



# A novel upper tract ureteroscopic biopsy technique: the “form tackle”

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## ABSTRACT

*Introduction and Objective:* Upper tract urothelial carcinoma (UTUC) represents 5% of all urothelial malignancies (1-3). Accurate pathologic diagnosis is key and may direct treatment decisions. Current ureteroscopic biopsy techniques include cold-cup, backloaded cold-cup and stone basket (4-6). The study objective was to compare a standard cold-cup biopsy technique to a novel cold-cup biopsy technique and evaluate histopathologic results.

*Materials and Methods:* We developed a novel UTUC biopsy technique termed the “form tackle” biopsy. Ureteroscope is passed into ureter/renal collecting system. Cold-cup forceps are opened and pressed into the lesion base (to engage the urothelial wall/submucosal tissue) then closed. Ureteroscope/forceps are advanced forward 3-10mm and then extracted from the patient. We compared standard versus novel upper tract biopsy techniques in a series of patients with lesions  $\geq 1$ cm. In each procedure, two standard and two novel biopsies were obtained from the same lesion. The primary study aim was diagnosis of malignancy. IRB approved: 21-006907.

*Results:* Fourteen procedures performed on 12 patients between June 2020 and March 2021. Twenty-eight specimens sent (14 standard, 14 novel) (Two biopsies per specimen). Ten procedures with concordant pathology. In 4 procedures the novel biopsy technique resulted in a diagnosis of UTUC (2 high-grade, 2 low-grade) in the setting of a benign standard biopsy. Significant difference in pathologic diagnoses was detected between standard and novel upper tract biopsy techniques ( $p=0.008$ ).

*Conclusions:* The “form tackle” upper tract ureteroscopic biopsy technique provides higher tissue yield which may increase diagnostic accuracy. Further study on additional patients required. Early results are encouraging.

## CONFLICT OF INTEREST

None declared.

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