Methods

- We retrospectively identified 43 men with 62 MRI lesions noted on prostate MRI prior to MRI-US fusion prostate biopsy.
- We utilized the UroNav system from Invivo (Gainesville, FL).
- Men underwent 3T MRI with Siemens TIM MRI system and lesions were identified and marked with the DynaCAD system.
- MRI fusion was performed with standard MRI fusion techniques: scanning and segmentation prior to prostate biopsy attempt.
- The target lesions were performed prior to standard 12-core needle biopsy.
- A target lesion was biopsied 3 times (2 sagittal and 1 transverse views) if only one lesion was present and, if there was more than one lesion, 2 cores were taken of each lesion.
- Pathology was retrospectively reviewed for inflammation.

Results

- A total of 32 (52%) false positive lesions were noted.
- 22 having no cancer on any cores.
- 10 subjects with cancer noted on systematic biopsy but not in the target region.
- Of the men with cancer, only 1 of the false positive lesions had inflammation in the location of the targeted region of interest (10%, 1/10).
- 22 men with an identified lesion on MRI with negative pathology in all cores (no prostate cancer identified), 54% had inflammation on prostate biopsy pathology (12/22, p=0.024).
- Figure 1 displays the proportion of false positive targets and corresponding PI-RADS scores.
- The highest proportion of inflammation was noted on PI-RADS 4 (41%) and 3 (33%) lesions.

Conclusions

- Inflammation can confound interpretation of MRI by mimicking prostate cancer.
- The false positive rate for MRI-Fusion biopsies can be high.
- Several influencing factors including: MRI quality, radiology read, importing/segmentation of images and biopsy accuracy.
- We identify inflammation as one cause of false positives on MRI-Fusion biopsy that will need to be addressed in larger studies or combined with novel inflammatory biomarkers.