

Comparison upgrading of Gleason score 3+4 cancers at radical prostatectomy in target biopsy versus standard biopsy



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AIM OF THE STUDY:

- To evaluate if multiparametric magnetic resonance (mpMRI)-transrectal ultrasound (TRUS) fusion targeted biopsy (TBx) versus untargeted standard biopsy (SBx) **may decrease the rate of pathological upgrading** of Gleason score (GS) 3+4 cancers.
- We also evaluated the impact of percent **pattern 4** and **cribriform glands** at biopsy in the risk of GS 3 + 4 = 7 prostate cancer (PCa) **upgrading at radical prostatectomy (RP)**.

PATHIENTS and METHODS :

- 223** patients with **GS 3+4 PCa on repeat biopsy** (122 SBx and 101 TBx) who **underwent laparoscopic robot-assisted RP** were sequentially enrolled.
- GS evaluation** was performed according to **2014 International Society of Urological Pathology (ISUP) grade group system**. Cribriform foci were assessed as Gleason pattern (GP) 4.
- The number of cores involved by cancer and histopathologic type of GP 4 were recorded.
- Histological data from RP sections were used as reference standard.

RESULTS:

- Pathological GS 3+4 was confirmed for 59.8% and 81.2% for SBx and TBx patients**, respectively. The rate of upgraded and downgraded GS on SBx versus TBx was 38.5% vs. 16.8% and 1.6% and 2.0%, respectively.
- The rate of **upgrading was significantly associated with the presence of GP4 ≥11% versus <11%** (OR 4.2, 95% CI 1.2-12.0; p=0.024) and with the **presence of cribriform pattern** at biopsy specimens (OR 6.7, 95% CI 2.4-19.7; p<0.001).

Patient characteristics	Total	SBx	TBx	P Value
Number of patients included in study	223	122	101	-
Age at diagnosis, mean (SD), years	67 (61-75)	68 (62-74)	66 (61-75)	0.435
PSA at diagnosis, mean (SD), ng/ml	7.9 (5.5-17.2)	8.4 (5.8-17.2)	7.8 (5.5-15.3)	0.072
Prostate volume, mean (SD), ml	40.9 (11.5-158.6)	41.2 (13.2-138)	40.2 (11.5-158.6)	0.901
Tumor volume, mean (SD), ml	3.4 ml (0.8-27.6)	3.9 ml (0.6-27.6)	2.7 ml (0.8-24.5)	0.010
Quantity of GP 4 in GS 3+4 patients				
• <11%	137 (61.4%)	81 (66.4%)	56 (55.4%)	0.064
• 11-49%	86 (38.6%)	41 (33.6%)	45 (44.5%)	
Presence of cribriform cells (n,%) in:				
• Overall GP4	62/223 (27.8%)	31/122 (25.4%)	35/101 (34.6%)	<0.001
• GP4 <11%	23/137 (16.7%)	18/81 (22.2%)	5/56 (8.9%)	
• GP4 11-49%	39/86 (45.3%)	13/41 (31.7%)	30/45 (66.6%)	

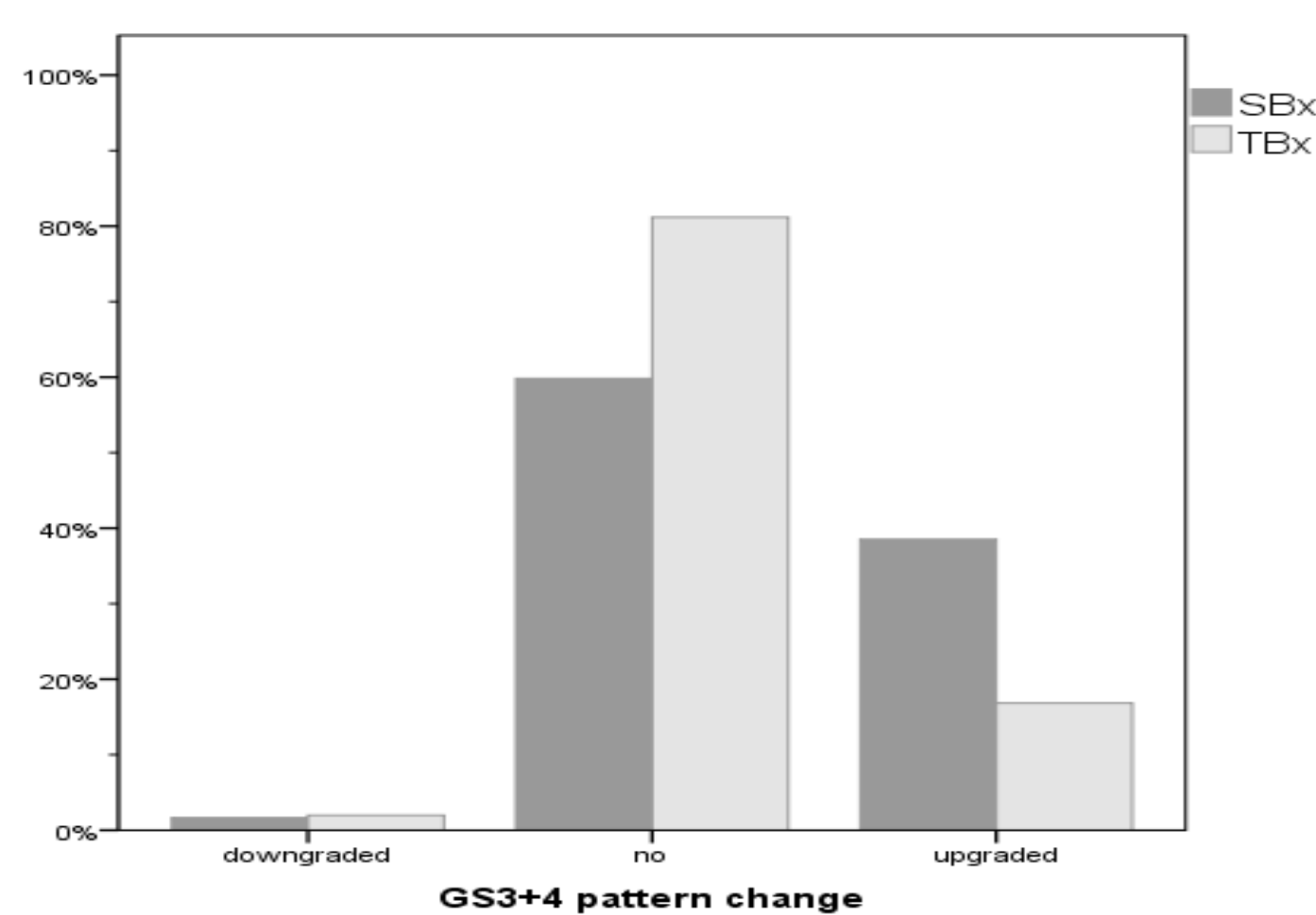


Figure 1. Biopsy and surgery GS pattern of change for SBx and TBx.

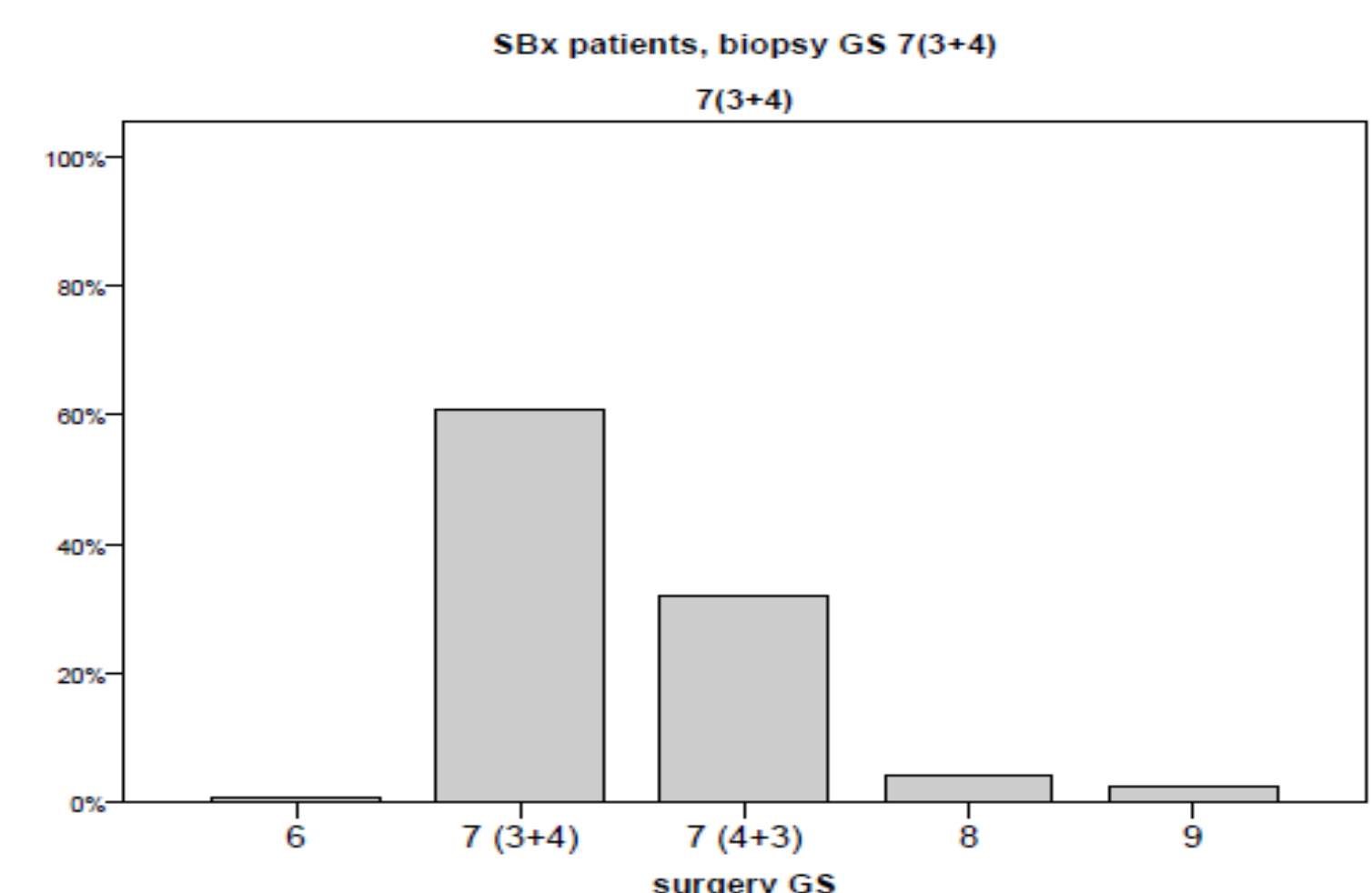


Figure 2 A. Rate of agreement between biopsy and surgery GS in Sbx (A) and TBx (B) cohorts.

CONCLUSIONS:

- We demonstrated that **TBx technique** significantly **reduced the risk of GS 3+4 upgrading at RP, compared to SBx one**.
- The **rate of upgrading** was significantly **associated with GP4>10%**, mostly when **cribriform pattern** was present at biopsy specimen.