Introduction: Detailed reporting of resection strategies (RS) and resection techniques (RT) for tumor excision during partial nephrectomy (PN) is lacking in the current literature. The aim of the study was to evaluate (i) possible correlations between patients' and/or tumors' characteristics and RT performed and (ii) whether the type of RT does influence perioperative outcomes after PN, harnessing the newly proposed Surface-Intermediate-Base (SIB) margin score as a standardized reporting system. *Materials and Methods:* After Institutional Review Board's approval, data were prospectively collected from a cohort of 507 patients undergoing NSS at 16 high-volume Centers across the U.S. and Europe over a 6-month enrollment period. RT was classified according to the SIB score. RS was classified as "enucleative", "enucleoresective" or "resective" according to the most prevalent RT performed in each centre's cohort. Descriptive and comparative analyses were performed in the six enucleoresective RS centres (ERC). *Results:* Overall, 507 patients were finally enrolled in the study. The RT was classified as pure or hybrid enucleation (E, SIB 0-2), pure or hybrid enucleoresection (ER, SIB 3-4) and resection (R, SIB 5) in 266 (52.5%), 150 (29.6%) and 91(17.9%) patients, respectively, in the overall cohort, while in 53 (33.1%), 83 (51.9%) and 24 (15.0%) patients in the ERC. Demographic data, comorbidity scores, surgical indication and approach and PADUA score did not significantly differ between the E, ER and R groups in the ERC. Tumors >4.0 cm were 21 (40.4%), 41 (49.4%) and 4 (16.7%) in the E, ER and R groups (p=0.02), respectively. A clampless strategy was used in 19.2%, 13.2% and 8.3% of patients (p>0.05). Median warm ischemia time (WIT) was 19 (15-24), 17 (14-23) and 17 (15-21) minutes in the E, ER and R groups (p>0.05). Surgical post-operative complications were recorded in 7.5%, 13.2% and 4.2% of patients (p=0.05). Positive surgical margin rate was 7.0%, 13.4% and 0% of patients, respectively (p>0.05). Trifecta outcome was achieved in 67.2%, 71.6% and 73.7% of patients for the E, ER and R groups (p>0.05). Discussion and Conclusions: This is the first study evaluating pre-operative predictive factors of RTs performed during PN and whether the type of RT significantly impacts on NSS outcomes using a standardized instrument of reporting. Overall, in ERC, ER represents less than 52%. ER and E are performed in a significantly higher proportion of tumors >4 cm compared to R. Relating to surgical outcomes, ER was associated with a significantly higher rate of post-operative surgical complication compared to E and R. However, Trifecta achievement was comparable among the three techniques.

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RESECTION TECHNIQUES FOR NEPHRON SPARING SURGERY VARY: INSIGHTS FROM A PROSPECTIVELY COLLECTED MULTI-INSTITUTIONAL COHORT HARNESSING THE

SURFACE-INTERMEDIATE-BASE (SIB) MARGIN SCORE (SIB INTERNATIONAL CONSORTIUM)

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Introduction/Aim: Resection methodology is rarely reported in current nephron-sparing surgery (NSS) literature. Yet, a

relationship between resection technique (RT) and complication rates, preserved parenchymal volume, surgical margins and oncologic outcomes likely exists. The aim of the study was 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. *Materials and Methods:* After Institutional Review Board's approval, data were prospectively collected over a 6-month enrollment period. *Results:* A total of 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. The median interquartile range (IQR) of pre-operative 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 warm ischemia time (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 Figure 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. *Conclusion:* Standardized reporting of resection technique is lacking in the current NSS literature. 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, in an international multi-institutional cohort, we -for the first time-demonstrated that resection approaches vary and renal tumor
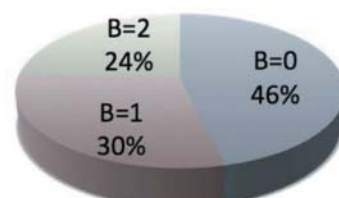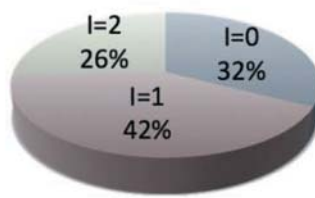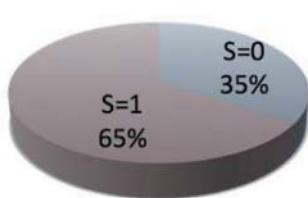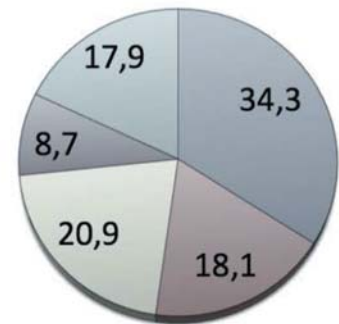

Figure 1. *Snapshot of RTs performed in the entire cohort according to the SIB margin score is presented.*

enucleation is employed quite frequently even at institutions that do not support its ubiquitous use. These data lay the groundwork for determining whether RT is a modifiable variable for functional and oncologic outcomes in patients who undergo NSS.

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ENDOSCOPIC ROBOT-ASSISTED SIMPLE ENUCLEATION (ERASE) *VS*. OPEN SIMPLE ENUCLEATION (OSE) FOR THE TREATMENT OF CLINICAL T1 RENAL MASSES: ANALYSIS OF PREDICTORS OF TRIFECTA OUTCOME

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Aim: The aim of this study was to analyse the intra- and post-operative complications, as well as the predictive factors of Trifecta outcome in patients submitted to endoscopic robot-assisted simple enucleation (ERASE) and open simple enucleation (OSE) for clinical T1 renal masses. *Materials and Methods:* Overall, 634 cases treated with OSE (n=290) and ERASE (n=344) were prospectively recorded in our Department between 2006 and 2014. Trifecta was defined as simultaneous ischemia time <25 min, no surgical complication and negative surgical margin. A univariate analysis and multivariate logistic regression were performed for Trifecta. *Results:* The two groups were comparable for body mass index (BMI), comorbidity, tumor side, clinical T score, tumor diameter, surgical indication, pre-operative renal function, pre-operative hemoglobin and hematocrit. A significant difference was found between the OSE and the ERASE groups in operative time (115 (96-130) *vs*. 150 (120-180) minutes, $p<0.0001$), pedicle clamping (93.8% *vs*. 69.2%, $p<0.0001$), estimated blood loss (EBL) (150 (100-200) *vs*. 100 (100-143) cc, $p<0.0001$) and intraoperative complications (3.4% *vs*. 1.7%, $p=0.02$). The two groups were comparable for warm ischemia time (WIT) ≥25 min. A significant difference was found between OSE and ERASE in overall (16.6% *vs*. 5.5%, $p<0.0001$), Clavien 2 (11.7% *vs*. 4.4%, $p=0.02$) and Clavien 3 (3.1% *vs*. 1.7%, $p=0.04$) post-operative surgical complications, length of stay (6.0 (5.0-7.0) *vs*. 5.0 (4.0-6.0) days, $p<0.0001$), pre-operative 1st day delta creatinine (0.3 (0.2-0.4) *vs*. 0.15 (0.1-0.2) mg/dl, $p<0.0001$), positive surgical margins (2.1% *vs*. 1.5%, $p=0.04$), and Trifecta achievement (73.8% *vs*. 85.5%, $p<0.0001$). At univariate analysis, a higher median clinical diameter, a

higher mean age, a higher median Charlson comorbidity index (CCI), endophytic tumor growth pattern, renal sinus and calyceal dislocation of the tumor, a higher median PADUA score and OSE were predictive factors of Trifecta achievement. At multivariate analysis, CCI lost significance ($p=0.26$), while age (odds ratio (OR)=1.02, 95% confidence interval (95% CI)=1.00-1.04, $p=0.001$), clinical diameter (OR=1.22, CI=1.05-1.42, $p=0.008$), PADUA score (OR=1.23, CI=1.07-1.41, $p=0.004$) and OSE (OR=1.74, CI=1.13-2.68, $p=0.01$) were confirmed predictive factors for Trifecta failure. *Conclusion:* The ERASE is a feasible and safe technique, which shows a comparable WIT, together with a significantly lower EBL, surgical complications' rate, length of stay and a significantly higher Trifecta achievement compared to OSE. Age, comorbidity, tumor diameter and PADUA score, in association with surgical approach, represent significant predictive factors of Trifecta failure.

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PROSPECTIVE ANALYSIS OF COMPLICATIONS AND THEIR PREDICTIVE FACTORS AFTER PARTIAL NEPHRECTOMY IN A MULTICENTER COMPARATIVE ITALIAN STUDY (RECORD1)

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