V11-01
REAL-TIME IMAGE GUIDED FOCAL SURGICAL RESECTION FOR PROSTATE CANCER: A FEASIBILITY STUDY
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INTRODUCTION AND OBJECTIVES: Focal therapy of prostate cancer is a management strategy for localized disease whereby ablative energy is delivered to targeted portions of the prostate to minimize morbidity. The basic tenant of current technologies is that they rely on cellular destruction with no histopathological correlation to ensure completeness and accuracy of treatment. The aim of this experiment was to assess the feasibility of real time MRI/US fusion technology to guide focal surgical therapy of prostate cancer.

METHODS: In a cadaveric model multi-focal prostate cancer was simulated using two 3x1mm MRI-compatible fiducial markers (PolymarkTM from CIVCO medical solution, Coralville, IA, USA) that could not be seen on ultrasound. These were used to generate regions of interest (ROIs) on a 1.5 T surface coil MRI. The first marker was placed in the right peripheral zone at the mid gland (ROI 1) and the second marker was placed in the left seminal vesicle (ROI 2) as a referent for subsequent MRI imaging. A limited multiparametric MRI of the specimen was done after maker placement and following focal surgical excision. The radiologist created ROIs using UroNavTM fusion biopsy system (Invivo, Gainsville, FL, USA) at each marker as well as two additional ROIs that represented intrinsic lesions seen on imaging: the left transitional zone, ROI 3 (suspicious for BPH nodule) and in the right anterior peripheral zone, ROI 4 (suspicious for prostate cancer). The following steps were performed:

2. Holmium Laser enucleation of the prostate (HoLEP) to gain access to the peripheral zone.
3. Repeat MRI/US fusion imaging to confirm the locations of the remaining ROIs after HoLEP.
4. Laser resection of the ROIs 1 and 4.
5. Repeat MRI/US fusion to confirm the absence of the targeted ROIs followed by a final confirmatory MRI.

Real time MRI/US fusion imaging identified the target lesions consistently at the locations designated as ROIs on the MRI. Using focal surgical therapy it was possible to completely resect each ROI (with the exception of the SV) leaving the majority of the prostate intact. Repeated MRI/US fusion imaging and the post procedure MRI confirmed the complete resection of our targeted lesions. There was no significant fluid extravasation that interfered with successful imaging during the procedure.

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CONCLUSIONS: Real time MRI/US fusion technology can be used to guide focal surgical therapy of prostate cancer. Additional effort to standardize the procedure and examine the reproducibility is necessary, but this may represent a new frontier for focal surgical resection of prostate cancer.

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V11-02
BILATERAL ADRENALECTOMY AND MULTIPLE TUMORECTOMY IN VON HIPPEL–LINDAU DISEASE
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INTRODUCTION AND OBJECTIVES: The von Hippel - Lindau disease is an autosomal dominant disease that courses with multifocal renal cell carcinoma in 65% of the affected individuals. The risk of developing pheochromocytomas in these patients reaches 20%.

METHODS: We present the case of a 50 year old man, obese with past history of hypertension; diagnosed by MRI performed prior to bariatric surgery, with a bilateral adrenal tumor (Left 7x7cm and right 5x4cm) and a double right renal tumor (posterior middle valve 3x2cm and lower pole 1.5cm). Given the high plasma and urinary levels of norepinephrine and the positive metaiodobenzylguanidine scintigraphy (MYBG), diagnosis of bilateral pheochromocytoma was confirmed. Simultaneous left nephron sparing surgery and adrenalectomy by retroperitoneoscopy approach after transperitoneal left adrenalectomy were proposed.

RESULTS: Following an alpha and beta-adrenergic blockade, a left transperitoneal laparoscopic adrenalectomy was performed without incident. (120 minutes - Estimated blood loss: 150 cc). One month later a retroperitoneal right adrenalectomy with off-clamp tumorectomy of the two right kidney tumors was undertaken. The pathology showed bilateral pheochromocytoma; while the right kidney tumorectomy report clear cell carcinoma, Fuhrman I, pT1a, with negative surgical margin in both tumours. The genetic studies confirmed VHL disease. The patient remained normotensive without medical treatment.

CONCLUSIONS: Simultaneous laparoscopic nephron sparing surgery and adrenalectomy is a suitable option for patients with Von Hippel-Lindau Disease affected by synchronous pheochromocytomas and renal tumors.

Trans and Retroperitoneal approaches are both safe and effective procedures presenting low morbidity, and may both be used as an alternative, depending on the position of the renal tumors.

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V11-03
SELECTIVE ISCHEMIA IN ROBOT-ASSISTED PARTIAL ADRENALECTOMY
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INTRODUCTION AND OBJECTIVES: Partial adrenalectomy is a valuable option to treat small adrenal tumors. Nevertheless, the procedure remains underused, probably because it is technically demanding surgery. Thus, we tried to standardize the operation, to improve safety and reproducibility of the procedure. Resection of the tumor was performed in selective ischemia to maintain optimal perfusion of healthy adrenal tissue.

METHODS: We used a transperitoneal robotic-assisted laparoscopic approach. The operation was structured into clearly defined steps to establish standardization: After dissection of the renal vein, the adrenal branch of the vessel is identified and the inferior vascular pedicle exposed. Subsequently the anterior and posterior faces of the gland are released from the peri-adrenal fat. This is followed by the devascularisation of the tumor, taking particular care to maintain the perfusion of healthy adrenal tissue. Then, an US endoscopic probe is used to define the resection margins. The vascular supply to the gland is temporarily closed with drop-in bulldog clamps and Indocyanine green is injected intravenously. Sufficient devascularization of the tumor is verified, using the near infrared fluorescence system (NIRF). The operation proceeds with the tumor resection and is finished by spraying the resection zone with fibrin-based haemostatic glue.

RESULTS: The technically demanding surgery can be facilitated by structuring the intervention into clearly defined steps. Healthy

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