REGIONAL STAGING OF PROSTATE CANCER ON PELVIC MRI

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High risk patients (>5% chance of lymph node metastases) undergo nodal staging. The most reliable method is lymph node dissection. However, it is invasive and positive lymph nodes can be found outside the routine and extended lymph node dissection templates. ¹

Pre-operative MRI may be employed for cancer detection and biopsy guidance as well as local staging. During these exams, images covering the greater pelvis allow potential detection of suspect lymph nodes, both within and beyond the usual surgical template for nodal dissection.
REGIONAL VS DISTANT LYMPH NODES

REGIONAL: N1
- Pelvic
- Obturator
- Internal iliac (hypogastric)
- External iliac
- Sacral

DISTANT: M1a
- Aortic
- Common iliac
- Inguinal
- Supraclavicular
- Cervical
- Scalene
- Retroperitoneal NOS
External Iliac and Internal Iliac (hypogastric) Lymph Nodes

Obturator Lymph Nodes
DISTANT LYMPH NODES (M1a)

It is useful for prostate MRI protocols to contain one sequence including the aortic bifurcation through inguinal lymph nodes as their involvement is considered metastatic disease, rather than regional nodal disease.³
The literature to support what nodal size means for metastatic risk varies.

Sensitivity and specificity rests with threshold one sets for suspicion of metastatic nodal involvement.

A size threshold of 1.5 cm is almost universally specific for metastatic involvement. 4

The traditional threshold is 1 cm short axis for oval lymph nodes and 8 mm diameter for round lymph nodes. 5
ABNORMAL LYMPH NODES: MORPHOLOGY

- In contrast to the typical oval shape of a normal lymph node, suspicious morphologies include the following:
  - Round
  - Irregular
  - Indistinct border
ABNORMAL LYMPH NODES: DWI

- Lymph nodes are suspicious if brighter than groin lymph nodes on high $b$ value images (with corresponding low ADC signal intensity).\(^6\)
- Restricted diffusion and abnormal morphology are particularly helpful in determining if a normal sized lymph node is suspicious for metastatic involvement.
• 64 year old man with PSA of 19.8 ng/ml, no biopsy.

• Despite measuring 5mm short axis, the left internal iliac lymph node is suspicious due to:
  • Irregular shape
  • High signal intensity on the $b\,1000$ series with low signal intensity on the ADC map

• Involvement of this left internal iliac lymph node constitutes N1 disease
• 64 year old man with PSA of 19.8 ng/ml, no biopsy.
• Right superficial inguinal lymph node is suspicious because of:
  • Large size of 13 mm short axis
  • High signal intensity on the b 1000 series with low signal intensity on the ADC map
• Involvement of an inguinal lymph node constitutes M1a disease.
• 72 year old man with PSA of 4.9 ng/ml and Gleason 4+3 prostate cancer on biopsy.
• Common iliac lymph node is suspicious due to:
  • Larger size, 9 mm short axis
• This lymph node was completely visible on a larger FOV Post-contrast T1 sequence, incompletely imaged on the Pre-contrast T1.
• A suspicious common iliac lymph node constitutes M1a disease.
• This case highlights the importance of imaging to the level of the aortic bifurcation.
REFERENCES


