

Specialty area: Clinical Cancer MRI course/ Rising PSA in treated prostate cancer

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Title: Rising PSA in treated prostate cancer

Target audience: This talk is designed for physicians (radiologists and oncologists) and for clinical support scientists who are interested in gaining knowledge about imaging of prostate cancer and particularly about the current and emerging applications of MR imaging in detection of local recurrence and metastasis in patients with treated prostate cancer.

Overview: Rising serum PSA values after treatment of prostate cancer is a common and challenging clinical presentation. MR imaging can play an important role in localization of recurrence and differentiating it from metastatic disease. In this talk, after definition of the clinical problem and its challenges, updated information, pearls and pitfalls about MR imaging features of treated prostate and recurrence after radical prostatectomy, radiation, androgen deprivation therapy and focal therapy will be provided. The role of whole-body MR imaging for detection of metastasis will also be presented.

Highlights:

- Approximately 10-50% of patients with prostate cancer develop recurrent or metastatic disease following treatment.
- Distinction between local recurrence and metastatic disease is critical in making management decisions when PSA starts to rise after therapy.
- Clinical nomograms are used to statistically predict the likelihood of recurrent disease but are not helpful in differentiating between recurrence and metastasis. MR imaging can be used both for detection of local recurrence and metastatic disease.
- The most common site of local recurrence after radical prostatectomy is the vesicourethral anastomosis. In addition to T2-weighted images, functional imaging sequences (DW-MRI and DCE- MRI) can facilitate the diagnosis.
- Radiation and androgen deprivation therapy induces changes in the treated prostate which decrease the ability of T2-weighted images to detect the viable cancer. Functional sequences provide very useful information in these settings in detection of recurrence.
- MR imaging can also be used to assess the extent and distribution of the effects of focal therapy (focused ultrasound, cryotherapy, laser etc) as detection of areas suspicious for recurrence.
- Whole body MRI with diffusion weighted imaging is a promising technique for evaluation of metastatic disease and response to treatment in patients with prostate cancer.