

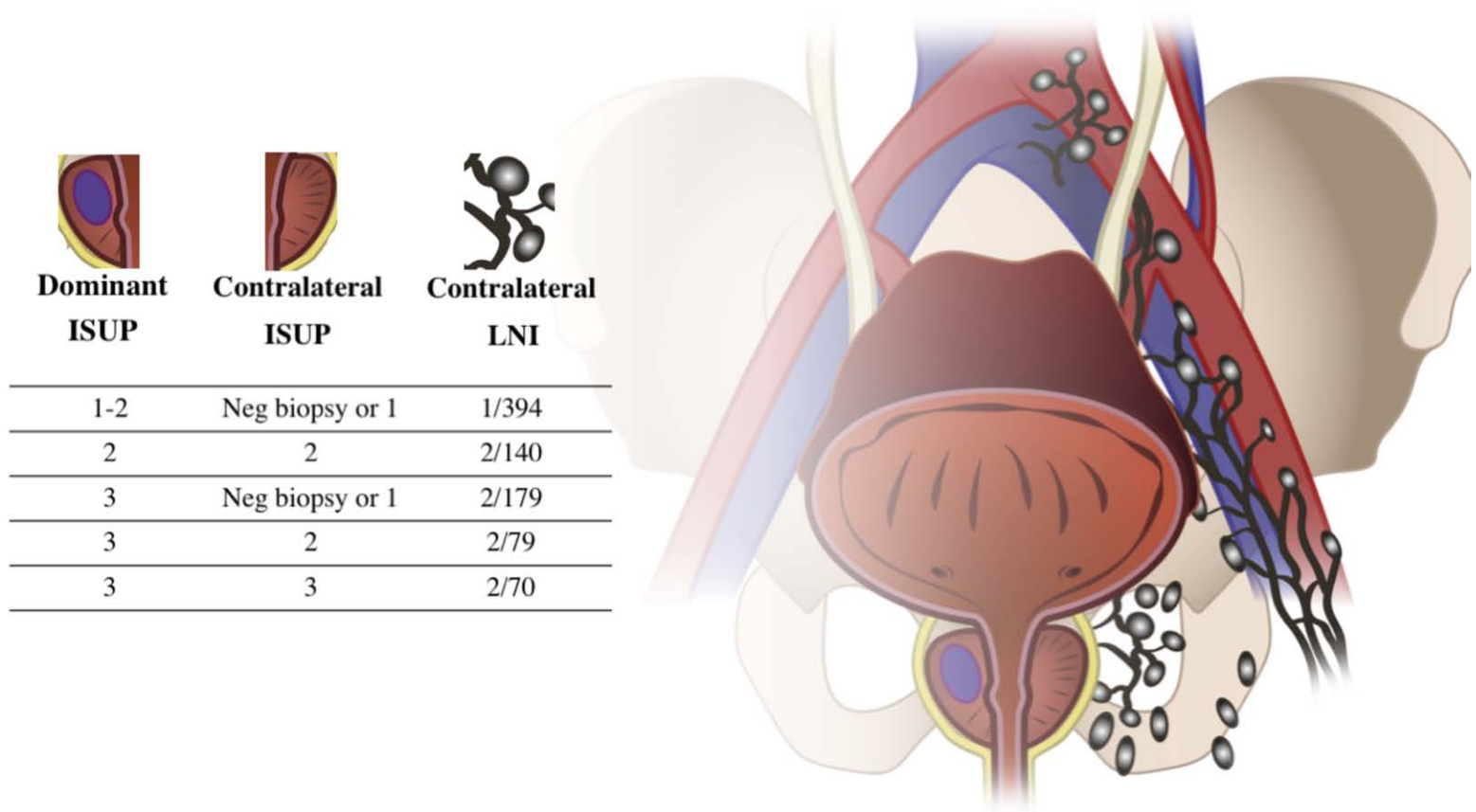
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Introduction & Objectives: Bilateral extended pelvic lymph node dissection (biPLND) at the time of radical prostatectomy is the current standard of care if PLND is indicated; often, however, PLND is performed in pN0 disease. With the more accurate staging achieved with MRI-targeted biopsies for prostate cancer (PCa) diagnosis, the indication for biPLND may be revised. We aimed to assess the feasibility of unilateral ePLND in the era of modern PCa imaging.

Materials & Methods: We analyzed a multi-institutional dataset of men with cN0 disease diagnosed by MRI-targeted biopsy who underwent prostatectomy and biPLND. The outcome of the study was lymph node invasion (LNI) contralateral to the prostatic lobe with worse disease features, i.e. dominant lobe. Logistic regression to predict LNI contralateral to the dominant lobe was generated and externally validated on the largest single-center database.

Results: 2,051 patients were considered for model development and 202 for validation. In the development and validation cohorts, LNI was documented in 269 (13%) and 27 (13%) patients, respectively; 71 (4%) and 12 (6%) patients had LNI contralateral to the dominant prostatic lobe, respectively. In the development cohort, in absence of high-risk features, one out of 394 patients with ISUP1-2 in the dominant side and with contralateral ISUP1 or negative biopsy had LNI contralateral to the dominant side. The distribution of lymph node metastases contralateral to the dominant prostatic side in patients without high risk features is displayed in Figure.



A model including PSA, maximum diameter of the index lesion, seminal vesicle invasion on MRI, ISUP grade in the non-dominant side and percentage of positive cores in the non-dominant side achieved an AUC of 84% after internal validation and 84% on external validation. In the development and validation cohorts, with a cutoff of 1%, 596 (29%) and 50 (25%) contralateral PLNDs would be omitted with only 1 (1.4%) and 0 LNI missed, respectively.

Conclusions: An ePLND could be omitted contralateral to the dominant side in selected patients, especially in the absence of high-risk features. We propose a model with a 1% threshold probability of LNI that can help to avoid contralateral ePLND in almost one third of cases. The adoption of this model in clinical practice would allow for the selection of candidates for unilateral PLND whenever ePLND is indicated.