

[Is nephron-sparing surgery relevant for unilateral Wilms tumors?]

[Article in French]

[Tricard T](#)¹, [Lacreuse J](#)², [Louis V](#)², [Schneider A](#)², [Chaussy Y](#)³, [Soler L](#)⁴, [Moog R](#)², [Lang H](#)⁵, [Jacqmin D](#)⁵, [Becmeur F](#)².

Author information

Abstract

BACKGROUND: Wilms tumors (WTs) are the most frequent renal tumors in children. Radical nephrectomy (RN) remains the gold-standard surgical treatment for this type of cancer. Excellent results in overall survival (>90%) make it possible to consider nephronic preservation. The objective of this systematic review is to evaluate the relevance of nephron-sparing surgery (NSS) for the treatment of nonsyndromic unilateral Wilms tumor (UWT) in children.

METHODS: Articles in English related to "unilateral Wilms tumor, unilateral nephroblastoma, partial nephrectomy, nephron-sparing surgery, renal function" identified in the Medline library were screened and data were extracted to perform a qualitative systematic review.

RESULTS: We identified 377 articles, 14 of which were integrated into the analysis. Data on 4288 children were included, 3994 (93.1%) underwent RN, whereas 294 (6.8%) underwent NSS. Stage I anatomopathology resulted in 55.1% RN and 79% NSS. Overall survival and event-free survival were similar: respectively 95.7% and 92.8% after RN and 96 and 90.5% after NSS. Positive margin status was higher after NSS (8.5% vs 0.5%), but tumor rupture and local tumor recurrences were similar. The rate of mild to moderate renal function was higher after RN (42% vs 10% after NSS).

DISCUSSION: NSS is regularly performed for WT in case of bilateral or syndromic tumors, but the literature considering UWT does not show consensus. The superiority of NSS for renal outcomes has now been fully evaluated, but the main problem of this surgery in case of UWT is to ensure oncologic outcomes as good as outcomes after RN. WTs are usually massive tumors for which partial nephrectomy is contraindicated, but studies showed that chemotherapy before surgery could reduce tumor volume and make NSS possible. This review shows that NSS results seem to be as good as RN results and that preoperative chemotherapy should be highlighted for its participation in the reduction of the positive margin status. Although radiotherapy is used with caution because of its side effects, some studies showed that it gave excellent results for oncologic salvage after local recurrence. Constant progress in medical imaging and detection systems has led to the emergence of a new type of assistance for surgeons such as image reconstruction and vessel or urinary tract system segmentation. Virtual simulation of the operation based on a real case should help evaluate the feasibility of complex procedures in the near future.

CONCLUSION: NSS for UWT seems to be a credible therapeutic alternative. New technologies such as 3D reconstruction should help surgeons define the best parameters to select ideal tumors for this surgery in the near future. For the moment, small tumors (<4cm), distant from the renal

hilum (ideally on the upper pole) that respect at least 50% of the renal parenchyma (ideally superficial with exophytic development) seem to be the perfect indication for NSS.

Copyright © 2017 Elsevier Masson SAS. All rights reserved.

PMID: 28576587 DOI: [10.1016/j.arcped.2017.04.003](https://doi.org/10.1016/j.arcped.2017.04.003)

[Indexed for MEDLINE]