

The technical details of treatment of kidney stone in children

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The treatment of urinary stone disease in children is a challenging issue requiring experience and technical modifications to achieve high success and low complication rates. We read the article by Zeng and colleagues [1] about this issue with great interest. The authors have compared the outcomes of mini-percutaneous nephrolithotomy (MPCNL) and shockwave lithotripsy (SWL) in infants. I applaud the authors that they have published articles presenting the modifications of percutaneous nephrolithotomy (PNL) in recent years [1–3]. They advocate that MPCNL is associated higher success, lower complication and re-treatment rates when compared to SWL [1]. However, there are some points that need to be well addressed and clarified.

As it has been mentioned in the study the outcomes of SWL are mainly influenced by several factors such as stone size, location, stone density [1, 4]. In addition, SWL is primarily the preferred treatment modality in children with renal stone <2 cm [5]. In the study, the mean stone size in both groups (MPCNL versus SWL) is larger than 2 cm. Therefore, achieving a lower success rate with SWL in patients with large stones is not a surprising result. It is a fact that the complication and additional treatment rates of SWL increase in parallel to the stone size. On the other hand, the advantages of PNL such as high stone-free, low additional treatment rates especially become evident for

large renal calculi (>2 cm) when compared to other treatment modalities.

Second, the authors have performed stone disintegration via 14F, 16F or 18F sheath with an 8F/9.8F semi-rigid ureteroscope. While large stone fragments were extracted by forceps, the small fragments were flushed out by an irrigation pump system with the pressures equal to one-third of that used in adults. In the discussion, the authors advocate that the renal pelvic pressure remains in safe limits with this irrigation system according to the previous study published by the same group [6]. However, the study evaluating the pelvic pressure using irrigation pump system during MPCNL was performed in adults with a mean age of 46.8 years. The kidney and the collecting system of children are very fragile that can be easily perforated. Moreover, the rate of fever and urinary tract infection (4/25) is slightly higher than the previously published series [7, 8]. The prolonged hospital stay (14.13 ± 5.8 days) might probably be related to the antibiotherapy for the management of UTI.

Another point is; although the authors argue that MPCNL is associated with high success and low complication rate, the routine placement of both the DJ stent and the nephrostomy tube to all patients is questionable. We think that routine insertion of DJ stent and nephrostomy tube increases the morbidity. Several authors have presented their experience with tubeless PNL in children [7, 9].

Finally, we want to highlight that the X-ray related imaging modalities (CT, IVP) should be used rationally especially in children with stone disease. Although CT is the best imaging modality to detect the residual fragments and to evaluate the success postoperatively, it has been demonstrated that the ultrasonography and KUB are sufficient especially in children [10].

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