



Variable	N	Clear Petra=N	Clear Petra=Y	p-value
N	54	27	27	
Age				0.322
Mean		56.0	58.8	
St. Dev.		14.8	14.8	
Stone Burden (Matching Variable)				0.640
Mean		15.2	15.2	
St. Dev.		9.3	7.1	
Operative Time				0.945
Mean		127.9	126.6	
St. Dev.		49.1	46.1	
Sex				0.580
Female	32	63.0%	55.6%	
Male	22	37.0%	44.4%	
Stone Location (Stone Location)				0.327
Ureter	12	14.8%	29.6%	
Renal	42	85.2%	70.4%	
Preoperative Urine Culture (Matching Variable)				0.535
Negative	40	70.4%	77.8%	
Positive	14	29.6%	22.2%	
History of a Stent				0.091
No	20	25.9%	48.1%	
Yes	34	74.1%	51.9%	
Neurogenic Bladder (Matching Variable)				1.000
No	49	92.6%	88.9%	
Yes	5	7.4%	11.1%	
Preoperative Stent (Matching Variable)				0.402
No	21	33.3%	44.4%	
Yes	33	66.7%	55.6%	
Laterality				0.770
Left	37	66.7%	70.4%	
Right	17	33.3%	29.6%	
Unplanned 30-day Encounter				1.000
No	46	85.2%	85.2%	
Yes	8	14.8%	14.8%	
Post-operative Infection Complication				1.000
No	45	85.2%	81.5%	
Yes	9	14.8%	18.5%	
Stone Free <4mm				1.000
No	5	11.1%	8.4%	
Yes	49	88.9%	92.6%	
Completely Stone Free				0.142
No	45	74.1%	92.6%	
Yes	9	25.9%	7.4%	

Source of Funding: None

MP44-16
ESTIMATED DOSES OF RADIATION RECEIVED BY THE EYE LENS DURING ENDOUROLOGICAL PROCEDURES: ARE WE BEING CAREFUL ENOUGH? ESUT-YAU ENDOUROLOGY GROUP COLLABORATION

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INTRODUCTION AND OBJECTIVE: The protection of the lens during interventional radiology procedures has become an aspect of special concern since the appearance of cataracts at relatively low doses (below 0.1 Gy). Current knowledge about radiosensitivity of the eye lens has led the European Atomic Energy Community (EURATOM) to reduce the annual limit of equivalent dose for the eye lens from 150 mSv/year to 20 mSv/year. Our objective is to estimate the radiation doses received by the lens during endourological procedures to determine if endourologists comply with current recommendations.

METHODS: A multicenter study was conducted recollecting the prospective data of annual dosimeters between 2017 and 2020. Four endourologists used an eye dosimeter to estimate radiation doses received by the lens in all endourological procedures, including ureteroscopy (URS), retrograde intrarenal surgery (RIRS) and percutaneous nephrolithotomy (PCNL). Two of them wore leaded protection glasses while two of them did not; in addition, one of the surgeons

used a fluoroless protocol. Statistical analysis was performed using SPSS 22.0.

RESULTS: Surgeons 1, 2, 3 and 4 performed a median of 158.5, 585.5, 102.0 and 129.0 endourological procedures, respectively, for a total of 641, 2,340, 413 and 350 between 2017 and 2020. The mean annual dose of lens radiation exposure for Surgeon 1, 2, 3 and 4 was 0.16, 1.18, 3.79 and 1.41 mSv per year, which corresponds to 0.001, 0.002, 0.032 and 0.014 mSv per procedure. The two surgeons who used leaded glasses registered a lower radiation dose per procedure (0.001 vs. 0.027). Similarly, the urologist who used a fluoroless protocol registered a lower lens radiation dose compared to the three surgeons who did not use it (0.001 vs. 0.023).

CONCLUSIONS: According to our study, endourologists successfully comply with current recommendations on radiation exposure to the eye lens. Leaded glasses as well as a fluoroless protocol may further reduce radiation doses. Eye protection glasses may be recommended for radiation protection as well as for exposure to fluids.

Source of Funding: None

MP44-17
COMPARISON OF OPERATIVE EFFICIENCY AND EFFECTIVENESS BETWEEN A DUAL LUMEN AND SINGLE LUMEN URETEROSCOPE FOR URETEROSCOPIC STONE REMOVAL

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INTRODUCTION AND OBJECTIVE: Dual lumen flexible ureteroscopes (DLFU) have yet to be compared head-to-head in a clinical trial with single lumen flexible ureteroscopes (SLFU). Our prospective, randomized study sought to evaluate the efficacy, efficiency, and surgeon device preference during upper urinary tract stone management with SLFU vs. DLFU.

METHODS: Seventy-nine patients undergoing flexible ureteroscopy and laser lithotripsy for proximal ureteral or renal stones between 2016 and 2020 were randomized to either SLFU or DLFU. The overall time for ureteroscopy, laser lithotripsy, and stone basketing were recorded. Procedural efficiency and effectiveness based on stone clearance rate and stone-free status were calculated using preoperative and postoperative computed tomography (CT) imaging and 3D Slicer CT-based, stone volume determination. Postoperative surgeon surveys addressed ergonomics and overall ureteroscope performance.

RESULTS: Although linear stone burden was not statistically different between the two groups, preoperative stone volume was almost two-fold greater in the dual lumen group (267 mm³ vs. 132 mm³, p = 0.03). Despite the larger stone volume, DLFU provided a 4-minute shorter lithotripsy time than SLFU (2 min vs. 6 min, p = 0.02) with a significantly better stone clearance rate (7.1 mm³/min vs. 3.7 mm³/min, p = 0.03). True stone-free rate, specifically a complete absence of stone fragments as seen on postoperative CT, was 48% for DLFU compared to 26% for SLFU (p = 0.05). The dual lumen exceeded the single lumen ureteroscope in all surgeon-evaluated performance metrics.

CONCLUSIONS: DLFU surpassed SLFU in surgical efficiency and effectiveness by providing a faster lithotripsy procedure and a higher absolute stone-free rate. Based on surgeon questionnaires, DLFU was also ergonomically superior to SLFU.