



## FP19

### Comparison of the histopatologic ureteral wall changes during different techniques of ureteroscopic lithotripsy

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**Objective:** Choice of the stone-destructing energy for ureteroscopic lithotripsy (URS) depends on several aspects. Ureteroscope construction, stone density and location play major role in choosing the exact technique for URS. Studying the effects of each stone-destructing energy on the ureteral wall is important for understanding post-operative stricture formation mechanisms. The research focuses on histopathologic changes of the intact ureteral wall during URS using laser, ballistic, ultrasonic and electrohydraulic energies.

**Materials-Methods:** 20 ureters, removed during nephroureterectomy for renal cancer, was included into the study. During the laparoscopic nephroureterectomy (performed in the common way) middle third of the ipsilateral to renal cancer ureter was exposed to intraluminal laser, ultrasonic, electrohydraulic or ballistic energies for 5, 15 or 30 seconds. Then the middle part of the ureter was formalin-fixed, dyed and explored using light microscopy.

**Results:** Tissue-damaging effect of ballistic energy during URS was highly marked compared to the others energies. Ultrasonic energy was declared to be the most "ureteral-friendly" – it causes less damages to the wall of the ureter. Not in any case perforation of the ureter was achieved even during 30-seconds energy exposure.

**Conclusion:** Ureteral perforation during URS is possible only in case of stone-destructing energy exposure on the compromised ureteral wall (ureter mucosa trauma, caused by stone movements, or long-term changes of the wall in case of stone impaction). Post-operative stricture formation is more likely to happen in case of extended (more than 30 seconds) affection on the ureteral wall.