

CASE REPORT

Bilateral Nephron Sparing Surgery for Patient with Bilateral Wilms Tumor

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ABSTRACT:

Synchronous bilateral Wilms tumors occur in 5% to 7% of children with Wilms tumor. Children with bilateral tumors should not undergo initial radical nephrectomy. These children should receive preoperative chemotherapy with the goal of tumor shrinkage and renal-sparing surgery. Preservation of renal tissue is important to decrease the incidence of renal failure.^(1,2)

We report the case of bilateral renal sparing surgery for 5 years old child with bilateral wilms tumor (Stage 5) nephroblastoma.

KEYWORDS: wilms tumors, nephroblastoma, partial nephrectomy.

INTRODUCTION:

Nephron-sparing surgery for the treatment of a renal tumor was first described by Czerny in 1890. However, high morbidity limited its application. In 1950, Vermooten suggested that peripheral encapsulated renal neoplasms could be excised locally while leaving a margin of normal parenchyma around the tumor.

Interest in partial nephrectomy for renal tumors has been stimulated by advances in renal imaging, experience with renal vascular surgery, improved methods of preventing ischemic renal damage.

Accepted indications for Partial nephrectomy (PN) traditionally included situations in which Radical Nephrectomy would render the patient anephric or at high risk for ultimate need of dialysis.⁽³⁾

CASE REPORT:

A 5 years old male child presented with history of bilateral Wilms tumors (Stage 5). Received 4 weeks neoadjuvant chemotherapy with Vincristine and Actinomycin after percutaneous fine needle aspiration diagnosis. Computerized Tomography Scan (CT scan) was performed before and after chemotherapy was showed decrease in tumor size in both kidneys. (Figures 1, 2).

After full Clinical and laboratory evaluation, the patient underwent Bilateral Nephron sparing surgery (partial nephrectomy) in two separate sessions in the department of urology, Surgical specialities hospital, Medical City.

The Essential steps in partial nephrectomy include: Trans peritoneal approach, Full Renal mobilization, Ureteral and vascular dissection, Temporary occlusion of the vascular pedicle, Renal hypothermia by surface cooling of the kidney with ice slush, excision of the tumor with a rim of normal parenchyma, Closure of the collecting system with interrupted or running 4-0 monocryl suture, figure eight ligation of the transected vessels with non absorbable suture, Paranchymal approximation, Capsular reconstruction (Renoraphy) and omental interposition. Intra operative frozen section analysis was performed to ensure negative surgical margins. (Figure 3,4,5,6).



Figure 1: Pre op CT scan. Figure



2: Post Chemotherapy CT scan

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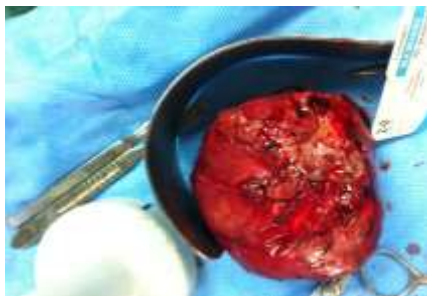


Figure 3 : Left renal Tumor



Figure 4: Left kidney after removal of the tumor
(note the omental interposition) .



Figure 5: Right renal tumor.



Figure 6 : Right kidney after tumor removal

Both procedures were performed under general anesthesia with 6 weeks apart , no intra operative or post-operative complications was reports ,The Blood loss was ranged about (200 – 350 ml) .The operative time was ranged between (90-160 minutes) , hospitalization was ranged between (2- 3 days) for the right and left procedures respectively. DJ stent was used for Lt Side because of large tumor burden .The mean Cold Ischemic time was (27 – 43 minutes). For the right and left procedures respectively. Drain was removed when it became nonfunctioning. (Less than 75 ml out pot /24 hours). Patient discharged well with smooth post-operative period.

DISCUSSION:

In patients with bilateral Wilms tumors, the general approach has been to preserve as much functioning renal tissue as possible. This entails performing bilateral partial nephrectomies when feasible, usually as staged procedures⁽⁴⁾ ,When a locally extensive tumors precludes nephron-sparing surgery, Neo adjuvant chemotherapy after percutaneous histological diagnosis can be used to downsizing the tumor mass according to different protocols (SIOP,NWTs). Nephron sparing surgery then can be performed later.^(5,6)

Partial nephrectomy (PN) is now standard of care for the management of clinical T1 renal masses in adult in the presence of a normal contra lateral kidney, presuming that the mass is amenable to this approach. But in cases of Wilms tumors it usually indicated for bilateral tumors or tumor in a solitary kidney because most of wilms tumors are too large at diagnosis to allow partial nephrectomy and after pre operative chemotherapy, partial nephrectomy can be performed in 10 to 15% of those patients^(7,8) .The lesion should be completely excised with a margine of normal renal paranchyma. Surface cooling of the kidney with ice slush allows up to 3 hours of safe cold ischemia without permanents renal injury , The entire kidney should be covered with ice slush after the renal artery occluded and before the partial nephrectomy is begun to obtain core renal cooling to a temperature (approximately 20oC) that optimize renal preservation.⁽³⁾

One of the largest reported studies of nephron-sparing surgery is from the Cleveland Clinic and reviewed the results of PN for the treatment of localized, sporadic Renal tumors in 485 patients, The mean postoperative follow-up was 4 years, and overall and cancer-specific 5-year survival rates for

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patients in this series were 92% Recurrent Renal tumors developed postoperatively in (9%) . These data confirm that nephron-sparing surgery provides effective long-term therapy for patients with localized RCC and can preserve renal function in the over whelming majority.^{(9,10).}

CONCLUSION:

Nephron sparing surgery with or without pre op chemotherapy is one of the important surgical options that should be considered for the treatment of patient with bilateral renal tumors.

REFERENCES:

1. Davidoff AM, Giel DW, Jones DP, et al. The feasibility and outcome of nephron-sparing surgery for children with bilateral Wilms tumor. The St Jude Children's Research Hospital experience: 1999–2006. *Cancer* 2008;112:1877–78.
2. Mitchell C, Pritchard-Jones K, Shannon R, et al. Immediate nephrectomy versus preoperative chemotherapy in the management of non-metastatic Wilms' tumour: results of a randomised trial (UKW3) by the UK Children's Cancer Study Group. *Eur J Cancer* 2006;42:2554–62.
3. Steven C. Campbell, MD, PhD 1 Brian R. Lane, MD, PhD, Malignant Renal Tumors, *Campbell urology* , 2011;49 :1452 -54.
4. D'Angio G ; Pre- or post-operative treatment for Wilms' Tumor? Who, what, when, where, how, why and which. *Med PediatrOncol* 2010;41:545–49.
5. Reinhard H et al. Results of the SIOP (international Society of pediatric oncology)/GPOH trial and study for the treatment of patients with unilateral non-metastatic Wilms tumor. *KlinPadiatr* 2009;216: 132–40.
6. Green DM et al. ; The treatment of Wilms tumor: results of the National Wilms Tumor Studies *HematolOncol Clin North Am* 2006;9:1267–74.
7. Shamberger RC,Guthrie KA,Ritchey MI , et al .Surgery related factors and local recurrence of wilms tumor in national wilms tumor study4 . *Ann Surg* : 1999; 7:229:92.
8. Michael L. Ritchey,MD,FAAP,FACS ,Rober C.Chamberger,MD ;Pediatric urological oncology, *Campbell urology* , 2011;137:3696 - 30.
9. Nguyen CT, Campbell SC, Novick AC. Choice of operation for clinically localized renal tumor. *Urol Clin North Am* 2008;35:645–55.
10. Hafez Ks ,Novick AC ,Campbell SC : Pattern of the tumor recurrence and guide line for follow up after nephron sparing surgery for sporadic renal cell carcinoma *urology* 2007;157:2067.