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Introduction & Objectives: Development of the equipment and miniaturization of endoscopes allows for the treatment of children with stones in the lower calyx in each age group.

The aim of the paper is to compare the effectiveness of flexible ureterorenoscopy and MicroPERC methods in the treatment for urolithiasis (lower calyceal stones), and establishing the indications for the treatment with the application of one of the methods.

Materials & Methods: The evaluation assessed 35 children (aged 3,5 – 18; mean 9,5) treated for urolithiasis with the application of flexible ureterorenoscopy method and 15 children (aged 3 years -16; mean 8,2) treated with the application of MicroPERC method. The procedures by the flexible scopes were done since 2013 and by the MicroPERC were done since 2015. The treatment was applied to children with stones in the lower calyx. All children were submitted earlier to the one session of the ESWL. A complete removal of the plague and no complications were considered as a very good result; residual plague up to 2mm and no complications were considered a good result, and resistant stone in the lower calyx with concomitant complications were considered as a bad result.

Results: In the group of children treated with the flexible ureterorenoscopy method the results were as follows: 91.4% very good and 8.6% bad. In the group of children treated with the MicroPERC method the results were as follows: 87.5% very good, 6.25% good and 6.25% bad.

Conclusions: There is still too little data predicting clearly the success of applying one or another method in children. Flexible ureterorenoscopy and MicroPRES methods are the treatment of choice for stones in the lower calyx, but still ESWL is the first line in children. Sometimes, due to the small renal pelvis, problem with the endoscope deflection may not allowed surgeon enter the lower calyx.

Flexible ureterorenoscopy method is more effective than MicroPERC method for a lower calyx stone of any size, and it carries a lower risk of complications. Flexible URS is a very good method for children with wide ureters and enough developed renal pelvis, which allows for all of the movements of the endoscope.