

OPEN NEPHRECTOMY: A SEVEN- YEAR EXPERIENCE IN UNIVERSITY OF MAIDUGURI TEACHING HOSPITAL NORTH EASTERN NIGERIA

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ABSTRACT

Background: Indications for nephrectomy are diverse globally with donor nephrectomy and malignancy predominating in Europe and other developed countries while in Africa and other developing countries childhood tumours, infective conditions, and stone disease or its complications are the leading causes. This study aimed at reviewing indications, presentations and outcome of open nephrectomy in a developing country. **Patients and Methods:** The study reviewed all patients that had open nephrectomy between January 2008 to December 2012 in the specialist hospital Damaturu and the University of Maiduguri Teaching Hospital North Eastern Nigeria. The diagnosis was made based on clinical and laboratory investigations. All patients had open nephrectomy under general anesthesia. **Results:** A total of 81 patients were analyzed age ranged from 6 months to 79 years with mean of 33.5years for benign lesions and 48.7years for malignant conditions, and peak age group of 30 – 39 years accounting for 19.75%, and a male to female ratio of 1.3:1. The main presenting features were abdominal/loin pain in 80.25% patients and anemia in 79.01%. Histology revealed renal cell carcinoma in 28.40% and gunshot injuries in 16.05%. The postoperative complications were surgical site wound infections in 8.64%, and acute renal failure in 4.94%. The mortality was 3.70%. **Conclusion:** In developed countries where facilities exist for early diagnosis, minimally invasive and laparoscopic nephrectomy is the gold standard as opposed to what is obtainable in developing countries where late presentations with advanced disease and complications, thus necessitating open nephrectomy.

KEYWORDS: Open Nephrectomy, Indications, Management outcome, Developing Country.

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INTRODUCTION: Simple nephrectomy is indicated in patients with irreversibly damaged kidney due to symptomatic infection, obstruction, calculus disease, or severe traumatic injury. Nephrectomy may also be indicated to treat renovascular hypertension owing to uncorrectable renal artery disease or severe unilateral parenchymal damage from nephrocalcinosis, pyelonephritis, reflux or congenital dysplasia¹. Radical nephrectomy is standard treatment for localized renal cell carcinoma with a normal contralateral kidney; however there is growing interest in the use of nephron sparing surgery for selected patients²⁻³. The advent of axial body imaging in the evaluation of non specific abdominal complaints showed that more than 70% of renal cell carcinoma cases are diagnosed incidentally with consequent stage migration towards smaller, organ-confined tumours, appropriate for nephron sparing approaches with more favorable outcomes⁴⁻⁵. In contrast earlier reports from Nigeria and other parts of Africa indicated that renal tumours were often diagnosed in advanced stages because patients presented when they were moribund or unfit for surgical intervention, with consequently poor prognosis even after nephrectomy⁶⁻⁸. This study highlights the presentations, indications, and outcome in open nephrectomy in North – eastern Nigeria.

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PATIENTS AND METHODS: The study reviewed all patients that had open nephrectomy between January 2008 to December 2012 in the specialist hospital Damaturu and the University of Maiduguri Teaching Hospital North Eastern Nigeria. Permission for the study was granted by the respective Hospital ethical committees. Written informed consent was obtained from patients or their parents in the case of children. Information was extracted from clinical notes and data analyzed using SPSS analytical data. Patients presenting as emergency were resuscitated with intravenous fluids, antibiotics and blood where indicated. The diagnosis was made based on clinical and laboratory investigations. Investigations done were urinalysis, Full blood count, blood chemistry, abdominal ultrasound scan, computerized tomography and magnetic resonance imaging where necessary. All patients had open nephrectomy under general anesthesia via either transperitoneal or extra peritoneal approach. Prophylactic antibiotic was given at induction (ceftriaxone and metronidazole).

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RESULTS: A total of 81 patients were analyzed age ranged from 6 months to 79 years with mean of 33.5years for benign lesions and 48.7years for malignant conditions, and peak age group of 30 – 39 years accounting for 16(19.75%) **table 1**, and a male to female ratio of 1.3:1. Left and right nephrectomy was done in 45 and 36 patients respectively. The main presenting features were abdominal/loin pain in 65(80.25%) patients **table 2**. Approach to the kidney was transperitoneal in 44(54.32%) while 37(45.68%) extra peritoneal. Histology of the specimens revealed renal cell carcinoma in 23(28.40%) **table 3**. The postoperative complications were surgical site wound infections in 7(8.64%), acute renal failure in 4(4.94%), atelectasis in 3(3.74%), and septicemia with multiple organ failure. The mortality was 3(3.70%). One each from acute renal failure, septicemia with multiple organ dysfunction, and associated multiple gunshot injuries. The average hospital stay was 5days to 2 weeks; follow up period from 3 – 18 months.

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DISCUSSION:

There is geographical variation in the indications for nephrectomy as certain urological diseases are more prevalent in some countries, no age or sex is exempt. This study found age ranged from 6 months to 79 years with a mean of 33.5years for benign lesions and 48.7years for malignant conditions, and male to female ratio of 1.3: 1. These findings when compared to Rafique⁹ in Pakistan were in contrast to his age range, sex ratio, and mean age for both benign and malignant conditions of 9-75years, 1:1.05, 32years, and 52.8years respectively. The major clinical features of abdominal/ loin pain, anemia, abdominal mass and fever were however similar to his findings. Reported rate of nephrectomy for malignant conditions from Norway and Nigeria was 68% and 67% respectively¹⁰⁻¹¹. This study found 43.21% due to high incidence of missile injuries as a result of insurgency during the study period. Benign conditions accounted for 56.79% with gunshot (16.05%), pyonephrosis (11.11%), and stone disease (8.64%), in variance with his findings of benign conditions (76.6%), comprising of chronic pyelonephritis 20%, and pelviureteric junction obstruction 16% and renal tuberculosis 7.6% among others. The post operative complications was limited to surgical site infection 8.64%, acute renal failure 4.94%, and atelectasis in 3.7%, various authors have reported re-operation rate of 3% however we had no course to re-operate. The mortality rate was 3.7% compared to reported mortality rate of 0.9% - 11.8%¹²⁻¹⁴. The overall hospital stay is longer than laparoscopic procedure¹⁵.

CONCLUSION: Indications for open nephrectomy still exist especially in the developing countries where late presentation and advanced disease is the norm. With the advent of newer imaging techniques and improvement in African economy early diagnosis and treatment will improve the outlook in the next few decades.

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TABLE 1: Age distribution

Age in years	No	%
<10	15	18.52
19-19	07	08.64
20-29	05	06.17
30-39	16	19.75
40-49	13	16.05
50-59	10	12.35
60-69	09	11.11
70-79	06	07.41
Total	81	100.00

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Table 2: Clinical features

Features	No	%
Loin/abdominal pain	65	80.25
Anemia	64	79.01
Loin/abdominal mass	62	76.54
Fever	60	74.07
Haematuria	38	46.91
Weight loss/ anorexia	38	46.91

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Table 3: Histological diagnosis

Histology	No	%
Renal cell carcinoma	23	28.40
Gunshot	13	16.05
Nephroblastoma	12	14.82
Pyonephrosis	09	11.11
Stone disease	07	08.64
Polycystic kidney diseases	06	07.41
Simple/dysplastic renal cyst	05	06.17
Ectopic nonfunctioning	03	03.70
Chronic pyelonephritis	03	03.70
Total	81	100.00

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REFERENCES:

1. Novick A. C. Surgery of the kidney. In Campbell's Urology. 8th Ed. Walsh P. C., Retik A.B, Vaughan E.D, Wein A. J. Eds Saunders. Philadelphia. USA. 2002; pp 3570 – 3643.
2. Leibovich B.C, Blute M.L, Chevile J.C, Lohse C. M, Weaver A. L, Zincke H. Nephron sparing surgery for appropriately selected renal cell carcinoma between 4 and 7cm results in outcome similar to radical nephrectomy. J Urol 2004; 171: 1066 -70
3. Becker F., Siemer S., Hacks M., Humke U., Diegher M., Stockle M. Excellent long term cancer control with elective nephron sparing surgery for selected renal cell carcinoma measuring more than 4cm. Eur Urol 2006; 49:1058 – 63
4. Al- Marhoon M., Osman A., Kamal M., Shokeir A. Incidental vs symptomatic renal tumours: survival outcomes. Arab Journal of urology 2011, <http://dx.doi.org/10.1016/j.aju.2011.03.006>
5. Chen Y. T, Uzzo R.G. Evaluation and management of renal mass. Medical Clinics of North America 2011; 95: 179 – 89.
6. Aina A. O, da Rocha – Afodu. A review of renal tumours in Lagos. Nigerian Medical Journal 1972; 2(1): 30-2.
7. Aghaji A. E, Odoemene C. A. Renal cell carcinoma in Enugu, Nigeria. West African Journal of Medicine 2000; 19(4):254 – 8
8. Awori N. W. Renal tumours in Kenya. Tropical Doctor 1975; 5: 170 – 2
9. Rafique M. Nephrectomy: Indications, complications and mortality in 154 consecutive patients. J Pak Med Assoc 2007; 57: 308 – 11
10. Beisland C, Medby P C, Sander S, Beisland H. O. Nephrectomy – indications, complications and post – operative mortality in 646 consecutive patients. Eur Urol 2000; 37: 58 – 64.
11. Eke N, Echem R. C. Nephrectomy at the university of Port Harcourt Teaching Hospital: a ten year experience. Afr J Med Sci 2003; 32: 173 – 77
12. Kubba A. K, Hollins G. W, Deane R. F. Nephrectomy: changing indications 1960 – 1990. Br J Urol 1994; 74: 274 – 8
13. Ghalayini I. F. Pathological spectrum of nephrectomies in a general hospital. Asian J Surg 2002; 25: 163 – 9
14. Klufio G. O. Areview of genitourinary cancers at the Korle – Bu Teaching Hospital Accra Ghana. West African Journal of Medicine 2004; 23 (2) : 131 – 4
15. Mathew D. D, Andrew J. P, Arieih L. S, Abdelhamid M. E, Cindy H, Elspeth M. M, Ralph V.C. Laparoscopic vs open radical nephrectomy: A 9 – year experience. The journal of Urology 2000; 164: 1153 - 1159

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