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Ureteroscopic management of distal ureteral stones in children: holmium: YAG laser vs. pneumatic lithotripsy

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Abstract: Aim: In this retrospective study, we aimed to compare the treatment results of pneumatic and holmium laser-assisted ureteroscopy in managing distal ureteral calculi in children. Materials and methods: The study group included a total of 36 children (23 boys, 13 girls) who underwent ureteroscopy between June 1998 and April 2008 due to distal ureteral calculi. Pneumatic lithotripsy was performed in 11 children and holmium:YAG laser lithotripsy in 25. Results: Their ages ranged from 18 months to 14 years (mean: 8.5 ± 3.5 years). The overall success rate for the holmium:YAG laser lithotripsy (100%) was higher than that of pneumatic lithotripsy (81.8%), but the difference was insignificant (P = 0.087). The complication rate was higher in pneumatic lithotripsy than in holmium:YAG laser lithotripsy (36.4% versus 4%, P = 0.023). Treatment time and hospital stay were shorter in the holmium:YAG laser lithotripsy group than in the pneumatic lithotripsy group (32.4 min versus 42.3 min, P = 0.041; 17.4 h versus 33.6 h, P = 0.013, respectively). Conclusion: This study showed that the success rate for holmium:YAG laser lithotripsy was almost identical with that achieved by pneumatic lithotripsy in the treatment of distal ureteral stones; ureteroscopic holmium:YAG laser lithotripsy had significant clinical advantages over pneumatic lithotripsy in terms of operative time, and hospitalization duration, stent requirements, and complication rates.

Key words: Laser, lithotripsy, pediatric ureteroscopy, ureteric calculi

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