Value of mpMRI + MR-TRUS Fusion Targeted Biopsy During Active Surveillance

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Introduction

- 54 y.o. Male patient
- PSA 5.2 ng/mL
- Undergoing Active Surveillance
- 04 prior systematic biopsies
- Gleason 6 (ISUP 1) <25% core involvement
- First time performing an mpMRI of the prostate, during follow-up.
mpMRI Findings
mpMRI Findings

• There is a 1.0 cm non-circumscribed irregular T2-hypointense focal abnormality within the basal posterolateral right peripheral zone.
  – T2 Score: 3/5

• There is focally restricted diffusion...
  – DWI Score: 4/5

• ... And early focal contrast enhancement on DCE
  – DCE Score: +

• PZ Lesion → DWI is dominant → PI-RADS Score = 4
Patient was submitted to MR-TRUS fusion guided biopsies, including targeted (arrows) and systematic cores.
Biopsy Results

Targeted Cores

Systematic Cores
Biopsy Results

Targeted Cores
ISUP 2 (Gleason 7)
90% involvement

Systematic Cores
ISUP 1 (Gleason 6)
10% involvement
Biopsy Results

Targeted Cores
- ISUP 2 (Gleason 7)
  - 90% involvement
- Treatment (!)

Systematic Cores
- ISUP 1 (Gleason 6)
  - 10% involvement
- Continue on Active Surveillance (?)
Discussion

- In this presented case, the combination of mpMRI and targeted biopsy enabled the detection of the most aggressive portion of the tumor, thus better stratifying the patient for active treatment.
- There are promising ongoing initiatives aiming to determine the role of mpMRI in monitoring patients undergoing active surveillance, such as the PRECISE Recommendations:

<table>
<thead>
<tr>
<th>Likert</th>
<th>Assessment of likelihood of radiologic progression</th>
<th>Example</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Resolution of previous features suspicious on MRI</td>
<td>Previously enhancing area no longer enhances</td>
<td></td>
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<tr>
<td>2</td>
<td>Reduction in volume and/or conspicuity of previous features suspicious on MRI</td>
<td>Reduction in size of previously seen lesion that remains suspicious for clinically significant disease</td>
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<tr>
<td>3</td>
<td>Stable MRI appearance: no new focal/diffuse lesions</td>
<td>Either no suspicious features or all lesions stable in size and appearance</td>
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<tr>
<td>4</td>
<td>Significant increase in size and/or conspicuity of features suspicious for prostate cancer</td>
<td>Lesion becomes visible on diffusion-weighted imaging; significant increase in size of previously seen lesion</td>
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<td>5</td>
<td>Definitive radiologic stage progression</td>
<td>Appearance of extracapsular extension, seminal vesicle involvement, lymph node involvement, or bone metastasis</td>
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