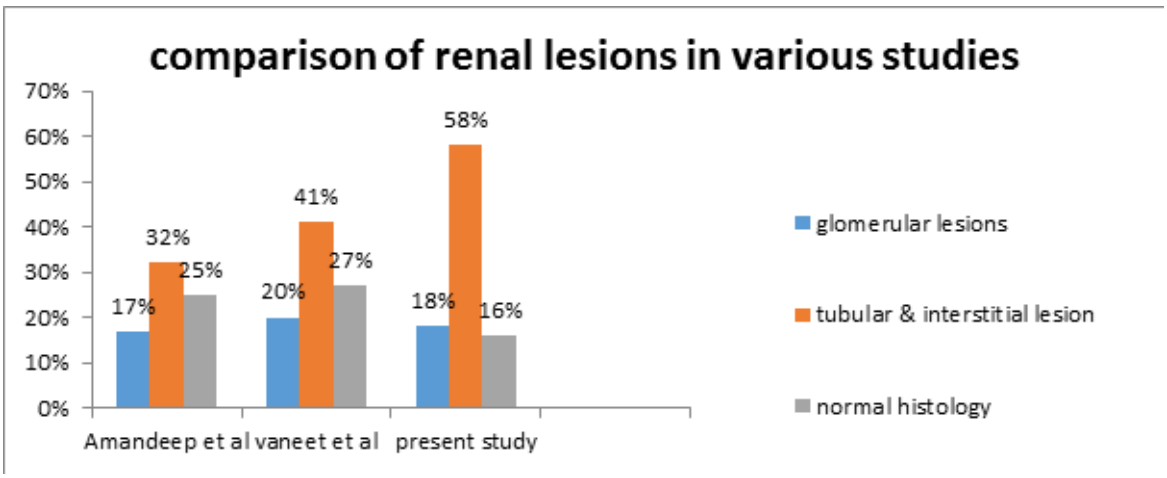

Chart 2 shows comparison of various renal lesions in various studies

On present study tubular and interstitial changes were observed in 58% cases of which 28% cases of acute tubular necrosis. However higher percentage of acute tubular necrosis (35.71%) were observed in Chethan et al.[2] Renal tuberculosis and chronic pyelonephritis were observed in 4% & 28% of cases respectively in our work. One case of renal tumor was observed during study. Vaneet et al[9] observed renal tumor in two cases(1.6%).

Conclusion

Our study provided satisfactory data in respect to morphological spectrum of various renal lesions in an autopsy study. Present study included 100 cases of kidney lesions at autopsies shows that the non-glomerular lesions are most common with higher preponderance in male. Though this autopsy study does not reflect renal lesions as a cause of death but it definitely reflects incidence of various renal pathologies in a population.

Declaration of Conflict of Interest: The authors declare that they have no conflicts of interest.

Source of Funding: Self

Ethical Consideration: All procedures performed were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards .For retrospective studies, formal consent is not require.

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