

Serial change of non-cancerous low intensity area in the peripheral zone of prostate on repeated T2-weighted MR imaging

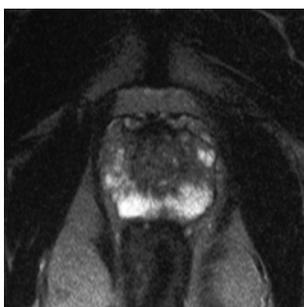
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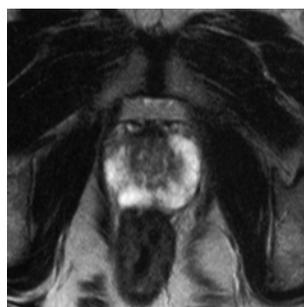
Purpose: Although the prostatic cancer in the peripheral zone shows the low intensity area, several benign conditions also show the low intensity area on T2 weighted image in the peripheral zone of prostate. The aim of this study is to clarify the serial changes of the distribution of non-cancerous low intensity area in the peripheral zone on the repeated T2-weighted MR imaging of prostate gland.

Materials and Methods: Ninety-nine patients whom two T2-weighted MR imaging of the prostate was performed at more than 300-days interval and with normal prostatic serum antigen level and normal PSA velocity during the period were included in this study. We classified the distribution pattern of low intensity area in the peripheral zone of prostate on T2 weighted image into five categories (None, Linear or Trabecular, Focal, Geometrical, and Diffuse) at each MR examination. The distribution pattern at each MR examination and the serial change between two MR examinations were recorded by the two radiologists with consensus reading.

Results: In the first MR examination, None, Linear or Trabecular, Focal, Geometrical, and Diffuse pattern was seen in 6, 52, 15, 19, and 15, respectively. (Six patients showed Linear or Trabecular with focal low intensity area and 2 patients had geometrical low intensity area with focal low intensity area.) In the second MR examination, Normal, Linear or trabecular, Focal, Geometrical, and Diffuse pattern was seen in 5, 49, 15, 23, and 11, respectively. Among 99 patients, 21 patients had a serial changes in the distribution of low intensity area. Of the 15 patients with focal low intensity area on the first MR examination, although the area remained unchanged on 8 patients, the area disappeared on 6 patients. In the residual one patient the geometrical low intensity area disappeared although focal low intensity remained unchanged. On 6 patients out of 84 patients without focal low intensity area in the peripheral zone on prostate on the first MR examination, the new focal low intensity area was identified on the second MR examination.



a. T2WI at 2002



b. T2WI at 2004

Discussion and Conclusion: This study reveals that the distribution of low intensity area in the peripheral zone of prostate may change and even the focal low intensity area mimicking prostatic cancer may appear and disappear on the repeated T2 weighted MR imaging even in the patients without clinically significant prostatic cancer. Radiologists should know the non-cancerous low intensity area in the peripheral zone can vary on the repeated MR examination and sometimes these low intensity areas might mislead the diagnosis.

Reference:

1. Eur Radiol 2002; 12:357-65
2. Acta Radiologica 2001;42 : 348-354
3. Eur Radiol 2000;10: 1947-195