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Introduction & Objectives: Patients often receive a higher pathological Grade Group (GG) after radical prostatectomy than on prostate biopsy. This has implications for care since it implies that treatment decisions based on biopsy results underestimate the severity of disease. In particular this may lead to patients with GG 1 or 2 disease on biopsy being incorrectly followed with active surveillance and patients with GG 3 disease receiving delayed assessment for and treatment of metastases.

Materials & Methods: Databases from 4 French centers were compared to assess the rate of upgrading after radical prostatectomy based on biopsies directed using an MRI/US fusion system including MRI targets with systematic samples or biopsies directed using a micro-ultrasound system including both MRI and micro-ultrasound targets as well as systematic samples.

Results: In 127 subjects with MRI and systematic biopsy only, 48 (38%) of subjects were upgraded by at least 1 GG, while in the 46 subjects who received micro-ultrasound guided biopsy including MRI targets, micro-ultrasound targets, and systematic samples only 11 (24%) were upgraded. This suggests that adding micro-ultrasound guidance to MRI and systematic biopsy lowered upgrading rate on radical prostatectomy ($p < 0.05$).

Conclusions: Micro-ultrasound guidance appears equivalent to commercial elastic MRI/US fusion systems for avoiding upgrading on radical prostatectomy. Larger prospective trials will be required to confirm this result with sufficient power to determine superiority and added value of micro-ultrasound targets.