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RESECTION TECHNIQUES FOR NEPHRON SPARING SURGERY VARY: INSIGHTS FROM A PROSPECTIVELY COLLECTED MULTI-INSTITUTIONAL COHORT HARNESSING THE SURFACE-INTERMEDIATE-BASE (S.I.B.) MARGIN SCORE (SIB INTERNATIONAL CONSORTIUM)

R. Campi, A. Mari, O. De Cobelli, F. Sanguedolce, G. Hatzichristodoulou, A. Antonelli, B. Lane, B. Akdogan, U. Capitanio, M. Marszalek, A. Volpe, N. Karakoyunlu, H. Langenhuijsen, T. Klatte, O. Rodriguez-Faba, S. Brookman-May, M. Roscigno, R. Uzzo, M. Carini, A. Kutikov, A. Minervini (*Firenze*)

Aim of the study

Resection methodology is rarely reported in current nephron sparing surgery (NSS) literature. We introduce the concepts of resection strategy (RS, the surgeon's preoperative intent) and resection technique (RT, the actual surgical result) to describe the complexity of TE during PN in a standardized way (Figure 1). The aim of the study is to evaluate the newly proposed Surface-Intermediate-Base (SIB) Margin score as a standardized reporting system of RT in a cohort of patients undergoing NSS at 16 high-volume Centers across the U.S. and Europe and to describe a step-by-step tutorial guide for SIB score assignment.

Materials and methods

After institutional review board approval, data were prospectively collected over a 6 months enrollment period. The SIB score assignment involves 6 steps: 1) identification of the intrarenal portion of the tumor, 2) delineation of the surface, intermediate and base areas, 3) identification of the score-specific areas (SSA), 4) visual definition of the RT within the SSA, 5) grading of the SSAs and 6) classification of the overall RT according to the SIB score sum.

Results

507 patients were finally enrolled in the study. The mean number of patients included per center was 32 (range 11-90). A mix of open (150, 29,4%), laparoscopic (67, 13,2%) and robotic (290, 57%) approaches were harnessed for NSS. Median (IQR) preoperative tumor size for the entire cohort was 3,10 cm (2,50 – 4,30). Based on the PADUA score, 195 (38,5%), 188 (37,1%) and 114 (22,5%) tumors were classified as low (PADUA 6-7), moderate (PADUA 8-9) and high (PADUA 10-13) complexity tumors, respectively. At pathological analysis, 30 (5,9%) positive surgical margins were recorded. Overall, the Trifecta outcomes (defined as absence of perioperative complications, negative surgical margins and WIT < 25 min) were achieved in 370 (73%) of patients. A snapshot of RTs performed in the entire cohort according to the SIB margin score is presented in Fig. 1. The overall RT was classified as pure enucleation (SIB 0-1), hybrid enucleation (SIB 2), pure enucleoresection (SIB 3), hybrid enucleoresection (SIB 4) and resection (SIB 5) in 174 (34,3%), 92 (18,1%), 106 (20,9%), 44 (8,7%) and 91 (17,9%) patients, respectively.

Discussion

We recently introduced a standardized scoring system, the SIB Margin score, which quantitates the salient aspects of resection approaches after PN through a visual analysis of the intrarenal portion of the specimen immediately after surgery. Harnessing this systematic characterization of renal mass RTs, we for the first time demonstrated in an international multi-institutional cohort that resection approaches vary and that renal tumor enucleation is employed quite frequently even at institutions that do not support its ubiquitous use.

Conclusions

We believe both RS and RT should always be reported in future PN series. Our data lay the groundwork for determining whether RT is a modifiable variable for functional and oncologic outcomes in patients who undergo NSS.