



## PERCUTANEOUS NEPHROLITHOTOMY AT VANCOUVER HOSPITAL - REVISITING THE USE OF METAL TELESCOPIC DILATORS FOR TRACT DILATION

Daniel Rapoport, Ryan F Paterson, Kourosch Afshar, V. Allen Rowley, Charles Zwirewich  
The University of British Columbia  
Vancouver, BC

### Objectives

- To assess the feasibility and safety of metal telescopic stone tract dilation
- To generate preliminary data for future randomized controlled trial



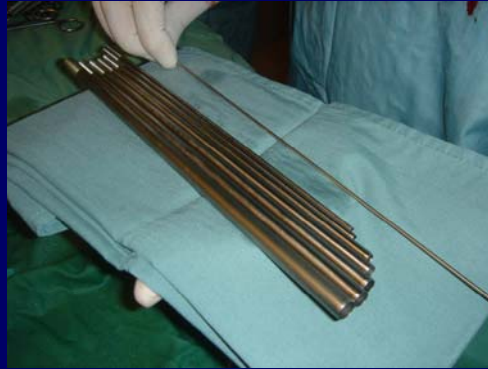
## Rationale: Telescopic Metal Dilators:

### PNL Situation:

- Long waiting lists
- Fixed budget, need to reduce disposable costs

### Metal Dilators:

- Seldom used in North America
- Perceived increased bleeding risk
- Cost savings



## Methods

- Prospective case series, Single-surgeon
- 81 patients unilateral PNL, metal telescopic dilation
- Primary outcomes of interest:
  - Tract dilation time
  - Post-operative hemoglobin drop
  - Transfusion rate
  - Vascular complications
- Secondary outcomes of interest:
  - Stone free rate

## Patient Characteristics

- Age: mean 55 yrs (range 14 – 87 yrs)
- 53% male : 47% female
- BMI: mean 30 kg/m<sup>2</sup> (range 17 – 49 kg/m<sup>2</sup>)
- Mean ASA score 2.7

## Stone Characteristics

- 58% Right : 42% Left
- Burden:
  - Max diameter: mean 31 mm (range 7-80mm)
- Composition:
  - Calcium 77% (85% Oxalate, 15% Phosphate)
  - Struvite 11%, Uric Acid 11%, Cysteine 1%

## Stone Tracts

- 77 single tract, 4 multi-tracts
- Location: lower pole 73%
  - Upper pole 16%, Interpolar 11%
- Tract Dilation Time:
  - median 3 min (range 2.5 – 5 min)
- Anatomic Considerations
  - Calyceal diverticulum (4), Horseshoe (1), Bifid Pelvis (1), Solitary kidney (1)



## Results: Bleeding Complications

<b>Length of Stay</b>	Median 2 d (range 1-13 d)
<b>Hb Drop POD 1</b>	Median 18g/L(range 3-46g/L)
<b>Transfusion Rate</b>	1% (1/81 patients)
<b>Rate of Vascular Complications</b>	1% (Ateriocalyceal fistula)

- Drop in Hemoglobin not significantly related to:
  - Stone burden, composition
  - Tract factors

## Results: Stone Outcomes

<b>Stone Free Rate (no residual fragments)</b>	83% (67/81 patients)
<b>Success Rate (residual fragments &lt; 4mm)</b>	90% (73/81 patients)
<b>Secondary Procedure Rate</b>	10 % (8/81 patients) PNL + ESWL: 1/8 PNL alone: 4/8 ESWL alone: 3/8

Residual stones assessed by CT KUB on POD 1

## Conclusions

- Effective and safe method of tract dilation
  - Tract Dilation Time 3 min
  - Transfusion Rate 1%
  - Stone Free Rate 85%
- Substantial cost savings (\$300/case)
- Expansion of the PNL program at our center