

What kind of imaging studies and imaging based therapies are done by the urologist?

Citation for published version (APA):

Walz, J., Ferreira Coelho, M., Geavlete, P., Heynemann, H., Loch, T., Trombetta, C., & Wijkstra, H. (2011). What kind of imaging studies and imaging based therapies are done by the urologist? *European Urology Supplements*, 10(2), 269-. [https://doi.org/10.1016/S1569-9056\(11\)60837-3](https://doi.org/10.1016/S1569-9056(11)60837-3)

DOI:

[10.1016/S1569-9056\(11\)60837-3](https://doi.org/10.1016/S1569-9056(11)60837-3)

Document status and date:

Published: 01/01/2011

Document Version:

Publisher's PDF, also known as Version of Record (includes final page, issue and volume numbers)

Please check the document version of this publication:

- A submitted manuscript is the version of the article upon submission and before peer-review. There can be important differences between the submitted version and the official published version of record. People interested in the research are advised to contact the author for the final version of the publication, or visit the DOI to the publisher's website.
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Results: In 27 (77%) of I Gr the urethra was restored simultaneously at 2 foci, whereby the proximal focus of the shorter US was localized in the membranous/bulbar urethra. After resection the proximal focus and the end-to-end anastomosis, in cases where the second focus was localized ≥ 4 -5 cm distal of the anastomosis, we performed simultaneous UP (UP): island skin flap in 23 cases and testicular vaginal sheath in 4 cases without complications. The hospital stay was 19-23 days. In 8 (23%) patients of the I Gr, the US was controlled in two stages. Stage I: in cases of long obliterations of the bulbar department (≥ 3 cm) we performed resection with urethroperineostomy of both ends and simultaneous Orandi UP of the US distal focus. At 4-6 months we performed substitution UP of the bulbar urethra by island skin flap. Complications after Stage I: stenosis of the urethrocutaneostomy- 2, diastasis of the skin edges of the penile wound in 1 case. There were no complications at Stage II. The total duration of healing of the US with restoration of the voiding function in these patients was 5-6 months. In Gr II patients the penile urethra was obliterated in all cases, which excluded its visualization, therefore Stage I of surgery started from revision of the penile urethra, urethrotomy and resection of the obliterated focus. After that, other US foci were identified. Out of the 16 II Gr, 75% we performed 3-stage UP, in 25% - 4-stage surgery: vascularised skin flap-22, testicular vaginal sheath-4 and bucal mucosa-6. Complications: recurrence of the stricture-1, stenosis of the neourethra-1, stenosis of the urethrocutaneostomies-4 and diastasis of the skin edges of the wound-3. The duration of healing: 10-17 months. In all patients normal voiding was restored at 1-6 years of control.

Conclusions: In cases of 2-focal US without obliteration of the distal focus we are able to perform simultaneous resection of the urethra with urethro-urethroanastomosis and UP with excellent results in 77% of patients. In cases of obliteration of the penile urethra and its restoration 'from periphery to center', 3-4 stages of UP were needed.

Poster Session 71

PROSTATE CANCER: HOW TO IMPROVE DIAGNOSIS? Monday, 21 March, 12.15-13.45, Hall B

851 WHAT KIND OF IMAGING STUDIES AND IMAGING BASED THERAPIES ARE DONE BY THE UROLOGIST?

Walz J.¹, Ferreira Coelho M.², Geavlete P.³, Heynemann H.⁴, Loch T.⁵, Trombetta C.⁶, Wijkstra H.⁷

¹Institute Paoli Calmettes, Dept. of Urology, Marseille, France, ²Hospital Lisbon, Dept. of Urology, Lisbon, Portugal, ³Saint John Emergency Clinical Hospital, Dept. of Urology, Bucharest, Romania, ⁴University Clinic Halle, Dept. of Urology, Halle, Germany, ⁵Diakonissenkrankenhaus Flensburg, Dept. of Urology, Flensburg, Germany, ⁶University of Trieste, Dept. of Urology, Trieste, Italy, ⁷University of Amsterdam, Dept. of Urology, Amsterdam, The Netherlands

Introduction & Objectives: Imaging and imaging based therapy is gaining increasing importance in the management of urological patients. Many of the currently available imaging studies and imaging based therapies can be performed by the urologist himself. However, other specialties are also often involved. The European Section of Urological Imaging (ESUI) initiated a survey, investigating what kind of exams and interventions are done by urologists.

Materials & Methods: In Spring 2009, an invitation to participate in an internet based survey was sent by e-mail to all EAU members. The survey consisted of a short questionnaire including 21 questions in 7 sub domains. The questionnaire investigated which speciality was in charge of the following imaging studies in urological patients: ultrasound, conventional X-ray, CT scan, MRI and interventional radiology, such as nephrostomy and kidney or prostate biopsy. Moreover, imaging based therapies were also investigated, such as focal therapy of the kidney and the prostate. Exams and interventions could either be performed by the urologist or other specialties (radiology, surgery, internal medicine).

Results: Over all, 476 replies were received, with 90% coming from public hospitals. The percentage of urologists doing ultrasound exams of the kidney was 66%, of the bladder 73%, of the testicle 61% and of the prostate 89%. The urologist performed conventional X-Ray and intravenous urograms in 17% and 20%, respectively. CT scan and MRI were performed by urologists in 9% and 1%, respectively. Urologists were in charge of interventional radiology, such as nephrostomies in 74%, kidney biopsy in 46% and prostate biopsy in 97%. Focal therapy of the kidney by radiofrequency was done by the urologist in 57% and by cryotherapy in 72%. Focal therapy of the prostate by HIFU was done by the urologist 83% and by cryotherapy in 81%.

Conclusions: Not all urologists perform ultrasound exams of all urological organs, with exception of the prostate, where 90% of the exams are done by the urologist. Conventional X-Ray, CT and MRI are the domain of other specialties. With exception of the prostate, the urologist is only in 2/3 of the cases involved in imaging based therapies. Urologist should become more active in this field, as they are the most appropriate actor in the treatment of urological pathologies.

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PROSPECTIVE STUDY COMPARING DETECTION RATES OF REAL-TIME-SONOELASTOGRAPHY TARGETED AND RANDOMIZED BIOPSY OF THE PROSTATE

Fritsche H.M., Brandtner A., Wieland W.F., Ganzer R.
University of Regensburg, Dept. of Urology, Regensburg, Germany

Introduction & Objectives: Randomized biopsy of the prostate is limited by considerably high false negative rate. Common greyscale ultrasound is insufficient in prostate cancer (PC) imaging. The principle of Real-time-Sonoelastography (RTE) is the real-time imaging of areas of different stiffness within the prostate, allowing to perform targeted biopsies of suspicious areas in real-time in an ambulant setting without the necessity of additional items such as contrast medium. The intention of the present study was to evaluate the relevance of a targeted biopsy scheme in prostate cancer detection.

Materials & Methods: We prospectively included 139 patients with the indication for a biopsy of the prostate. Systematic RTE (Hitachi, EUB 7500) was performed in left lateral position in an ambulant setting. Suspicious areas of the peripheral zone were measured and documented. A maximum of four RTE targeted biopsies were taken in local anaesthesia followed by a lateralised 10-fold randomised biopsy by a different investigator blinded for the RTE result. Detection rates were compared.

Results: 139 unselected patients were analysed (52 primary biopsy, 87 following 1-5 previous biopsies). Mean PSA was 10.8 ± 9 ng/ml (7.1 ± 3.8 and 13.0 ± 9.9 ng/ml in primary and re-biopsy patients, respectively). Mean age was 64 ± 10 years and mean prostate volume 57 ± 29 cc. Prostate cancer was detected in 73 (52.5 %) patients. In 28 patients (38.4%) PC was only detected by random biopsies, in 8 patients (11.0%) only by RTE, and in 37 patients (50.7%) with both methods. RTE showed a significantly higher detection rate per biopsy core compared to random biopsy (22.4% vs. 11.4%; $p < 0.05$), which is also valid within the subgroups primary biopsy / previous biopsies.

Conclusions: The detection rate for PC of a RTE-targeted biopsy is twice as high as that of a randomized biopsy. The highest detection rates are achieved with a combined RTE-targeted and randomized biopsy scheme. Thus, the two biopsy methods should currently be used in combination.

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COMPARISON BETWEEN REAL TIME ELASTOGRAPHY AND CONTRAST ENHANCED MRI REGARDING CORRECT PROSTATE CANCER LESION IDENTIFICATION

Walz J.¹, Marcy M.², Brunelle S.³, Laroche J.¹, Gravis G.⁴, Salem N.⁵, Baldou F.⁶
¹Institute Paoli-Calmettes, Dept. of Urology, Marseille, France, ²Institute Paoli-Calmettes, Dept. of Pathology, Marseille, France, ³Institute Paoli-Calmettes, Dept. of Radiology, Marseille, France, ⁴Institute Paoli-Calmettes, Dept. of Oncology, Marseille, France, ⁵Institute Paoli-Calmettes, Dept. of Radiotherapy, Marseille, France, ⁶Jewish Hospital, Dept. of Urology, Montreal, Canada

Introduction & Objectives: Conventional grey scale ultrasound has limited sensitivity and specificity in the detection of prostate cancer. Real time elastography is a promising modality to overcome this problem. Contrast enhanced MRI is another popular imaging modality for this purpose. The goal of the current study was a comparison of the diagnostic value between real time elastography and contrast enhanced MRI in the detection of prostate cancer lesions in prostatectomy specimens.

Materials & Methods: Between 11/2008 to 05/2009, 28 patients diagnosed with prostate cancer and scheduled for radical prostatectomy underwent real time elastography (Hitachi EUB 7500) and contrast enhanced MRI before radical prostatectomy at least 6 weeks after prostate biopsy by independent physicians. During the exam each prostate was partitioned into 12 sectors (anterior, posterior, left, right, base, middle gland, apex) for a total of 336 sectors evaluated. Suspect zones were identified and filed depending on their localization. The prostatectomy specimens were processed according to the Stanford protocol. The preoperative suspicions for cancer lesions and pathological results were compared for each imaging modality. The Mantel-Haenszel test explored the significance of the difference in accuracy between the two modalities.

Results: Clinical stage was T1c in 78.5%. Pathological stage was pT2a in 14.3%, pT2b in 10.7%, pT2c in 64.2% and pT3b in 10.7%. Median prostate volume was 30 g (range: 10-63g) and median diameter of the main cancer lesion was 2.5cm (range: 0.2-4cm). In total, 88 cancer lesions could be identified in the prostatectomy specimen. For real time elastography vs. MRI the sensitivity and specificity for correct cancer identification were respectively 73.4% vs. 31.2% and 79.0% vs. 90.5%. The NPV and PPV for elastography vs. MRI were respectively 83.4% vs. 69.2% and 67.4% vs. 66.1%. Accuracy for correct identification of the tumor lesion was for elastography 76.5% and for MRI 68.5%. This difference was statistically significant ($p = 0.02$).

Conclusions: In this study, real time elastography showed good ability to identify prostate cancer lesions in the prostate. It has significantly better predictive accuracy for the identification of cancer lesions relative to contrast enhanced MRI. Biopsy studies need to confirm these results.