



MET-RADS in 10 cases

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MET-RADS-P¹

METastasis Reporting And Data System for Prostate Cancer

Imaging recommendations designed to promote **standardisation** and **diminish variations** in

ACQUISITION

INTERPRETATION

REPORTING

of Whole-body MRI (**WB-MRI**) in patients with Advanced Prostate Cancer

1. Padhani AR, et al. Eur Urol. 2017 Jan; 71(1): 81–92.

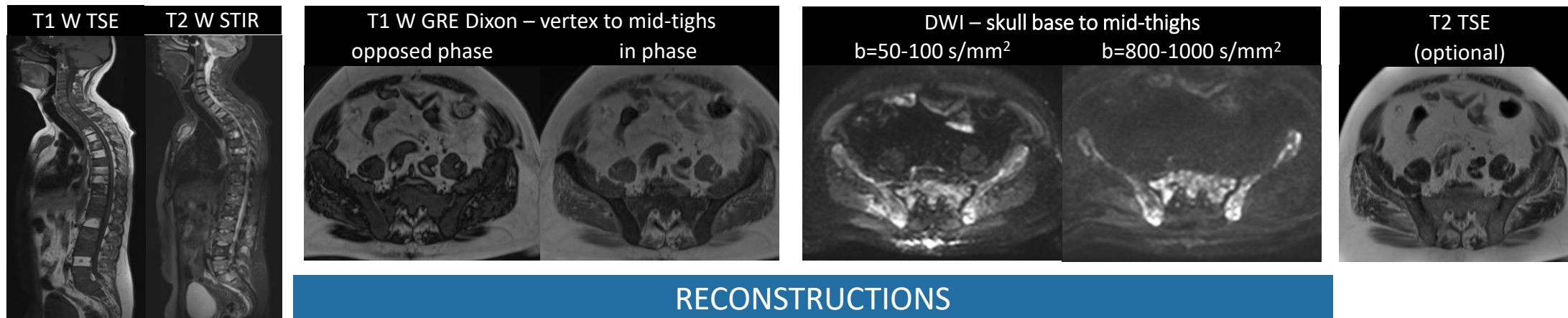
ACQUISITION

Sequence description		Core protocol
1	Whole spine–sagittal, T1 W, TSE , 4–5 mm slice thickness	Yes
2	Whole spine–sagittal, STIR (preferred) or fat suppressed T2 W, 4–5 mm slice thickness	Yes
3	Whole body (vertex to mid thighs)–T1 W, GRE Dixon technique. Fat image reconstructions are mandatory <ul style="list-style-type: none"> • A 3D FSE T1 W sequence offering multiplanar capability may be performed as an alternative to replace sequences 1 and 3 	Axial (5 mm) or coronal (2 mm)
4	Whole body (skull base to mid-thighs)–axial, diffusion weighted, STIR fat suppression, 5–7 mm contiguous slicing, multiple stations <ul style="list-style-type: none"> • ADC calculations with mono-exponential data fitting • Coronal b800–1000 multiplanar reconstructions • 3D-MIP reconstructions of highest b-value images 	2 b-values b50–100 s/mm ² b800–1000 s/mm ²
5	Whole body (vertex to mid thighs)–axial, T2 W, TSE without fat-suppression, 5 mm contiguous slicing, multiple stations, preferably matching the diffusion weighted images	Option

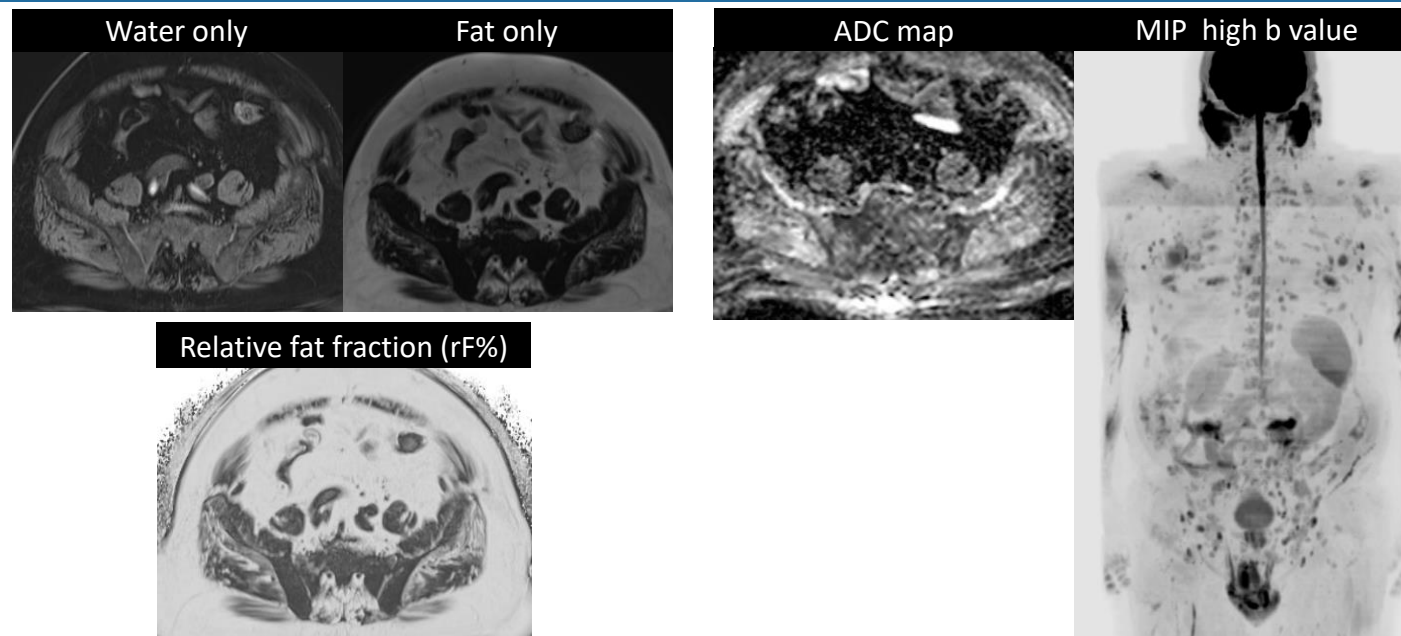
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	Sequence description	Core protocol	Extensions for comprehensive assessments
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4	Whole body (skull base to mid-thighs)–axial, diffusion weighted, STIR fat suppression, 5–7 mm contiguous slicing, multiple stations <ul style="list-style-type: none"> • ADC calculations with mono-exponential data fitting • Coronal b800–1000 multiplanar reconstructions • 3D-MIP reconstructions of highest b-value images 	2 b-values b50–100 s/mm ² b800–1000 s/mm ²	3 b-values (additional b500–600 s/mm ²)
5	Whole body (vertex to mid thighs)–axial, T2 W, TSE without fat-suppression, 5 mm contiguous slicing, multiple stations, preferably matching the diffusion weighted images	Option	Yes
6	Regional assessments including dedicated prostate, small field of view spine, brain studies, and contrast enhancement	No	Yes

SEQUENCE COMPONENTS (core protocol)



RECONSTRUCTIONS



INTERPRETATION

BONE METASTASES (RECIST non-measurable)

MEASURABLE DISEASE

- Soft tissue lesions
- Lymph nodes
- Measurable bone metastases

Morphologic criteria

- Size/number
- Fat repopulation

Functional imaging (DWI)

- ADC for assessing response

RECIST 1.1¹ / PCGW3² criteria

1. Eur J Cancer. 2009 Jan;45(2):228-47.
2. J Clin Oncol. 2016 Apr 20;34(12):1402-18.

Response Assessment Categories (RAC)

	BONE METASTASES	SOFT TISSUES (LN, Visceral mets)
<p>RAC 1 Highly likely to be responding</p>	<ul style="list-style-type: none"> Return of normal marrow (decrease in number/size, from diffuse to focal, sclerosis, fat dot/halo signs) ↑ ADC (from $\leq 1400\mu\text{m}^2/\text{s}$ to $>1400\mu\text{m}^2/\text{s}$ or $\geq 40\%$ increase from baseline*) 	<ul style="list-style-type: none"> RECIST Complete response (CR) RECIST Partial response (PR)
<p>RAC 2 Likely to be responding</p>	<ul style="list-style-type: none"> Evidence of improvement, but not enough to fulfil criteria for RAC 1 ↑ ADC (from $\leq 1000\mu\text{m}^2/\text{s}$ to $<1400\mu\text{m}^2/\text{s}$ or $>25\%$ but $>40\%$ increase from baseline*) 	<ul style="list-style-type: none"> ↓ size not meeting RECIST 1.1 criteria for PR
<p>RAC 3 No change</p>	<ul style="list-style-type: none"> No observable change 	<p>No observable change (SD)</p>
<p>RAC 4 Likely to be progressing</p>	<ul style="list-style-type: none"> Evidence of worsening disease, but not enough to fulfil criteria for RAC 5 (or equivocal new lesions, or relapse disease) ↑ SI on high b value images (with ADC $<1400\mu\text{m}^2/\text{s}$) 	<ul style="list-style-type: none"> ↑ size not meeting RECIST 1.1 criteria for PD Equivocal new lesions
<p>RAC 5 highly likely to be progressing</p>	<ul style="list-style-type: none"> Unequivocal ↑ in metastases number/size (or new pathologic fractures /cord compression requiring treatment, from focal to diffuse) New lesions with high SI on high b-value and ADC $600-1000\mu\text{m}^2/\text{s}$) 	<ul style="list-style-type: none"> RECIST Progressive Disease (PD)

REPORTING

Soft tissues RECIST criteria	MET-RADS Prostate Report							Bones MET-RADS criteria																																																		
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- 7 bone regions
- 7 soft tissue regions
- Within each region:
 - Presence of disease (Y/N)
 - Primary RAC
 - Secondary RAC
- Overall assessment
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REPORTING

The image shows a MET-RADS Prostate Report form. A callout box highlights the 'Pelvis' section with the following data:

Pelvis		
Involved	Y	N
RAC	1°	2°
Comment		

The background form includes sections for Soft Tissues (RECIST criteria) and Bones (MET-RADS criteria), with various 'Involved' and 'RAC' fields and checkboxes for 'Primary' and 'Nodes'.

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