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Percutaneous renal stones extraction using suction through the nephroscope

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Introduction: We present a video of a suction technique used during percutaneous renal surgery, for extraction of small stones, debris, or clots.

Methods: The nephroscope is used as a suction device by adapting the suction tube to the nephroscope operating channel. The irrigation tube is permuted from the irrigation channel to the drainage one. The vacuum technique begins with a short phase of suction. Then the suction is stopped by closing the suction tube, to allow the expansion of the renal cavities. Simultaneously, the nephroscope is moved around in the renal cavities like a vacuum cleaner. The stone fragments are swiftly aspirated through the working channel of the nephroscope under direct vision.

Results: This technique is used with the first introduction of the nephroscope to remove blood clots, pus, and troubled urine in order to have a good visibility. Different fragments size can be extracted with the vacuuming technique. The smaller ones, up to 5 mm, are evacuated through the nephroscope working channel and recuperated in the aspiration container. Larger fragments, which can pass through the Amplatz sheath, can be dragged outside following the nephroscope using continuous aspiration. It is used, combined to aggressive nephroscopy, at the end of the PCNL procedure by doing a systematic sweeping of all the reachable pelvicalyceal system with rigid nephroscope, to remove all the clots, and dust. This vacuuming method is the technique of choice for removing matrix stones. We had begun to use this technique since 1997, and we had used it in above 1000 PCNL without noting any complication related to the technique.

Conclusion: This technique provides the greatest chances to have a complete stone clearance, from even the fine sand debris. Can this technique lead to a lower stone recurrence rate by reducing the residual stone burden? Prospective studies are necessary.

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