

The impact of COVID-19 on surgical care delivery for patients with urinary stones

John Michael DiBianco*, Stephanie Dagnault-Newton, Ann Arbor, MI, John Ludlow, Holland, MI, Jessica Phelps, Ann Arbor, MI, Erik Ratchford, Grand Rapids, MI, Michael Cotant, Marie, MI, Khurshid R. Ghani, Casey A. Dauw, for the Michigan Urological Surgery Improvement Collaborative, Ann Arbor, MI

INTRODUCTION AND OBJECTIVE: During the COVID-19 pandemic, limits on elective surgical care were instituted by hospitals to preserve resources. Additionally, patients' desire to limit health care contact may impact surgical decision making. We aimed to understand how institutional pressures and patient preference affected the delivery, choice and outcome of ambulatory surgical care for urinary stone disease during the COVID-19 pandemic.

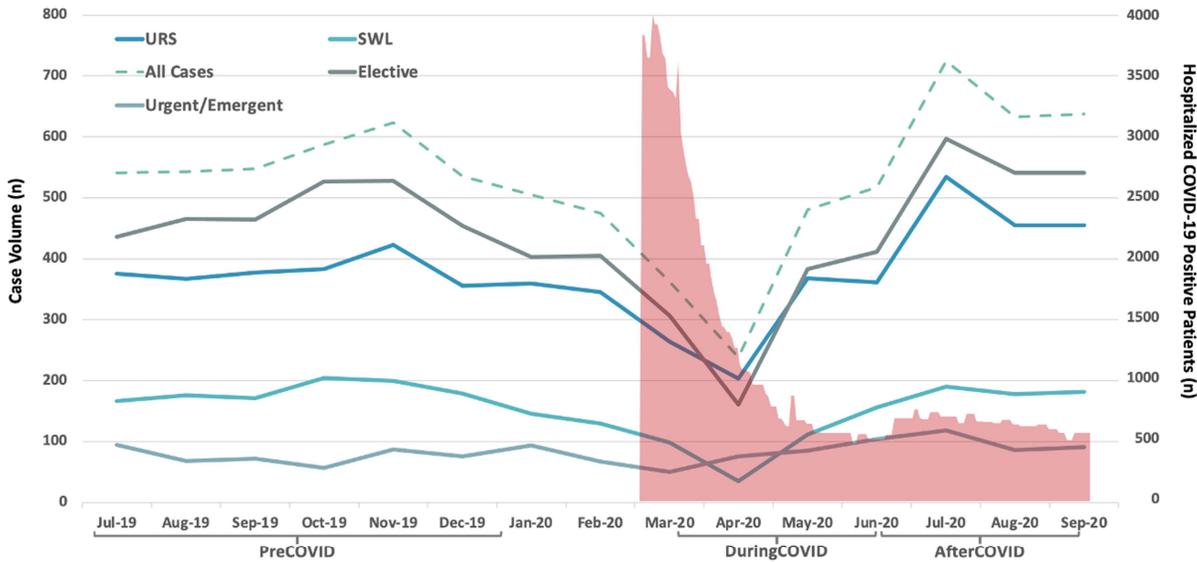
METHODS: Reducing Operative Complications from Kidney Stones (ROCKS) is a quality improvement initiative from the Michigan Urological Surgery Improvement Collaborative (MUSIC) that maintains a prospective clinical registry of ureteroscopy (URS) and shockwave lithotripsy (SWL) cases. Using this registry, we categorized all cases by time frame, defining July 1st - December 31st 2019 as preCOVID (PC), March 16th - June 15th 2020 as duringCOVID (DC) and June 16th - September 15th 2020 as afterCOVID (AC). Patients in each cohort were characterized across a range of sociodemographic and clinical factors. We assessed changes in procedure choice (URS vs SWL), procedure acuity (elective vs emergent), and outcomes (ED visit and hospitalization within 30 days of surgery).

RESULTS: 6375 cases were identified, 4513 URS and 1862 SWL. PC consisted of 3310 cases (2238 URS and 1072 SWL), DC consisted of 1141 cases (888 URS and 253 SWL) and AC consisted of 1924 cases (1387 URS and 537 SWL). A higher proportion of URS cases were performed DC compared to PC and AC (77.8% vs 67.6% vs 72.1%, p<0.001, respectively). A higher percentage of emergent cases in DC compared to PC and AC (21.8% vs 13.7% vs 15.3%, p<0.001, respectively). Significantly more cases in DC compared to PC and AC were pre-stented, had positive UA/urine culture, ureteral stones, had hydronephrosis, were stented and had longer stent dwell time. ED visits and unplanned hospitalizations were not significantly different.

CONCLUSIONS: The COVID-19 pandemic resulted in a lower overall stone treatment rates and higher proportions of URS compared to SWL. Significantly more emergent cases for ureteral stones with positive UA/urine cultures and evidence of obstruction were performed duringCOVID with higher stent placement rates and longer stent dwell times. These data pointing towards preference for higher intensity or acuity cases without differences in unplanned healthcare encounters.

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Figure. Procedure volume, modality and acuity by case number over time in MUSIC represented with the corresponding COVID-19 positive hospitalized patients in the state of Michigan.



URS – ureteroscopy ; SWL – shockwave lithotripsy