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LETTER TO THE EDITOR

Re: Efficiency of percutaneous nephrolithotomy in pediatric patients using adult-type instruments

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We read the retrospective study comparing the outcomes of percutaneous nephrolithotomy (PCNL) in pediatric patients with great interest [1]. The authors have performed the procedure with 19F, 24F and 30F nephroscopes and 20F–30F Amplatz sheath in all children. They performed the operations in prone position under fluoroscopy guidance. The study has shown that PCNL in children using adult-type instruments is safe and effective.

Since the initial report by Woodside et al. [2], PCNL has come to be accepted as a well-established, minimally invasive procedure in children as well as adults. However, few centers have reported their experiences of PCNL in infants and very young children. PCNL with adult-size instruments may present problems in infants and preschool age children because of small size and mobility of the pediatric kidney, friable renal parenchyma, and the small size of the collecting system [3].

The authors have used the adult sized nephroscopes in this study. It might be well accepted to use single size equipment for all adults but this approach is not realistic for children. Children with a large stone burden and dilated collecting systems are good candidates for adult sized equipment. When the collecting system is not dilated, the instruments used in adults may be more traumatic because of their size. Additionally preschool age children have mobile and small size kidney. In our clinic, we use pediatric sized instruments in preschool children and older children with small stone burden or not dilated collecting system.

The radiation exposure is an important concern in pediatric cases. Most of the urologists prefer to establish the access by themselves under fluoroscopy as in this study. We routinely use lead aprons under the child patients located between the X-ray tube and patient, except for abdomen, for radiation protection. We believe and suggest that this prevents the harmful effects of radiation on gonads and vital organs [4].

We think that, with experience, using a gentle technique, avoiding manipulations such as levering the nephroscope, and usage of flexible endoscopes and nitinol basket when necessary are important to increase the stone-free rate in PCNL. Also we believe that a holmium laser and nitinol basket catheter can be used through flexible nephroscope for locations unreachable using the rigid instruments. These manipulations might lower residual stone with higher stone-free rate in pediatric PCNL.

Another potential complication of percutaneous nephrolithotomy is hypothermia, especially in this age group. Hypothermia during anesthesia produces potentially severe complications such as impaired platelet function and coagulation, decreased drug metabolism, increased wound infection rate and cardiac arrhythmias, and prolonged postanesthesia unit stay. We believe that warm air insufflators, electrical carpets, increased room temperature and warm infusion fluid are helpful to avoid hypothermia during PCNL.

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