

Prostatic Ductal Adenocarcinoma in patients undergoing a Robotic Radical Prostatectomy: A propensity-matched comparison to Acinar Adenocarcinoma at prostate cancer referral centre.

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Purpose:

The objective of this study is to compare oncological outcomes of patients with Ductal Adenocarcinoma (DAC) to acinar adenocarcinoma (AAC) who underwent Robotic Radical Prostatectomy (RARP).

Methods:

We reviewed 15,026 consecutive patients from February 2008 to June 2023 undergoing an RARP. A propensity scoring (1:1 ratio) using a multivariable logistic regression model considering the following variables: age, BMI, Charlson comorbidity index, smoking history, PSA, pathological T-stage, ISUP grade group, percentage of prostate involved with the tumor, positive surgical margins (PSM), lymph node positive status was used to compare DAC to ACC patients.

Results:

Unmatched 14,357 patients had AAC compared to 844 patients with DAC. Propensity scoring allowed matching of 825 patients. Table 1 shows characteristics of patients included in the study. Unmatched patients with DAC had higher rates of biochemical recurrences (BCR) compared to ACC patients. However, when matched there was no difference in BCR or overall survival (Fig 1 & 2).

Table 1. Characteristics of patients include in the study.

	Acinar N=14,357	Ductal N=844	P-Value	Matched Acinar N=825	Matched Ductal N=825	P-Value
Age, years, median [IQR]	63 [57-68]	65 [60-69]	<0.001	65 [59-69]	65 [59-69]	0.6
Charlson Comorbidity Index, (n, %)						
• 0	649 (5)	19 (2)	<0.001	23 (3)	17 (2)	0.6
• 1-2	9,123 (64)	510 (60)		493 (60)	501 (61)	
• 3-4	4,130 (29)	290 (34)		277 (34)	282 (34)	
• >4	454 (3)	25 (3)		32 (4)	25 (3)	
PSA, ng/mL, median [IQR]	5.7 [4.3-8.2]	5.8 [4.5-7.8]	0.06	5.8 [4.5-8.0]	5.8 [4.5-7.8]	0.9
Pathology: ISUP Grade Group, no. (%)						
• 1	2,769 (20)	40 (5)	<0.001	35 (4)	39 (5)	0.7
• 2	5,946 (43)	309 (37)		302 (37)	305 (37)	
• 3	3,086 (22)	292 (35)		291 (35)	287 (35)	
• 4	602 (4)	67 (8)		74 (9)	67 (8)	
• 5	1,540 (11)	130 (16)		123 (15)	127 (15)	
Pathology: T-stage, no. (%)						
• 2	8,990 (63)	431 (51)	<0.001	452 (55)	424 (51)	0.2
• 3a	3,753 (26)	309 (36)		266 (32)	303 (37)	
• 3b+4	1,394+217=1,611 (11)	69+35=104 (12)		96+11=107 (13.0)	65+33=98 (12)	
	420 (4)	21 (3)		29 (5)	20 (3)	
Pathology N1, no. (%)	420 (4)	21 (3)	0.2	29 (5)	20 (3)	0.2
Pathology ECE, no. (%)	5,082 (35)	407 (48)	<0.001	361 (44)	395 (48)	0.1
Pathology PSM, no. (%)	2,610 (18)	177 (21)	0.04	193 (23)	173 (21)	0.3
Pathology tumor percentage (%), median [IQR]	15 [5-20]	20 [10-25]	<0.001	20 [10-25]	20 [10-25]	0.2
Outcomes						
Biochemical Persistence, no. (%)	607 (4.4)	69 (8.3)	<0.001	45 (5.5)	69 (8.4)	0.03
Biochemical Recurrence, no. (%)	1,652 (12.5)	153 (20.1)	<0.001	128 (16.4)	152 (20.1)	0.06
Overall Survival, no. (%)	13,514 (97.6)	809 (97.4)	0.6	24 (2.9)	22 (2.7)	0.88

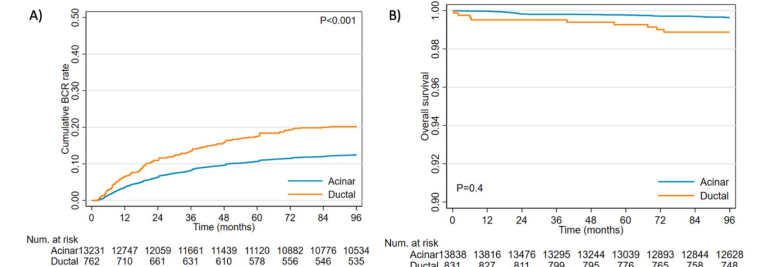


Figure 1. Unmatched comparison of Acinar vs Ductal adenocarcinoma of the prostate for A) Biochemical recurrence and B) overall-survival following surgery.

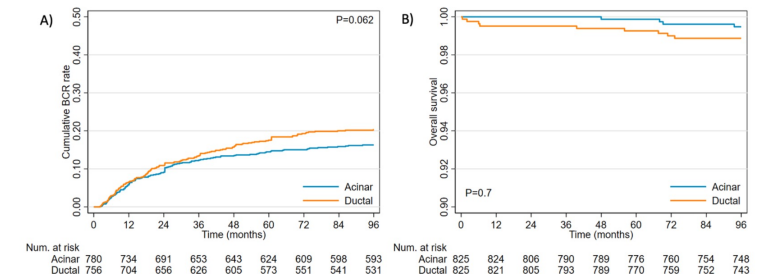


Figure 2. Matched comparison of Acinar vs Ductal adenocarcinoma of the prostate for A) Biochemical recurrence and B) overall-survival following surgery.

Conclusion

This is the largest series of DAC patients to date. In our study patients with DAC presented with more advanced disease at the time of RARP and had higher adverse pathological features which likely explained higher rates of BCR in patients with DAC when compared to ACC.