

INTRODUCTION

- ❖ Lymph node (LN) status is one major prognostic factors in prostate cancer patients.
- ❖ The presence of Gleason patterns 4 and 5 is a condition *sine qua non* for LN metastasis to happen.
- ❖ The presence of LN metastases after radical prostatectomy (RP), despite PSA levels, drifts into considering a combination of radiation therapy (RT) and androgen deprivation therapy (ADT) +/- abiraterone.
- ❖ We aimed to evaluate the utility of immunohistochemistry (IHC) in detecting prostatic adenocarcinoma occult metastases in a large prospective study.

DESIGN

- ❖ We performed a prospective study of consecutive RP cases from December 2023-2024.
- ❖ The entire tissue obtained from LN dissection was submitted for histological examination; cases with no LNs identified by H&E were excluded.
- ❖ For all blocks with at least one lymph identified on H&E sections, one immunostain per block (CK8/18, CKAE1/3, NKX3.1, or PSMA) was performed.
- ❖ Sensitivity and Negative Predictive Value (NPV) were calculated, and the McNemar paired test was performed to establish the significance of the discrepancy between H&E alone and H&E + IHC.
- ❖ The Number Needed to Treat (NNT) was calculated to estimate how many patients need to undergo IHC to detect one additional positive lymph node that H&E alone might miss.

Table 1. Summary of Cases Included

	All Cases	LN+ Cases	IHC+ cases
N of cases	320	19 (6%)	5 (1.6%)
EPE	209 (65%)	19 (100%)	5 (100%)
SVI	42 (13%)	11 (58%)	4 (80%)

RESULTS

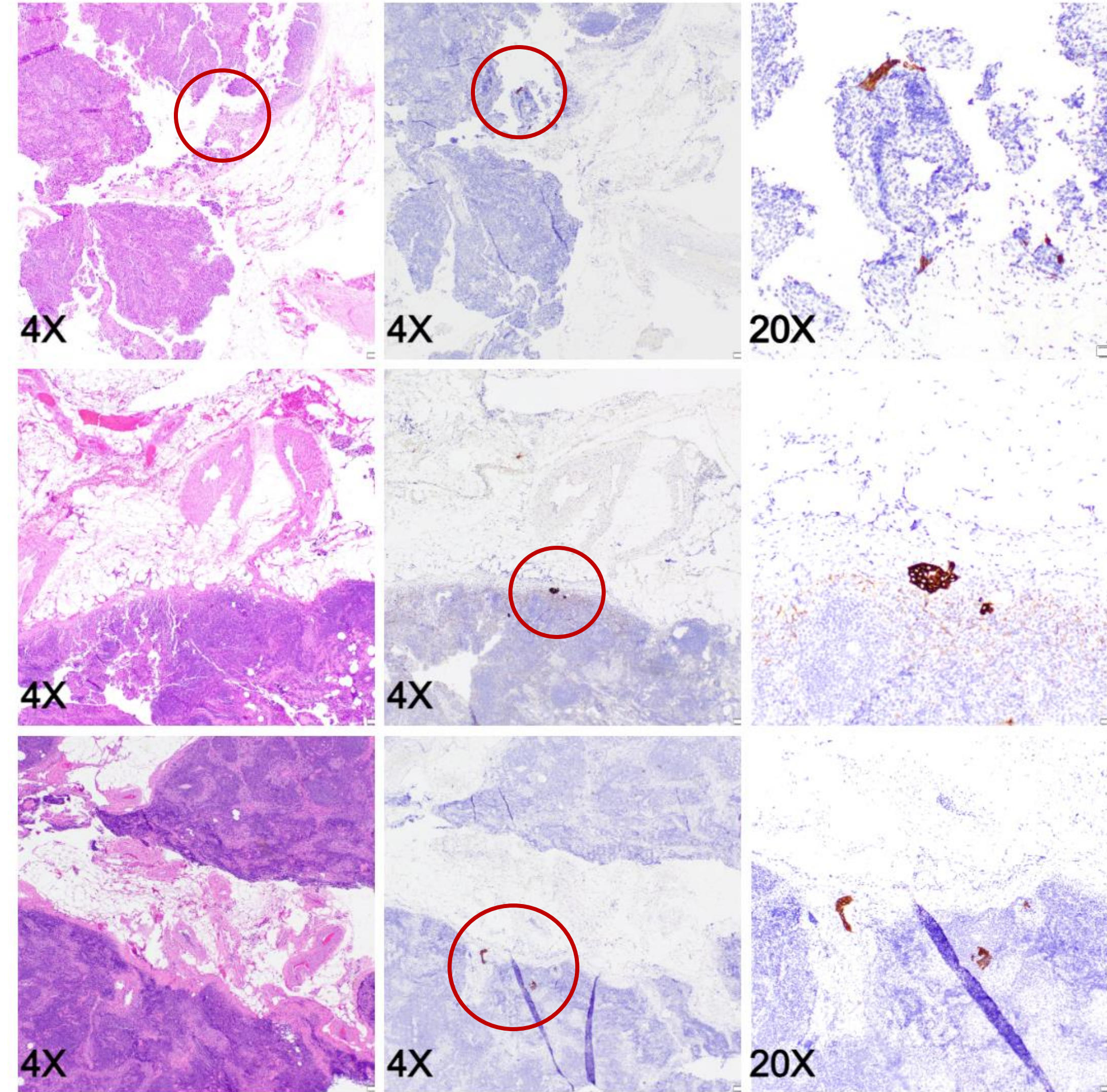


Table 2. List of Cases Identified by IHC

Case	LN status after IHC	LN Involvement	Gleason Score	Extraprostatic Extension (EPE)	Seminal Vesicle Invasion (SVI)
#1	+ 1 LN	Unilateral	4+3=7	Non-focal (NFEPE)	+
#2	+ 1 LN	Unilateral	4+3=7 t5	NFEPE	+
#3	+ 1 LN	Unilateral	4+5=9	NFEPE	+
#4	+ 1 LN	Unilateral	4+5=9	NFEPE	-
#5	+ 2 LN	Bilateral	4+5=9	NFEPE	+

Table 3. Diagnostic Performance Comparison

	All Cases	Intermediate, High, and Very High Risk Groups	High, and Very High Risk Groups	EPE
N of cases	320	314	137	209
H&E sensitivity	0.74	0.79	0.81	0.74
NPV	0.99	0.987	0.98	0.97
McNemar P-value	0.06	0.125	0.25	0.06
Number needed to treat (NNT)	64	79	46	42

CONCLUSIONS

- ❖ The use of IHC changed the LN status of 5 cases with therapeutic implications.
- ❖ In case #5, using IHC changed the LN status from unilateral to bilateral, potentially affecting the radiation field.
- ❖ All metastatic deposits were minute, measuring less than 0.1 mm and making them very unlikely to be detected by preop imaging.
- ❖ Our study found that 5 cases out of 306 (1.6%) were misclassified by HE. This contrasts with two prior publications reporting higher percentages (23/256, 8.9% and 24/180, 13.3%). Differences in specimen sampling and population racial distribution are possible reasons for these discrepancies.

REFERENCES

1. Prostate cancer patients with lymphatic node involvement detected by immunohistochemistry. Is the effort worthwhile?, Urologic Oncology 2024
2. Detection of Occult Lymph Node Metastases in Locally Advanced Node-Negative Prostate Cancer. JCO 2006