



Experiences with the MRI-Guided Biopsy of the Prostate Gland as Second Biopsy (Re-Biopsy)

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Introduction

The multimodal high definition (3Tesla-Device) MRI of the prostate it for the diagnosis of prostate cancer of increasing importance. The consequence of the improved imaging is the MRI-guided biopsy, which targets the suspected malignant lesions.

Materials and Methods

- Included in the study: patients with a previous negative TRUS-biopsie and persisting, pathological PSA-levels.
- Position of needle controlled after each biopsy
- Imaging: 3 Tesla Philips Intera with endorectal coil
- Biopsiedevice: Dyna TRIM (Invivo)
- Number of patients: n=148
- Time period: 01.05.2009 – 31.10.2011
- Average age: 65 years
- Average PSA level: 11.5 ng/ml
- Average duration of examination: 45 minutes
- Average number of MRI-biopsies per patient: 3,4
- Interpretation of imaging:
 - minimal indication of malignancy
 - moderate indication of malignancy
 - highly indication of malignancy

Conclusion:

The patients examined with the targeted biopsies required in general fewer punctures in contrast to those examined with the standard random biopsy. Despite this, the detection rate of a carcinoma for the former group was much higher (82 %). To be considered, however, is the fact, that the MRI-guided biopsy is a time consuming, expensive procedure. In addition, the experience of the radiologist involved has considerable influence on the effectiveness of the procedure.



Figure 1: Patient face downward with biopsy device.

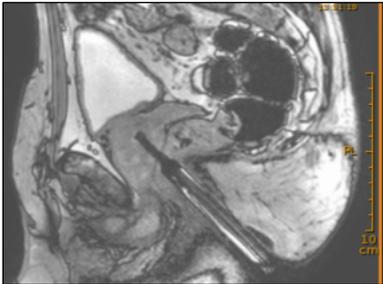


Figure 2: Imaging of the situs in sagittal and transversal planet with biopsyneedle in situ.



Table I: Number of previous Biopsies

1	2	3 and more
78 Patients	45 Patients	25 Patients

Table II: Tumor Localisation

Peripheral Zone	17	35%
Central Zone	31	65%

Table III: Differentiation Degree of the Carcinoma

No. of Total-Carcinoma	n=48
Gleason 6	1
Gleason 7	26
Gleason 8	9
Gleason 9	2

Table IV: Results

MRI Classification	Number of Patients	Number of Carcinoma	Number of intermediate/highrisk Carcinoma in %
minimal indication of malignancy	94	4	2 (50%)
moderate indication of malignancy	40	30	24 (80%)
highly indication of malignancy	14	14	11 (78%)

Table V: Detection Rate in the Re-Biopsy

According to references (TRUS-Biopsy)		18-20%
MRI-guided biopsy	(n=148)	32% (n=48)
MRI guided biopsy restricted to cases with moderate or highly probable signalized indications of malignancy	(n=54)	82% (n=44)