Fig1a-c. Adrenocortical adenoma in a 45yr woman with Cushing Syndrome.

1a.Axial precontrast CT image demontrastes a homogenous, well-defined right adrenal mass with HU of 7.

1b. At 60seconds postcontrast, the HU measures 43.

1c.Delayed postcontrast image at 15minutes demonstrates a HU of 18. The corresponding APW is 69%, consistent with an adenoma.

Fig2. Axial In-phase(IP) and Opposed-phase(OP) chemical shift MRI images of a lipid rich adenoma. Intralesional signal loss is demonstrated on the opposed-phase image(red arrow) compared to the in-phase image(blue arrow); S=spleen

Fig3. Longitudinal ultrasound image demonstrating a well-defined, solid hypoechoeic left suprarenal mass.

Fig4a,b. Adrenal metastasis in a 56yr woman with advanced breast carcinoma.

4a.Axial unenhanced CT scan image shows bilateral ill-defined adrenal masses(blue arrows) and a hypodense hepatic lesion(red arrow)

b.Axial PET image demonstrates intense FDG uptake in both adrenal lesions(blue arrows) and liver mass(red arrow) consistent with metastasis.

Fig5. Histologically proven Adrenocortical Carcinoma.

5a.Axial enhanced CT image demonstrating a large heterogeneous left adrenal mass(blue arrow) with inferior vena cava(IVC) invasion(red arrow).

5b.Coronal PET image showing marked FDG activity in the left adrenal tumour(blue arrow) and within the IVC tumour thrombus(black arrow).

Fig6. Familial Phaeochromocytomas in a 23yr woman.

Axial T2-weighted image demonstrating bilateral phaeochromocytomas. A large heterogeneous right adrenal mass(blue arrow) with central necrosis(yellow arrow) and a smaller well-defined, homogenous left adrenal mass(red arrow) are shown.

Fig7.Benign Phaeochromocytoma in a 57yr woman.

7a.Contrast enhanced CT scan demonstrates a well-encapsulated heterogeneous left adrenal mass representing a phaeochromocytoma(blue arrow) with peripheral enhancement(red arrow) and a central area of low attenuation due to necrosis(yellow arrow). K=displaced left kidney. F=incidental uterine fibroid.

7b.MIBG image shows accumulation of radiotracer in the left phaeochromocytoma(blue arrow). Photopenic area(red arrow) is consistent with necrosis.

Fig8. Histologically proven Phaeochromocytoma in a 56yr man.

8a. Coronal T2-weighted image showing a heterogeneous right suprarenal mass(blue arrow) with central necrosis(red arrow), displacing the kidney inferomedially(yellow arrow).

8b. Axial gadolinium-enhanced T1weighted image demonstrates intense enhancement(blue arrow).Central non-enhancing area corresponds to the area of central necrosis(red arrow). Displaced right kidney(yellow arrow)

Fig9. Malignant Phaeochromocytoma in a 28yr man.

a.Axial postcontrast CT scan image demonstrates a large phaeochromoctoma(blue arrow) with central necrosis(red arrow) and invasion into the IVC(yellow arrow).Enhancing tumour thrombus is noted to expand the intrahepatic IVC(blue arrow in b) and extend into the right atrium of the heart(blue arrow in c).

Fig10. 50yr old woman with non-Hodgkin’s Lymphoma. Coronal reformatted enhanced CT scan demonstrates bilateral soft tissue masses with preservation of the adreniform shape of the adrenal gland(blue arrows)

Fig11. Myelolipoma

Fig11a. Axial unenhanced CT scan image showing a well-defined right adrenal mass with macroscopic fat(red arrow). The myeloid elements have a higher soft-tissue density(blue arrow).

Fig11b. Longitudinal ultrasound image demonstrating a heterogeneous predominantly echogenic adrenal mass abutting the superior pole of the right kidney(blue arrow).

Fig11c. Axial opposed phase MRI image demonstrating “India-ink” artifact(blue arrow).

Fig12. 48yr man with a background history of disseminated tuberculosis. Axial contrast enhanced CT scan demonstrates dense calcification of the right adrenal gland(blue arrow).

Fig13.American College of Radiology White Paper recommended algorithm for the management of an adrenal incidentaloma(*By courtesy of Dr L.L Berland*)[15].