

Open Partial Nephrectomy and NSS In Renal Tumours T1N0M0-60Months Study

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Abstract: Introduction: Radical Nephrectomy was the gold standard for Renal tumours . For small tumours , tumours less than 7 cms Partial nephrectomy or Nephron sparing surgery is becoming the desired option now. After the pioneering work of Puielvert, Czerny, Andrew Novick, Inderbir Gill and many authors, NSS was very simplified, feasible in all Centres.

Materials and Methods: 25 Patients undergoing partial Nephrectomy and NSS for T1N0M0 renal tumours analysed from January 2010 to December 2015 were studied clinically, pathologically with Regular Followup.

Results : The Mean age was 50 ± 3.5 , Mean size of tumour was 3.5, main surgeries performed were: partial polar Nephrectomy 5 , transverse resection 6, wedge Resection 6, segmental resection 5. Techniques used were: clamp method with bulldog clamps with cooling with ice slush were 13, warm ischemia 7 , zero ischemia 5 . mean blood loss was 210 ± 15 ml. mean warm ischemia time was 20 ± 3 mins mean operating time was 160 ± 12 mins. Main Histology was Renal cell carcinoma clear cell type. Surgical margins were negative for tumour cells. No renal insufficiency or distal metastasis or local recurrence in all our patients. Disease free survival and 5 Year over all survival were 98%. **Conclusions:** In selective cases of T1N0M0, we can do safe surgery with excellent results.

Key words: NSS- Nephron sparing surgery, open partial nephrectomy, tumour kidney.

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I. Introduction

In olden days, Radical Nephrectomy were considered as standard for all tumours of kidney. After the pioneering work of pujivert, Czerny (1887) (1), vermooten, Andrew Novick, Inderbir Gill (2) the less morbid , less invasive , partial nephrectomy and Nephron sparing surgery (3) becomes the Gold standard . This is due to the recent advances in Radiology and more and more detection of incidentalomas and skilled surgical techniques available all over the world. We compared with various series and analysed the efficacy and feasibility . we present our 60 months study.

II. Materials And Methods

In this study 25 patients with T1N0M0 analysed between January 2010 to December 2015 from our institution , as prospective . Exclusion Criteria were large tumours, obvious lymphnodes, visceral metastasis, and comorbid significant illnesses. Investigations done were history, clinical examination, basic and specific investigations includes Ultrasonogram, CECT with reconstructed images and CT Angiography, in some MRI.

Surgical procedure

Retroperitoneal, Extrapleural, Extraperitoneal Loin / Flank approach through 11th / 12th rib bed. The overlying fat over the tumour within the Gerota was not disturbed. The renal Hilum was dissected to expose Renal Artery and Vein. Bulldog clamps were applied after adequate hydration and Mannitol diuresis. Ice slush around kidney and dam using Mcintosh for 10 mins. Without clamp, by compression of parenchyma for Haemostasis, we have done five cases. Our various surgeries in partial nephrectomy were, wedge resection, polar resection, Transverse resection, segmental resection with half a cm marginal clearance. Preoperative ureteric catheter helped to identify, tear in pelvi calyceal system. Standard closure with 3-0 or 2-0 delayed absorbable suture with bolsters (gelfoam/surgicel/ muscle) .

III. Results

Our data for the patients are detailed in Table 1.

Total number of patients	25
Average age	50±3.5
Male / Female	18 / 7
Incidentalomas	21
Haematuria	4
Tumour side right / left	17 / 8
Size of tumour	3.5 cms
Lower pole	8
Mid region	11
Upper pole	6

Table 2 Per operative and Peri Operative details with Untoward Incidences

Upper pole nephrectomy	6
Lower pole Nephrectomy	8
Wedge Resection	6
Segmental Resection	5
Vessel control	
Clamp Method with Bulldog	13
Warm ischemia	7
Zero ischemia	5
Ischemia time	
Cold ischemia time	32±4 mins
Warm ischemia time	20 mins
Mean operating time	160±12 mins
Blood loss	210±15 ml
Intra operative complications	
Bleeding	1 (4%)
Post Operative Complications	
Post op haemorrhage	0
Paralytic ileus	2
Wound sepsis	0

Majority of tumours were Incidentalomas . Average size was 3 cms. Vascular control was with Bulldog clamps . mean cold ischemia time was 32±4mins and warm ischemia time was 20 mins. No peri operative complications

Table 3 Pathology in 25 patients of partial Nephrectomy / nephron sparing surgery

Histopathological examination	
Renal cell carcinoma	
Clear cell type	21
Papillary	3
Other- oncocytoma	1
Tumour stage	
T 1a N0 M0	23
T 1b	2

Our mean follow up was 60 months. No recurrence. No morbidity. Overall survival and disease free survival 98%.

IV. Discussion

Indications for partial Nephrectomy or nephron sparing surgery is solitary kidney tumours, bilateral tumours, now upto 7 cms T1b tumours nephron sparing surgery or partial nephrectomy is done(1,19). For localized renal tumours from Czerny (1) to recent contemporary authors, nss is the treatment of choice with comparable survival benefits. The safety and decreased preoperative and perioperative morbidity are well explained by recent advances in every field(2). Pioneers in nss well described the important steps in open partial nephrectomy which are followed in laparoscopic approach(3). The short term advantages of laparoscopic and long term benefits in terms of renal insufficiency are well shown by pundits in laparoscopic surgery and open surgeries.(4) regardless of tumour location central or peripheral if nss offered in carefully selected cases, the results are the same irrespective of tumour location and extent in T1 renal tumours. The margin for tumour excision , recommendation is 0.5cms away from the tumour in all nss.(5) The increased incidences of incidentalomas in kidneys due to advances in radiology and urological practice and advanced armamentarium makes nss simple to learn even for novice surgeon.(6),(17). Cryoablation, radiofrequency ablative techniques are not gaining enthusiasm as the tumour is not removed. Fear of tumour recurrence makes extirpative surgery more feasible in all age groups, hence partial or nephron sparing surgery have become popular.(11, 12).

After the usage of barbed sutures, delayed absorbable sutures, bolsters and clips, the blood loss is very minimal and complications are negligible(8),(9). Haemorrhage, urinary fistula, in our series, no case was reported. Peroperative evaluation with dye helped in perfect closure of pelvi calyceal system.(10)

In partial or nephron sparing surgery, main problem is margin clearance. In our and contemporary series, careful marking of margins and staying half a centimeter away from the tumour made all our patients tumour free with longterm survival(13,14,15). The sixty months followup clearly showed 98% overall survival rate and disease free survival.

Radical nephrectomy patients may progress to renal insufficiency due to borderline kidney problems in opposite kidney(16,18). This may be prevented by nephron sparing procedures. In doubtful, borderline cases the highest functional status of renal parenchyma by NSS makes the patient to live long without renal insufficiency especially in small incidentalomas.(20)

V. Conclusions

Elective Open partial Nephrectomy or Nephron sparing surgery is a good, safe, possible, feasible surgery for T1N0M0. Mainly solitary, tumours less than 7cms, without metastasis, minimal ablation gives maximal outcome in terms of survival and disease free interval.

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