The Forgotten Ureteral Stent: Issues in Access to Care After Initial Ureteral Stent Placement

Milan Patel[1], Kathryn Durand[2], Kathyrn Morris[2], Jaime Vieira[3], Kristin Baldea[1], Larissa Bresler[4]

1. Department of Urology, Loyola University, Stritch School of Medicine, Maywood, IL
2. Boston Scientific, Marlborough, MA
3. University of Arizona College of Medicine, Phoenix, AZ
4. Jesse Brown VA Medical Center, Chicago, IL

Introduction

- Many patients present with nephrolithiasis and undergo initial ureteral stent placement, with plans for subsequent stone treatment to occur later.
- However, the completion of follow-up care may vary due to **access to care.**
  - Geographic Location may play a role
    - Availability of urologist
    - Availability of equipment (e.g. high-power lasers, lithotripters)
  - Lead to forgotten ureteral stents
  - Disparities in procedure type/modality
- This study aims to assess **geographic variation in completion of follow-up stone procedures after stent placement.**

Methods

- Retrospective Analysis of claims from the Definitive Healthcare dataset – national all-payor facility level data
- Identified all patients who underwent ureteral stent placement for nephrolithiasis in 2021
- Each patient was classified as Metro, Rural-Adjacent, or Rural Non-Adjacent according to the the county in which they underwent ureteral stent placement
- Each patient was then followed through 2023 to identify the completion of a follow-up stone procedure – stent removal, diagnostic URS, URS with LL, URS with stone manipulation, PCNL, ESWL, or open stone surgery

Results

Table 1: Distribution of Follow-Up Procedures after Initial Stent Placement by Geographic Area

County Classification	Index Stent Patients	Stent Patients that underwent a Follow-up procedure (%)	Follow-up Procedure	% of Patients within County Classification
Metro	111,971	100,017 (89.3%)	URS with Laser Lithotripsy	30%
			Ureteroscopic Stone Intervention (URS)	27%
			Extracorporeal Shock Wave Lithotripsy (ESWL)	22%
			Diagnostic URS	13%
			Stent Removal	4%
			Percutaneous Nephrolithotomy (PCNL)	3%
			Open Stone Procedures	<1%
Rural-Adjacent	6,497	6,016 (92.5%)	Extracorporeal Shock Wave Lithotripsy (ESWL)	29%
			Ureteroscopic Stone Intervention (URS)	28%
			URS with Laser Lithotripsy	26%
			Diagnostic URS	9%
			Stent Removal	6%
			Percutaneous Nephrolithotomy (PCNL)	2%
			Open Stone Procedures	<1%
Rural Non-Adjacent	4,439	3,825 (86.1%)	Extracorporeal Shock Wave Lithotripsy (ESWL)	31%
			Ureteroscopic Stone Intervention (URS)	29%
			URS with Laser Lithotripsy	25%
			Diagnostic URS	10%
			Stent Removal	5%
			Percutaneous Nephrolithotomy (PCNL)	1%
			Open Stone Procedures	<1%

- 122,907 patients were identified and included in the analysis
- **10.7% of patients did not undergo a follow-up stone procedure by end of 2023 → Forgotten ureteral stents**
- **Rural Non-Adjacent patients had the highest rate of forgotten ureteral stent (13.9%)**
  - Metro – 10.7%
  - Rural – Adjacent 7.5%
- Rural Non-Adjacent patients traveled 12.9 miles for a follow-up stone procedure, which is 1.9 times farther than Rural Adjacent patients (6.8 miles) and 2.7 times farther than Metro patients (4.8 mi)
- Metro patients had the shortest interval between the two procedures with an average of 26.2 days. Rural-Adjacent and Rural Non-Adjacent patients both had relatively longer delays, with averages of 43.2 days and 37.6 days,

Conclusions

- A substantial proportion of patients fail to undergo follow-up stone procedures after initial ureteral stent placement
- There is geographic variation in follow-up nephrolithiasis care, in terms of:
  - Rate of Completion
  - Time to follow-up procedure
  - Distance Traveled
- Changes in healthcare policy are necessary to address important access to care issues in kidney stone care