Quality Control Process for Prostate MRI and MRI Guided Biopsy Procedures

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76-year-old man, PSA=6.12ng/dl, no prior biopsy

Midline to right mid subcapsular peripheral zone lesion
T2W category= 4
DWI category= X
DCE category= positive
Overall PI-RADS category= 4

MRI/TRUS Fusion Guided Biopsy=tumor negative
76-year-old man, PSA=6.12ng/dl, no prior biopsy

Midline to right mid subcapsular peripheral zone lesion
Overall PI-RADS category= 4

Transrectal MRI/TRUS Fusion Guided Biopsy=tumor negative
What went wrong?

Incorrect biopsy route
  Transrectal route vs. Transperineal route (for subcapsular thin lesions)

Suboptimal MRI quality impacting accurate lesion localization and characterization

TRUS/MRI registration error
76-year-old man, PSA=6.12ng/dl

Midline to right mid subcapsular peripheral zone lesion
Capsular bulge (NCI EPE Grade 1/3)
T2W category= 5
DWI category= 5
DCE category= positive
Overall PI-RADS category= 5

Patient was called back and repeat MRI was done
A 76-year-old man with a PSA of 6.12 ng/dl was found to have a midline to right mid subcapsular peripheral zone lesion. The overall PI-RADS category is 5.

Transperineal MRI/TRUS fusion guided biopsy revealed prostate adenocarcinoma with Gleason 5+4.

Repeat biopsy is recommended.
Critical Quality Control Steps for MRI Guided Localized Prostate Cancer Management

**Steps**
- Image Quality
- Interpretation
- Data Preparation
- Registration quality
- Biopsy quality
- Prep&Interpretation

**Speciality involved**
- Radiology Technologist
- Diagnostic Radiologist
- Diagnostic Radiologist
- Urologist
- Interventional Radiologist
- Interventional Radiologist
- Pathologist

"There is a long pathway for a successful result using MRI guidance for localized prostate cancer diagnosis and a solid #Teamwork is needed for success."

Baris Turkbey M.D.
Basic Tips for Quality Control

- Weekly multi-disciplinary meetings
- Regular cancer detection rate evaluations for each PI-RADS category
- PI-RADS category 4 and 5 lesions
  - Please check entire QC chain carefully if targeted biopsy results are tumor negative
- Please try to call back patients soon if procedural error(s) is identified
References


Thank you...

For questions, comments and contributions:

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