



Case Report

Renal Sparing Surgery Using Focus Ultracision Harmonic Scalpel in Patients with Bilateral Wilms' Tumor: Case Report

Murat Alkan, Cemal Parlakgümüş, Serdar Hilmi İskit, Recep Tuncer, Hasan Okur, Ünal Zorludemir

Department of Pediatric Surgery, Çukurova University Faculty of Medicine, Adana, Turkey

ABSTRACT

Background: Bilateral Wilms' tumor is rare and surgical treatment requires an individual approach. Surgical approach to the tumors located in the central part of the kidney represents a major challenge and nephrectomy is usually essential. Renal sparing surgery is difficult in such cases.

Case Report: We describe a 3 year-old female patient with bilateral Wilms' tumor arising in the central localisation of the right and foci in the left kidney enucleated successfully with a simple and comfortable renal preserving operative technique using Focus Ultracision Harmonic Scalpel.

Conclusion: In cases when tumors are located in the central part of the kidney and partial nephrectomy is consequently very difficult, the use of a Focus Ultracision Harmonic Scalpel provides easy dissecting, enucleation, and excision of the tumor.

Key Words: Bilateral Wilms' tumor, renal sparing, harmonic

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Introduction

Wilms' tumor accounts for about 5%-10% of all paediatric malignancies (1); Bilateral Wilms' Tumor (BWT) accounted for 5% of all patients registered to the National Wilms Tumor Study Group (NWTSG) (2). Although the management of a child with BWT is very challenging, surgical resection of the tumor remains the cornerstone of the treatment while preserving renal function. The aim of this study is to present easily performed enucleation of a central tumor in BWT with the Focus Ultracision Harmonic Scalpel (HS) (Ethicon Endo-Surgery Inc., Cincinnati, OH, USA).

Case Report

A 3 year-old female patient was referred to our clinic with BWT. Ultrasonographic evaluation revealed a 31x35 mm tumor in the central part of the right and 9x8 mm tumor coming out of the upper pole of the left kidney. According to NWTSG recommendations, pre-operative 7-cure chemotherapy was given. After chemotherapy, control computed tomography showed that the lesion was regressed in the left kidney and a mass with a diameter of 2 cm remained in the central part of the right kidney. During laparotomy, pale residue foci in the upper pole of the left kidney and the mass in the central part of the right kidney were examined. First of all, pale residue foci were marked out with a rim of healthy parenchyma with electrocautery. Then, with HS, all foci were enucleated from the left kidney (Figures 1 and 2); subsequently, the right kidney was fully exposed. The renal vessels and the pelvis were identified and controlled. Marking with electrocautery, with a

margin of normal parenchyma around the central tumor, the tumor was enucleated with HS comfortably (Figures 3 and 4). Even though there was no urinary leakage or bleeding, we filled the defect with omentum to provide additional haemostasis and block the urinary leakage. The post-operative period was uneventful.

Discussion

The treatment of BWT aims at maximal conservation of uninvolved renal parenchyma, in order to salvage renal function. Surgical treatment consisted of unilateral nephrectomy with contralateral partial nephrectomy if partial nephrectomy is possible in one of the two kidneys. Tumors located in the central part of the kidney do not allow partial nephrectomy. Then, as a last resort, enucleation of the tumor or bilateral nephrectomy can be considered. From a surgical standpoint, enucleation of the tumor means performing tumorectomy with a safe margin that preserves functional renal parenchyma. In BWT, the goal of enucleation should be excision of all tumors with safe margins in both kidneys. Recent studies revealed significant postoperative morbidity, recurrence and mortality, even with partial nephrectomy for BWT. Because of significant postoperative morbidity, the management has evolved from partial nephrectomy to renal-sparing surgery (3, 4).

HS can be used for both open and endoscopic surgical procedures; it cuts through tissue by vibrating in the range of 55.500 Hz. The vibration cuts through the tissue and seals it using protein denaturation, rather than heat. The shape of the instrument is like a 'Kelly clamp', and



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Address for Correspondence: Dr. Murat Alkan, Department of Pediatric Surgery, Çukurova University Faculty of Medicine, Adana, Turkey.

Phone: +90 322 338 60 60 e-mail: drmuratakan@hotmail.com

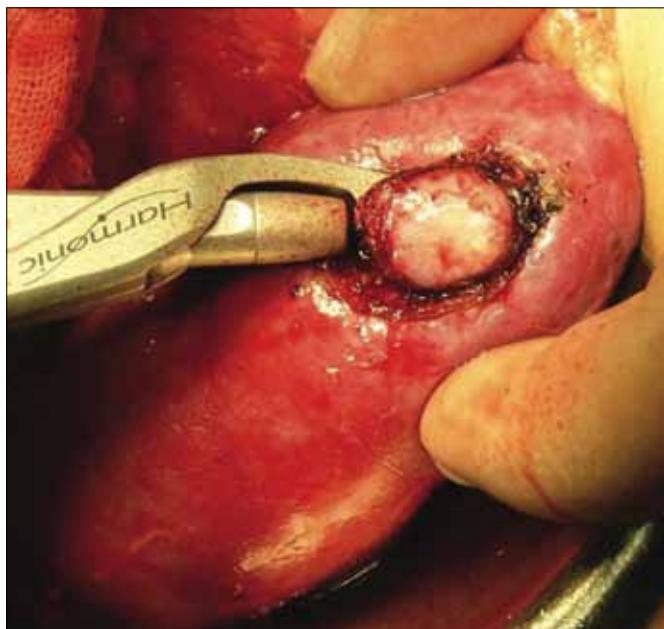


Figure 1. Enucleation of the focus with Focus Ultracision HS from the left kidney.

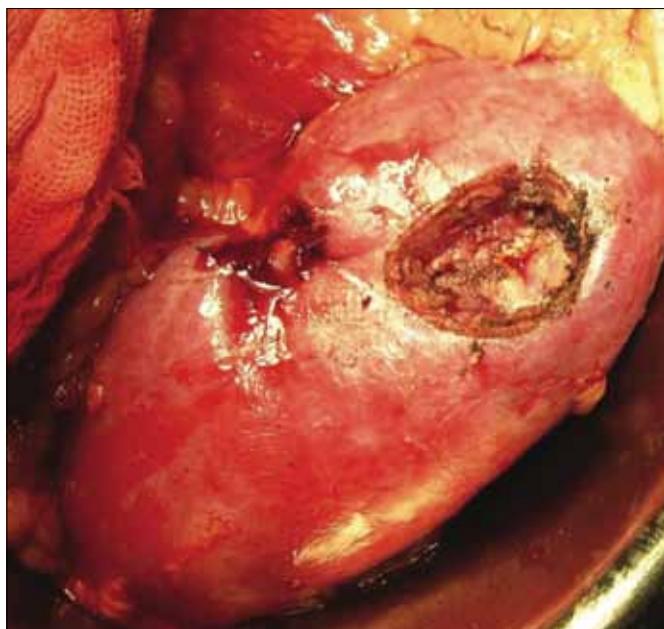


Figure 2. After enucleation of the focus with Focus Ultracision HS.

facilitates easy dissection in a small surgical area. Several reports have been published describing the safety, advantages and experience of HS usage for surgeries in several anatomical regions, such as thyroid surgery (5), cholecystectomy (6), neck lymphadenectomy (7), radical mastectomy (8), partial splenectomy (9), gastric surgery (10) and renal tumor operations which preserve the kidney (11-13). In our case, the central location of the tumor forced us to perform renal-sparing surgery. Focus Ultracision HS facilitated comfortable dissection of the central located tumor without bleeding or urinary leakage.

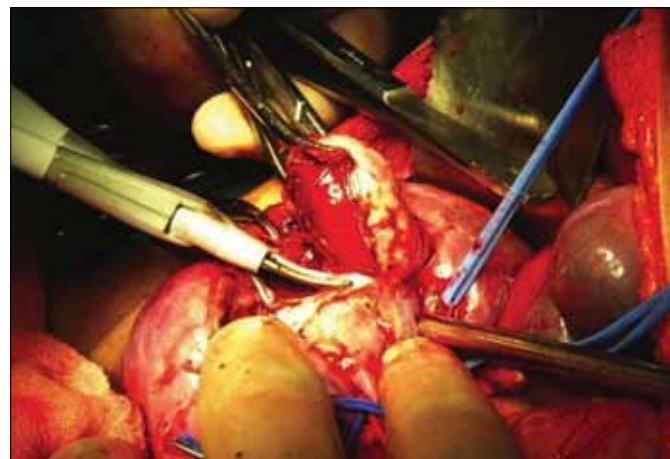


Figure 3. Enucleation of the tumor with Focus Ultracision HS from the right kidney.

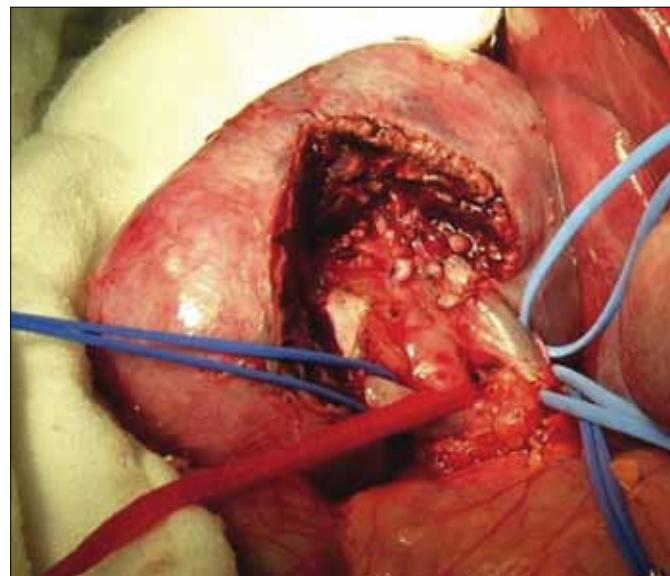


Figure 4. After enucleation of the tumor with Focus Ultracision HS.

In cases when tumors are located in the central part of the kidney and partial nephrectomy is consequently very difficult, the use of HS provides easy dissection, enucleation, and excision of the tumor.

Ethics Committee Approval: Ethics committee approval was received for this study.

Informed Consent: Written informed consent was obtained from the patient.

Peer-review: Externally peer-reviewed.

Author contributions: Concept – M.A.; Design - M.A., C.P., S.H.i.; Supervision - Ü.Z., R.T., S.H.i.; Resource - S.H.i.; Materials - M.A., C.P., S.H.i.; Data Collection&/or Processing - M.A., S.H.i., C.P.; Analysis&/or Interpretation – M.A. C.P., S.H.i.; Literature Search - M.A.; Writing - M.A., S.H.i.; Critical Reviews - S.H.i., Ü.Z.

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