**Experiences with the MRI guided prostate biopy in clinical routine in patients with former negative TRUS biopsy**

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## *INTRODUCTION*

The MRI guided prostate biopsy (MRI Bx) could already prove to increase the diagnostic performance in patients with the combination of a prior negative ultrasound guided biopsie (TRUS Bx), suspicious PSA levels and findings in MRI examinations with an endorectal coil (endoMRI) [1,2]. Purpose of this work is to report the experiences with the MRI Bx in clinical routine.

## *MATERIALS & METHODS*

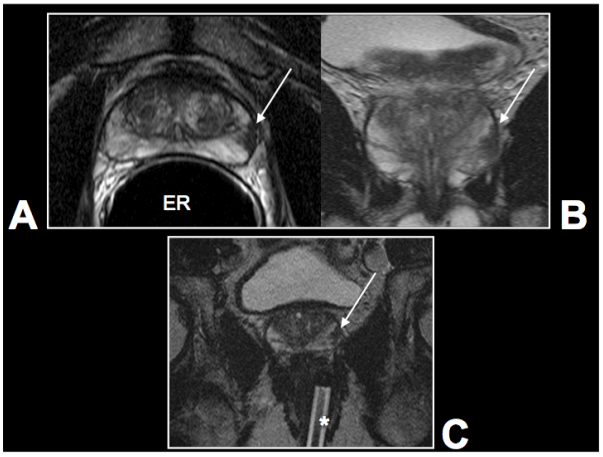
So far, 69 patients with persisting / increasing PSA levels (> = 4 ng/dl), former negative TRUS Bx and reported negative suspicious finding on T2w endoMRI were referred to our institution for MRI Bx. In 3/69 patients, no TRUS Bx was performed; individual indication for MRI Bx in these patients was based on localization and size of the reported endoMRI finding. All MRI Bx were performed on a conventional or open bore 1.5Tesla MR scanner (Magnetom Avanto, Magnetom Espree, Siemens Medical, Germany). Images were acquired with combined body-phased coils. For guidance of the 16 / 18-gauge fully automatic biopsy gun (TSK Laboratory, Japan / MRI Devices Germany GmbH, Schwerin, Germany), a needle guide (filled with a Gd-chelat doted gel) was used. For fixation and adjustment of this needle guide, a further development of the biopsy devise as described by Beyersdorff, Winkel et al. [3] was used (MRI Devices Germany GmbH, Schwerin, Germany). Antibioses was applied according clinical standards for prostate biopsies before and after intervention; no sedatives or anesthetics were applied routinely. All MRI Bx were performed in close collaboration of the department of urology and radiology. Documentation and follow-up of the patients were according clinical routine procedures standards, including a digital rectal examination and urinary analysis.

## *RESULTS*

At the time point of MRI Bx, mean (+/- standard deviation) age of the patients was 60 +/- 7 years; last documented PSA level before MRI Bx was 11 +/- 9 ng/ml; the mean prostate volume was 46 +/- 31 ccm (range from 5 to 183 ccm; median was 37 ccm). All patient tolerated the MRI Bx well. With a total intervention time of up to 1.5 hours and patient placement in the prone position, most documented discomfort was shoulder pain. In two patients, antibioses scheme had to be changed after intervention because of an infection. No injuries of the urethra or bladder were observed. Totally, 329 specimens were taken (5 +/- 2 per patient). In 33/69, prostate cancer was diagnosed (detection rate 48%); in 14 /69 patients (20%) prostatitis and in 8/69 patients (12%) a atypical cells / PIN was reported.

## *CONCLUSION*

The MRI guided prostate biopsy is an invaluable add-on to the conventional TRUS biopsy, especially in cases with former negative biopsies, persisting / increasing PSA levels and suspicious MRI findings. It is a save and practical procedure, which can easily be integrated into clinical routine.




***FIGURE***

An example of a patient with former negative TRUS biopsy and suspicious MRI finding (marked by arrows) on T2w TSE images is given in this figure. Images A) and B) were acquired with an endorectal coil at 1.5T for MRI Bx planning (ER). Image C) displays the needle guide during intervention, pointing directly to the suspicious lesion. Histology of this area revealed a focal adenosis.

***REFERENCES***

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