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Staghorn kidney calculi: Reversed open sandwich therapy

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Introduction: Low burden/ high burden stones are preferentially managed by PCNL. Combined treatments have been suggested in the past: PCNL+ESWL+PCNL (sandwich therapy), PCNL+ESWL (open sandwich therapy); even the Extracorporeal treatment may sometimes require a "salvage" lithotripsy/ litholapaxy (reversed open sandwich therapy). In this video we show a case of PCNL with a standard approach along with some more creative solutions, combining radiographic and ultrasound control techniques.

Material: Stone former patient suffering from a hiatrogenic hypercalcemia since 2003, developed a right renal stone high burden, treated by 4 ESWL sessions resulted in the symptomatic lithiasic fragments that caused hydrocalyx (inferior calyx: 2,1 cm-361 mm²; medial calyx/ pelvis: 1,7 cm-183 mm²; Hounsfield 1050). The patient in supine modified Valdivia position underwent urethral catheterism, ultrasound-guided puncture of the inferior calyx, 24 Ch one shot dilatation and litholapaxy of most lithiasic fragments 5-7 mm sized. Accessible calyces were explored with a flexible video-nefroscope and litho-lapaxy performed. For inaccessible calyceal groups a needle hydraulic push-in technique was adopted. Using an ultrasound guide, the two calyces that contained the fragments were targeted with a 1,3 G needle and a forced lavage with antepulsion of the fragments was performed ; in this way it was possible for us retrieve all the fragments and extract them through the percutaneous access making the patient stone free. Post op we placed an 8 Ch nephrostomy.

Results: No infective or hemorrhagic complication occurred and the patient was stone free. The nephrostomy was removed after 24 hours.

Conclusions: Still nowadays ESWL is wrongly indicated in the treatment of big size/high density stones and some kind of salvage therapy is requested. The endourologist should master all the available solutions to reach the stone-free status.

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