

IMPACT OF THE CORONAVIRUS (COVID-19) PANDEMIC ON THE SURGICAL MANAGEMENT OF PRIMARY VESICoureTERAL REFLUX IN CHILDREN

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Keywords:

Background: National trends have shown a decline in ureteral reimplantation cases (open and robotic) performed in children with primary vesicoureteral reflux (VUR) over the last two decades. Amid these trends, we investigated how ureteral reimplantation case numbers and utilization of robot-assisted laparoscopic ureteral reimplantation (RALUR) were affected by the COVID-19 pandemic.

Materials/Methods: Using prospectively collected data for RALUR and retrospectively collected data for open reimplantation, a retrospective review was performed of all pediatric patients undergoing RALUR or open ureteral reimplantation for primary VUR at a tertiary care children's hospital from 2013 to 2020.

Results: 620 cases of ureteral reimplantation were performed (122 RALUR / 498 open) from 2013 – 2020. During the COVID-19 pandemic, there was a significant reduction in both the number of RALUR and open reimplantations performed (6 cases of RALUR and 47 cases of open ureteral reimplantation annually vs 18.9 cases of RALUR and 75.2 cases of open cases annually in the previous 5 years ($p=0.02$)). Among RALUR patients, those who underwent RALUR during the COVID-19 pandemic had significantly higher pre-operative VUR grade on VCUG ($p=0.002$) and were more likely to have bilateral VUR ($p = 0.04$). Despite higher VUR grade on VCUG and higher likelihood of having bilateral VUR, there was no significant difference in console time (unilateral $p = 0.420$; bilateral $p = 0.082$) or hospital stay (unilateral $p = 0.348$; bilateral $p = 0.100$) for both unilateral and bilateral groups.

Conclusions: A significant decrease in RALUR and open reimplantation cases was observed during the COVID-19 pandemic, which accentuates already seen national trends. This steep decline was attributed to the restrictions on surgeries during the COVID-19 pandemic, especially those associated with hospital admissions. An up-shift in disease severity was seen in RALUR patients during the pandemic period.

Images / Graph / Table

Table 1. Pre-operative Factors of Patients Undergoing RALUR

| Year | | 95% CI | P-value |
|-------------|---------------------------------------|--------------|---------|
| | Mean Patient Age | | 0.192 |
| 2013 - 2019 | 6.01 | 5.35 – 6.67 | |
| 2020 | 4.67 | 2.73 – 6.60 | |
| | Mean VCUG Grade (Left + Right) | | 0.002 |
| 2013 - 2019 | 4.45 | 4.04 – 4.85 | |
| 2020 | 7.17 | 45.53 – 8.79 | |
| | DMSA Scarring (%) | | 0.181 |
| 2013 - 2019 | 50.9 | 37.4 – 64.5 | |
| 2020 | 75 | 26 – 123 | |
| | Laterality (%) | | 0.038 |
| 2013 - 2019 | 45.9 | 36.6 – 55.2 | |
| 2020 | 83.3 | 50.7 - 116 | |