MRI Monitoring for Focal Ablation Series

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Introduction
We report the utility of MRI-based follow-up and short-term outcomes of primary focal ablation for localized low-risk prostate cancer.

Methods
We conducted retrospective analysis of 19 men who underwent focal targeted cryoablation (n=16) or Nanoknife electroporation (n=3) from 2014-20. MRI-ultrasound fusion biopsy (FBx) and systematic core needle biopsy were conducted at 6 and 24 months. Clinically significant prostate cancer was defined as grade group (GG) 2. Biochemical recurrence was defined by Phoenix criteria. Treatment failure was defined by radical prostatectomy, radiation therapy, or repeat ablation.

Results
Median age, PSA, and prostate volume at ablation were 64 years, 8.2ng/mL, and 53cc. Pre-ablation highest grade was GG1 in 4 men, GG2 in 10, and GG3 in 5. Median follow up was 25.5 months. Two weeks after ablation, 1 high-risk patient exhibited residual PI-RADS 5 lesion and underwent radical prostatectomy. Sixteen patients underwent 6-month FBx (median: 6.9 months). On MRI, no suspicious lesions were visualized in the ablation zone, but 1/16 (6.3%) patients had GG4 disease in the ablation cavity. 2/16 (12.5%) patients developed contralateral MRI-visible lesions, but no corresponding clinically significant prostate cancer on Fbx. Ten patients had second Fbx (median: 24.1 months). One patient (10%) exhibited a PI-RADS 4 lesion in the ablation zone without clinically significant prostate cancer. One patient (10%) had two contralateral PI-RADS 4 lesions without corresponding clinically significant prostate cancer but had an un-visualized ipsilateral GG2 lesion. Two additional patients had un-visualized lesions: 1 (10%) with a GG2 ablation zone lesion and 1 (10%) with an ipsilateral GG2 lesion. Three patients underwent radical prostatectomy, 2 radiation, and 1 had repeat ablation for contralateral recurrence. Mean pre-ablation PSA density for patients with treatment failure was 0.24, compared to 0.17 for those without. No new or worsening urinary incontinence occurred, but 4/19 patients had new/worsening erectile dysfunction. All patients without treatment failure continue on PSA surveillance without evidence of biochemical recurrence. A 24-month salvage treatment free rate was 68.4%.

Conclusion
For primary focal ablation, MRI based monitoring alone may be insufficient for monitoring disease recurrence. Patients with higher pre-ablation PSA density may be at more risk for treatment failure.