Symposium 4 “Ureteroscopy (URS)”

S-04-2

Management of renal stones with flexible ureteroscopy: tips and tricks for a successful and complications free procedure

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Flexible ureteroscopy evolved dramatically during the last decade. The new flexible ureteroscopes have an increased deflection, beautiful visibility (at least the digital ones), a reasonable tip diameter and definitely a better durability than their predecessors. Paired with holmium laser lithotripsy, they do a formidable duo, which increased the indications for this type of approach, and also its efficacy a safety. By combining various power and frequency settings, we can achieve diverse lithotripsy modes: high power with low frequency for lithotripsy in extractable fragments (adequate for stone burdens under 1 cm), low power with high frequency for dusting (more effective in the case of larger stone burdens), higher power with higher frequency for the pop-corn effect etc. (in which the lithotripsy is achieved not only secondary to the laser discharge but also by the collision of stone fragments). These fragmentation modes combined with the manipulation and adjustment of the irrigation fluid translate into better efficacy and shorter operating times for bigger stone burdens. If the technique is applied in a correct mode it also offer a better safety of the procedure. It offers also the possibility to cut or ablate tissue. These, combined with an excellent safety profile (tissue penetrability of 0.5-1 mm) make holmium laser the best energy source available today. The ureteral access sheath may be used routinely or occasionally. What we know now is that in order to decrease the potential morbidity, as thin as possible access sheath (usually 10/12 F) should be used and the operating time should be as short as possible. If its indwelling proves difficult, than it should be abandoned. A passive dilation of the ureter using a JJ stent may be an option in these cases. Extraction devices evolved together with the ureteroscopes. Various models of baskets can be used, usually tipless (for intracaliceal use), with different designs of the basket, for a better grip of the stone, but also capable of easy release of it (if the evolution of the procedure imposes it).

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