

---

**Focal radio-frequency ablation for low-risk, focal prostate cancer: Challenges and technique**

J.M. Pow-Sang, M. Biagioli, E. Outwater, S. Dickinson, S. Rao  
*Moffitt Cancer Center, Tampa FL, USA*

**Introduction:** Newer ablative technologies are being evaluated for prostate focal ablation. Challenges with focal therapy include the ability to achieve total cell destruction in the desired target zone while avoiding damage to uninvolved tissue.

**Methods:** An IRB approved pilot study of focal RFA ablation for men with low risk prostate cancer was initiated in July of 2011. Men underwent multi-parametric 1.5 T endorectal coil MRI (MP-eMRI) and transperineal, ultrasound guided mapping biopsies of the prostate. Men were eligible for treatment if the cancer was unilateral and present in no more than 5 of 16 pre-defined areas. A novel RFA bipolar probe (Encage™, from Trod Medical, France) with an innovative coil design that prevented the energy to spread beyond the electrode's physical limits was used. The probe was inserted transperineally under ultrasound imaging control. Planning software used pre-acquired transrectal ultrasound images to allow for precise placement of the bipolar probe. Probes with different external diameters ranging from 8mm to 16mm were used depending on the extent of the area requiring treatment. Each ablation lasted 200 seconds at a power of 8 to 20 Watts.

**Results:** Three of 20 patients met inclusion criteria and underwent treatment. The coiled electrodes could easily be inserted transperineally into the target zone(s). The limits of the coil could be identified by ultrasound imaging preventing ablation beyond the diameter of the coil. One patient had post-operative hematuria which resolved spontaneously. No complications have occurred to date.

**Conclusions:** The procedure is safe and feasible. Coiled bipolar RFA is a promising technology that has the potential of becoming a management option for men seeking focal therapy. This technology also has the potential of expanding its indication to whole gland therapy in men with localized prostate cancer.