### Table 1: Comparison of different procedures of PCNL

<table>
<thead>
<tr>
<th>Procedure Advantage</th>
<th>Short coming</th>
<th>Access Sheath</th>
<th>Instruments needed</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conventional URS</td>
<td></td>
<td>Access Sheath</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ClearPetra URS</td>
<td></td>
<td>ClearPetra Sheath ONLY</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Table 2: Comparison of cost of URS

<table>
<thead>
<tr>
<th>URS with ClearPetra Sheath</th>
<th>URS with Conventional URS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost</td>
<td>Cost</td>
</tr>
<tr>
<td>ClearPetra Sheath</td>
<td>Access Sheath</td>
</tr>
</tbody>
</table>

### Table 3: Comparison of operating time of URS

<table>
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<tr>
<th>Procedure</th>
<th>Operating Time (Minute)</th>
<th>Time Saving: almost half of the operating time</th>
</tr>
</thead>
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<tr>
<td>Conventional URS</td>
<td>40 - 60</td>
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</tr>
<tr>
<td>ClearPetra URS</td>
<td>20 - 45</td>
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</tr>
</tbody>
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The ClearPetra Nephrostomy Sheath improves the stone clearance in percutaneous nephrolithotomy (PCNL), shortens treatment time, and lowers the incidence of complications.

### Table 4: Comparison of operating time of URS

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ClearPetra System for Continuous Flow Lithotripsy

### References


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If any misunderstanding occurs due to print failure or misunderstanding of the content, Well Lead reserves the right of final explanation.
PROBLEMS DURING ENDOSCOPIC LITHOTRIPSY

The ClearPetra system for Continuous Flow Lithotripsy of Well Lead Medical is designed for the effective and efficient treatment of urinary stones using Negative Pressure Aspiration through an oblique side port on the ClearPetra sheath. It has high stone clearance rate, reduces the intra-luminal pressure in the urinary tract, prevents stone retrogression, improves visual field, obviates the need of stone baskets, forceps, or any anti-retrogression devices, and saves operating time.

INDICATIONS

ClearPetra Universal Access Sheath
Use for rigid urethral, and ureteral stones.

ClearPetra Nephronephrostomy Sheath
Use for rigid ureteral and upper ureteral stones.

ClearPetra Cystoscope Sheath
Use for bladder stones.

Stone Collection Bottle
Use for collecting stones.

BENEFITS

- Reduces Intra-luminal Pressure
  A vortex is created by the continuous irrigation and suction. It reduces the intraluminal pressure and reduces the risk of surgery.
- No More Stone Retropulsion
  Effectively prevents retrograde stone migration with Negative Pressure Aspiration and at the same time removes the stone fragments.
- Improved Visual Field
  Under the continuous irrigation and suction, bleeding and dust storm from stone pulverization no longer obscure the visual field.
- Improved Stone Clearance
  Stone fragments will aggregate at the distal end of the ClearPetra sheath instead of scattering and are removed through the oblique side port on the ClearPetra sheath by the continuous suction.
- No Accessory Device Required
  Stone baskets, forceps, and anti-retrogression devices are no longer necessary. Under the Negative Pressure Aspiration, the stone fragments are evacuated spontaneously.

Instruction for Use

Advance the ClearPetra sheath over a guide wire until it is within 1 cm of the stone or steinstrasse. Remove the obturator and place the rubber cap onto the proximal straight end.

Connect the oblique tube of the ClearPetra sheath to a negative pressure aspirator or to the stone collection bottle with the clear tubing (packed separately) then onto the negative pressure aspirator. Activate the suction at continuous mode and maintain the pressure at 150 - 200 mm Hg.

Insert the endoscope through the center aperture of the rubber cap and turn on the continuous pressurized irrigation at a flow of 50 to 100 cc per minute. Advance the scope to the stone or steinstrasse. Commence the lithotripsy using a Holmium-YAG Laser or pneumatic lithotripter. We recommend using a higher frequency and lower energy setting on the laser for finer stone fragmentation.

During the process of lithotripsy, the stone fragments tend to aggregate at the distal opening of the ClearPetra sheath. The small stone fragments will exit in the space between the scope and the ClearPetra sheath. With larger fragments that are small enough to come into the ClearPetra sheath but too large to pass in the space between the scope and the ClearPetra sheath, withdraw the scope slowly to just proximal to the bifurcation (the red band) of the ClearPetra sheath. This will open up an unimpeded channel to the oblique tube to allow evacuation of the larger stone fragments.

No More Stone Retropulsion
- Insert the obturator back into the ClearPetra sheath. A guide wire can be inserted at this point if indicated. Slowly withdraw the ClearPetra sheath from the patient. Send the stone collection bottle with stone fragments to the laboratory for urinary stone analysis.

NOTICES

- Use endoscopes at least 3 Fr smaller and 7 cm longer than the ClearPetra sheath.
- Make sure the tip of the ClearPetra sheath is within 5-10 mm of the stone.
- Set the continuous negative aspiration at 150-200 mm Hg pressure.
- Set the continuous pressurized irrigation at 50-100 cc per minute.
- Turn off the suction before the pressurized irrigation.

Example of Procedures with the ClearPetra Sheaths

Flexible ureteroscopy and Holmium Laser Lithotripsy with the ClearPetra Universal Access Sheath in a patient with renal stones of 20 x 25mm².

Facts about the ClearPetra System

- Stone retropulsion
- Obscured visual field
- Difficulties in extracting residual stone fragments
- High intra-luminal pressure in the urinary tract

When using the ClearPetra sheath for the flexible ureteroscope, the negative aspiration pressure can be adjusted using the pressure control knob located on the egress tube of the stone collection bottle. When using the ClearPetra sheath for the semi-rigid ureteroscope, Nephrostomy or Cystoscope, the negative aspiration pressure can be adjusted using the pressure vent on the oblique side port.

After the surgery is completed, turn off the perfusion equipment and the negative pressure aspirator.

Place a Double-J stent after removal of the ClearPetra sheath.