



PD49: Comparative Analysis of Renal Functional Outcomes of Active Surveillance and Partial Nephrectomy in the Management of Oncocytoma: An International Multicenter Analysis

Margaret Meagher¹, Brian Lane², Umberto Capitanio³, Reza Mehrzad⁴, Aaron Bradshaw¹, Sabrina Noyes², Alessandro Larcher³, Ahmed Eldefrawy¹, Fady Ghali¹, Catherine Kiener¹, Raksha Dutt¹, Nathan Miller¹, Jacob Bruinius², Devin Patel¹, Fang Wan¹, Francesco Montorsi³, Ithaa Derweesh¹

¹UC San Diego Health, Dept. of Urology, La Jolla, USA, ²Spectrum Health, Dept. of Urology, Grand Rapids, USA, ³IRCCSOspedale San Raffaele, Dept. of Urology, Milan, Italy, ⁴Mt. Sinai School of Medicine, New York, USA

UC San Diego
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Introduction

- Up to 30% of small renal masses are benign, and potential for overtreatment exists with respect to surgical treatment of benign lesions and the risks of surgery.¹
- The most common benign lesion is oncocytoma, which occurs in up to 6% of cortical neoplasms.²
- Active surveillance (AS) has emerged as a valid management strategy for small renal masses. However, little is known regarding the functional impact of AS.³

¹Johnson, DC, Vukina J, Smith AB, et al (2015) Preoperatively misclassified, surgically removed benign renal masses: a systematic review of surgical series and united states population level burden estimate. J Urol 193:30.

²Weston MJ, Wah TM (2011) Solid renal masses. In: Clinical Ultrasound, 3rd edition. Paul AL, Baxter GM, Weston MJ. Churchill Livingstone, London, pp 505-527.

³Campbell S, Uzzo RG, Allaf ME, et al (2017) Renal Mass and Localized Renal Cancer: AUA Guideline. J Urol 198:520.

Objective

- We compared functional outcomes of partial nephrectomy and active surveillance in patients with oncocytoma.

Patients and Methods

- Multi-center, international, retrospective analysis of patients with oncocytoma managed via PN or AS between 2006 and 2018
 - UC San Diego
 - Spectrum Health
 - Ospedale San Raffaele
 - Mt. Sinai School of Medicine
- 303 patients total, mean follow up 43 months

Patients and Methods

- Patients with cortical neoplasms suspicious for RCC were offered percutaneous renal mass biopsy for diagnosis and risk stratification.
- Patients included analysis were those electing active surveillance post-biopsy and those receiving partial nephrectomy with final diagnosis of oncocytoma.

Patients and Methods

- **Primary outcome:** De novo CKD stage III (eGFR <60mL/min/m²)
- **Secondary outcome:** Delta GFR between diagnosis and last follow up
- Multivariable Logistic Regression analysis and Kaplan-Meier survival analyses were utilized for outcomes

Clinical Descriptives

Variable	Active Surveillance (n=78)	Partial Nephrectomy (n=225)	<i>p-value</i>
Mean Age (years, \pm SD)	66.81 \pm 11.49	66.07 \pm 11.00	0.647
Gender % (n)			1.000
Male	64.1% (50)	64.4% (145)	
Female	35.9% (28)	35.6% (80)	
Mean BMI (\pm SD)	28.32 \pm 6.62	27.70 \pm 5.40	0.463
PMH			
HTN	66.6% (52)	62.7% (141)	0.780
DM	20.5% (16)	14.2% (32)	0.282
Clinical Tumor Size (cm \pm SD)	2.5 (1.38)	2.9 (1.60)	0.056
Mean RENAL score (\pm SD)	7 (5.5-8.0)	6 (5.0-8.0)	0.614
Median Follow-up (months, \pm IQR)	31.5 (15.8-54.2)	38.4 (12.4-64.0)	0.251


Functional Outcomes

Variable	Active Surveillance (n=78)	Partial Nephrectomy (n=225)	<i>p</i> -value
Mean change in tumor diameter (cm, \pm IQR)	0.3 (0.0-0.70)	N/A	
Mean eGFR at diagnosis (\pm SD)	78.2 (21.6)	76.9 (20.4)	0.653
Mean eGFR at last follow-up (\pm SD)	63.4 (20.0)	70.5 (20.9)	0.010
Mean delta eGFR (\pm SD)	-14.7 (15.3)	-6.5 (15.0)	0.002
De novo CKD III % (n)	24 (30.7%)	27 (12.0%)	<0.001

MVA: De novo CKD III

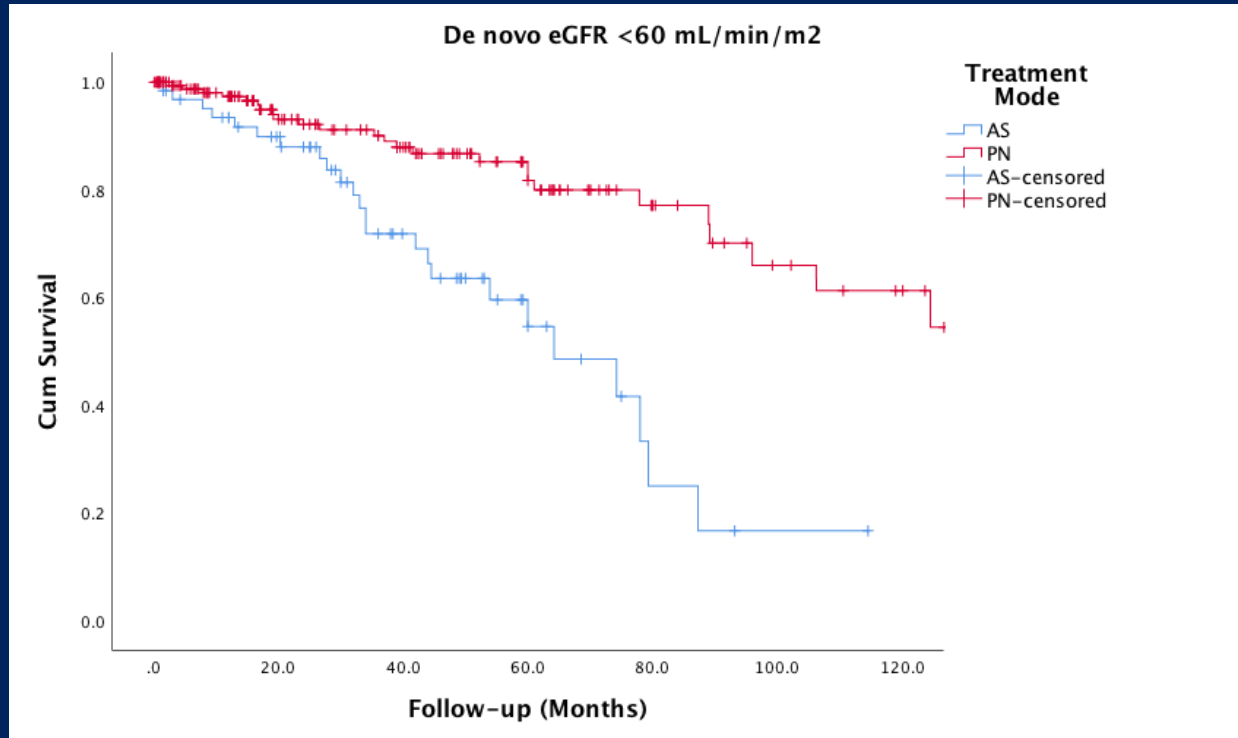
Variable	Univariable Analysis			Multivariable Analysis		
	OR	95% CI	p-value	OR	95% CI	p-value
Age (Continuous)	1.038	1.006-1.072	0.020	1.030	1.005-1.071	0.048
Sex (Male vs. Female)	1.592	0.850-2.982	0.146			
Clinical tumor size at diagnosis (continuous)	0.932	0.743-1.169	0.544			
Treatment mode (AS vs. PN)	3.356	1.750-6.424	<0.001	4.200	1.560-6.314	<0.001
HTN (Yes vs. No)	1.279	0.651-2.476	0.484			
DM (Yes vs. No)	2.500	0.843-7.416	0.099			

Linear Regression: Delta eGFR



Variable	Beta	95% CI	p-value
Age	0.061	-0.100-0.221	0.457
Clinical Tumor Size	-0.541	-1.640-0.557	0.333
Sex	0.489	-3.117-4.095	0.790
Treatment mode	8.383	4.655-12.418	0.002
HTN	5.459	0.970-9.208	0.621
DM	-1.375	-6.169-3.419	0.573

Kaplan-Meier Analysis of Freedom from de novo CKD



AS 59%
PN 86%
($p < 0.001$)

Conclusions

- Active surveillance was associated with greater functional decline than partial nephrectomy in oncocytoma
- Our findings support consideration of partial nephrectomy to optimize renal functional preservation in oncocytoma when appropriate.
- Further investigation into the mechanism of functional decline associated with oncocytoma is requisite.