



A Histopathological Review of Nephrectomy Specimens Received in a Tertiary Care Hospital-A Retrospective Study

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Abstract

Introduction: Simple and Radical nephrectomies are done for benign and malignant lesions of kidney respectively. This study was conducted to find out the Histopathological spectrum of diseases that were encountered in these received nephrectomy specimens and compare it with other studies over a period of 2 years in department of pathology, GMC Jammu retrospectively.

Result: A total of 70 nephrectomy specimens were received. Male constituted 40 cases (57%) and females 30 cases (43%). Age range of cases was from 3 year to 70 year. The highest percentage of patient belonged to age group 41-50 years. Non Neoplastic (62 cases) were most common followed by malignant cases and the least common were benign tumours. Chronic pyelonephritis (30 cases) was the most common inflammatory condition for which nephrectomy was done. Among the malignant tumour clear cell renal carcinoma (3 cases) was the most frequent. Most common clinical symptom was flank pain.

Conclusion: Non neoplastic lesions were more common than neoplastic lesion. Chronic pyelonephritis was the most common histopathological diagnosis. Renal cell carcinoma was most common among the malignant tumours.

Keywords: nephrectomy, pyelonephritis, benign, malignant.

Introduction

Kidneys can be involved in various pathological processes, some of which may require its surgical removal. Nephrectomy is a common procedure in surgical practice. Simple Nephrectomy is indicated for patients with irreversibly damaged kidney resulting from symptomatic chronic infections, obstruction, calculous disease or severe traumatic injury. Nephrectomy is also done for treatment of renovascular hypertension, in severe

parenchymal damage resulting from nephrosclerosis, pyelonephritis, vesicouretric reflux and congenital dysplasia. It is the treatment of choice for Renal cell carcinoma.⁽¹⁾

Both benign and malignant tumours occur in kidney. 99 percent of renal cell tumours have been found to be malignant with renal cell carcinoma and wilms tumour being the most common.⁽²⁾ Renal cell carcinoma accounts for approximately 2% of adult malignancies and 80-85% of

malignant kidney tumours ⁽³⁾. Kidneys removed for conditions like obstructive nephropathy, hydronephrosis and chronic pyelonephritis have been reported as the most frequent type of nephrectomy specimen for non neoplastic renal diseases in both adults and children.⁽⁴⁾

Aim

This study was conducted to find out the Histopathological spectrum of diseases that were encountered in these received nephrectomy specimens and compare it with other studies.

Material and Method- It was a 2 year study done retrospectively from may 2015 to april 2017. It was conducted in histopathology section of pathology department of GMC Jammu. Retrospective analysis of all Nephrectomy specimens received in the department was done. All histopathological data, pertaining to nephrectomy specimen maintained in the histopathology section were retrieved and reviewed. Histology slides of all cases were reviewed. Staining was done by Haematoxylin and Eosin stains. Each case was analysed with respect to age, clinical presentation and microscopic diagnosis.

Result

In our study a total of 70 nephrectomy specimens were received in the surgical histopathology section of department of pathology, GMC Jammu. Male constituted 40 cases (57%) and females 30 cases (43%) of 70 patients who went nephrectomy. Male to female ratio was 1.3:1.

Age range of cases was from 3 year to 70 year. The highest percentage of patient belonged to age group 41-50 years. A majority of Chronic pyelonephritis were seen between 31-50 years of age. Maximum number of malignant cases were seen in age group 61-70 years. Wilms tumour was seen in a child 3 years of age.

Maximum number of cases were of Non neoplastic. Non Neoplastic (62 cases) were the most common followed by malignant cases and the least common were benign tumours. Among

the non neoplastic lesions, inflammatory conditions were the most common. Chronic pyelonephritis (30 cases) was the most common inflammatory condition for which nephrectomy was done. It was followed by Hydronephrosis with CPN (25 cases), CPN with calculi⁽³⁾, Xanthogranulomatous pyelonephritis ⁽²⁾, with one case each of of tuberculous pyelonephritis and multicystic renal dysplasia.

Neoplastic cases were 8 in number. Malignant tumours (7 cases) were more as compared to benign cases (1case). Among the malignant tumour clear cell renal carcinoma (3 cases) was the most frequent. Other were one case each of papillary renal cell carcinoma, Transitional cell carcinoma of renal pelvis, wilms tumour and TCC of ureter. Angiomyolipoma was the benign tumour seen in our study. Nuclear grading of clear cell renal cell carcinoma was grade I in 2 cases and grade III in one case. Papillary carcinoma nuclear grade was GIII.

Most common clinical symptom was flank pain (90%) followed by hematuria (33%), fever (25%), lump abdomen (23%). Least common presentation was bone pain (3%) and epigastric pain (2%).

Table 1- Distribution of lesions in nephrectomy specimen

Lesion	No of cases (n= 70)	Percentage (%)
Non Neoplastic	62	88.5%
Neoplastic Lesion	8	11.5%
Total	70	100

Table 2- Age distribution of Nephrectomy lesion

Age (years)	Non neoplastic	Benign	Malignant	Total
0-10	1	-	1	2
11-20	2	-	-	2
21-30	8	-	-	8
31-40	20	-	-	20
41-50	28	1	1	30
51-60	2	-	2	4
61-70	1	-	3	4
>70	-	-	-	-
Total	62	1	7	70

Table 3 -Distribution of Nephrectomy lesions.

Lesion	Number (n)	Percentage (%)
Chronic Pyelonephritis	30	42.8
Hydronephrosis with CPN	25	35.7
CPN with calculi	3	4.2
Xanthogranulomatous pyelonephritis	2	2.8
Tuberculous pyelonephritis	1	1.4
Multicystic renal dysplasia.	1	1.4
Clear cell renal carcinoma	3	4.2
Papillary renal cell carcinoma	1	1.4
Transitional cell carcinoma of renal pelvis,	1	1.4
wilms tumour and	1	1.4
TCC of ureter	1	1.4
Angiomyolipoma	1	1.4
Total	70	100

Discussion

In our study a total of 70 nephrectomy specimens were received in the surgical histopathology section of department of pathology, GMC Jammu. Male constituted 40 cases (57%) and females 30 cases (43%) of 70 patients who went nephrectomy with male to female ratio of 1.3:1. This was similar to study done by Lathif F et al ⁽⁵⁾ and Badmus et al ⁽⁶⁾ who found male to female ratio of 1.9:1 and 2:1 in their studies respectively. However Rafiq et al ⁽⁷⁾ found slight female preponderance in his study.

Age range of cases was from 3 year to 70 year. The highest percentage of patient belonged to age group 41-50 years. A majority of Chronic pyelonephritis were seen between 31-50 years of age. Maximum number of malignant cases were seen in age group 61-70 years. Wilms tumour was seen in a child 3 years of age. Similar to that seen in study done by Shaila et al ⁽⁸⁾.

Maximum number of cases were of Non neoplastic. Non Neoplastic (62 cases) were the most common followed by malignant cases (7cases) and the least common were benign tumours (1 case) . This was similar to study done by Mannan R et al ⁽⁹⁾.

Among the non neoplastic lesions, inflammatory conditions were the most common. Chronic pyelonephritis (30 cases) was the most common

inflammatory condition for which nephrectomy was done which was similar to study done by Popat VC et al ⁽¹⁰⁾ and Ibrahim Ghalayeni ⁽¹¹⁾. It was followed by Hydronephrosis with CPN (25 cases), CPN with calculi ⁽³⁾, Xanthogranulomatous pyelonephritis ⁽²⁾, with one case each of tuberculous pyelonephritis and multicystic renal dysplasia. Similar to that seen in study done by Amin AN et al ⁽¹²⁾.

Out of 70 cases, Neoplastic cases were 8 in number. Malignant tumours (7 cases) were more as compared to benign cases (1 case). Among the malignant tumour clear cell renal carcinoma (3 cases) was the most frequent .This was similar to the study done by Shaila et al ⁽⁸⁾. Other were one case each of papillary renal cell carcinoma, Transitional cell carcinoma of renal pelvis, wilms tumour and TCC of ureter. Angiomyolipoma was the benign tumour seen in our study.

Most common clinical symptom was flank pain (90%) followed by hematuria (33%), fever (25%), lump abdomen (23%). Least common presentation was bone pain (3%) and epigastric pain (2%). Similar to that seen in study done by Popat et al ⁽¹⁰⁾.

Conclusion

Non neoplastic lesions were more common than neoplastic lesion. Chronic pyelonephritis was the most common histopathological diagnosis. Renal cell carcinoma was most common among the malignant tumours. Peak age incidence of nephrectomy cases were seen in 4th decade. Flank pain was the most common presenting symptom.

References

1. Aiman A, Singh K, Yasir M. Histopathological spectrum of lesions in nephrectomy specimens-A five year experience in tertiary care hospital. Jsci Soc 2013;40:148-54.
2. Ozen H, Colowick A, Freiha FS. Incidentally discovered solid renal masses. What are they? Br J Urol 1993;72:274-6.

3. Motzer RJ, Bancer NH, Nanus DM. Renal Cell carcinoma. N Eng J Med 1996;355:865-75.
4. Truong LD, Shen SS, Park MH et al. Diagnosing non neoplastic lesions in nephrectomy specimens. Arch Pathol Lab Med 2009;133:189-200.
5. Lathif F, Mubarak M, Kazi JI. Histopathological characteristics of adult renal tumours:a preliminary report. J Pak Med Assoc 2011;61:224-8.
6. Badmus TA, Salako AA, Sansui AA et al. Adult nephrectomy: our experience at Ile- Ife. Niger J Clin Pract 2008;11(2):121-6.
7. Rafique M. Nephrectomy: Indications, complications and mortality in 154 consecutive patients. J Pak Med Assoc 2007;5:35-8.
8. Shaila, Nityananda B.S , Tamil Arasi. Spectrum of lesions in Nephrectomy Specimens in a Tertiary care Hospital . J Evo Med Den Sci .2015;4(73):12714-12726.
9. Mannan R, Kaur H, Singh PA et al. A Histopathological spectrum of Renal lesions : A 3 year prospective study of a Tertiary care teaching centre. Int J Dent Med Res 2015;1(6): 11-13.
10. Popat VC, Kumar MP, Udani M et al. A study on culprit factors ultimately demanding nephrectomy. Internet J Urol.2010;7.
11. Ghalani IF. Pathological spectrum of Nephrectomies in a general Hospital. Asian J Surg 2002;25:163-9.
12. Amin AN, Pushpalatha Pai, Krishnaraj Upadhyaya. A Histopathological spectrum of Nephrectomy Specimens in a Tertiary care Hospital in southern India. Intl J Bio Med Res .2015;6(3):5173-5178.