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Tricks of percutaneous tract establishment to surmount kidney mobility

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Introduction: We present a video of techniques to surmount the problem of renal mobility. During calyx puncture, the puncture needle is used to immobilize the kidney. During dilation, the renal parenchyma tunnel is widened using a bi-prong-forceps under endoscopic vision.

Methods: To overcome the problem of renal mobility during puncture, an 18-gauge-needle is inserted through the “easiest” accessible calyx. A displacement of the kidney is performed with the lever maneuver by pushing the needle-proximal-end. Thus, the kidney is immobilized, so the puncture of the targeted calyx might be easier.

For mobility during dilation, the Amplatz sheath and dilator are stopped in contact of the renal capsule. The nephroscope locate the renal puncture site. The tip of the bi-prong forceps is inserted in the renal capsule breach. Then, the forceps is opened progressively widening the renal parenchyma tunnel by “blunt” dissection, until the caliceal cavity is reached. The nephroscope and Amplatz sheath are smoothly advanced into the caliceal cavity over the forceps.

Results: The needle-renal technique was effective to immobilize the kidney; it is also used for renal displacement and orientation of malrotated kidneys. With the forceps-renal dilation, the pelvi-calyceal system access was always possible under direct vision, and without radiation exposure. It was firstly used in large hydronephrosis with thin parenchyma, where it seemed easier with less hemorrhagic risk. During dilation of large parenchyma, there is hemorrhage. However, once the Amplatz sheath is placed, no difference in bleeding was noted compared to other dilating methods. This technique has been used in more than 30 patients; no complication related to the technique was noted, such as hemorrhage or fluid extravasation.

Conclusion: The needle renal technique was effective to immobilize the kidney. The forceps renal dilation has been successfully performed under direct vision, and without radiation exposure.