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Editorial

# In the Debate over Prostate Biopsy: Transrectal or Transperineal

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Prostate cancer is the fourth most common cancer globally, with an estimated 1.8 million cases world-wide in 2018 and 48,500 cases in the UK every year. Present practice is to perform multiparametric MRI scan, followed by a transrectal ultrasound-guided biopsy. Transrectal ultrasound-guided biopsy is with an incidence of sepsis of around 1%, This is due to bowel wall penetration by the biopsy needle. Therefore, there has been a attempt to perform biopsies using the much more sterile transperineal route.Devices have been developed to permit Transperineal Biopsies (TPUSBx) to be performed under Local Anaesthesia (LA) as an outpatient procedure. it is not known how cost effective these devices are, compared with the low cost of the transrectal biopsy method [1].

The American Urological Association (AUA) is just starting to address new guidelines on prostate biopsies. Only about 2.5% of prostate biopsies in the U.S. are done with transperineal approaches through disinfected skin between the anus and the testicles. Some American urologists took the transrectal side [2]. Outpatient Transperineal Biopsy (TPB) without antibiotic prophylaxis/bowel prep is comparable to Transrectal Biopsy (TRB) in regard to safety and cancer detection. TPB without antibiotics had a lower infection and retention rate than TRB with antibiotics. Efforts to reduce antibiotic resistance should be implemented into daily practice. Future multi-institutional studies are needed [3]. Patients with diabetes and history of urinary retention were more likely to have infection after transperineal prostate biopsy [4]. Target saturation of MRI-suspicious prostate lesions provides excellent cancer detection and finds less low-risk tumors than the current gold standard combination of targeted and systematic biopsies [5].

MRI/TRUS-fusion biopsies allow a reliable risk classification in patients who are candidates for Active Surveillance. The application of the PRECISE scoring system demonstrated good discrimination [6]. Transperineal and Transrectal approaches to software-based Fusion Biopsy (FB) yield similar diagnostic performance for the detection of CaP. When deciding on the approach, physicians should consider other inherent features of either technique that suit their practice [7]. In another report, Transrectal (TR) biopsy has been considered more cost efficient and, in general, more widely used for systematic prostate sampling, with Transperineal (TP) biopsy reserved for template, anterior and/or apical sampling [8]. On the other hand transperineal TP-fusion biopsies were found to be non inferior and superior to transrectal TR-fusion biopsies in detecting clinically significant prostate cancer (csPCa) within MRI-visible index lesion. Centers should consider these results when choosing biopsy method [9]. Generally patients receiving TP biopsy are less likely to manifest infection-related complications. Therefore, TP biopsy is a more practicable local anesthetic approach for prostate cancer detection if there are concerns for infectious complications and/or the risk of general anesthesia [10].

Another study demonstrated the TP route to be better than the TR route in MRI-targeted biopsy, especially in detecting csPCa located at the anterior prostate [11]. Transperineal approach lowers the rate of post-biopsy infections and hospitalizations. To adopt this approach furher studies are required [12]. However, MRI/TRUS TP cognitive targeted biopsy found a greater percentage of clinically significant PCa of the anterior zone compared to the MRI/TRUS TR fusion approach [13]. Local anaesthesia for transperineal biopsy can replace intravenous anaesthesia and is applicable [14]. Other authors showed that TP biopsy had a lower risk of readmission for sepsis but a higher risk of readmission for urinary retention than TR biopsy [15]. From the erectile function point of view, prostate biopsy technique, number of biopsy cores and history of previous biopsy do not significantly effect erectile function in the medium term up to 6 months [16]. Transperineal

biopsy was associated with a higher detection rate of clinically significant PCa than transrectal biopsy. However, because of the high detection rate at certain ages and PSA levels, biopsy approaches should be optimized according to patents' clinical characteristics [17].

The prostate biopsy policy should be tailored to local expertise, needs, and resources availability. Software based biopsies are likely to be more precise, especially for new users, although the additional cost might be not justified in all cases [18]. A series was reported of office-based free-hand transperineal biopsy under LA without sedation performed with the Precision PointTM Transperineal Access System (PPTAS). The series contained a large number of cases in which prophylactic antibiotics were not administered, yet there were no complications of post biopsy sepsis [19]. To conclude, transperineal and transrectal prostate biopsy have the same diagnosis accuracy, but the transperineal approach has a lower risk of fever and rectal bleeding. More studies are needed to confirm these findings and discover a more effective diagnosis method for prostate cancer [20].

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