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<http://www.pediatricurologycasereports.com>**Laser therapy for ureteral stones and kidney stones in children****Andrzej Paradysz****Department of Urology, Medical University of Silesia, Katowice, Poland*✉ **Andrzej Paradysz***Department of Urology,
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Description

Extracorporeal Shock Wave Lithotripsy (ESWL) is currently regarded as the primary therapy for kidney stones. The ineffectiveness of this technique, especially in patients with congenital urinary tract malformations, is frequently attributed to the need to repeat the procedure, subjecting the kids to additional hospital stays and anesthesia-related risks. The Landau team reported that 20% of patients required reoperation while Stone-Free Rate (SFR) was 80% three months after ESWL [1].

Endoscopic lithotripsy has an SFR efficiency of up to 97% and was first used for urolithiasis of the distal ureter [2]. As technology and staff expertise increased, it began to be used to treat stones found in the other sections of the ureter with an SFR of 88 to 100% and few complications.

The safety of the URS procedure was emphasised by Minevich et al. based on their observations of 71 procedures carried out on children. There was no reported ureter wall damage, but one postoperative

case of ureteral stenosis was successfully treated endoscopically [3]. The need for vesicoureteral orifice dilatation and the risk of developing iatrogenic vesicoureteral reflux were both lessened as a result of equipment miniaturisation.

Smaldone et al. provided confirmation of the effectiveness and safety of Ureterorenoscopy (URS) in paediatric patients. 100 children received endoscopic care. In 91% of them, the deposits completely disintegrated, and only 9% required additional surgery. One case of ureteral obstruction required surgery, while the 4.2% of cases with ureteral perforations were successfully treated with a temporary ureteral stent [4].

The endoscopic procedures utilising either a pneumatic lithotripter or a holmium laser are both safe, with a similar percentage of clinically insignificant complications, in both the Ureteroscopy and laser stone fragmentation (URSL) and Renal Stones (RIRS) techniques, based on the findings of our observations. There were no statistically significant differences in the number of complications between the two groups. A statistically significant reduction in procedure time in this group of patients is one obvious benefit of the laser. It is impossible to analyse the one reported case of a serious complication that resulted in extensive damage to the ureter wall in terms of the tools used, but rather in terms of the risk connected to the endoscopic technique as a whole.

A low percentage of vesicoureteral reflux was discovered, followed by spontaneous regression, as a result of the careful placement of the ureterorenoscope into the ureteral orifice and the decision to forego using the access sheath in the patient groups under discussion.

Intravenous pyelogram (IVP) or contrast-enhanced CT performed on patients with persistent upper urinary tract obstruction showed no evidence of iatrogenic ureteral stricture in either group of patients during the postoperative period. In patients without a known obstruction, ureter stricture is unlikely to occur.

Reports on the high efficacy of ureterorenoscope lithotripsy started to challenge ESWL's status as the preferred method for treating urolithiasis. Large concretions, staghorn, cystine, and radiolucent stones are ineffective with the ESWL [1].

It has been reported the small percentage of vesicoureteral reflux in the patient groups under discussion, which spontaneously resolved when the ureter scope was applied with care to the ureteral orifice. In the postoperative period, neither of the patient groups experienced the development of an iatrogenic ureteral stricture wall.

The addition of a holmium laser to our facility has enhanced treatment outcomes and increased the effectiveness of stone disintegration without compromising the safety of operations. Based on our findings, the first-line treatment for stone disease in children may involve the use of ureterorenoscope lithotripsy with laser energy in the disintegration of deposits located in the ureter and a pelvicalyceal system.

Conclusion

In comparison to the treatment using pneumatic lithotripters, the use of holmium lasers for the disintegration of stones shortens the procedure and improves treatment effectiveness, especially in the case of Renal Stones (RIRS). In the hands of skilled practitioners, using a ureterorenoscope to treat urolithiasis in children for both the location in the ureter and the kidney is a highly effective and secure procedure.

References

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