

# Case: Evaluation of renovascular disease

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## A 68-year-old male with poorly controlled hypertension on maximal medical therapy

### Purpose

To evaluate for renovascular disease as a contributing factor to the patients hypertension.

### Methods

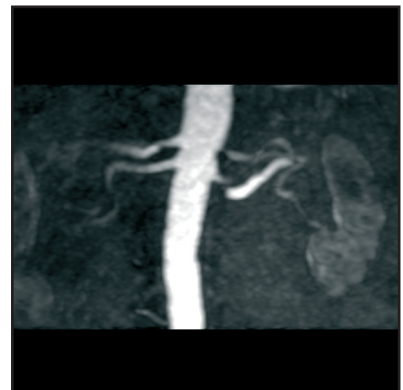
The image study was transferred to the VOxAR 3D™ software. Image post-processing routinely comprises:

- 3D review (MIP and color volume)
- Obliques MPR review of the renal ostia
- Review of the coronal oblique raw datasets (arterial and venous)

If these are normal, no further review is performed. If abnormal, the following are performed:

- Curved / double oblique MPRs of any stenoses
- VESSEL METRIX™ evaluation of curved MPR data (report and segmentation data saved)
- MPR endoscopic review for visualization of aortic plaque closely related to renal artery ostia (again off curved MPR dataset)
- Live images are saved for later review of cases with referring clinicians and at interdisciplinary meetings

<b>Image acquisition</b>	
Scanner	Philips Intera
Pulse sequence	3D FFE/3D Hi-res
TE	1.6
TR	4.65
Flip angle	40
Slice thickness	1 mm
Matrix	512 x 512
<b>Contrast</b>	
Volume	20 ml
Flow rate	2 ml/sec
Start delay	Bolus tracking technique (arterial and venous acquisitions routinely obtained)
<b>Post-processing</b>	
VOxAR 3D™ (VESSEL METRIX™, MPR, endoscopic views, 3D color volume using standard presets)	

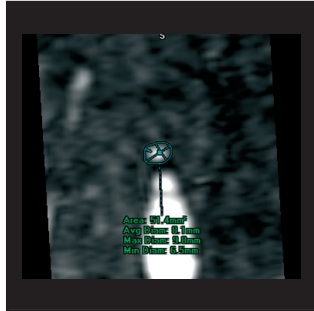


MIP image showing multiple renal arteries

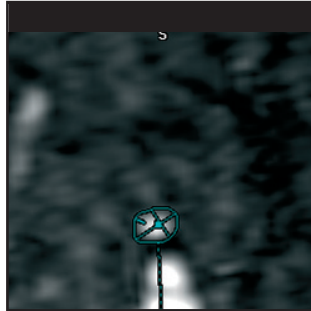
## Findings

The right and left kidneys measured 12.5 and 11.1 cm respectively. Renal cortex was preserved bilaterally and there was no evidence of obstruction. No renal or adrenal masses were demonstrated.

Multiple renal arteries - two on the right and three on the left - were demonstrated. Significant stenoses were demonstrated in the upper and lower-most left renal arteries. A moderate stenosis of the upper right renal artery was demonstrated.



True short axis view through normal segment of right upper pole renal artery



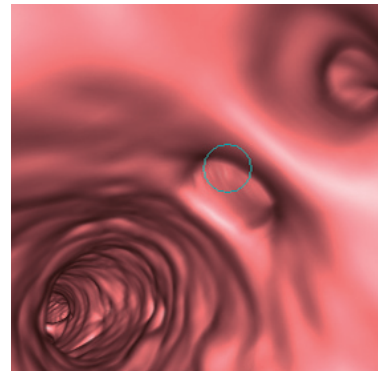
True short axis view through stenosed segment of right upper pole renal artery

Taken in conjunction with renal size, renal cortical thickness, renal cortical perfusion and overall and split renal function, it is possible to determine the possible benefit/role of renovascular intervention in individual cases.

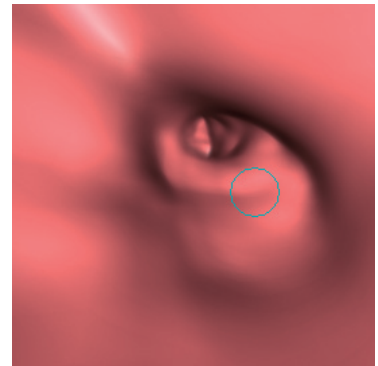
## Conclusion

The VOXAR 3D™ VESSELMETRIX™ clinical application module produced true orthogonal measurements along the normal and stenotic vessel segments. This allows for rapid objective assessment of stenoses.

The ability to rapidly switch from MPR to 3D to VESSELMETRIX™ to Endoscopic views is extremely useful in a clinical setting as is the ability to store the reprocessed images for later review with clinical colleagues.



Virtual angioscopic view of the two right renal arteries viewed from the aorta



Virtual angioscopic view of the right upper pole renal artery stenosis looking back towards the aorta

## Request more information

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