

Natural history of renal angiomyolipoma (AML) favors surveillance as an initial approach

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Disclosures

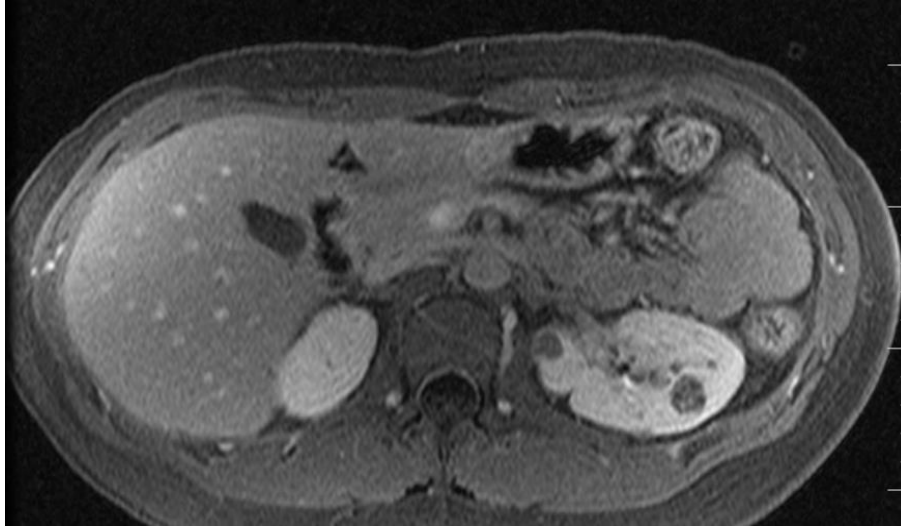
I have no conflict of interest to disclose.

Introduction

- Renal angiomyolipoma (AML) account for up to 6% of all renal tumors
- Majority are sporadic, incidentally found on imaging
- AMLs >4cm reported to be at increased risk of rupture and hemorrhage

‘active surveillance for most AMLs with treatment to be considered for larger tumors, females of child bearing age or for those in whom follow up or access to emergency care may be inadequate’

‘no clear size threshold for intervention’



Aim



To report long term follow up of the natural history and growth rates of renal AML in an institution where the initial management of AML is routinely surveillance

Methods

- Retrospective review of all radiology reports at the Princess Margaret Cancer Centre, from 2002 to 2013 and prospectively followed through to 2018
- Primary endpoint was the growth rate of untreated AMLs
- Secondary endpoints were rate of interventions, indication and time to intervention

Results

Variable	Category	Frequency or value (%)
Patient Specific	No.	458
Gender	Female	365 (79.7) ←
	Male	93 (20.3)
Age at diagnosis, year	Median	58.1
	Range	(18.5–90.4)
Clinical Presentation	Incidental	416 (90.8) ←
	Symptomatic	42 (9.2)
TSC status	Positive	17 (3.7) ←
	No/Not tested	441 (96.3)
Intervention	None	426 (93.0)
	Yes	32 (7.0) ←
Size of lesion at baseline, cm	≤4	409 (89.3) ←
	>4	49 (10.7)
No. of lesions per patient	Median	1
	Range	(1–6)
Follow-up, months	Median	65.2
	Range	0-206

Table 1. Patient and lesion characteristics

Variable	Category	≤4cm, n (%) (n=409)	>4cm, n (%) (n=49)	Total (n=458)	p value
Age at diagnosis, year	Median	58.9 ←	52.3 ←	58.1	0.02
	(range)	(18.5–90.3)	(18.9–90.4)	(18.5–90.4)	
Gender	Female	326 (79.7)	39 (79.6)	365 (79.7)	0.98
	Male	83 (20.3)	10 (20.4)	93 (20.3)	
TSC status	No/unknown	402 (98.3)	39 (79.6)	441 (96.3)	<0.0001
	Yes	7 (1.7) ←	10 (20.4) ←	17 (3.7)	
Clinical presentation	Incidental	382 (93.4)	34 (69.4)	416 (90.8)	<0.0001
	Symptomatic	27 (6.6)	15 (30.6)	42 (9.2)	
Intervention	Yes	5 (1.2) ←	29 (59.2) ←	34 (7.4)	<0.0001
	No	404 (98.8)	20 (40.8)	424 (92.6)	

Table 2. Demographic comparison by angiomyolipoma size at baseline

Growth Rates

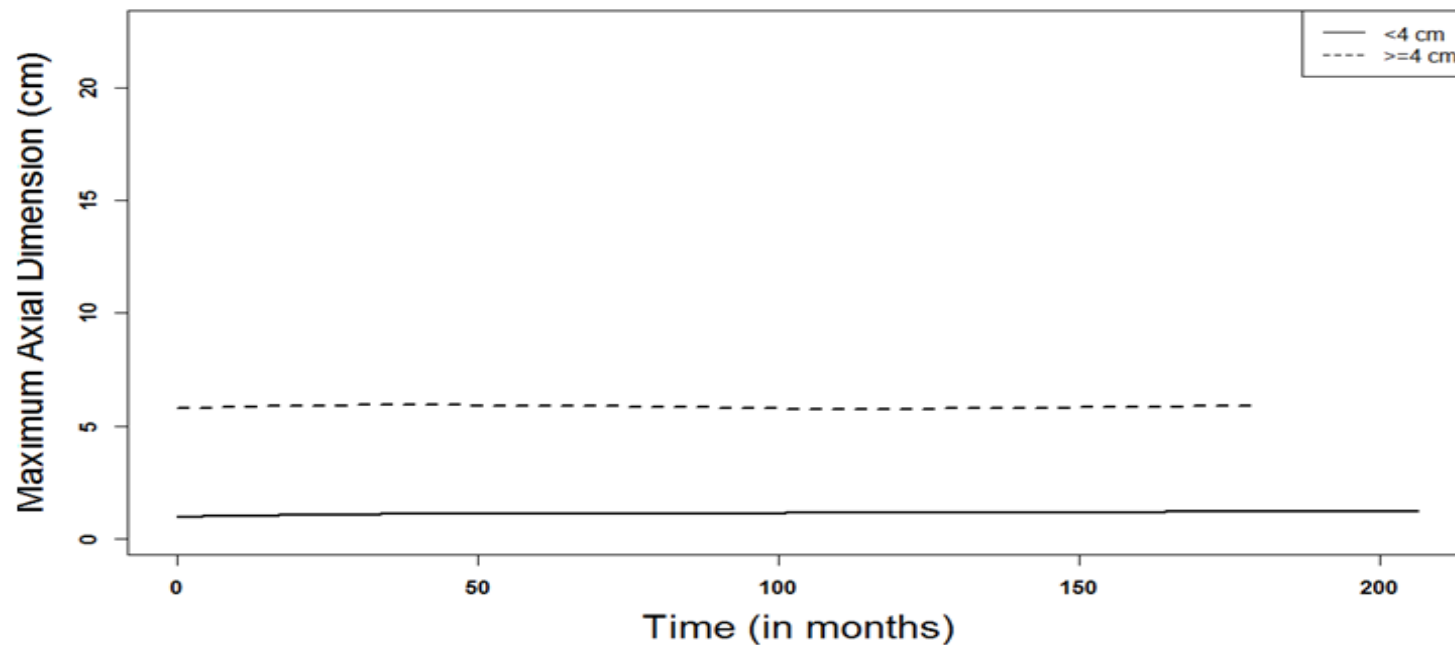
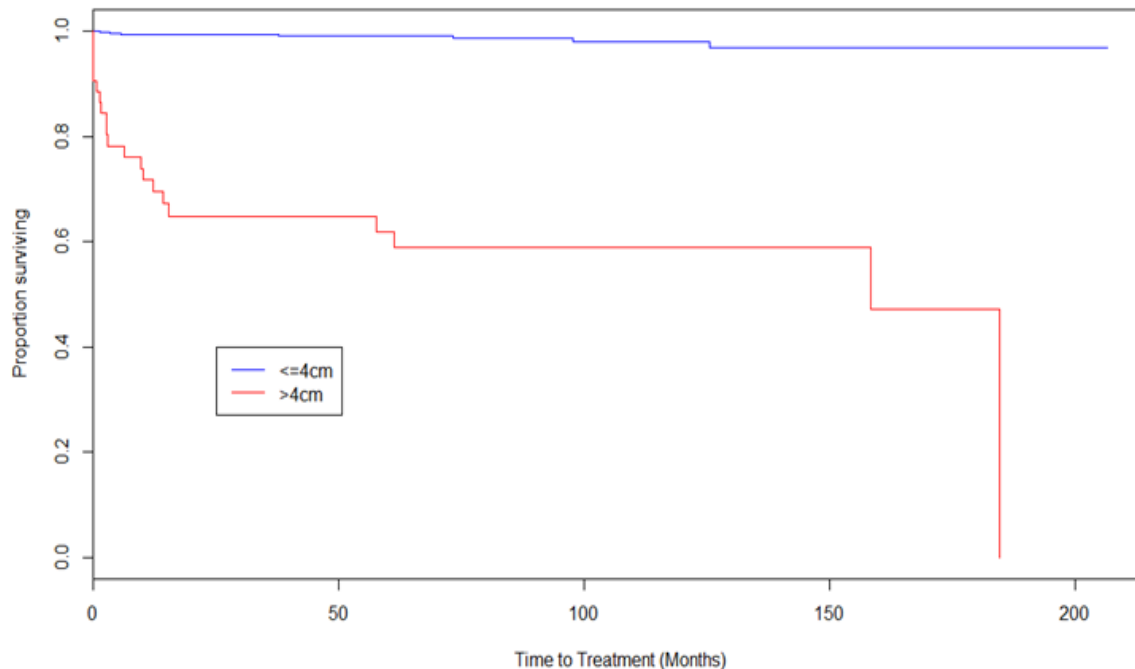


Figure 2. Locally weighted scatterplot smoothing (Lowess) curves demonstrating average growth rates over time for renal angiomyolipomas ≤ 4 vs >4 cm.



Median size at intervention 4.9cm (1.1-29)

All (n=5) interventions <4cm were elective.

PN x2, RFA x2, SAE x1.

29 pts underwent intervention >4cm.

Elective n=26, SAE x23, PN x2, Medical mx x1.

Emergent n=3, all SAE.

Figure 1. Time to intervention for angiomyolipomas presenting at ≤4cm and >4cm

Log rank p value < 0.0001

Summary

- Cohort 458 patients with 593 AMLs
- Intervention rate 7% of patients
- Majority (94%) grow slowly
- Emergent presentation with a bleed 0.6% (9cm, 15cm, 29cm)

Conclusion

- Early intervention for renal AML is not required regardless of the traditional 4cm cut off
- Majority of sporadic AMLs are indolent lesions
- Follow up should be no more frequent than annually
 - Known genetic association
 - Fat-poor, epithelioid composition
 - Highly symptomatic or pregnant patients