

Performance Comparison of the Histolog[®] Scanner and Frozen Section Analysis During Robot-Assisted Radical Prostatectomy

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Introduction and Objectives

- Histolog[®] Scanner (HS) uses fluorescence confocal microscopy to provide high-resolution digital scans of surgical specimens.
- HS offers the potential to serve as a time-effective economic alternative to frozen section (FS) analysis for intraoperative assessment of surgical margins.
- In robotic prostatectomy (RARP), the HS has shown promising results for margin assessment, however existing data is limited.
- Aim:** To report the diagnostic performance of the HS in comparison to FS analyses in patients undergoing RARP.

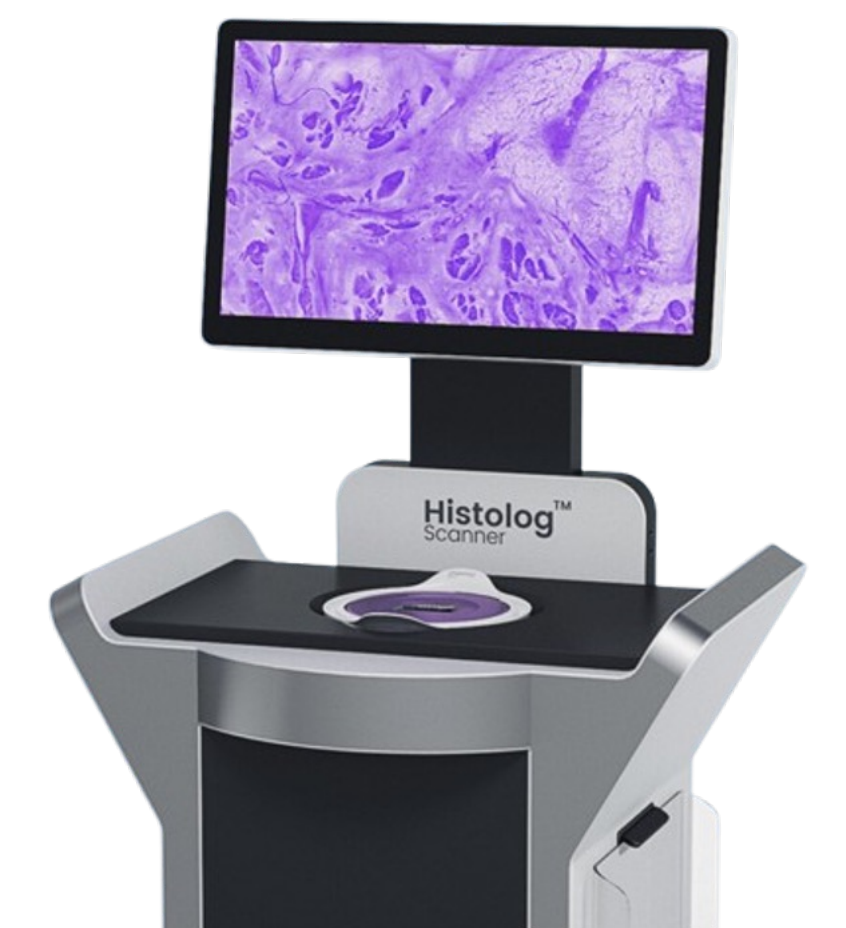


Figure 1: Histolog[®] scanner

Materials and Methods

- Study period:** May 2024 – ongoing
- Inclusion:** Patients undergoing bilateral nerve sparing RARP at a tertiary care center
- Specimen handling:**



- Decision Nerve sparing vs. bundle resection was based on FS analyses
- Analyses:** Performance HS vs. FS

Results

- 44 patients (data cut-off February 2025)**
- Median age:** 63 years (IQR 58–67)
- Median PSA:** 5.5. (IQR 4.1 -8.3)
- Clinical stage:** 34 (77%) pT2, 10 (23%) pT3
- ISUP grade (WMH):** 2 ISUP I, 27 ISUP II, 13 ISUP III, 1 ISUP IV, 1 ISUP V
- Bundle resections after positive FS analysis:** 7 (16%)
- Positive surgical margins at WMH:** 8 (18%)

Performance Histolog[®] - FS

Sens.: 50%
Spec: 86%
PPV: 38%
NPV: 92%
Acc: 81%

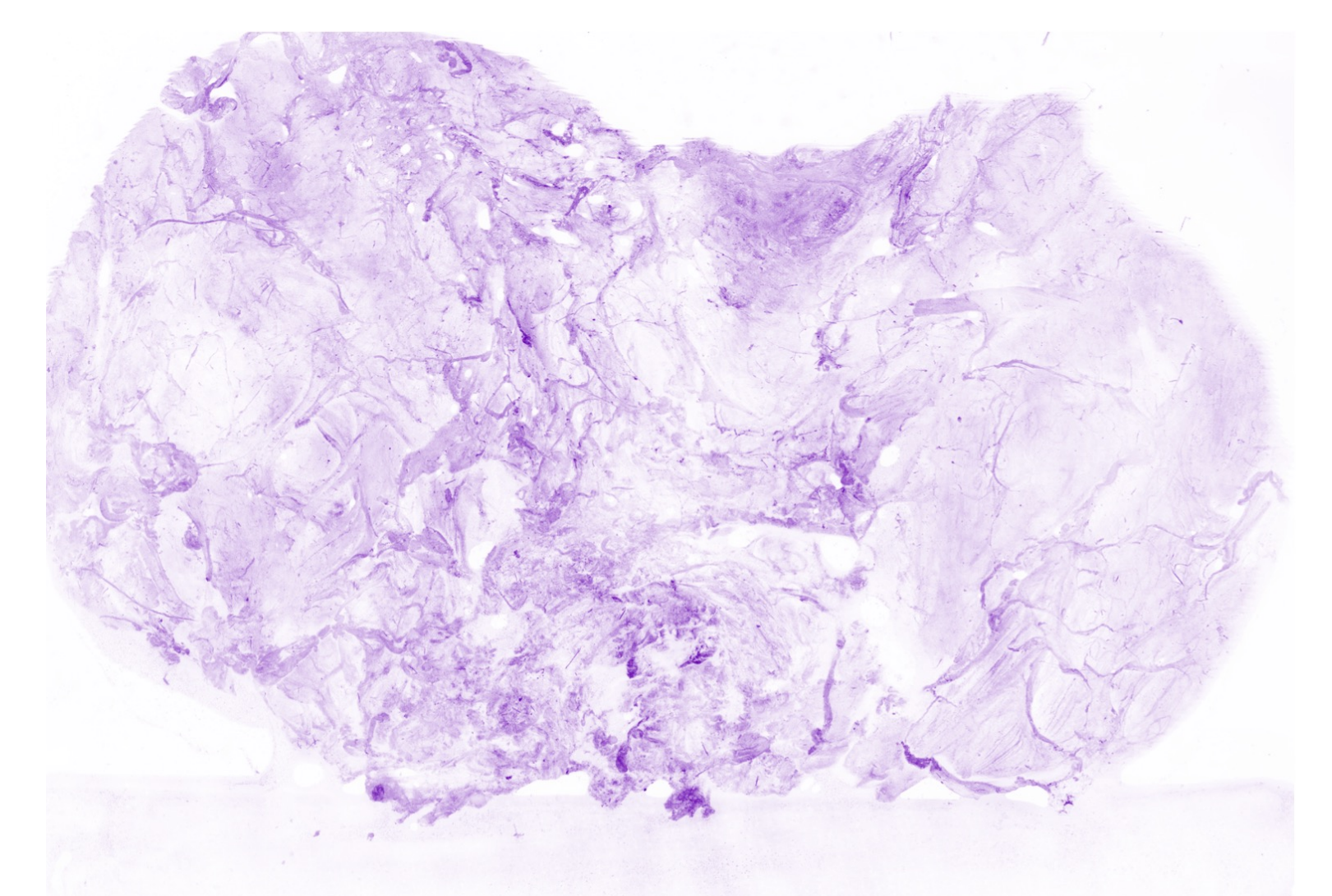


Figure 2: Histolog[®] scan of a prostatectomy specimen

Conclusions

- Histolog[®]** - early results promising regarding NPV
- Learning curve** in interpretation of the scan – reflected in rather low sensitivity and PPV
- Potential** to be time effective and possibly cost-effective
- Prospective**, multicenter studies needed