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Original Research Article

Outcomes of open radical nephrectomies in a tertiary care hospital in Nigeria: a five-year review

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ABSTRACT

Background: Open radical nephrectomy is a method of treatment of large malignant renal tumour. We aimed to review the open radical nephrectomies done in our centre with view of assessing the outcome.
Methods: Patients with suspected malignant renal tumour who had open radical nephrectomies at the Benue State University Teaching Hospital within the study period of May 2019 to April 2024 were identified and information retrieved from the records. Statistical package for the social sciences (SPSS) version 25 was used for analysis using appropriate test statistics.
Results: A total number of 23 patients had open radical nephrectomies (9 right and 14 left nephrectomies) based on clinico-radiological features of malignant renal tumours. The age range was between 9 months and 77 years. The male to female ratio was 1:1.5. The mean operating time was 2 hours 10 minutes and the average length of hospital stay was 5 days. The high-grade complication rate was 8.7%. The in-hospital mortality rate was 4.3% and the transfusion rate was 47.8%. The histology report showed 11 (47.8%) had nephroblastoma, 8 (34.8%) had renal cell carcinoma, 3 (13.0%) had oncocytoma and 1 (4.4%) had cystic nephroma.
Conclusion: Although the transfusion rate is high, open radical nephrectomy remains an option for large renal tumour as it is beneficial and gives a favourable outcome.

Keywords: Renal, Tumour, Radical, Nephrectomy, Open

INTRODUCTION

The kidneys may become involved in pathological processes that necessitate their removal, either in whole or in part. The principle of radical nephrectomy is to remove the kidney along with the perirenal fat and Gerota's fascia, with or without the adrenal gland, and with or without lymph node dissection. Renal cancer remains a significant component of the global burden of cancer, accounting for 434,840 new diagnoses and 155,953 deaths worldwide.[1-3]

Open radical nephrectomy is a treatment modality for malignant renal tumors. Laparoscopic and robotic nephrectomy are common in developed countries, offering advantages such as fewer complications and shorter hospital stays.[4,5] However, open nephrectomy remains the primary surgical approach for renal surgery in developing countries due to limited human resources and expertise. The objective of this study is to review open radical nephrectomies performed in a tertiary center with a view to assessing the outcomes.

METHODS

This was a five-year retrospective review of all patients who underwent open radical nephrectomy in the urology unit of Benue State University Teaching Hospital,

Makurdi, Nigeria. The study period covered May 2019 to April 2024. Approval for the study was obtained from the hospital's Research Ethics Committee. The patients were referred from various private and general hospitals. The cases were traced using clinic, ward, and theatre medical records. The clinical and operative details of these patients were retrieved and analyzed.

Clinical information extracted from the records included patient demographics such as age, sex, and occupation; presenting complaints; clinical and computed tomographic or radiological diagnoses; and laterality of the lesions. The indications for open radical nephrectomy were grouped according to diagnosis.

Other clinical data retrieved included surgical incisions, procedures performed, intraoperative complications, postoperative management, short-term treatment outcomes, mortality, and histology of resected specimens.

Those with incomplete data in their records were excluded from the study.

Data were analyzed using the statistical package for the social sciences (SPSS) for Windows 10, version 25.0 (IBM, Armonk, NY, USA). Results were displayed in simple proportions using tables and charts.

RESULTS

Twenty-three patients underwent open radical nephrectomy during the study period. The mean age of the patients was 57.42 years, with a median age of 60 years (range: 9 months to 77 years) (Figure 1). The majority of patients were in their sixth, seventh, and eighth decades of life. Fourteen patients were female, while nine were male.

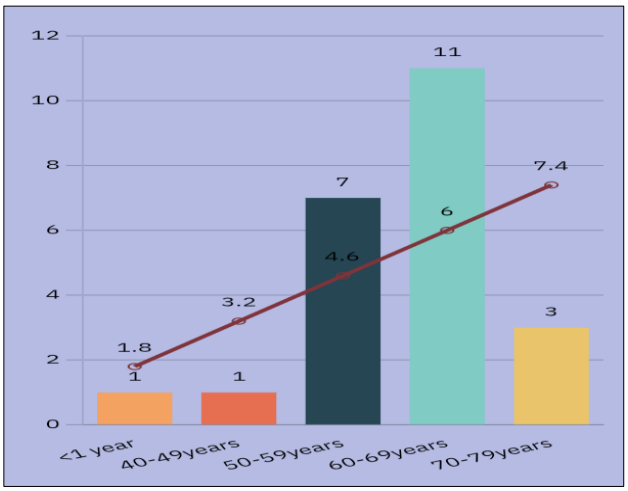

Figure 1: Age distribution bar charts of patients.

Following clinical and radiological evaluation, indications for nephrectomy were malignant lesions, with 9 located on the right kidney and 14 on the left kidney (Table 1).

Histological analysis of resected specimens following open radical nephrectomy revealed that the majority were nephroblastoma (47.8%), followed by renal cell carcinoma in 8 cases (34.8%), oncocytoma in 3 cases (13.0%), and cystic nephroma in 1 case (4.4%) (Figure 2).

There was one perioperative death, yielding a mortality rate of 4.3%. The remaining patients achieved full postoperative recovery, with 11 patients (47.8%) requiring blood transfusion during the postoperative period.

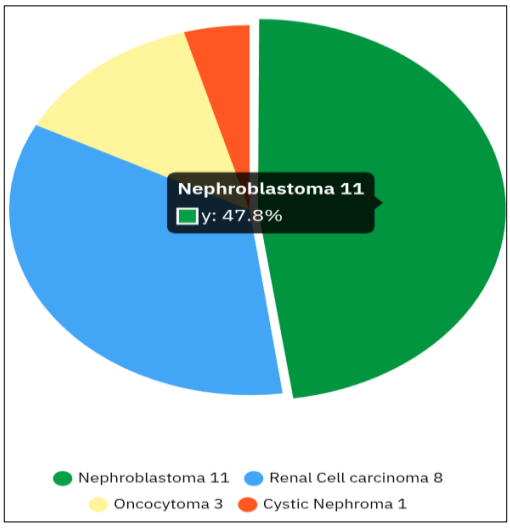

Figure 2: Pie chart showing histological diagnosis of patients that had open radical nephrectomy.

Table 1: The knowledge about the disease caused by dog bite (n=111).

Surgery	Right (%)	Left (%)
Open radical nephrectomy	9 (39.1)	14 (60.9)
Total		23 (100)

DISCUSSION

This study presents our five-year institutional experience with the outcome of radical nephrectomy, analyzing patient demographics, indications, surgical outcomes, and complications.

A total of twenty-three radical nephrectomies were performed during the study period. The mean patient age of 38.9 years is similar to that reported in other developing countries.[6,8,9] The male-to-female ratio of 1:1.5 observed in this study is comparable to ratios reported in developing countries such as Pakistan and India, where the male-to-female ratio is 1:1.05 and is consistent with similar Nigerian studies that documented a ratio of 1:1.[6,9] The slight female predominance in our series may reflect the inclusion of pediatric cases with nephroblastoma, which has no strong gender predilection.

Nephroblastoma was diagnosed in 11 patients (47.8%), while renal cell carcinoma accounted for 8 cases (34.8%). The high proportion of nephroblastoma (Wilms tumor) in our series is noteworthy and reflects the significant pediatric referral pattern to our center. This distribution differs from similar studies conducted in adult-focused centers within Nigeria, where renal cell carcinoma has been reported as the most common indication for radical nephrectomy.[5,6,9-11] The difference may be attributed to our center's role as a referral center for pediatric oncology, late presentation of childhood malignancies due to poor health-seeking behavior, and the relatively small sample size of this study.

Radical nephrectomy was performed for all patients with appropriate indications, consistent with the standard approach employed in other Nigerian centers conducting similar studies. The surgical technique followed established oncological principles for both malignant conditions and benign diseases requiring nephrectomy.

Regarding tumor laterality, there was a left-sided preponderance in this study, with 9 tumors (39.1%) on the right side and 14 tumors (60.9%) on the left. While this finding agrees with some studies, it contrasts with other reports showing right-sided predominance or equal distribution.[5,9] This variation is likely due to the small sample size and chance, as there appears to be no anatomical or physiological factor that predisposes one kidney to malignancy over the other.

Radical nephrectomy is a major surgical procedure associated with potential risks of complications, reoperations, and postoperative mortality. The mortality rate in this study was 4.3%, representing one patient death. This is comparable to similar studies that reported mortality rates of 3.4% and 0.2%, also representing single patient deaths in those series.[8,9]

The transfusion rate in this study was 47.8%, which is similar to the 40.2% reported in a comparable Nigerian study, but notably higher than the 18.1% reported in another series.[9,12] This high transfusion rate likely reflects late patient presentation with advanced, large-volume disease requiring perioperative blood transfusion. Contributing factors to delayed presentation include limited health literacy, financial constraints, out-of-pocket healthcare financing system, preference for traditional medicine, and poor health-seeking behavior. The large tumor burden at presentation necessitates more extensive surgical dissection, increasing operative blood loss and transfusion requirements.

The mean operating time was 2 hours and 10 minutes, with an average hospital stay of 5 days. This hospital stay is slightly shorter than the 7-day average reported in a similar Nigerian study.[8] The longer hospital stay in that series may have been influenced by higher rates of postoperative complications such as sepsis, or by patient comorbidities requiring extended monitoring and management.

CONCLUSION

Radical nephrectomy remains an effective and safe treatment for malignant renal tumour with acceptable outcome. However, the high transfusion rate and prevalence of advanced disease at presentation underscore the urgent need for improved early detection strategies, enhanced health education, removal of financial barriers to care, and better access to timely urological services. Addressing these systemic challenges through public health interventions and healthcare policy reforms could significantly improve outcomes and reduce the morbidity associated with radical nephrectomy in our population. Future multicenter studies with larger sample sizes and longer follow-up periods would provide more robust data on survival outcomes and quality of life after nephrectomy.

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Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. Bray F, Ferlay J, Soerjomataram I, et al. Global cancer statistics 2024: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. CA Cancer J Clin. 2018;68:394-424.
2. Singh A, Urry RJ, Hardcastle TC. Five year review of open radical nephrectomies at a regional hospital in South Africa: room for improvement. S Afr J Surg. 2018;56(1):35-9.
3. Alapara AA, Frydenberg M. The role of open radical nephrectomy in contemporary management of renal cell carcinoma. Transl Androl Urol. 2020;9(6):3123-39.
4. Badmus TA, Salako AA, Sanusi AA, Arogundade FA, Oseni GO, Yusuf BM. Adult nephrectomy: our experience at Ile-Ife. Niger J Clin Pract. 2008;11(2):121-6.
5. Omisanjo OA, Ojewuyi OO, Williams OM, Abolarinwa AA, Akinola OO, Adebayo AA, et al. A five-year review of nephrectomies at the Lagos State University Teaching Hospital (LASUTH) IKEJA Lagos. Niger J Med. 2020;29(1):7-10.
6. Rafique M. Nephrectomy: Indications, complications and mortality in 154 consecutive patients. J Pak Med Assoc. 2007;57(6):308-11.
7. Datta B, Moitra T, Chaudhury DN, Halder B. Analysis of 88 nephrectomies in a rural tertiary care center of India. Saudi J Kidney Dis Transpl. 2012;23(2):409-13.
8. Eke N, Echem RC. Nephrectomy at the University of Port Harcourt Teaching Hospital: a ten-year experience. Afr J Med Med Sci. 2003;32(2):173-7.
9. Ojewola RW, Ogunjimi MA, Tijani KH, Jeje EA, Apata KO, Adesiyakan A, et al. Analysis of 87 Nephrectomies in a Tertiary Healthcare Center in Nigeria. Niger Med J. 2022;63(3):181-7.

10. Aghaji AE, Odoemene CA. Renal cell carcinoma in Enugu Nigeria. West Afr J Med. 2000;19(4):254-8.
11. Andualem D, Teklebrihan B, Wuletaw C. Indications, complications and mortality of nephrectomy in Tikur Anbesa General Specialized Hospital. East and Central Afr J Surg. 2012;17(3):92-7.
12. Vricella GJ, Finelli A, Alibhai SM, Ponsky LE, Abouassaly R. The true risk of blood transfusion after nephrectomy for renal masses: a population-based study. BJU Int. 2013;111:1294-300.

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