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# PERIPROSTATIC LOCAL ANESTHESIA BEFORE ULTRASOUND GUIDED PROSTATE BIOPSY

MARK S. SOLOWAY AND CAN ÖBEK

*From the Department of Urology, University of Miami School of Medicine, Miami, Florida*

## ABSTRACT

**Purpose:** We assessed the morbidity and benefit of periprostatic local anesthesia administered before ultrasound guided prostate biopsy.

**Materials and Methods:** After placing the transrectal ultrasound probe and visualizing the prostate 50 consecutive patients received local anesthesia before prostate biopsies.

**Results:** There was no morbidity associated with the infiltration of local anesthesia into the periprostatic neurovascular plexus. Only 1 patient had discomfort during prostate biopsies, and 10 patients who previously underwent biopsies without anesthesia commented favorably on the dramatic difference.

**Conclusions:** Many patients have pain during transrectal ultrasound guided biopsies of the prostate and few clinicians provide a periprostatic nerve block before this procedure. A periprostatic nerve block administered before the biopsies dramatically decreases discomfort. We urge all urologists to attempt this procedure, and we are confident that they will adopt it as part of their practice.

**KEY WORDS:** prostate; biopsy; anesthesia, local; nerve block; pain

The procedure of transrectal ultrasound with guided biopsies of the prostate is an integral part of the diagnostic methodology used for patients with an abnormal digital rectal examination or elevated prostate specific antigen (PSA).<sup>1</sup> Thousands of these procedures are performed. Although it is reasonably well tolerated by most patients, the procedure is associated with some discomfort. The amount of pain is partly associated with the number of biopsies obtained. There is evidence that increasing the number of biopsies results in a better chance of diagnosing prostate cancer.<sup>2</sup> When PSA remains elevated after an initial biopsy that does not detect prostate cancer, most clinicians recommend another set of biopsies, although use of the free-to-total PSA ratio has been of some help in decreasing the number of subsequent biopsies.<sup>1</sup> However, second and third biopsies are not uncommon.

Few urologists administer local anesthesia in an effort to decrease the discomfort associated with prostate biopsy. At a recent meeting we polled an audience of approximately 100 urologists representing many areas in the United States and not one was administering a periprostatic nerve block or any other form of local anesthesia before prostate biopsy. Since we have treated a number of patients who had difficulty enduring more than 5 or 6 biopsies and occasionally note that others became diaphoretic during the procedure, we recently began to administer a periprostatic nerve block using a slight modification of the technique described by Nash et al.<sup>3</sup>

## MATERIALS AND METHODS

A total of 50 consecutive patients in whom transrectal ultrasonography with guided biopsies of the prostate was planned read and signed an informed consent form. In 10 patients previous biopsies had been negative. Men were excluded from study if they were receiving any anticoagulant therapy or aspirin daily, or had an active lower urinary tract infection. Antibiotic prophylaxis with 80 mg. gentamicin was given intramuscularly 15 minutes before biopsy and antibiotic prophylaxis was continued with oral quinolone for 2 days after biopsy.

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All transrectal ultrasound guided biopsies were performed using a Siemen Sonoline system with a 7.5 MHz. probe. After transrectal placement of the probe the prostate was imaged in the transverse and sagittal sections. With the prostate viewed in the sagittal section a 7-inch 22 gauge spinal needle was introduced under ultrasound guidance. Approximately 5 cc 1% lidocaine without epinephrine were injected at 3 locations on each side of the prostate. The needle was initially positioned at the base of the prostate at the junction of the prostate and seminal vesicle. The second injection was in the mid portion of the prostate on its lateral aspect and the third injection site was at the apex. After the injection of local anesthesia the prostate was imaged to determine size, review it for asymmetry and identify any hypoechoic areas. Prostate volume was determined using the prolate ellipsoid method programmed into the ultrasound machine.

A minimum of 6 biopsies were obtained. However, in many cases up to 10 biopsy cores were obtained. The number of biopsies depended on various factors, including PSA, abnormal digital rectal examination findings, results of previous biopsies, and prostate size and configuration. During and after the procedure patients were questioned regarding pain.

## RESULTS

Ultrasound guided biopsies with a periprostatic nerve block was performed in 50 consecutive patients, of whom 10 previously had undergone prostate biopsies without anesthesia. There were no instances of infection, significant bleeding, urinary retention, fever, diaphoresis or hypotension. Only 1 of the 50 men had significant discomfort. All patients who had undergone previous biopsies indicated that there was a dramatic difference when receiving a periprostatic nerve block. After we initiated this technique other members of the faculty and residents at our institution adopted this approach.

## DISCUSSION

Transrectal ultrasonography with guided biopsies of the prostate is an important part of the urological armamentar-

ium, and it is frequently performed in offices and outpatient urology centers worldwide. The modern era of ultrasound with guided biopsies of the prostate dates from 1981.<sup>4</sup> The precise methodology has changed relatively little.

A significant proportion of patients who undergo transrectal ultrasound with guided biopsies of the prostate indicate that the procedure is uncomfortable and discomfort increases with the number of biopsies. There has been increasing emphasis on obtaining more biopsies despite the risk that small tumors that are not clinically significant may be detected.<sup>2</sup> In an effort to improve patient comfort we adopted the technique described by Nash et al,<sup>3</sup> which was based on the report of Reddy.<sup>5</sup> Others have also reported the effectiveness of a periprostatic nerve block.<sup>6-10</sup> We modified the technique of Nash et al by injecting lidocaine at 3 locations along the region of the neurovascular pedicle of the lateral aspect of the prostate. We do not know whether the additional sites of infiltration along the neurovascular plexus are required. Periprostatic local anesthesia before prostate biopsy is without morbidity, and patient comfort is dramatically improved. We urge all urologists to attempt this method and believe that it will rapidly change practice patterns.

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## EDITORIAL COMMENT

I have been using periprostatic local anesthesia for more than 2 years. The technique was shown to me by Haaken Ragde. The 1% xylocaine is injected into 4 sites on both sides of the prostatic base and apex for a total dose of 10 cc. Most patients have no discomfort or sensation during biopsy. Patients who have undergone previous biopsies have commented that this technique of local anesthesia significantly decreases pain.

*Jay Y. Gillenwater*  
 Department of Urology  
 University of Virginia School of Medicine  
 Charlottesville, Virginia