Conclusions: Our kidney displacement simulator was able to visualize the major vessel portions and branched small vessels, such as the adrenal and gonadal veins, prior to surgery. It is considered useful for providing guidance to surgeons and decreasing operative risks and possible complications.

Editorial Comment

Due to new regulations and complexity of surgical procedures, new training tools are demanded for better understanding of surgical steps and schooling of dexterity for development of surgical skills. This study combines pre-operative imaging technique with the laparoscopic procedure allowing identifying several anatomical landmarks, particularly the vascular structures allowing surgeons to carefully plan the surgical steps minimizing possible complications. It is possible that in the future a software will allow pre-planned surgeries to be performed prior to the actual procedure, as well as for training purpose.

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IMAGING

MRI of prostate cancer at 1.5 and 3.0 T: comparison of image quality in tumor detection and staging

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AJR Am J Roentgenol. 2005; 185: 1214-20

Objective: This prospective study was performed to compare the image quality, tumor delineation, and depiction of staging criteria on MRI of prostate cancer at 1.5 and 3.0 T.

Subjects and Methods: Twenty-four patients with prostate cancer underwent MRI at 1.5 T using the combined endorectal-body phased-array coil and at 3.0 T using the torso phased-array coil, among them 22 before undergoing radical prostatectomy. The prostate was imaged with T2-weighted sequences in axial and coronal orientations at both field strengths and, in addition, with an axial T1-weighted sequence at 1.5 T. Preoperative analysis of all MR images taken together was compared with the histologic findings to determine the accuracy of MRI for the local staging of prostate cancer. In a retroanalysis, the image quality, tumor delineation, and conspicuity of staging criteria were determined separately for both field strengths and compared. Statistical analysis was performed using Wilcoxon's and the McNemar tests.

Results: In the preoperative analysis, MRI (at both 1.5 and 3.0 T) had an accuracy of 73% for the local staging of prostate cancer. The retroanalysis yielded significantly better results for 1.5-T MRI with the endorectal-body phased-array coil in terms of image quality ($p < 0.001$) and tumor delineation ($p = 0.012$) than for 3.0-T MRI with the torso phased-array coil. Analysis of the individual staging criteria for extracapsular disease did not reveal a superiority of either of the two field strengths in the depiction of any of the criteria.

Conclusion: Intraindividual comparison shows that image quality and delineation of prostate cancer at 1.5 T with the use of an endorectal coil in a pelvic phased-array is superior to the higher field strength of 3.0 T with a torso phased-array coil alone. As long as no endorectal coil is available for 3-T imaging, imaging at 1.5 T using the combined endorectal-body phased-array coil will continue to be the gold standard for prostate imaging.

Editorial Comment

The best results for local staging of prostate cancer with MR imaging is obtained using 1.5 T MR scanner and an integrated endorectal pelvic-phased array coil. Using this combination of coils and following strict and definite criteria for extraprostatic disease, a high degree of specificity can be obtained (97%). As 3T MR units are becoming more available, and offering higher signal-to-noise ratios and increased temporal and spatial resolution it would be useful to have a study comparing both techniques.

The authors present a very interesting paper where they did a prospective analysis comparing the results of both equipments in a group of 22 patients who underwent prostatectomy. Since endorectal coils are not yet approved for clinical use at 3.0 T, they performed a direct comparison between 1.5 T MR scanner and an integrated endorectal pelvic-phased array coil with a 3.0 T MR scanner and the torso phased-array coil alone. Among these patients 15 had stage T2 tumor, and 7 had stage T3 tumor. The accuracy of staging using the MR images obtained at both field strengths was 73%. The author's conclusion was that at this moment, 1.5-T MRI of the prostate with the endorectal coil will continue to be the gold standard for MRI of the prostate because of its superior overall image quality compared with MRI at 3.0 T using only the torso phased-array coil.

It has been shown that in experimental studies, the initial results of endorectal 3T MR imaging in prostate cancer is potentially useful (1). This should be expected since with this new endorectal coil, we would obtain an increase in spatial and temporal resolution and also an increase in spectral resolution (better MR spectroscopic imaging). Endorectal 1.5 T MR imaging combined with spectroscopic imaging has already demonstrated a potential for improved diagnosis and staging of prostate cancer. Thus it is all right to predict that the 3.0 T MR scanner with adequate endorectal coil will very soon offer a significant improvement in conventional MR images and also in spectroscopic analysis causing a significant impact in the evaluation of patients with prostate cancer.

Reference

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How to decrease pain during transrectal ultrasound guided prostate biopsy: a look at the literature

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Purpose: There is growing interest among urologists on the need for decreasing pain during transrectal ultrasound (TRUS) guided prostate biopsy.

Materials and Methods: We performed a systematic MEDLINE search of clinical trials of any kind of anesthesia, analgesia or sedation during TRUS guided prostate biopsy published since 2000. We critically analyzed the impact of pain and discomfort associated with the procedure, the described methods for evaluating it and the different techniques that have been described.

Results: There is strong evidence in the current literature that patient tolerance and comfort during TRUS guided prostate biopsy can be improved by anesthesia/analgesia. What remains is the need to urge all urologists to introduce it in clinical practice as a routine part of the procedure, whatever the biopsy scheme.

Conclusions: Of the various options periprostatic anesthetic infiltration has been shown to be safe, easy to perform and highly effective. It should be considered the gold standard at the moment, even if the optimal technique remains to be established. Further studies addressing this issue are warranted.

Editorial Comment

The authors performed a systematic MEDLINE search of clinical trials of any kind of anesthesia, analgesia or sedation during TRUS guided prostate biopsy published since 2000. They retrieved and critically analyzed more than 40 articles dealing with different methods of decreasing pain during this procedure. As we know there is no rule to adequately predict if a patient will or will not feel too much pain or discomfort during TRUS biopsy. However, as mentioned by the authors, some risk factors associated with painful biopsy are younger age, anxiety, number of cores taken and repeat biopsy (due to the inclusion of the transition zone). This report nicely discusses the several methods and different approaches for local anesthesia during TRUS biopsy. The discussion includes the different amounts and different periprostatic sites for injection of lidocaine, the importance of using or not using intrarectal anesthetic gel instillation and its association or not with nonsteroidal anti-inflammatory. They also discuss about he possibility of using general anesthesia, entonox (50% nitrous oxide and oxygen) induced analgesia or anesthesia with intravenous injection of propofol. All the pros and cons of each procedure are well presented and discussed.

At our institution we have been using some type of local analgesia/anesthesia since 2.000. We start with oral administration of 500 mg of paracetamol (acetaminophen; nonopiate, nonsalicylate analgesic), 30 minutes before the procedure (for better analgesia). Intrarectal injection of 10 ml of 2% lidocaine gel is done 10 minutes before the biopsy (to decrease pain during probe insertion), with the patient already in the left lateral decubitus. Then, periprostatic nerve block is obtained (to decrease pain during biopsy), by infiltrating, on sagital plane, 2.5 ml of 2% lidocaine into the left and the right nerve plexus located at the junction of the seminal vesicle and prostate. After that, and on axial plane, 2.5 ml of 2% lidocaine is injected in each side of prostate apex. We have found that with this protocol, TRUS biopsy is well tolerated by the patients even when they are submitted to an extended or saturation biopsy scheme (16 - 22 cores) or rebiopsy. Only sporadically we use intravenous injection of propofol, and when it used the anesthesiologist always performs the procedure.

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UROGENITAL TRAUMA

The literature increasingly supports expectant (conservative) management of renal trauma -- a systematic review

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