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Easy access to the superior calyx using a percutaneous renal displacement technique with the 18-gauge puncture needle

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Introduction and Objective: We present a video of our experience of percutaneous renal upper pole access using a percutaneous renal displacement technique, to render the superior calyx reachable below the 11th rib. We describe a renal displacement technique using an 18-gauge needle, and its use in different situations.

Material and Methods: The needle renal displacement technique is performed under fluoroscopic guidance, with the X-ray beam perpendicular to the tract.Initially, a lower or middle calyx is punctured with an 18-gauge diamond-tipped needle. A stiff-shaft hydrophilic guidewire is inserted to protect urothelium from the needle-tip. The needle's proximal-end is progressively pushed in the cephalic direction. Consequently, the kidney is displaced caudally, by the lever manoeuvre. Secondly, the upper pole calyx is punctured, for tract formation.

Results: Renal displacement has always been possible in kidneys with no surgical history. However, it failed when the kidney was fixed by post-surgical-adhesions. A caudal renal displacement, of many millimeters to few centimeters, is gained. There is also a slight inversion of the normal axis of the kidney. The renal upper pole becomes more accessible to puncture below the 11th-rib or even the 12th-rib, so decrease of intra-thoracic morbidity. This technique has also been used to immobilize mobile kidneys or to reorient complex malrotated kidneys.

Conclusion: Percutaneous needle renal displacement technique may render the superior calyx more available while avoiding or decreasing intra-thoracic complications, but are effective only when the kidney is mobile. This technique can be used to perform some calyx reorientation and to fix very mobile kidneys.

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