ORIGINAL RESEARCH PAPER
Volume - 14 | Issue - 06 | June - 2025 | PRINT ISSN No. 2277 - 8179 | DOI : 10.36106/ijsr
INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

AUDIT OF PROSTATIC BIOPSY REPORTING AT A TERTIARY CARE CENTER IN JAIPUR.

Histopathology

Qurrat Ul Aein Khoja*
Assistant professor, Pathology. *Corresponding Author

ABSTRACT

Background: Prostatic carcinoma is among the leading malignancies affecting males globally. Accurate histopathological reporting of prostate biopsies is pivotal for diagnosis, treatment planning, and prognostication. This study aimed to audit the quality and comprehensiveness of prostate biopsy reporting in a tertiary care hospital and to compare the findings with national and international benchmarks. **Methods:** A retrospective audit of 100 consecutive prostatic biopsy reports from the histopathology department of a tertiary care teaching hospital was conducted. The audit criteria were based on the WHO classification of prostate tumors, WHO/ISUP guidelines, and recommendations from the College of American Pathologists (CAP). Parameters such as tumor type, Gleason scoring, perineural invasion, lymphatic and/vascular invasion, core length, and number of cores were evaluated. **Results:** Adenocarcinoma of the prostate accounted for 85% of malignant diagnoses. Gleason score was reported in 100% of cases, but Grade Grouping was missing in 10%. Perineural invasion was mentioned in 85% of malignant cases. Core length and number of cores were reported in only 40% and 60% of cases, respectively. Comparative analysis revealed our reporting parameters were in partial compliance with international standards. **Conclusion:** Although the diagnostic accuracy for malignancy was satisfactory, documentation of ancillary histopathologic parameters needs improvement. Implementing structured reporting and continuous education can bridge existing gaps.

KEYWORDS

Prostate adenocarcinoma, Uro-oncopathology, Quality, Audit.

INTRODUCTION

Prostate cancer is one of the leading causes of cancer-related deaths worldwide in men.

Histopathologic examination of prostatic core biopsies remains the gold standard for diagnosis.The objective of this study is to conduct a comprehensive audit of prostate biopsy reporting and to compare the results with established benchmarks and findings from previous studies. Given the prognostic significance of grading and other pathological features, meticulous reporting is vital. The goal is to identify deficiencies and propose targeted recommendations to improve reporting standards.

MATERIALS AND METHODS

Study Design And Setting

This retrospective audit was carried out in the Department of Pathology at a tertiary care teaching hospital.

Inclusion Criteria

All prostatic biopsies (both benign and malignant) reported over a 5-year (2020-2025) period (n=100)

Exclusion Criteria

Inadequate biopsies

Audit Parameters

- Tumor type (benign/malignant)
- Gleason score and ISUP Grade Group
- Perineural and lymphatic and/vascular invasion
- Core length and number of cores involved
- Extra-prostatic extension (EPE)

RESULTS

Table 1. Demographic and Clinical Data	
Total number of cases	100
Mean age (years)	68.3 ± 7.2
Age range	54–82
Malignant cases	85 (85%)
Benign cases	15 (15%)

Table 2a: Tumor Type Distribution		
Diagnosis	**Number of Cases**	**Percentage**
Adenocarcinoma	85	85%
Benign prostatic hyperplasia	12	12%
Chronic prostatitis	3	3%

Table 2b: Gleason Score and Grade Group Reporting		
Gleason Score	**ISUP Grade Group**	**Cases (n=85)**
6 (3+3)	1	20
7 (3+4)	2	22
7 (4+3)	3	15
8 (4+4)	4	10
9–10	5	8
Grade Group Not Reported	-	10

Table 2c: Reporting Completeness	
Parameter	**Reported in (%) Cases**
Gleason Score	100%
Grade Group	90%
Perineural Invasion	85%
Lymphatic and/vascular invasion	40%
Number of Cores involved	60%
Core Length involved	40%
Extra-prostatic Extension (EPE)	10% (when present)

Table 3: Audit Compliance with CAP Guidelines		
Parameter	**CAP Requirement**	**Compliance in This Study**
Gleason Score	Mandatory	100%
Grade Group	Mandatory	90%
Perineural Invasion	Recommended	85%
Lymphatic and/ vascular invasion	Recommended	40%
Core Length involved	Recommended	40%
Number of Cores involved	Recommended	60%

DISCUSSION

The audit highlights strengths and deficiencies in prostate biopsy reporting in our center in comparison with CAP and RCPath guidelines. While all cases had adequate tumor typing and Gleason scoring, omission of Grade Group in 10% of cases is notable. As ISUP Grade Grouping is critical for risk stratification and treatment planning, this lapse could affect clinical decision-making. (1,2) The audit findings provide insightful revelations into the current state of prostate biopsy reporting within our tertiary care setting. While there is commendable adherence to core diagnostic criteria, significant variability was noted in the documentation of ancillary pathological features.

One of the most encouraging outcomes was the universal reporting of the Gleason score, aligning with global best practices. However, the omission of ISUP Grade Group in 10% of the cases highlights a gap in understanding or emphasis. As studies by Epstein et al. emphasize, Grade Groups are essential in predicting clinical behavior and guiding treatment, especially in intermediate and high-risk patients; making their omission clinically consequential. (3)

The underreporting of perineural and lymphatic and/ vascular invasion also reflects an area of concern. While perineural invasion was documented in 85% of cases, its absence in 15% may reflect either true absence or under-recognition. These features are important markers of tumor aggressiveness. Brimo et al. and others have linked their

presence with higher likelihood of extra-prostatic extension and poorer outcomes. (4)

Perhaps the most underreported parameters were core length and number of cores. According to the RCPath and CAP guidelines, reporting core length and the number of involved cores is crucial in estimating tumor volume and disease burden. In our audit, only 40% and 60% of reports documented these parameters, respectively. This aligns with data from other developing countries, where infrastructure and reporting standardization remain evolving. Ali and Akhter, Rathod K et al. also reported similar deficits citing lack of structured reporting tools and inadequate training as major barriers. (5,8)

The lack of extra-prostatic extension reporting is attributed to the fact that these are core biopsies, not radical prostatectomies. However, the biopsy-based prediction of such features based on aggressive histologic criteria should still be considered.

In comparison to developed countries, such as in the audit by Gilligan et al. (6) where synoptic reporting is the norm, our center lacks structured templates. The absence of electronic reporting systems further contributes to inconsistency. The evidence strongly supports that synoptic templates enhance completeness, reduce ambiguity, and improve multidisciplinary communication. (6)

Another consideration is interobserver variability. Staff may struggle with recognizing or documenting ancillary findings due to limited exposure or training. Regular training, supervision, and interdepartmental case reviews can help mitigate these discrepancies. Future audits could expand upon this foundation by incorporating follow-up outcomes and correlation with radical prostatectomy specimens, where available, to assess diagnostic concordance. A prospective audit following implementation of structured templates would also be valuable in measuring the impact of quality improvement initiatives.

Comparison With Previous Studies

In a study by Gilligan et al., Gleason score was documented in 100% of cases, and Grade Group in 98%, which is superior to our 90% compliance. This is in contrast to Siddiqui et al., who reported complete Gleason scoring in all cases, and to Rathod K et al., where all cases included the Gleason score, though Grade Group was specified in 81.8% of cases. (6-8)

Similarly, Ali and Akhter reported perineural invasion being recorded in only 60% of cases, compared to our 85%, suggesting some improvement. Siddiqui et al., who credited the complete documentation of these elements (100%) to the implementation of a standardized checklist-based reporting protocol. (5,7)

The missing elements comprised of extent of invasion, tumour volume, and lymphatic and/or vascular invasion in Idowu et al. Aumann et al. and Rathod K et al found inconsistent documentation of perineural invasion, extra-prostatic extension, seminal vesicle invasion and lymphatic and/or vascular invasion. (8-9)

A study by Brimo et al. emphasized the importance of reporting the number of cores and core length, as they influence biopsy representativeness and cancer volume estimation. Our center reported these in only 40–60% of cases, which is below ideal standards. Comparatively, Rathod K et al. reported tumour quantitation in 20 of 22 cases (90.9%), though the length of involved prostatic tissue was recorded in only 8 cases (36.4%). (3,8) Lack of standardized templates and inconsistent documentation were identified as potential causes for these discrepancies.

In summary, this audit serves as both a benchmark and a call to action for enhancing the quality of prostatic biopsy reporting. With focused efforts, including education, system-based interventions, and adoption of standardized guidelines, we can align our practice more closely with global standards and ultimately contribute to better patient outcomes.

Recommendations

- Adoption of synoptic reporting templates as recommended by the RCPath and CAP.
- Regular departmental audits and feedback sessions.
- Training sessions for pathologists on the importance of complete reporting.
- Electronic reporting systems with mandatory fields for essential parameters.

CONCLUSION

The audit reveals good adherence to basic diagnostic parameters in prostatic biopsy reporting but highlights significant gaps in the documentation of ancillary yet critical features. Standardization through structured templates and continuous professional development is necessary to enhance reporting quality.

REFERENCES:

1. Cancer Protocol Templates. College of American Pathologists. https://www.cap.org/protocols-and-guidelines/cancer-reporting-tools/cancer-protocol-templates.
2. The Royal College of Pathologists. *Standards and datasets for reporting cancers: Prostate cancer dataset.* 2021.
3. Epstein JI, Egevad L, Amin MB, et al. The 2014 International Society of Urological Pathology (ISUP) consensus conference on Gleason grading. *Am J Surg Pathol.* 2016;40(2):244–252.
4. Brimo F, Schultz L, Epstein JI. A contemporary analysis of the reporting of prostatic core biopsies in academic centers. *Am J Surg Pathol.* 2013;37(1):61–67.
5. Ali N, Akhter G. Histopathological audit of prostate biopsies in a tertiary care hospital in Pakistan. *Pak J Med Sci.* 2019;35(5):1286–1290.
6. Gilligan T, Kantoff PW, Taplin ME, et al. Prostate cancer diagnosis and management. *J Clin Oncol.* 2017;35(27):3021–3030.
7. Siddiqui M. An audit and re-audit of prostate core biopsies. *The Bulletin of The Royal College of Pathologists*. 2016;191–5.
8. Rathod K, Munira F Jhabuawala M, Gupta M. An audit of reporting of prostatic biopsy at a teaching hospital, a journey in quality improvement. Indian J Pathol Oncol. 2025;12(1):40–45.
9. Idowu MO, Bekeris LG, Raab S, Ruby SG, Nakhleh RE. Adequacy of surgical pathology reporting of cancer: a College of American Pathologists Q-Probes study of 86 institutions. Arch Pathol Lab Med. 2010;134(7):969–74.