Title: *Safety of kidney biopsy in the oncologic populations: a single center experience*

Authors: Mehmood M[1], Ali S[1], Chen Z[2], Azar N[3], Rashidi A[1]

Affiliations:

1. Department of Medicine, Division of Nephrology and Hypertension, University Hospitals Cleveland Medical Center, Cleveland, OH
2. Case Western Reserve University School of Medicine, Cleveland OH
3. Department of Radiology, University Hospitals Cleveland Medical Center, Cleveland, OH.

Introduction: Safety of the biopsy in native kidneys is well established, with bleeding, pain, infection, AV fistula, and urine leak being the main complications. History of cancer within the preceding year before biopsy has been mentioned as one of the risk factors for major bleeding. Data on biopsy safety in cancer patients remain limited. This study aims to evaluate the safety of renal biopsy in cancer patients.

Methods: A retrospective single center observational study was performed on cancer patients who underwent a kidney biopsy from Jan 2018- May 2026. Clinical and laboratory data were obtained from medical charts. Primary outcomes were minor and major complications categorized according to the need for intervention. Firth penalized logistic regression was used to reduce small‑sample bias and address potential separation.

Results: A study population consisted of 115 patients. The cohort comprised of 57% males, 81.7% White and Hispanics having mean age of 65.24 ± 12.59 years at the time of biopsy. A total of four patients in the cohort had a solitary kidney. Overall, there were a total of 18 events (15.6%) out of which 4 were categorized as major complications (3.47%). Three patients had platelet level below 50,000/μL out of which one of them had major complication. Warfarin use was the only variable significantly associated with major complications (OR 30.15, 95% CI 1.55–588.3). Male sex was associated with 68% lower odds of post biopsy complications (OR 0.32, 95% CI 0.11–0.91).

Conclusion: The findings of this study demonstrated that kidney biopsy is generally safe in cancer patients with a low incidence of major complications. This is comparable with kidney biopsy complications in general nephrology population. Warfarin use emerged as the significant predictor of major adverse events, underscoring the importance of careful anticoagulation management in this population.