

Early Diagnosis



Transrectal ultrasonography and prostate needle biopsy

By Bradley G. Orris, MD

Transrectal ultrasonography and prostate needle biopsy (TRUS/PNB) is one of the most common procedures performed in the urologist's office. An estimated 1.3 million men will undergo TRUS/PNB in the next year. The procedure can be performed safely and effectively in the office under local anesthesia in most men.

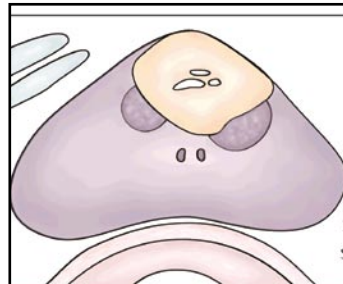
TRUS without the use of needle biopsy is useful for imaging the prostate and seminal vesicles and for the calculation of prostate volume, but is generally considered a poor screening test for prostate cancer because of its low sensitivity and specificity. TRUS/PNB is recommended in the setting of increased PSA, rapidly rising PSA, abnormal rectal examination, or to follow up on a previous abnormal prostate biopsy.

Once the decision to perform biopsy has been made, there are several things that the patient must do for preparation. First, all anticoagulant medication should be held for seven days prior to the procedure. The day of the procedure patients are generally asked to perform a Fleet's enema for evacuation of stool and air to aid in the procedure. Antibiotic prophylaxis is recommended for TRUS/PNB and generally consists of an oral antibiotic starting prior to the procedure and extending two to three days after.

The procedure begins with a standard digital

examination with the patient lying on his left side. The well-lubricated ultrasound probe is then placed into the rectum. The ultrasound probe is only slightly larger than a finger and is accommodated by most individuals without difficulty. Ultrasonography is then performed looking for suspicious lesions in the peripheral zone of the prostate, as well as any other abnormalities of the prostate or seminal vesicles. Measurements and pictures are then taken and an estimated prostate volume is calculated by the urologist.

One of the most dramatic improvements to the TRUS/PNB procedure in the last decade has been the widespread adoption of a prostate anesthetic block procedure, which can be performed at the start of the procedure. This involves the instillation of approximately 5cc of lidocaine



bilaterally at the junction of the prostate and seminal vesicles. Multiple randomized trials have confirmed the effectiveness and safety of this procedure.

Once the anesthetic has been placed, an 18-gauge needle biopsy device is used to take biopsies of the prostate. Multiple templates for prostate biopsy have been proposed over the years with no single pattern agreed upon by all clinicians. The general trend in recent years has been to increase the number of biopsies taken over the standard sextant biopsy to try to increase prostate cancer detection rates. Most commonly 12 biopsies are taken with a lateral and medial biopsy taken at the left and right base, middle and apex of the prostate. Any suspicious areas identified by TRUS are included in these biopsies.

Most men will note some blood in the urine or semen after the procedure. Discomfort with urination and minor rectal bleeding are also common. Inability to urinate or heavy bleeding requiring catheterization occur less than 1 percent of the time. Infection requiring hospitalization occurs in about 2 percent of individuals.

Repeat prostate biopsy is sometimes performed, although the indications are controversial. Persistently high or rising PSA as well as abnormalities on the initial biopsy are all common reasons for repeat TRUS/PNB. Often times this will involve an extended biopsy pattern, sometimes taking as many as 30 biopsies, and often is performed in the operating room under general anesthesia.

Although often anxiety provoking, TRUS/PNB is tolerated well by most men. With recent advances in technique, the procedure can be performed with a very low complication rate and minimal pain, even as the number of biopsies obtained has generally increased.



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Dr. Orris is a member of the American Urological Association, the American Medical Association, and the AOA Medical Honor Society. His areas of special interest include kidney stones, laparoscopic techniques in urology, minimally invasive treatment of prostate conditions, and general urology.