VE12 Renal intrahilar tumorectomy: Value of indocyanine green fluorescence and laparoscopic echography

EUR Urol Suppl 2019;18(6):e2686

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Introduction & Objectives: We report the case of a 64 years old woman who was addressed to our division with a right renal intrahilar tumor of 32 x 34 x 36 mm, with no suspicious lymph nodes. The indication for a laparoscopic DaVinci assisted renal revision was retained. A preoperative 3D CT-scan reconstruction allowed us to assess the vascular topography and to identify one inferior artery which divided into a posterior and anterior branch in close relation with the tumor.

Results: We used the classic approach with the patient in a 45º lateral position. An 8 mm camera port, two 8 mm robotic instrument ports, an assistant 12mm port and a 5 m port to retract the liver. The standard technique was used to expose the kidney. The Gerota's fascia was dissected off the surface of the kidney, leaving the perirenal fat intact over the area of the tumor. We then proceed to the dissection of renal artery and vein as well as the ureter. Particular attention is then dedicated to the inferior artery and their branches, previously identified at the 3D reconstruction. Intraoperative ultrasound was used to accurately plan the resection margin beyond the tumor margin as well as maximizing nephron sparing. The anterior branch of the inferior artery was then selectively clamped and its relationship with the tumor checked with the indocyanine green. This allowed us to see a perfect perfusion of the upper two thirds of the kidney as well as its posterior and inferior aspects, leaving the tumor without any vascularization. Once unclamped, the tumor was neovascularised which implied that this artery was selectively vascularizing the tumor. This enabled us to sacrifice it before main renal artery clamping and subsequent tumor resection. This resection was prudently done laterally to anteriorly and then inferiorly, finishing throughout in healthy parenchymal tissue. A figure of eight stiches was used to close de collector system and the renoraphie was performed with a running suture, unclamping the artery afterwards. The surgery ended with the closing of the Gerota's fascia.

Conclusions: The warm ischemia was 10 min 30 seg and the postop was eventless, the patient being discharged at day 3 with the diagnosis of renal cell carcinoma margin negative. Nephron-sparing surgery is the standard of care for localised and small size renal cell carcinoma. The employment of both preoperative vascular assessment and intraoperative indocyanine green perfusion allows a selective tumor marking, enhancing the surgery's functional outcome and securing the oncological results with remaining negative margins.