



KARNATAKA RADIOLOGY EDUCATION PROGRAM

## **CASE PRESENTATION**

**CASE OF TUBEROUS SCLEROSIS WITH BILATERAL  
RENAL CELL CARCIOMA**

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# CLINICAL HISTORY

- A 21-year-old female who is clinically a k/c/o tuberous sclerosis presented to the dermatology OPD with complaints of brownish lesions over the face for 20 years.
- The patient was apparently alright 20 years back when she noticed a brown colored pea sized lesion over left cheek below the eye. It was gradually progressed to involve bilateral cheeks and nose within the span of 5 years.
- Since, 3 years, she developed similar lesions over left arm.

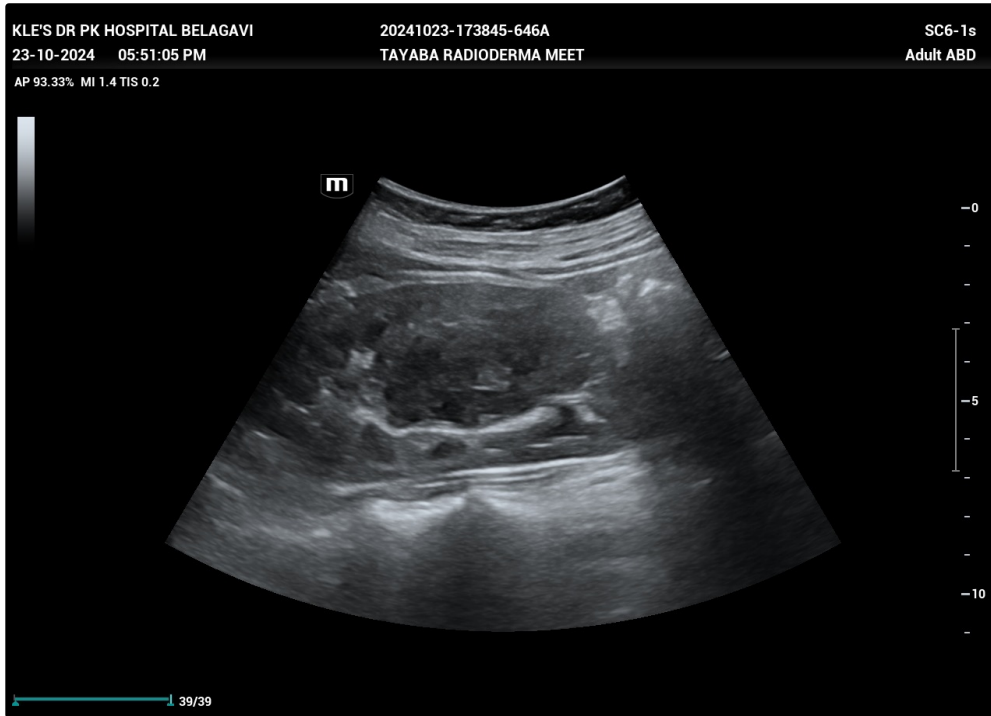
On examination-

- Multiple, well defined hyperpigmented macules present over the nose and bilateral cheeks.
- Multiple hyperpigmented to skin-colored papules present over bilateral cheeks and left trunk.

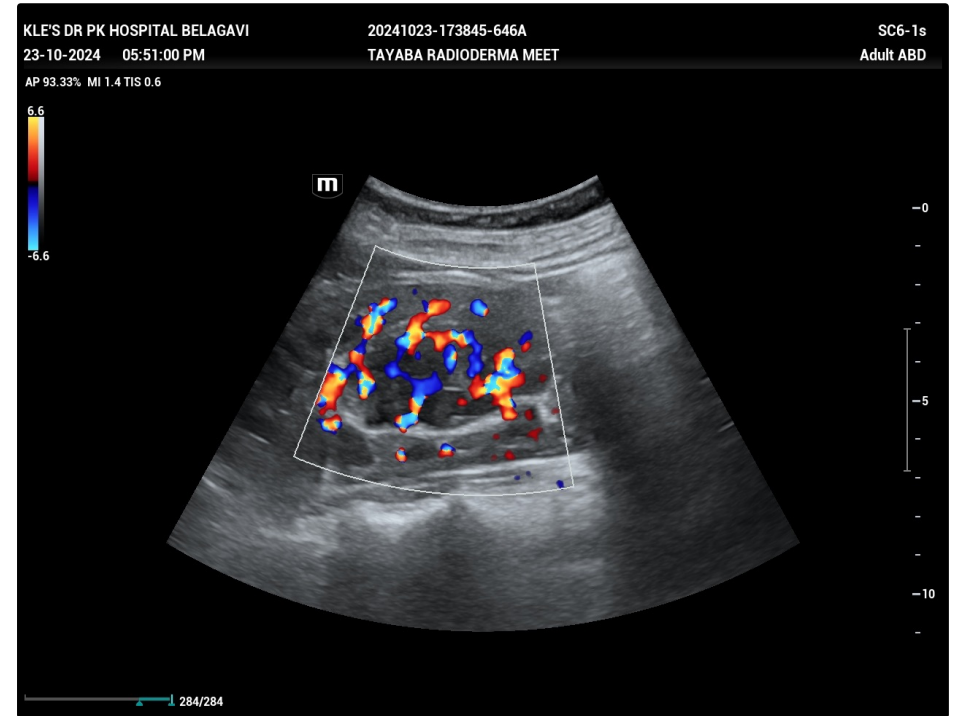
Routine blood investigations: normal limits

Viral screening: non-reactive

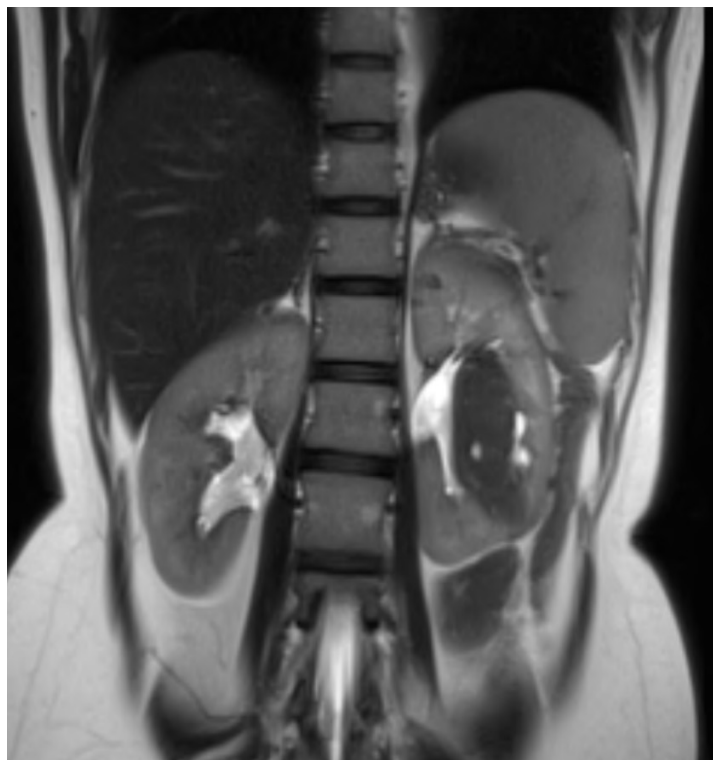
Patient was advised for routine USG screening and later MRI abdomen (plain and contrast) based on USG findings



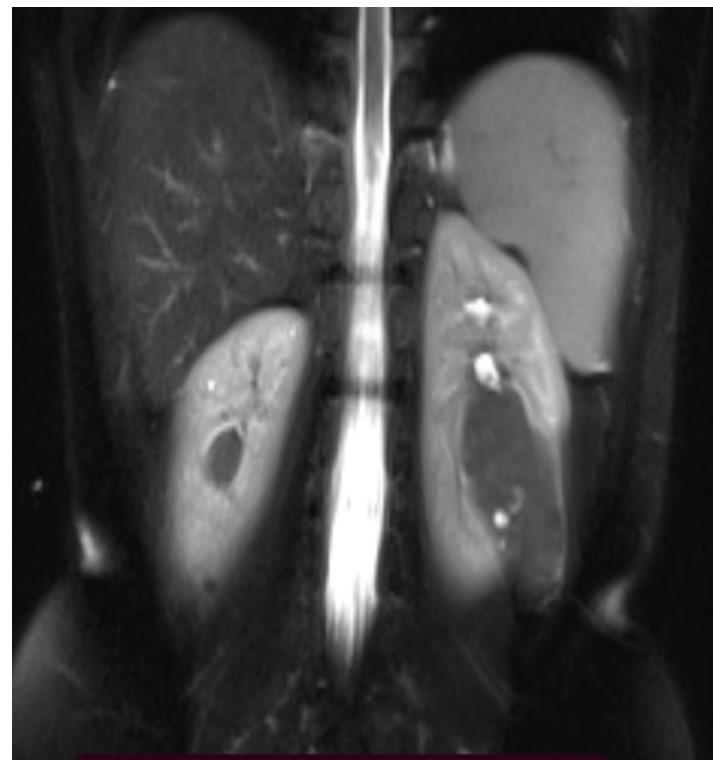
USG-grey scale image



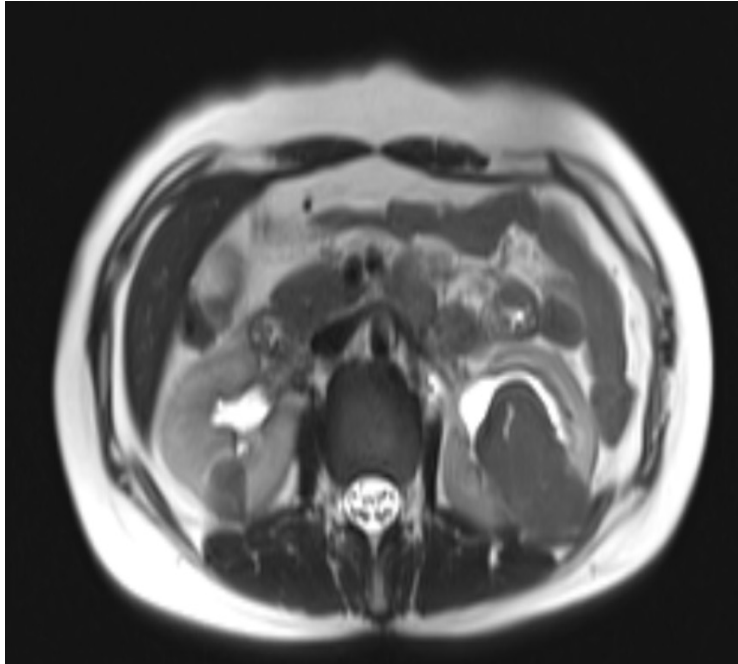
USG- colour doppler image



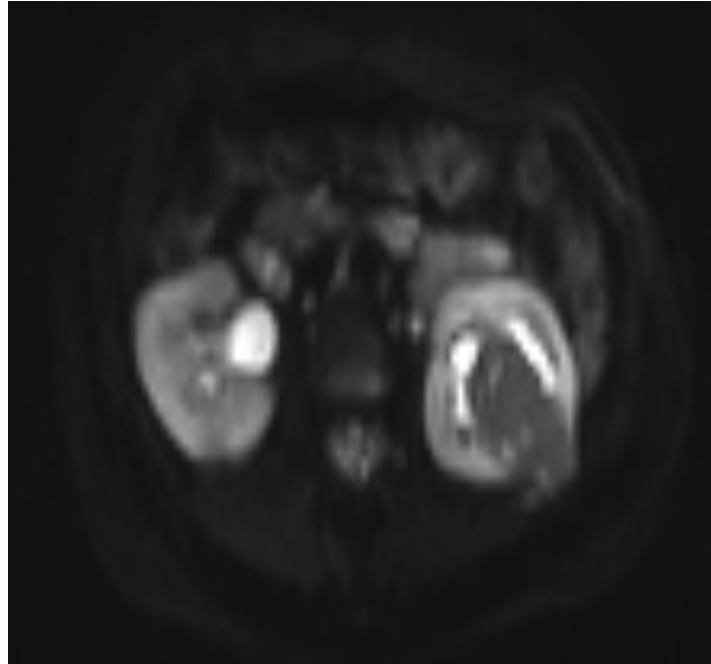
**MRI abdomen T2WI coronal**



**MRI abdomen T2WFS coronal**



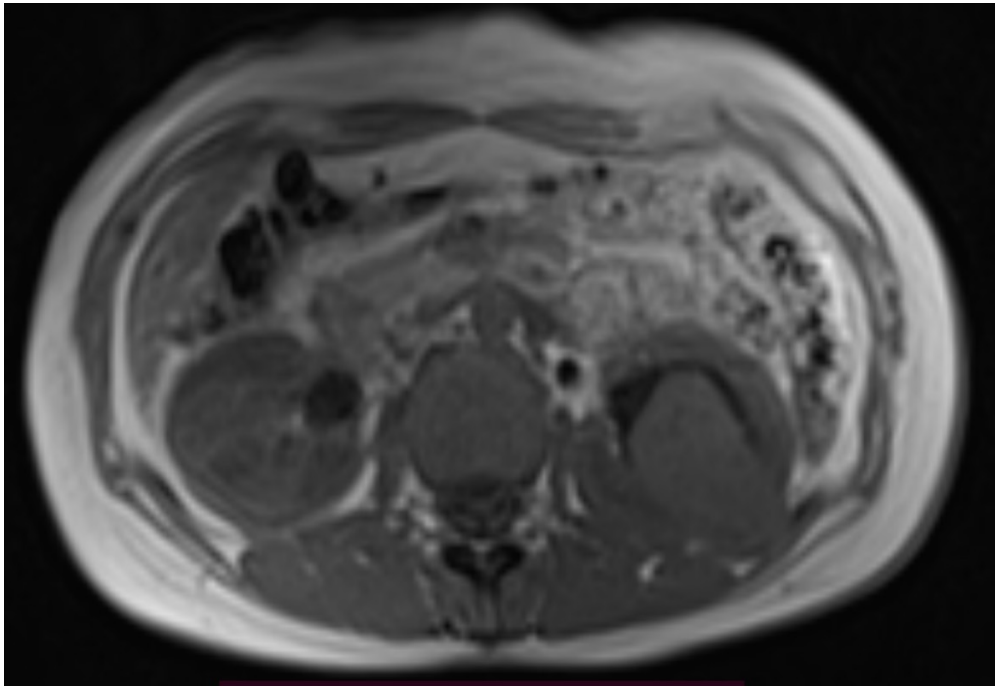
**MRI abdomen T2WI axial**



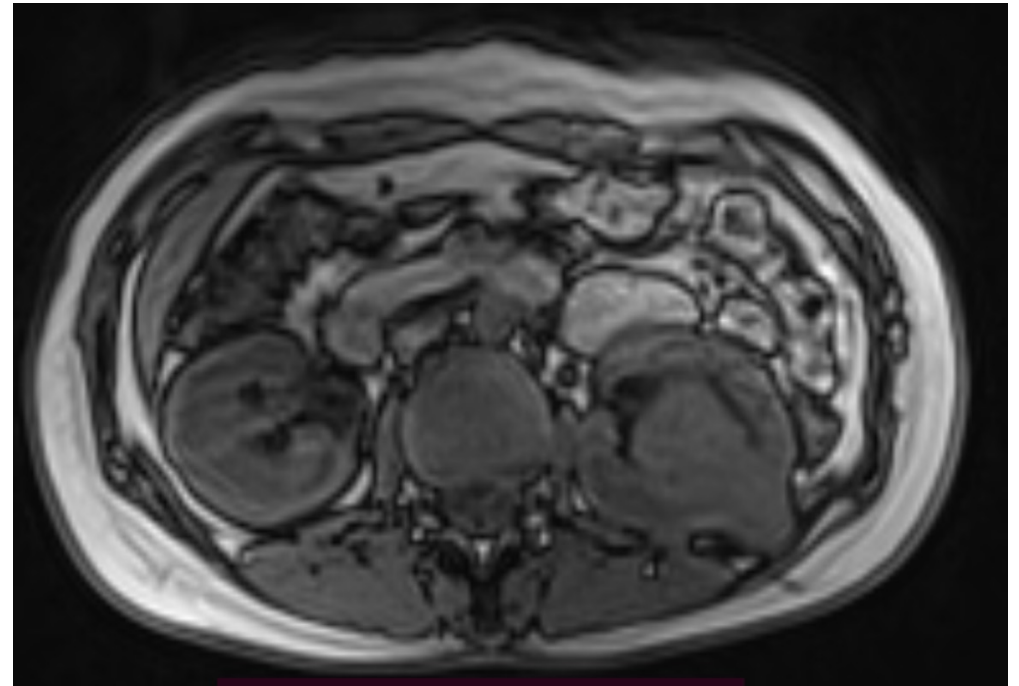
**DWI images**



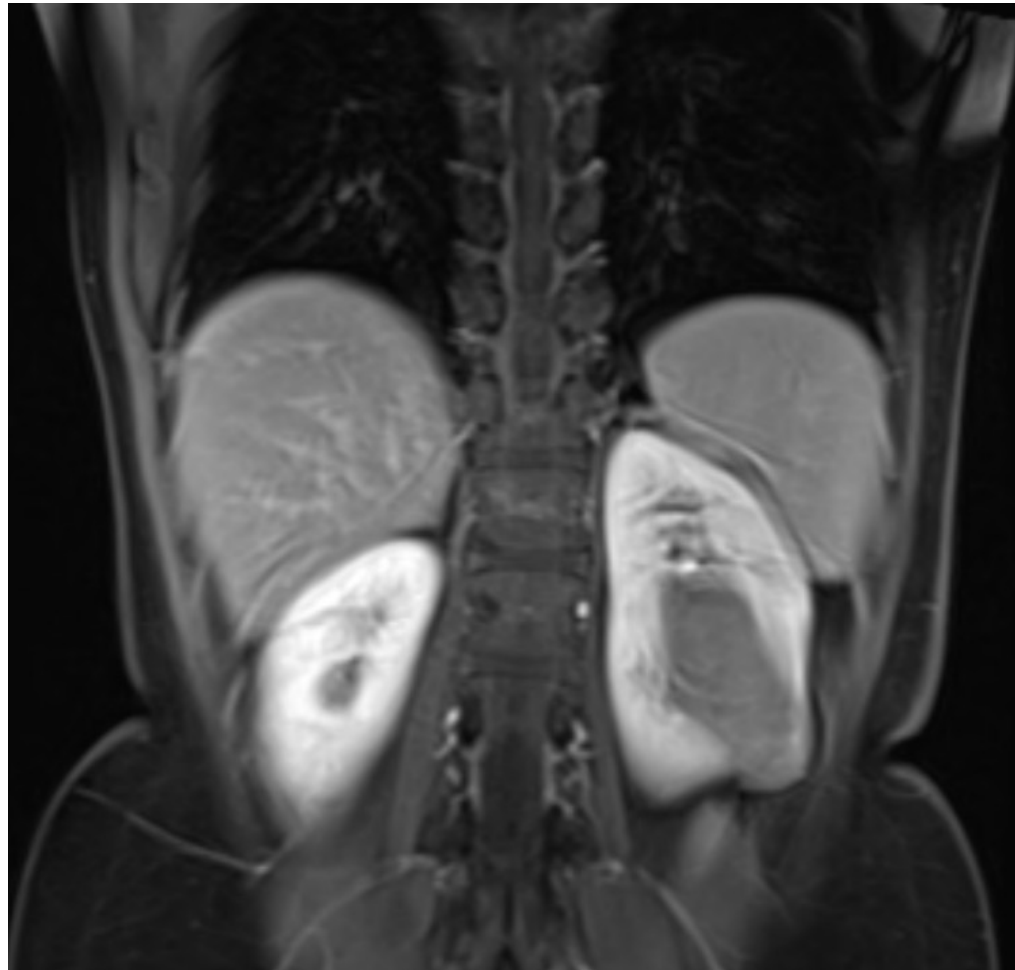
**ADC images**



**INPHASE sequence**



**OUTPHASE sequence**



T1 post contrast coronal images

# FINDINGS

## USG:

- Well-defined hypoechoic area hypoechoic area is seen in the interpolar region of left kidney with increased vascularity on color doppler study .



# FINDINGS

## MRI

- Well-defined heterogeneously enhancing T2 and STIR hypointense lesion with few internal T2 hyperintense cystic areas, involving the lower pole and interpolar region of the left kidney with exophytic component and diffusion restriction on DWI sequence.
- No evidence of signal drop noted on opposed phase sequence.
  - ✓ Superiorly, the lesion extends into the renal pelvis.
  - ✓ Posteriorly, the lesion shows loss of fat planes with transverse abdominis muscle.
- Heterogeneously enhancing well-defined T2 and STIR hypointense lesion noted involving the interpolar region of the right kidney with diffusion restriction on DWI sequence. No evidence of signal drop on opposed phase sequence.

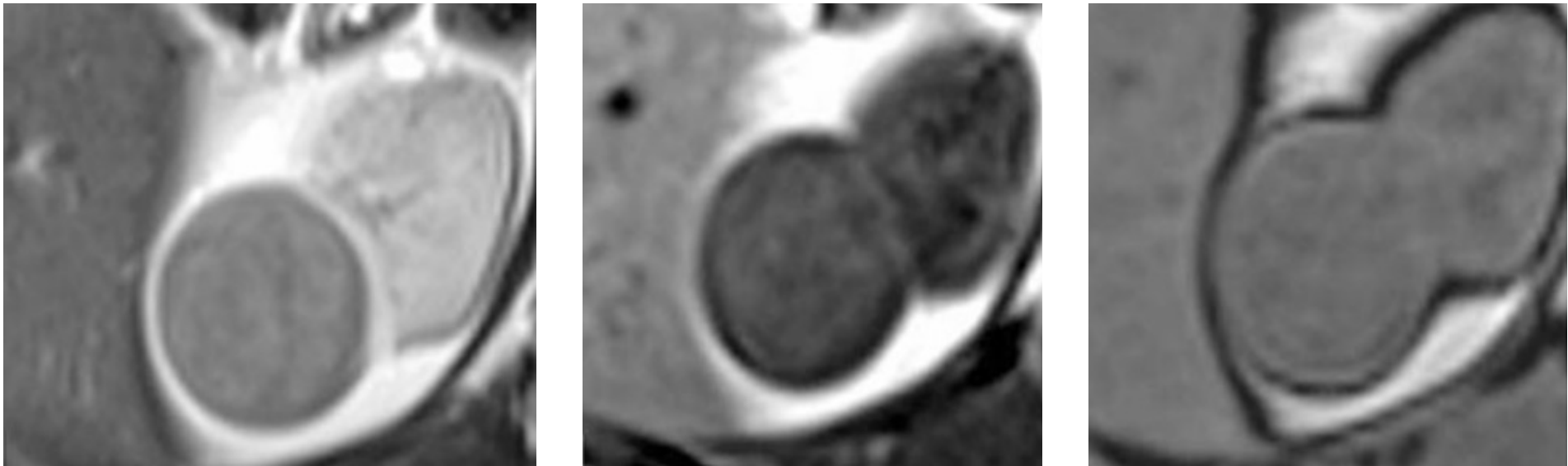
## DIFFERENTIALS TO BE CONSIDERED

1. Papillary cell carcinoma
2. Clear cell carcinoma
3. Angiomyolipoma (minimal)

# PAPILLARY CELL CARCINOMA

POINTS IN FAVOUR	POINTS AGAINST
<ul style="list-style-type: none"><li>▪ Case of tuberous sclerosis</li></ul>	<ul style="list-style-type: none"><li>▪ Absence of papillary projections with internal mural nodule</li></ul>
<ul style="list-style-type: none"><li>▪ Multifocal and bilateral lesions</li></ul>	
<ul style="list-style-type: none"><li>▪ T2 and STIR hypointense lesion</li></ul>	
<ul style="list-style-type: none"><li>▪ Presence of diffusion restriction</li></ul>	
<ul style="list-style-type: none"><li>▪ No signal drop in out phase sequences</li></ul>	
<ul style="list-style-type: none"><li>▪ Heterogenous enhancement on contrast administration</li></ul>	

# PAPILLARY CELL CARCINOMA



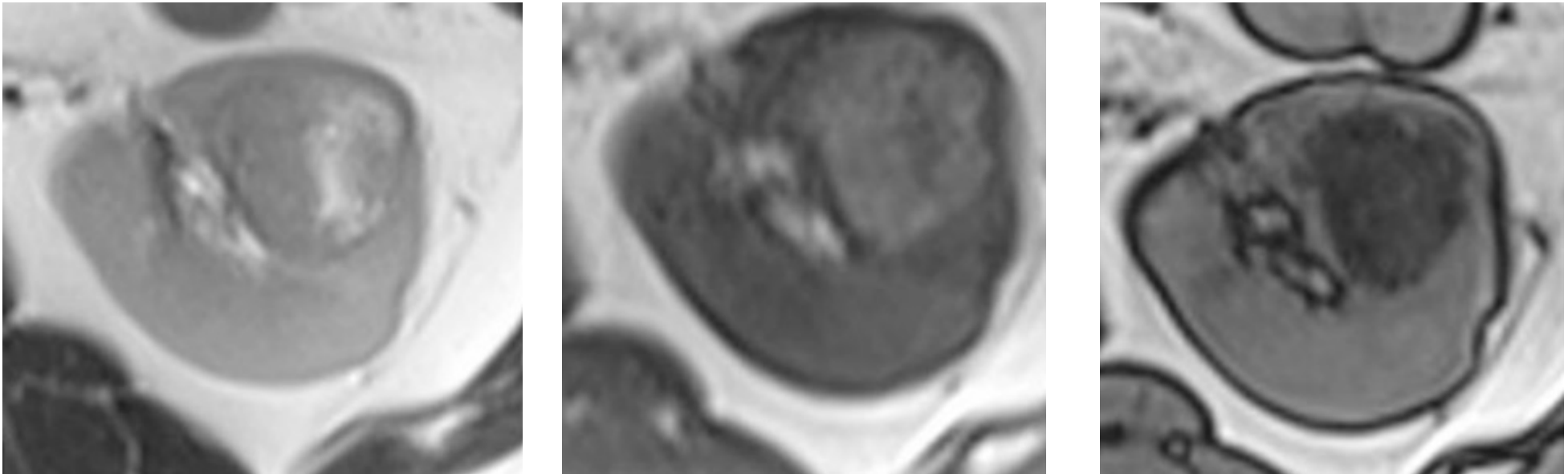
**Axial T2-weighted MRI image shows a hypointense mass**

**Axial in-phase and out-of-phase T1-weighted images show a drop in signal intensity on the in-phase image suggesting intrasiesional hemosiderin**

# CLEAR CELL CARCINOMA

POINTS IN FAVOUR	POINT AGAINST
▪ Case of tuberous sclerosis	▪ T2 hypointense lesion
▪ Heterogenous enhancement on contrast imaging	▪ Absence of calcifications
▪ Presence of diffusion restriction	▪ Absence of signal drop in out phase sequences
	▪ Absence of pseudo-capsule on T 1 and T2 weighted images

# CLEAR CELL CARCINOMA



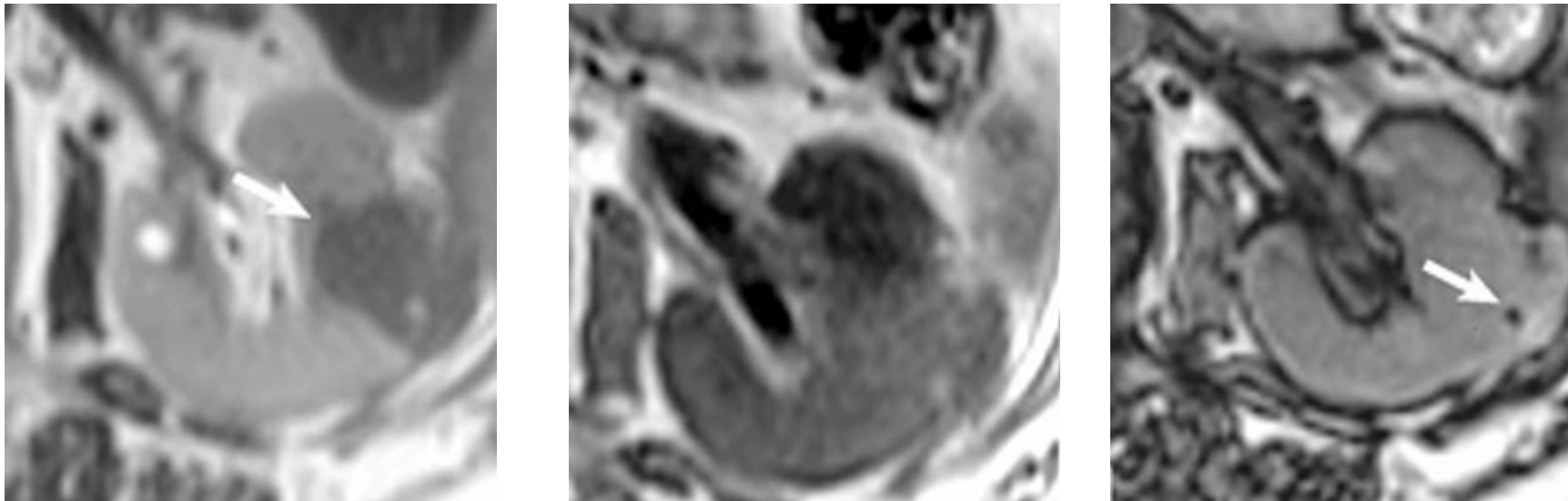
**Axial T2-weighted MR image shows an iso- to hyperintense mass**

**Axial T1 weighted in and out-of-phase images show signal drop on out-of-phase images suggesting the presence of microscopic fat**

# ANGIOMYOLIPOMA (MINIMAL FAT)

POINTS IN FAVOUR	POINT AGAINST
▪ Case of tuberous sclerosis	▪ Absence of fat component of T1
▪ T2 and FATSAT hypointense lesion	▪ Absence of signal dropout in inphase and outphase signals
▪ Presence of diffusion restriction	▪ Presence of heterogenous enhancement on contrast imaging

# ANGIOMYOLIPOMA (MINIMAL FAT)



**Axial T2-weighted image shows a hypointense mass in the left kidney**

**Axial in-phase and out-of- phase T1-weighted images show a few foci of drop in signal intensity on the out-of-phase image suggesting microscopic fat**



# FOLLOW-UP

- Patient presently is on conservative management with radiofrequency ablation of adenoma sebaceum and topical sirolimus