

PP-22a**The Smart-Bx™ – Initial experience with a semi-automated prostate biopsy core download system**M. Cohen¹, A. Shefler², S. Patsiansky², K. Shapira-Schweitzer³, O. Nativ², J. Bejar²¹ Department of Urology, Emek Medical Center, Afula, Israel² Department of Urology, Bnai-Zion Medical Center, Haifa, Israel³ UC-Care Medical Systems, Yokneam, Israel

Introduction & Objectives: The current handling of prostate biopsy cores has several limitations. Core fragmentation, loss of orientation, stacking, and adversely the core length,- are just few factors that may reduce cancer detection rate¹, or lead to data loss on the tumor location. The SmartBx™ system was developed to allow a semi-automated download of tissue cores from the biopsy needle onto a propriety designed cassette which integrates into the routine pathology lab processing. The core download in an oriented and straightened fashion is meant to address these above unresolved issues. Our objectives were to assess tissue core length and preservation, starting from biopsy core download throughout the full pathology lab process.

Materials & Methods: Tissue cores were taken with a standard Pro-Mag™18G Tru-Cut® biopsy needle or Bard® Magnum biopsy gun. Differences in length or integrity were documented and assessed using a standard digital camera. The core length initial size was documented on the needle notch. Biopsy cores were removed from the needle either by shaking the needle in a formalin vial (standard method) or by using the SmartBx™ system. The biopsy cores were documented and measured again following tissue processing (Sakura VIP-6), and paraffin embedding. Data analysis was performed with Analyze-it tool on MS Excel.

Results: When comparing core length reduction from biopsy download up to the paraffin block- the standard procedure (dropping cores into a vial) led to 30.1% reduction in length (N=58). In contrast, when using the SmartBx™ system, only a 4.8 % reduction in core length was observed (N=22). Core adherence to the membrane was kept in 99% (198/200) of downloads with no tissue residual left on the needle. Cores downloaded with the SmartBx™ kept their original arraignment, including small fragments of tissue, identical to that on the needle (Fig. 1).

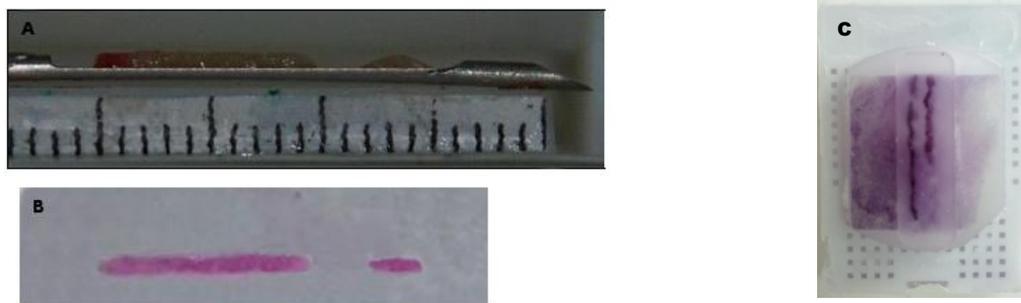


Fig.1: Biopsy core documented in the needle core [A].

Biopsy fragments are kept during pathology process in their original location [B, C].

Conclusion: The initial experience of tissue needle biopsy cores download and processing seems promising as tissue cores kept their integrity, length and orientation. This may reflect on clinical yield as well as on time and ease of the procedure. Additional planned studies are aimed to show increased prostate cancer detection rate as well as accurate tumor spatial location along the needle and within the prostate. This system may reflect on the future detection, surveillance and treatment of prostate cancer.

Reference:

¹ Obek et al, J. Urol. 187, June 2012