

PARTIAL NEPHRECTOMY FOR WILMS TUMOR

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ABSTRACT

We report a case of a left Wilms tumor that was treated successfully by partial nephrectomy. The advantages and disadvantages of this approach are discussed.

Since the first description in 1878 of nephroureterectomy for Wilms tumor by Kocher and Langhans¹ this operation has been regarded as essential in the surgical treatment of nephroblastoma. The addition of radiotherapy in 1916² and chemotherapy in 1955³ has not changed the place of nephroureterectomy in the treatment of Wilms tumor. The surgical technique has been improved and multimodal therapy has been optimized but the need for complete removal of the affected kidney has never been questioned.

However, there have been favorable results reported following partial nephrectomy for bilateral⁴⁻⁷ and congenital⁸ or acquired⁷ unilateral Wilms tumor, which have raised the question of whether a more conservative approach should be adopted, even for unilateral cases with an unaffected contralateral kidney.⁷ We report a case of unilateral Wilms tumor treated by partial nephrectomy. The patient is alive with no evidence of residual disease for more than 6 years.

CASE REPORT

A 2-year 9-month-old girl underwent exploratory laparotomy on April 23, 1979 for a left flank abdominal mass, which proved to be a Wilms tumor of the inferior pole of the kidney (fig. 1). The line of demarcation between the tumor and kidney was defined sharply and clearly. Therefore, partial nephrectomy was performed with complete removal of the tumor together with some adjacent apparently normal renal parenchyma (fig. 2). Microscopic examination of the specimen revealed nephroblastoma of the blastomatous type without anaplasia (fig. 3). No evidence of tumor was found at the line of resection, and staging biopsies and regional nodes were negative.

The patient received 2,080 rad radiotherapy to the operative site for 4 weeks. Chemotherapy, consisting of 0.05 mg./kg. vincristine on day 1 and 15 mcg./kg. actinomycin D on days 2, 3, 4, 5 and 6, was given every 2 months 1 and 2 years postoperatively, every 3 months at 3 years and every 6 months at 4 years. The initial course of chemotherapy had been given during the operation. Also, single doses of vincristine were given between cycles, weekly during the first 2 months postopera-

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FIG. 2. Tumor and inferior pole of kidney resected



FIG. 1. Tumor (right) involving inferior pole of kidney (left)

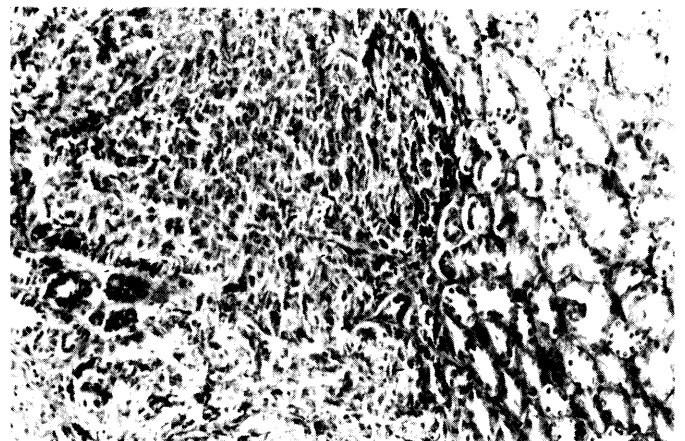


FIG. 3. Microscopic aspects of normal kidney (right) and neoplastic tissue (left).

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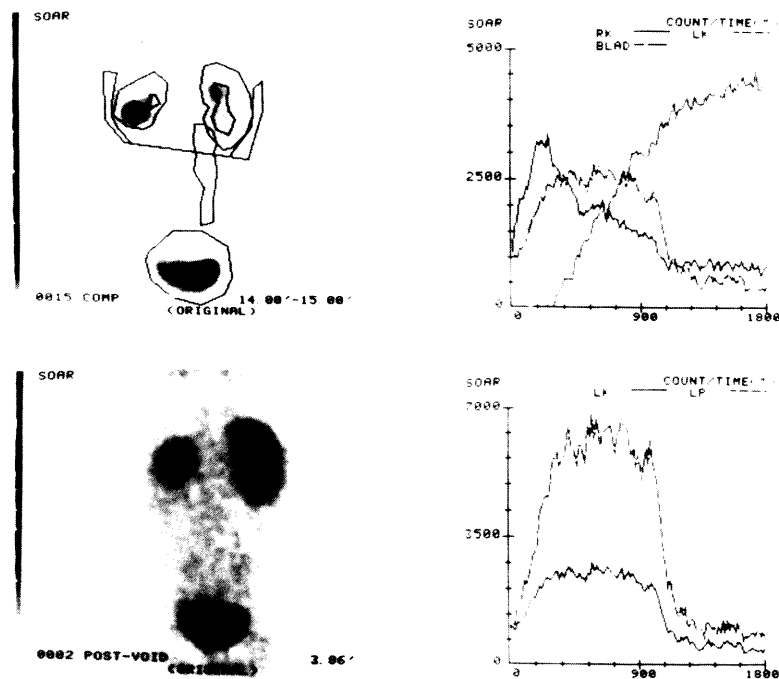


FIG. 4. Renal radionuclide imaging 4 years postoperatively

tively, every 2 weeks during year 1, every 4 weeks during year 2 and every 6 weeks during year 3.

The patient was well 74 months postoperatively. Renal radionuclide imaging at 4-year followup showed satisfactory activity of the residual left kidney (fig. 4).

DISCUSSION

This case emphasizes the feasibility of a less aggressive approach in the surgical treatment of Wilms tumor, which is particularly desirable in children. The advantages of partial nephrectomy consist of maintaining a larger number of functional nephrons, less impairment of renal function and avoiding the need for dialysis or renal transplantation if pathological or traumatic injury to the contralateral kidney should occur.⁷ The disadvantages include the risk of inadequately removing the neoplastic mass and leaving islets of neoplastic tissue in the remaining parenchyma. Therefore, indications for partial nephrectomy must be weighed carefully against those for standard total nephrectomy.

The final decision as to which technique to use lies in the intraoperative evaluation of whether partial nephrectomy can offer complete removal of the tumor, somewhat comparable to that achieved with total nephrectomy. In our opinion, as well as that of others,⁷ partial nephrectomy could be considered when 1) the tumor is well localized to a single pole with sharp demarcation between the neoplastic and normal parenchyma,

2) the portion of the kidney remaining after resection makes this choice worthwhile, and 3) the capsule and vessels of the kidney are not grossly invaded, and the nodes are not involved. Tumors that reveal patterns of unfavorable histology at frozen section probably need a more aggressive approach, that is nephrectomy.

REFERENCES

1. Kocher, T. and Langhans, T.: Eine Nephrotomie wegen Nierensarkom. Zugleich ein Beitrag zur Histologie des Nierenkrebses. *Dtsch. Ztsch. Chir.*, **9**: 312, 1878.
2. Friedlander, A.: Sarcoma of the kidney treated by the roentgen ray. *Amer. J. Dis. Child.*, **12**: 328, 1916.
3. Collins, V. P.: Wilms' tumor: its behavior and prognosis. *J. Louisiana Med. Soc.*, **107**: 474, 1955.
4. Bishop, H. C., Tefft, M., Evans, A. E. and D'Angio, G. J.: Survival in bilateral Wilms' tumor—review of 30 National Wilms' Tumor Study cases. *J. Ped. Surg.*, **12**: 631, 1977.
5. Garrett, R. A. and Donohue, J. P.: Bilateral Wilms' tumors. *J. Urol.*, **120**: 586, 1978.
6. Wasiljew, B. K., Besser, A. and Raffensperger, J.: Treatment of bilateral Wilms' tumors—a 22-yr experience. *J. Ped. Surg.*, **17**: 265, 1982.
7. Gruner, M., Chaouachi, B., Bitker, M. and Gibbod, L. B.: La place de la chirurgie conservatrice dans le traitement des néphroblastomes. *J.d'Urol.*, **88**: 223, 1982.
8. Pellerin, D. Cited by Aubert, J.: La chirurgie du rein unique. *J. Urol. Nephrol.*, suppl. 1, **85**: 1, 1979.