Morbidity and functional outcomes of open and robotic salvage radical prostatectomy: data from a large, recent, multicenter series

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Objectives: Historically, poor functional outcomes and high complication rates are linked to salvage radical prostatectomy (sRP). Nevertheless, promising results are attained in recent sRP series. We aimed to assess functional outcomes and complications of sRP, comparing the robotic and open techniques.

Methods: From 2000 to 2016, we retrospectively collected data of sRP for recurrent prostate cancer (PCa) after local non-surgical treatment at 18 tertiary referral centers. Patients with: i) no functional outcomes or complications available; ii) follow up <6mo; were excluded from analysis. The Clavien-Dindo system was used to grade complications. We evaluated functional outcomes before sRP and at 6 and/or 1 year follow-up.

Table 1. Baseline clinical and imaging features

Imaging presRP % (n)	Open	Robot	p
Negative	127 (68.27)	127 (60.76)	0.25
Prostate	37 (29.13)	49 (38.58)	
Lymph nodes pelvis	76 (59.84)	70 (55.12)	
Prostate + lymph nodes pelvis	2 (1.57)	3 (2.36)	
Prostate + retroperitoneum nodes	11 (8.66)	5 (3.94)	
Extranodal metastases	1 (0.79)	0	
Mean (IQ range)			p
Age at sRP (ys)	66.7 (61.8-70.8)	66.2 (61.8-70.3)	0.65
PSA at sRP (ng/mL)	5.79 (2.21-7.12)	6.89 (2.7-7.8)	0,12
Follow up (ys)	4.13 (2.5-7)	2.4 (1.7–3.8)	<0,01

Table 2. Con and ED

Continence (all)	Open	Robot	p
Same or improved	63 (49.22)	117 (63.93)	0.055
Mild Decrease	15 (11.72)	16 (8.74))	
Moderate Decrease	11 (8.59)	15 (8.20)	
Severe Decrease	39 (30.47)	35 (19.13)	
Erectile Function (all)			
Unchanged	105 (86.78)	128 (85.33)	0.73
Decreased	16 (13.22)	22 (14.67)	

Results: We included 395 sRP (n=186 open; n=209 robotic). Comparing robotic and open cases, no significant baseline differences were present apart from follow up (p<0.001), pre-operative castration resistant PCa (p=0.0055) (higher for opens RP) and sRP Gleason (p=0.0159) (higher for robotic sRP). No extranodal metastasis was detected at pre-sRP imaging. Lower blood loss (p<0.0001) and shorter hospital stay (p<0.0001) were linked to robotic sRP, but no significant differences emerged in major (10.1%,p=0.16) and overall complications (34.9%,p=0.67). Risk of rectal injuries and fistulas were 1.58% and 2.02%, respectively; anastomotic stricture were more frequent in open-sRP (16.6% vs 7.7%; p<0.01).

Improved/unchanged continence occurred in 57.5%, while severe (≥3pads/day) incontinence was found in 24.6%; 8.1% had preserved spontaneous or PDE-5 assisted erections (15.6% potent before sRP had preserved erectile function compared to pre-sRP). Amongst nerve sparing procedures, three (11.5%) in 26 men preserved spontaneous or PDE-5 assisted erections. On multivariable analysis, robotic-sRP was an independent predictor for continence preservation (OR 0.411, 95% CI 0.232-0.727, p=0.022); previous hormonal treatment (OR 1.689, 95% CI 1.004-2.843, p=0.0484) and ASA score (OR 1.430, 95% CI 1.026-1.995, p=0.0349) were associated to the occurrence of at least one complication.

Conclusions: Nowadays, sRP shows a low risk of major complications and better functional outcomes than in past series. The robotic approach may reduce anastomotic strictures, blood loss, hospital stay, and improve continence.