

SUMMARY & CONCLUSION

Prostate cancer is often a bilobar disease that might not be initially captured on the diagnostic transrectal ultrasound (TRUS) guided needle biopsy.

Pathological staging is one of the critical predictors of outcome in patients with prostate cancer.

The grading system for prostatic adenocarcinoma, developed by Gleason, has a strong prognostic value.

The histologic grade of a prostate needle-core biopsy specimen can determine whether a patient with prostate cancer is a candidate for radical prostatectomy or other treatment. Incorrect histologic grading can result in inappropriate treatment and possible liability.

Thus, we conducted this study to evaluate the accuracy of preoperative Gleason score in predicting pathological grading and tumour distribution compare to the pathological grading of the post radical prostatectomy specimen.

And ultimately aims to gain more understanding of the pathological behavior of prostate cancer and the limitations of the currently available diagnostic and prognostic tools.

This study included 56 male patients with diagnosed prostate cancer underwent radical prostatectomy (Laparoscopic or open), selected from Benha University Hospital, Kasr Alainy University Hospital and other centers in the period from May 2008 to April 2010.

- The age of the patients in this study ranged from 55 years to 78 years, with the mean age 62.04 years.
- The PSA of the patients in this study ranged from 4.5 ng/ml to 44 ng/ml with the mean PSA 13.68 ng/ml.
- Needle biopsy Gleason score ranged from 4-7 with the mean Gleason score 6.32. While postradical prostatectomy specimens Gleason score ranged from 5-8 with the mean Gleason score 6.5.
- The number of biopsies ranged from 6 to 30, with the majority of patients 48 (85.7%) having 6 biopsies.
- The number of positive cores (biopsy sites) ranged from 1 to 6, with the majority 20 cases (35.7 %) having sex positive biopsy sites.
- Of the 56 patients, 20 (35.7%) had unilateral disease, and 36 (64.3%) had bilateral disease on biopsy.

We correlate the PSA and laterality of the disease

- Shown that in PSA < 10 ng/ml, 16 patients (50%) had unilateral disease and 16 patients (50%) had bilateral disease.
- While in patients with PSA > 10 ng/ml, 4 patients (16.7%) had unilateral disease and 20 patients (83.3%) had bilateral disease

In 56 patients with prostate cancer, needle biopsy findings were:

- Gleason score ranged from 4-7.
- Gleason score 4, (7.1 %), their Gleason pattern was 2+2.
- Gleason score 5, (7.1 %), their Gleason pattern was 3+2.
- Gleason score 6, (25 %), their Gleason pattern was 3+3.

- Gleason score 7, (57.1 %), their Gleason pattern was (39.3%) 3+4, and (17.9%), their Gleason pattern was 4+3.

In 56 patients with prostate cancer, Radical Prostatectomy specimen findings were:

- Gleason score ranged from 5-8.
- Gleason score 5, (17.9 %), their Gleason pattern was 3+2.
- Gleason score 6, (21.4 %), their Gleason pattern was 3+3.
- Gleason score 7, (53.6 %), their Gleason pattern was 3+4 in (25%) and (4+3) in 16 patients (28.6%).
- Gleason score 8, (7.1 %), their Gleason pattern was 4+4.

Of 56 patients underwent radical prostatectomy:

- There were 36 patients (64.3%) had bilateral disease, and 20 Patients (35.7%) had unilateral disease.
- There were 6 patients had surgical margin invasion (10.7%).
- There were 14 patients had extracapsular extension (25%).
- There were 12 patients had seminal vesicle invasion (21.4%).
- There were 18 patients had lymph node involvement (32.1%), 14 patients of them had bilateral lymph node invasion (25%), and 4 patients had unilateral lymph node invasion.

Of 56 patients, there were 36 patients had bilateral disease in needle biopsy, and all the 36 patients had bilateral disease in final pathology (100%).

- There were 20 patients had unilateral disease in needle biopsy, and all the 16 patients had unilateral disease in final pathology (80%).

In this study

- Gleason score 4 become 5 in Radical Prostatectomy specimen.
- Gleason score 5 in needle biopsy was the same Gleason score in Radical Prostatectomy specimen and only 2 patient become Gleason Score 6 .
- Gleason score 6 in needle biopsy:
 - *2 cases become Gleason score 5.
 - * 10 cases become the same Gleason score 6.
 - * 2 cases become Gleason score 7.
- Gleason score 7 in needle biopsy:
 - * 28 cases become the same Gleason score 7.
 - * 4 cases become Gleason score 8.In Radical Prostatectomy specimen.

Of the 56 patients in this study:

- * Biopsy Gleason pattern (2+2):
 - 4 cases become Gleason sum (3+2).
- * Biopsy Gleason pattern (3+2):
 - 4 cases become Gleason pattern (3+2),
 - 2 case become Gleason pattern (3+3).
- * Biopsy Gleason pattern (3+3):
 - 2 case become Gleason pattern (3+2),
 - 10 cases become Gleason pattern (3+3),
 - 2 case become Gleason pattern (3+4).
- * Biopsy Gleason pattern (3+4) :
 - 10 cases become Gleason pattern (3+4),
 - 12 cases become Gleason pattern (4+3).
- * Biopsy Gleason pattern (4+3):

- 2 case become Gleason pattern (3+4),
- 4 cases become Gleason pattern (4+3),
- 4 cases become Gleason pattern (4+4),

In Radical prostatectomy specimens.

- There was no difference in Gleason score in 28 cases (50%) between biopsy and Radical prostatectomy specimens, but scores were downgraded in 24 cases (42.9%) of Radical prostatectomy specimens and upgraded in 4 cases (7.1%) of Radical prostatectomy specimens.

- In under grading group : there were 24 cases :
 - 4 cases had surgical margin invasion (16.6%).
 - 10 cases had extracapsular extension (41.6%).
 - 8 cases had seminal vesicle invasion (33.3%).
 - 12 cases had lymph node involvement (50%).

- In correct grading group : there were 28 cases :
 - 2 case had surgical margin invasion (7.1%).
 - 4 cases had extracapsular extension (14.2%).
 - 4 cases had seminal vesicle invasion (14.2%).
 - 6 cases had lymph node involvement (21.4%).

-In over grading group: there were 4 cases:

All cases had no surgical margin invasion, extracapsular extension, seminal vesicle invasion or lymph node involvement.

- Of 56 cases in this study , and according to T.N.M classification :
 - 20cases had T2a staging preoperative :
 - 18 cases of them had T2a post operative
 - 2 case had T3c post operative.

- 36 cases had T2b staging preoperative :
 - 20 cases of them had T2b post operative
 - 2 case had T3a post operative
 - 6cases had T3b post operative
 - 4 cases had T3c post operative
 - 4 cases had T4a post operative.

In conclusion, According to our findings, there is a moderate direct linear relationship between scores in biopsy and prostatectomy specimens. But there is a high probability of underestimation of real Gleason score of the radical prostatectomy specimen in low-grade tumors.

Pathologists and urologists must consider the phenomenon of undergrading in reporting prostate specimens and managing patients. Now the differences between the histological grade in biopsies and surgical specimens are being understood.

Therefore, staging of organ confined prostate cancer, when based on biopsy grading, should include the likelihood of histological overestimation in the surgical specimen.