

## Original Article

### An audit of nephrectomy by General Surgeons

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#### Abstract

**Objective:** To analyse all nephrectomies performed by general surgeons at Usmanu Danfodiyo University Teaching Hospital, Sokoto (UDUTH) over a ten-year period. The setting provided an opportunity to critically examine the process and outcome of nephrectomies done by general surgeons.

**Method :** A retrospectively study of nephrectomies performed by general surgeons in UDUTH in the 10 year period(January 1993 to December 2002).

**Results:** A total of 25 nephrectomies were performed by the general surgeons during the study period. The male to female ratio was 4:1. The indications were renal malignancy in 39.0% of cases others were non-functioning symptomatic hydronephrotic kidneys. Renal function was not assessed in two patients with renal trauma before surgery. In some patients with polycystic renal disease and pelvic- ureteric junction obstruction indication for nephrectomy was not properly described. The disease staging and extent of surgery in patients with kidney cancer were not often stated. In 20% of patients there was significant morbidity and a threat to life and the overall mortality was 13.0%.

**Conclusion:** In the dearth of the urological surgeons in our environment the had to supplement in the occasional care of some urological patients. The best result is outcome is from patients having nephrectomy for non functioning hydronephrotic kidneys. The outcome in the treatment of the congenital renal anomalies, malignant and trauma to the kidney was not satisfactory suggesting the trained urologist will b better equipped to sort things out.

**Keywords:** Audit, Nephrectomy, General Surgeons

#### Introduction

Nephrectomy is a procedure that has been performed not only by urologist but by the general, paediatric, trauma and vascular surgeons<sup>1,2</sup>. The volume of procedures carried out by any surgeon is known to influence the outcome. Generally, the learning curve flattens as the number of procedures learnt increases, especially for the more complex operations<sup>3-6</sup>. The risk of surgical complications was established to be less if nephrectomy for Wilm's tumour was performed by the paediatric surgeon or paediatric urologist but significantly higher if done by a general surgeon<sup>7</sup>. Sub-specialist surgeons are few in many under-developed countries and general surgeons are often called upon to perform nephrectomy when indicated. This has been the case in our centre before the

establishment of a dedicated urology unit. This study will provide an opportunity to critically analyse the process and outcome of nephrectomy as performed by general surgeons within a ten year period in our centre.

#### Materials and Methods:

We retrospectively reviewed the records of all patients who had nephrectomy within the 10 year period between January 1993 and December 2002 at Usmanu Danfodiyo University Teaching Hospital, Sokoto. From the case file were extracted the age, sex indications for nephrectomy, preoperative investigations, status of contra lateral kidney, surgical approach, operative findings, type of nephrectomy,

the operating surgeon and outcome. The process and outcome of nephrectomies as performed by the general surgeons were examined and the results analysed. **RESULTS** There were a total of 33 nephrectomies during the study period, 25 by the general surgeons and 8 by urologist. Five general surgeons did a total of 31 nephrectomies. This gave an average of <1 (0.81) nephrectomy per year per surgeon. The age distribution of patients who had nephrectomy by general surgeons was as shown in figure I. The case files of two patients were missing and could not be further analysed. The indications for nephrectomy were as in table I. The renal function and physiologic anatomy were assessed using serum urea, creatinine and intravenous urography (IVU). The urea and creatinine were reported as normal except in one patient who had a creatinine of 1.7mg% (normal = 0.7 -1.4mg %) and a urea of 9 mmol/l (normal = 2.5 -6.5 mmol/l). Urography was performed in 20 (87.0%) patients, 2 (8.7%) patients had no IVU and in 1 (4.3%) patient, there was no mention of the plan to do his intravenous urography. Packed Cell Volume (PCV) was below 30% in 6 (26.1%) patients with an average PCV of 31.2% for all patients. Five patients (21.7%) had hypertensive which resolved after nephrectomy in 3 patients. The contra lateral kidney was reportedly as polycystic in 1 patient. One patient had ureteropelvic junction obstruction. In two patients with abdominal trauma, urography was not performed before laparotomy. The approaches to the kidney ranged from midline in 6 (26.1%) patients, Para rectal in 4 (17.4%), Paramedian in 5 (21.7%) , transcostal in 5 (21.7%), upper transverse in 1(4.3%) and subcostal in 1 (4.3%) patient to lumbotomy in 1 (4.3%) patient. In eleven (47.8 %) patients nephrectomy was on the right while 12 (52.2%) had it on the left. Nephrectomies were qualified and were usually described as “nephrectomy” on the notes. Radical nephrectomy with ureterectomy was specified in one patient with transitional Cell Carcinoma (TCC) of the kidney. Tumours stage was not indicated in any patient before surgery. All patients with nephroblastoma developed palpable recurrence within 6 months and died within a year. One patient with TCC of the kidney who had adjuvant radiotherapy was alive 5 years after nephrectomy. Most other patients were lost to follow -up. One patient developed contralateral renal pain post nephrectomy due to ureteropelvic junction obstruction not previously identified pre-op and further managed by the urologist. Five patients developed complications including: right pneumothorax, haematoma, reversible renal failure, wound infection or persistent discharge. Three patients died post operatively, giving a

mortality of 13.0%. The patients who died were operated for bilateral polycystic kidney disease, penetrating renal injury from gunshot associated with multiple abdominal injuries and pyonephrosis respectively. 8 nephrectomies were done by the only urologist available for renal cancer but 3 of them died (mortality of 37.3%). There was no statistical difference between the mortality of surgery by urologists and that done by general surgeons ( $\chi^2=1.2372$ ,  $p=>0.05$ )

## Discussion

If practice makes perfect, then it is very hard for a surgeon with a nephrectomy volume of less than 1 per year to be an expert in that operation. Nephrectomy volume in several Nigerian centers is very low<sup>8-10</sup>, most general surgeons in this environment are therefore not expected to be performing several nephrectomies per year. he overall mortality appeared to compare with the mortality rate of patients operated by the urologist in the same setting. It also compared with mortality from another Nigerian centre<sup>8</sup>. The type of patients and the severity of disease may be different for all these groups, the figures are also small. It is, therefore, difficult to draw conclusions from these crude mortality rates. Crude mortality rates from urologic operations could be very misleading unless physiologic status and operative severity are considered at the same time<sup>11</sup>. This could be done using scoring systems like Physiological and Operative Severity Score for the enUmeration of Mortality and morbidity (POSSUM)<sup>12</sup>. These could not be done because several parameters were not available from this retrospective study. What was easily perceivable from this study was the difficulties general surgeons had in the perioperative evaluation of several patients and in the surgical technique with increasing complexity of renal pathology. The Hospital had facilities for estimation of serum urea, creatinine and for intravenous urography. Facilities for isotope renal scans and differential renal function were not available. Urography was not performed in two post traumatic patients prior to laparotomy. The decision to remove one kidney in a patient with bilateral polycystic kidneys without through assessment of renal function of each kidney was difficult to justify. Urologic anomalies are found in 50% of children with Ureteropelvic Junction (UPJ) obstruction<sup>13</sup>. Also UPJ obstruction may be bilateral in 10% to 40% of patients<sup>14</sup>. A nephrectomy may not only be unnecessary but the contralateral borderline abnormality may manifest. This precisely happened with one of the patients. In all the patients with malignancy, there was no clear

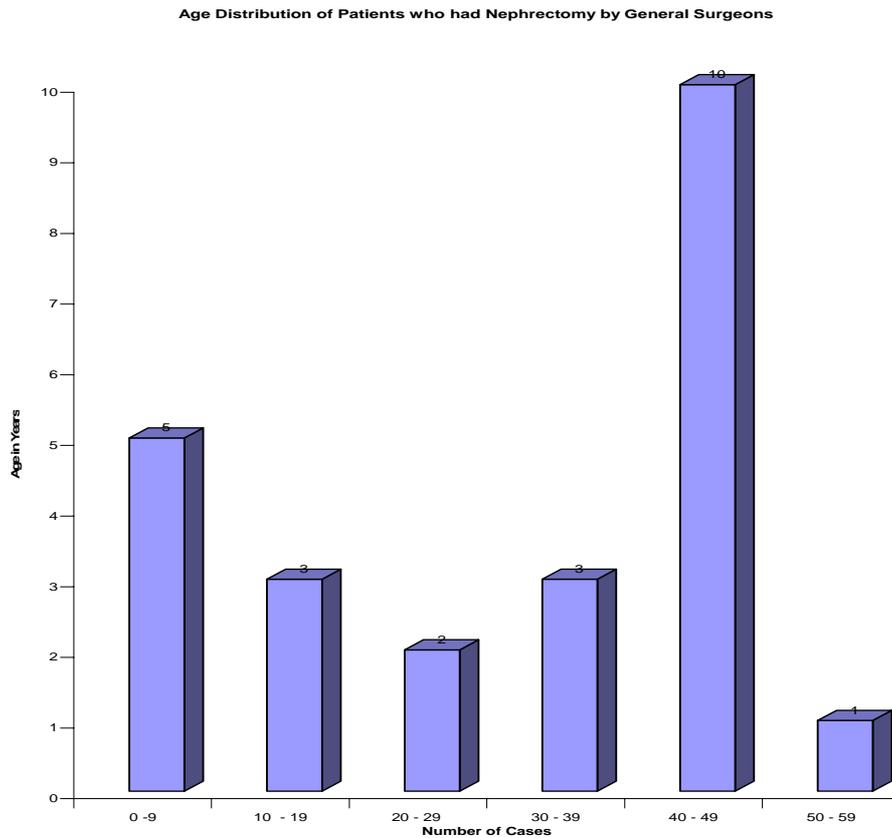


table I: Indications for Nephrectomy

Indication	Number	%
Nephroblastoma	3	13.0
Carcinoma	6	26.1
hydronephrotic	8	34.8
Polycystic disease	2	8.7
Multicystic kidney	2	8.7
Gunshot injury	2	8.7
	<b>23</b>	<b>100.0</b>

attempt to stage the disease. The appropriateness of the procedure was therefore difficult to determine. A working knowledge of vascular repair, renorrhaphy and partial nephrectomy are

imperative as these procedures. increase renal salvage rate<sup>1,2,18</sup> The extent of injury and the haemodynamic stability should guide the surgeon to the option of repair or nephrectomy<sup>19</sup>

The outcome of nephrectomy for trauma is a function of the overall severity of injury and the support available, and not simply a consequence of the nephrectomy<sup>20</sup>. The radical extent of surgery was not stated but could only be inferred from operation notes, and if descriptions were accurate the operations were not radical enough when it was desired. The patients' selection and technicalities of radical nephron sparing surgery for various types and grades of renal tumours are best left for the urologist<sup>15,16,17</sup>. In the absence of dedicated trauma centres in our environment, general surgeons will continue to be compelled to perform nephrectomy in trauma patients. A urography should not be omitted before surgery once renal trauma is suspected. One would be very conservative once the contralateral kidney is

absent or nonfunctioning. We conclude that nephrectomy for symptomatic nonfunctioning kidneys with or without hydronephrosis was straightforward. The exposure, experience and facilities available to a general surgeon should dictate his decision to carry out nephrectomy for trauma. Nephrectomy for congenital renal diseases and tumours should be the domain of a urologist

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