



## Histopathological Spectrum of Kidney Lesions in Autopsy – A Study of 100 Cases

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### Abstract

**Background:** Determination of cause of death particularly when the death occurred suddenly, unexpectedly, or in the young, is an important part of forensic autopsy practice. Performance of a complete and thorough autopsy on apparent deaths can provide invaluable information in the interest of public health. by identifying risks and monitoring disease trends. It provides the opportunity to discover new diseases, to evaluate toxic effects of drugs and therapies. The kidneys are often affected by chronic inflammatory lesions, neoplasm, toxic effects of various drugs and metabolic disorders.

**Material and Methods:** The present study was conducted on kidney specimens of 100 routine autopsies received in the department of pathology, Government Medical College, Patiala, Punjab to find out the frequency of various renal lesions in autopsy. All the histological sections were stained in H & E stain & mounted. All the histological sections were examined microscopically & findings were recorded and tabulated.

**Results:** The age range of the autopsies was between 25 and 80 years. 80 of the 100 autopsies were males, while 20 were females. In 25(25%) cases, the microscopic morphology was close to normal histology. Remaining 75 (75%) cases had a pathological findings at autopsy. Non glomerular nephropathies (58 %) were higher as compared to that of glomerular lesions (17%). In 17 cases of renal autopsies glomerular alterations were observed such as focal segmental glomerulosclerosis, nodular glomerulosclerosis and mesengial cell proliferation.

**Keywords:** Autopsy, Histopathology, Renal lesions.

### Introduction

Autopsy aids to the knowledge of pathology by unveiling the rare lesions which are a source of learning from a pathologist's perspective. Some of them are only diagnosed at autopsy as they do not

cause any functional derangement. This study emphasizes the various incidental lesions which otherwise would have been unnoticed during a person's life.<sup>[1]</sup> Histologic evaluation of autopsy kidneys may be the first opportunity to identify

renal lesions. We have encountered a wide spectrum of renal pathology in adult autopsies including diabetic nephropathy, thrombotic microangiopathy, glomerulonephritis and vasculitis.<sup>[2]</sup> Chronic kidney disease (CKD) is now recognized as a major global public health problem and is an independent risk factor for cardiovascular disease.<sup>[3]</sup> CKD affects 10-15% of the adult population worldwide.<sup>[4]</sup> The kidneys are often affected by chronic inflammatory cells, neoplasm, drugs and metabolic disorders<sup>[6]</sup> and investigated cases by light microscopic analysis show Glomerular changes<sup>[7]</sup> End stage kidney disease (ESKD) is one of the leading health problems worldwide with high morbidity, and mortality rates. Biopsy proven data shows that glomerulonephritis (GN) is the most important cause of chronic renal insufficiency, in which primary GN comprises the biggest proportion, especially in Western and Eastern Europe<sup>[9]</sup>. Segmental necrotizing glomerulitis was taken as a manifestation of vasculitis<sup>[10]</sup> Renal parenchymal damage occurs in subjects with stroke or abdominal aortic aneurysm.<sup>[11]</sup> Renal insufficiency is a common organ dysfunction after HSCT.<sup>[12]</sup>

### Aims and Objective

The main aim of this study was to analyze the findings by the histopathological examination in kidney tissue received in autopsy specimens and to determine the underlying diseases and associated co-morbidities.

### Material and Methods

Prospective study was conducted on renal specimens of 100 routine autopsies received in the department of pathology, Government Medical College, Patiala, (Punjab) to find out the frequency of various renal lesions in autopsy. The medical history and clinical history was recorded in the given proforma. The received specimens of kidneys were fixed in 10% formalin, weighed and dimensions measured were recorded. A minimum of two sections per kidney were studied. All the

histological sections were stained in H & E stain & mounted. All the histological sections were examined microscopically & findings were recorded and tabulated.

### Results

A total of 100 specimens of kidneys from autopsy subjects were received at the autopsy section of the Pathology Department of Government Medical College, Patiala, out of which 80 (80%) were males and 20 (20%) were females as shown in table 1.

**Table1**

Gender	0-20	21-40	40-60	>60
males	14	31	30	5
females	6	7	5	2

**Table 2**

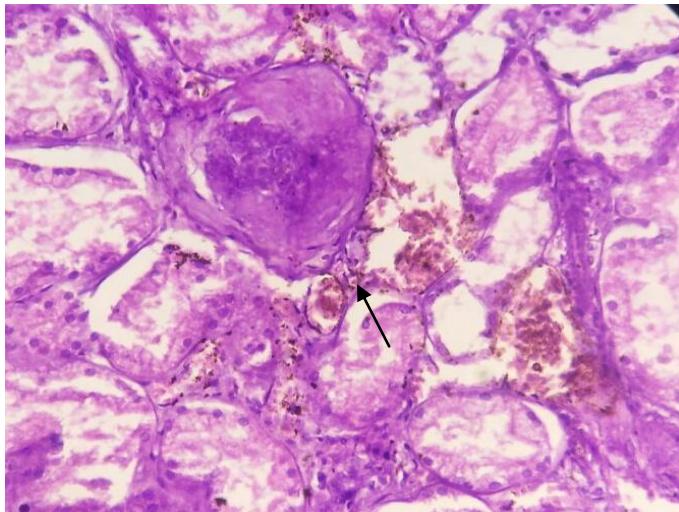
Histopathological findings	No. of Cases	Male	female
Glomerular lesions	17 (17%)	15	2
Tubular and interstitial findings	32 (32%)	23	9
Vascular findings	26 (26%)	23	3
Normal findings	25 (25%)	23	2

In present study, 25% cases, the microscopic morphology was close to normal histology. Remaining 75% cases had nephropathological findings at autopsy. The percentage of non glomerular nephropathies 58% was higher as compared to that of glomerular lesions 17% in which glomerular alterations were observed as in table 2.

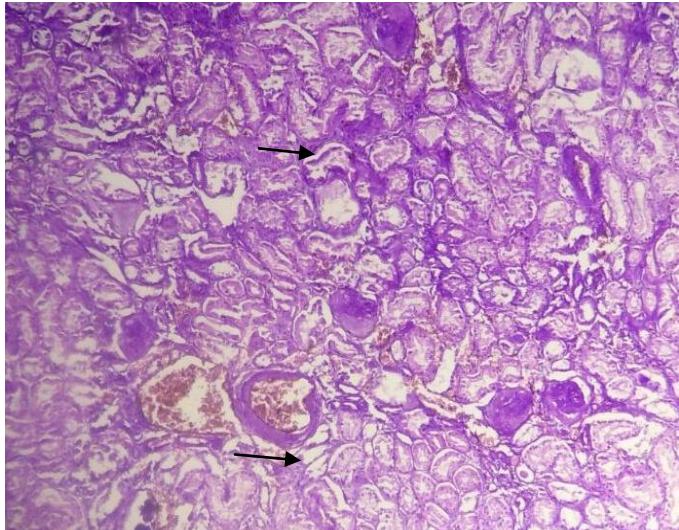
### Gross:



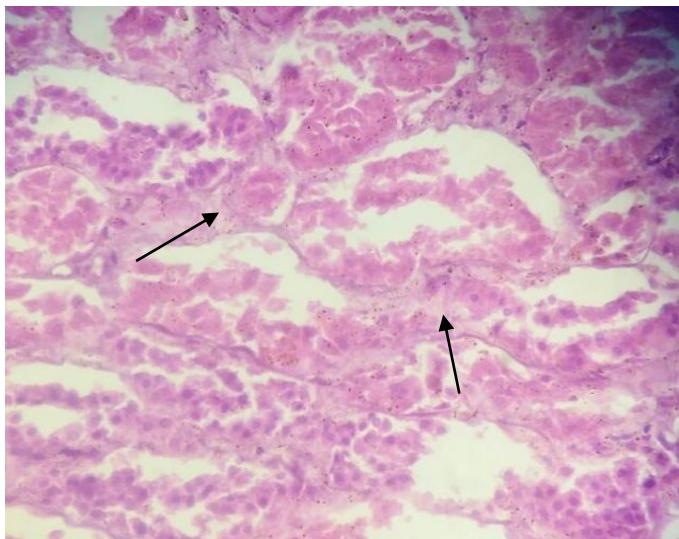
**Figure 1:** Gross show polycystic kidney having multiple cysts.

**Microscopic finding**

**Figure 2:** Microscopic picture show glomerulosclerosis.



**Figure 3:** Microscopic picture show cloudy swelling.



**Figure 4:** Microscopic picture show acute tubular necrosis.

**Discussion**

**Table 3** Comparable study- Maximum affected age group

Sr No.	Study	Age Group
1	Jesu et al (2014)	31 -35
2	Sapna et al (2016)	21-40
3	Present Study(2018)	21 -40

**Table 4** Comparison of percentage of normal histology in various studies.

Sr No.	Study	Cases
1	Vaneet et al (2017)	27 out of 120 cases (22.5%)
2	Utsa et al (2014)	23 out of 55 cases (41%)
3	Present study (2018)	25 out of 100 cases (25%)

**Table 5** Comparison of percentage of Glomerular lesions in various studies.

Sr No.	Study	Cases
1	Monga et al (1997)	25 cases out of 120 (20%)
2	Hailemariam S et al (2001)	67 cases out of 237 (28%)
3	Present study (2018)	17 out of 100 cases (17%)

Study by Sapna et al<sup>[1]</sup> showed maximum number of cases between 21 -40 years of age. This is in concordance with our study in which max deaths occurred in 21-40 yrs of age and males are affected more than females. Study done by Jesu et al<sup>[5]</sup> showed the age ranged from 17 to 70 years with male predominance. Maximum deaths occurred in the age group between 31 and 35 years and males were affected more than females as shown in table 3.

In current analysis in 25 (25%) cases the microscopic findings were close to normal histology. This is in concordance with study conducted by Vaneet et al.<sup>[6]</sup> on 120 renal autopsy in which 27 cases (22.5%) exhibited almost normal histology. The microscopic morphology was close to normal histology in only 23 cases (41%) out of 55 cases and 23 cases had glomerular alterations in a study done by Usta et al<sup>[9]</sup> as shown in table 4.

In the present study, nephropathological changes were seen in 75 % of renal autopsies however slightly lower percentage of renal lesions were

seen by Monga et al.<sup>[7]</sup> The renal pathologic features of 120 consecutively autopsied patients affected by acquired immunodeficiency syndrome were investigated by light microscopic analysis. Variously associated renal changes were found in 82 cases (68.3%). Glomerular changes were present in 25 cases (20) % which is in concordance with our study in which glomerular changes were seen in 17% of cases. Study conducted by Hailemariam S et al<sup>[8]</sup> on 237 autopsies observed presence of glomerular or vascular pathology in 28%, non glomerular lesion in 33% and 29% had combined lesions as shown in table 5.

### Conclusion

Present study shows that the most common findings are non glomerular and glomerular in Punjab region are more common in males due to agriculture working, indiscriminate use of medicines and pesticides. Despite recent advances in diagnostic technology, there is large number of cases of preventable renal diseases for which the autopsy has remained an important complementary tool for identifying.

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