Peritoneal Flap following Lymph Node Dissection in Robotic Radical Prostatectomy: A novel "Bunching" Technique

Ahmed Gamal[1], Shady Saikali[1], Sumeet Reddy[1], Travis Rogers[1], Marcio Covas Moschovas[1], Vipul Patel[1]

1-AdventHealth Global Robotics Institute, USA

Introduction:

Pelvic lymph node dissection (PLND) is recommended while performing robot-assisted radical prostatectomy (RARP) for patients with localized intermediate or high-risk prostate cancer. However, symptomatic lymphoceles can occur after surgery in up to 15% of patients.

Objectives:

Our objective is to describe a a novel Peritoneal Bladder Flap Bunching technique (PBFB) to reduce the risk of clinically significant lymphoceles in patients undergoing RARP and PLND.

Methods:

We evaluated 2,267 patients who underwent RARP with PLND, dividing them into two groups: Group 1, 567 patients who had the peritoneal flap (PBFB), and Group 2, 1,700 patients without the flap, a propensity score matching done in a 1:3 ratio. Variables analyzed included estimated blood loss (EBL), operative time, postoperative complications, lymphocele formation and development of symptomatic lymphocele.
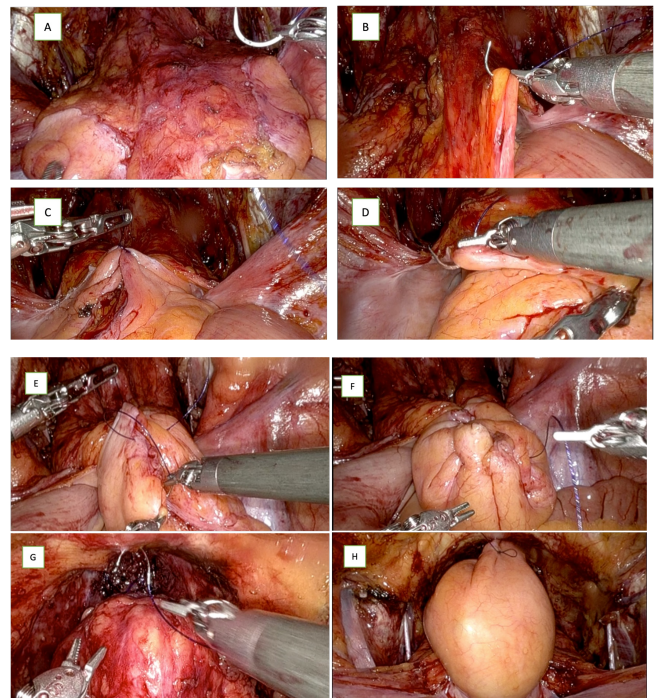
Results:

The two groups exhibited similar preoperative characteristics after matching in terms of age, prostate-specific antigen, body mass index, diabetes mellitus and preoperative AUA scores. There was no statistically significant difference in the occurrence of lymphoceles between the flap group and the non-flap group, with rates of 24 % and 20.9%, respectively (P=0.14). However, none of the patients in the flap group (0%) developed symptomatic lymphoceles, whereas 2.2% of patients in the non-flap group experienced symptomatic lymphoceles (P=0.01).

Parameters	Flap (n=567)	Control (n= 1700)	P	Standardized mean difference after 1:3 PS matching
Age (years)	65 (60– 70)	65 (60 – 70)	1.0	-0.18
PSA (ng/mL)	6.4 (4.8 – 9.6)	6.5 (4.8 – 9.5)	0.9	-0.015
BMI (Kg/m²)	27.8 (25.4 – 30.9)	28.1 (25.5 – 30.9)	0.8	0.028
Diabetes (n, %)			0.6	
No	479 (84.5)	1419 (83.5)		-0.028
Yes	88 (15.5)	281(16.5)		0.028
Charlson Comorbidity Index (n, %)			0.16	
0	14 (2.5)	26 (1.4)		
1-2	335 (59)	963 (56.7)		
3-4	200 (35.3)	635 (37.4)		
>4	18 (3.2)	76 (4.5)		
Preoperative AUA	8 (4 – 15)	8 (4 – 15)	1	0.02
Biopsy ISUP grade (n, %)				
Group 1	23 (4.1)	65 (3.8)		-.012
Group 2	214 (37.7)	647 (38.1)	0.9	0.007
Group 3	166 (29.3)	496 (29.2)		0.002
Group 4	96 (16.9)	298 (17.5)		-0.016
Group 5	68 (12)	194 (11.4)		-0.018

Table 1. Comparison of preoperative patient characteristics (Flap vs Control) after 1:3 propensity score (PS) matching

Parameters	Flap (n=567)	Control (n=1700)	P
EBL (ml)	100 (100 – 200)	100 (100 – 150)	<0.001
EBL < 100 ml (n, %)	323 (57)	1232 (72.5)	<0.001
EBL ≥ 100 ml (n, %)	244 (43)	468 (27.5)	
Console time (minutes)	80 (80 – 90)	80 (75 – 90)	<0.001
< 80 (n, %)	58 (10.3)	495 (29.3)	<0.001
80-89	275 (48.7)	642 (38)	
>90	232 (41)	552 (32.7)	
Hospitalization (n, %)			0.5
<=1 day	548 (96.7)	1631 (95.9)	
> 1day	19 (3.3)	69 (4.1)	
Postoperative Complications (Clavien-Dindo) (n, %)			0.1
2	22 (3.9)	27 (1.5)	
>3	20 (3.5)	48 (2.8)	
Pathological stage (n, %)			0.771
pT2	267 (47.2)	815 (47.9)	
>=pT3a	299 (52.8)	885 (52.1)	
Total Number of LN	3 (2-5)	3 (2-5)	0.001
Total number of LN (n, %)			0.001
0	0	19 (1.1)	
1-3	328(57.9)	832 (50)	
> 3	239(42.1)	849 (49.9)	
Post op lymphocele (n, %)			0.14
No	431 (76)	1344 (79.1)	
Yes	136 (24)	356 (20.9)	
<=5cm	124 (21.9)	167 (9.8)	0.001
>5cm	12 (2.1)	189(11.1)	
Symptomatic Lymphocele (n, %)			0.001
No	567 (100)	1663 (97.8)	
Yes	0 (0)	37 (2.2)	

Table 2. Comparison of perioperative characteristics in 1:3 propensity scores matched cohort.

Conclusion:

The results demonstrate that prostate size reflects multiple outcomes, such as nerve-sparing, lymph node dissection, potency, oncological and pathological outcomes. We believe this data is valuable when counseling patients regarding possible outcomes before the procedure.