

## Effects of nerve sparing on erectile dysfunction and urinary incontinence in robotic-assisted radical prostatectomy – A 4-year retrospective cohort study

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### Introduction:

- In 2020, there were >1,400,000 new prostate cancer cases worldwide
- >370,000 related deaths reported globally.
- Robotic-assisted-radical-prostatectomy (RARP) is one of the surgical methods to eradicate localized prostate cancer.
- Urinary incontinence (UI) and erectile dysfunction (ED) are common side effects of RARP.

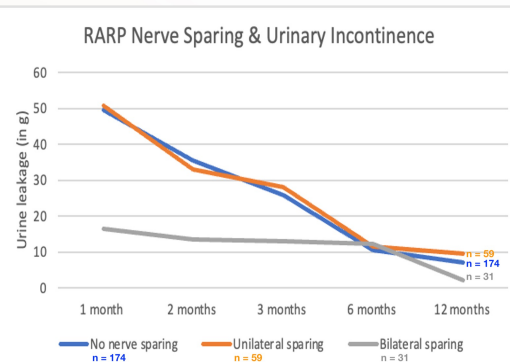
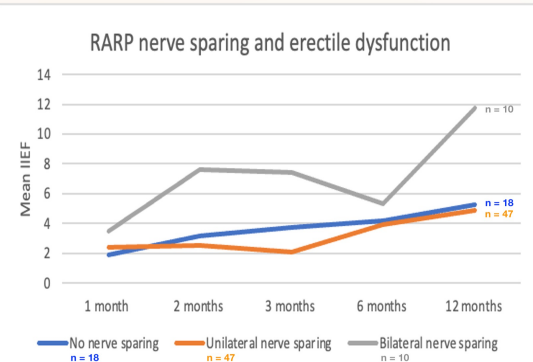
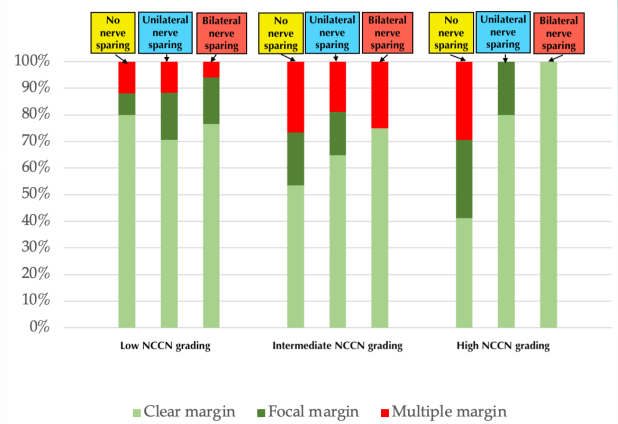
### Objectives:

- To investigate
    - Urinary incontinence outcomes
    - Sexual function
    - Pathological outcomes
- of nerve sparing in RARP.

### Patients & Methods:

- 431 patients who underwent RARP in our institution between January 2018 and April 2023 were recruited.
- The study included all patients with RARP performed in our institution with follow-up.
- For ED outcome, patients with pre-op IIEF-5 score  $\leq 7$  were excluded from our analysis of ED.
- Patient demographics, 1-hour-pad-test, IIEF-5 questionnaire, and pathological parameters were analysed.
- After screening, 75 and 264 patients were selected in the analysis of ED and UI respectively.

Tumour grading, Positive Surgical Margin & Nerve Sparing



### Results:

- Bilateral-NS had earlier recovery in post-operative IIEF-5 score**
  - After 2 months (bilateral-NS > no-NS by 4.41,  $p < 0.05$ ; bilateral-NS > unilateral-NS by 5.10,  $p < 0.05$ )
  - After 3 months (bilateral-NS > unilateral-NS by 5.34,  $p < 0.05$ ).
- Bilateral-NS had lower mean urine leakage volume in 1-hour-pad-test in the first two months after surgery**
  - After 1 month (no-NS > bilateral-NS by 33.04g,  $p < 0.001$ ; unilateral-NS > bilateral-NS by 34.42g,  $p = 0.01$ )
  - After 2 months (no-NS > bilateral-NS by 21.85g,  $p < 0.01$ ).
- Bilateral nerve sparing does not increase positive surgical margin rate** ( $p < 0.05$ )
- No significant differences were observed between no-NS and unilateral-NS for ED/UI, and in ED/UI between no-NS and any-NS at 6 and 12 months.
- No correlation between positive surgical margin and NS
- No correlation between tumour recurrence and nerve sparing.
- No significant differences in erectile dysfunction between unilateral-NS and no-NS.

Effect of erectile dysfunction between non-nerve sparing and bilateral sparing (n=257)

Time	Mean IIEF in no nerve sparing	Mean IIEF in bilateral nerve sparing	T-value	95% confidence interval	p-value
1 month	1.86	3.50	-1.22	-4.65, 1.37	0.251
2 months	3.19	7.60	-2.35	-8.52, -0.30	0.037
3 months	3.71	7.40	-1.74	-8.35, 0.98	0.110
6 months	4.15	5.33	-0.74	-4.61, 2.24	0.471
12 months	5.27	11.75	-1.60	-18.43, 5.47	0.195

Effect of urinary incontinence between non-nerve sparing and bilateral sparing (n=205):

Time	Mean urinary incontinence (in g) in no NS	Mean urinary incontinence (in g) in bilateral NS	T-value	95% confidence interval	p-value
1 month	49.44	16.40	3.92	16.29, 49.80	<0.001
2 months	35.45	13.60	2.67	5.61, 38.10	0.009
3 months	25.97	13.00	1.66	-2.58, 28.52	0.100
6 months	10.57	12.35	-0.26	-11.19, 9.23	0.790
12 months	7.10	2.10	1.97	-0.01, 10.02	0.051

Effect of erectile dysfunction between unilateral sparing and bilateral sparing (n=28)

Time	Mean IIEF in unilateral sparing	Mean IIEF in bilateral nerve sparing	T-value	95% confidence interval	p-value
1 month	2.38	3.50	-0.82	-4.17, 1.92	0.431
2 months	2.50	7.60	-2.69	-9.23, -0.97	0.020
3 months	2.06	7.40	-2.61	-9.93, -0.75	0.027
6 months	3.92	5.33	-0.72	-5.46, 2.65	0.478
12 months	4.86	11.75	-1.49	-18.48, 4.70	0.192

Effect of urinary incontinence between unilateral nerve sparing and bilateral nerve sparing (n=90)

Time	Mean urinary incontinence (in g) in unilateral NS	Mean urinary incontinence (in g) in bilateral NS	T-value	95% confidence interval	p-value
1 month	50.82	16.40	2.61	8.19, 60.66	0.010
2 months	32.93	13.60	1.60	-4.74, 43.40	0.114
3 months	28.01	13.00	1.29	-8.19, 38.23	0.202
6 months	11.56	12.35	-0.10	-16.00, 14.41	0.917
12 months	9.66	2.10	1.59	-1.92, 17.04	0.116

### Conclusion:

Bilateral-NS had significant effects in early recovery of erectile function and urinary continence in the short term ( $\leq 3$  months), when compared with unilateral-NS and no-NS groups, without compromising oncological outcomes.