RADIOLOGY INCIDENTAL FINDINGS
(AND WHAT TO DO WITH THEM)

MTW
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RADIOLOGY INCIDENTAL FINDINGS

Introduction
What are they?
Common incidental findings by body part
Summary
Questions

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INCIDENTAL FINDINGS

A mass or lesion detected by imaging which has been performed for an unrelated reason

- Common
- Ethical issues regarding consent for imaging, reporting IF's and informing patients
- Varies between imaging modalities and body parts
  - Estimated up to 3-12% on neuroimaging, 30% in body imaging

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INCIDENTAL FINDINGS

A mass or lesion detected by imaging which has been performed for an unrelated reason

- Common
- Ethical issues regarding consent for imaging, reporting IF's and informing patients
- Varies between imaging modalities and body parts
  - Estimated up to 3-12% on neuroimaging, 30% in body imaging
- Trend of increased diagnostic imaging tests
  - CT 6.8% per annum
  - MRI 5.6% per annum
  - PET-CT 18.7% per annum
- Better spatial resolution
- Increased access to imaging e.g. primary care pathways for MRI head

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MRI ONE

Executive Full Body MRI

Personalised care with the very latest in imaging diagnostics and preventative medicine. Our MRI ONE Full Body Scan includes not only MRI screenings of the most important organs in the human body, but also a CT scan of your heart and lungs, 50 blood checks, cancer markers and comprehensive dedicated medical care.

Magnetic resonance imaging (MRI) uses a powerful magnetic field, radio waves and a computer to produce detailed pictures of the inside of your body. The images can provide greater clarity on the presence of, for example, cysts, tumours or inflammation of the internal organs with accuracy.

See below the full breakdown of tests included in this screening

Live Support

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FULL BODY CHECK

- Brain MRI (checks for bleeding, swelling, problems with the way the brain developed, tumors, infections, inflammation, damage from an injury or a stroke, or problems with the blood vessels
- Cardiac MRI (checks your heart's valves and anatomy)
- MRI Angiography (to check for cholesterol plaques in the carotid arteries)
- Abdomen and Pelvic MRI - checks your liver, spleen, bladder, gallbladder, adrenal glands, prostate (for men) and ovaries (for women) for masses, cysts, inflammations and tumours
- Mammogram (for women)
- Breast Ultrasound (depending on age and other factors)

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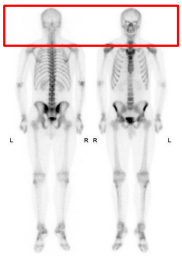
HEAD AND SPINE



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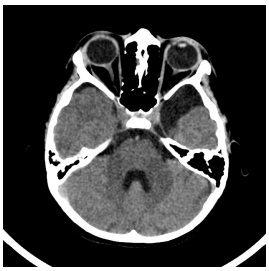
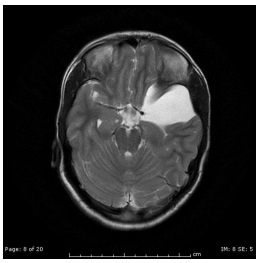
ARACHNOID CYSTS





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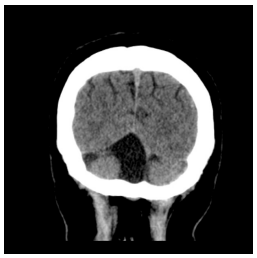
MEGA CISTERNA MAGNA



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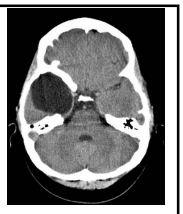
ARACHNOID CYSTS

Common, benign, majority asymptomatic

Usually in the middle cranial fossa, enlarging the Sylvian fissure

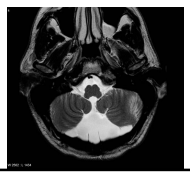
If symptomatic (~5%) - gradual enlargement can cause mass effect



MEGA CISTERNA MAGNA

Most commonly a normal variant

Enlargement of CSF spaces in the posterior cranial fossa with normal 4th ventricle, normal cerebellum



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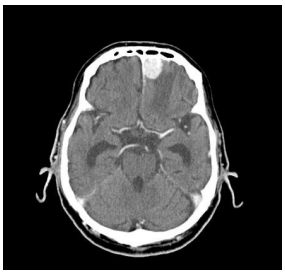
MENINGIOMA



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MENINGIOMA

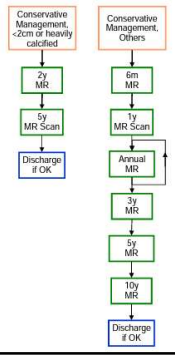
Slow growing, benign, can remain asymptomatic

F>M

5% are atypical or malignant

Younger patients tend to show a higher growth rate

"Follow-up can be ended early in the case of elderly or frail patients if the MDT agrees that further active treatment would not be appropriate"



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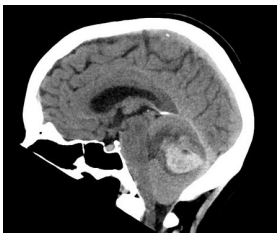
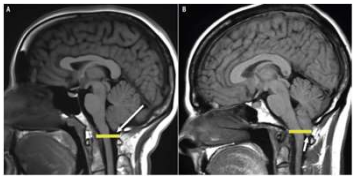
CEREBELLAR TONSILLAR ECTOPIA





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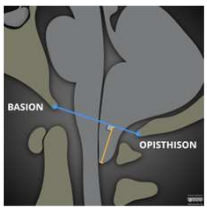
LOW LYING CEREBELLAR TONSILS

Descent of tonsils <3-5mm, usually asymptomatic



CHIARI MALFORMATIONS

Chiari I usually asymptomatic until adulthood

Can be associated with syrinx (so needs spinal cord imaging too)

Patients may experience headache due to impeded CSF flow

Surgical management of symptomatic cases and those with syrinx

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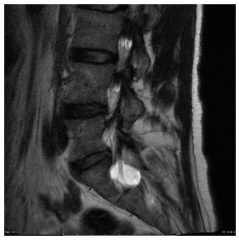
TARLOV CYSTS



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TARLOV CYSTS

Prevalence 4.6%, usually asymptomatic
- Higher prevalence with connective tissue disorders (e.g. Ehlers Danlos, Marfan, Sjögren)

CSF filled dilatation of nerve root sheath, usually within lumbosacral spine

When symptomatic (& other causes excluded)
- Back/coccygeal pain
- Radiculopathy
- Leg weakness
- Bladder/ bowel dysfunction
- Sexual dysfunction

Treatment: CT guided drainage + fibrin injection, surgery

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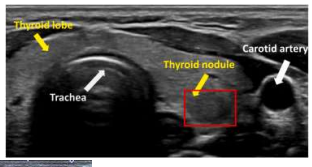
THYROID NODULES



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THYROID NODULES

- Found incidentally in ~10% of CT/MRIs and 50% of neck US
- American College of Radiology suggest further investigation with thyroid US and TSH if:
  - ≥1cm in <35year old
  - ≥1.5cm in ≥35 year old

  - Suspicious lymph nodes
  - Local tissue invasion
  - Focal tracer uptake on nuclear medicine scans
  – requires FNA

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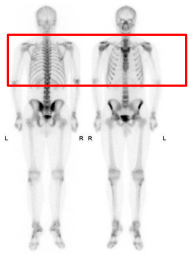
CHEST



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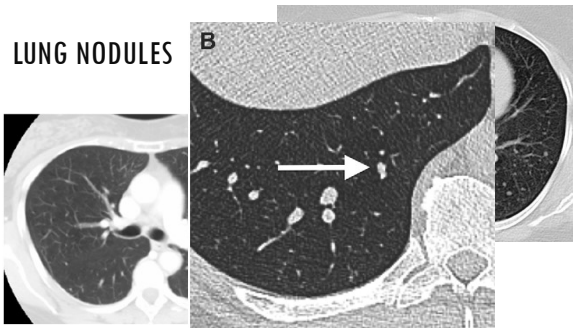
LUNG NODULES



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LUNG NODULES

Is there any previous imaging?

British Thoracic Society Guidelines

<5mm Discharge

5-6mm Repeat CT at 1 year

≥6mm CT at 3 months

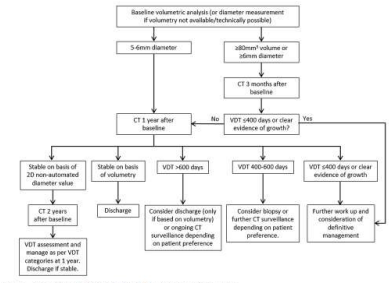

Figure 2 Solid pulmonary nodule surveillance algorithm. VDT, volume doubling time.

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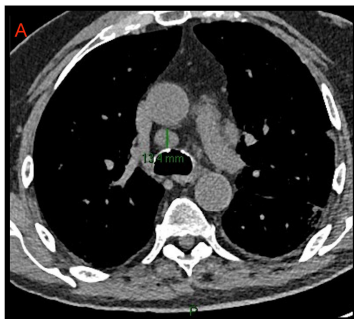

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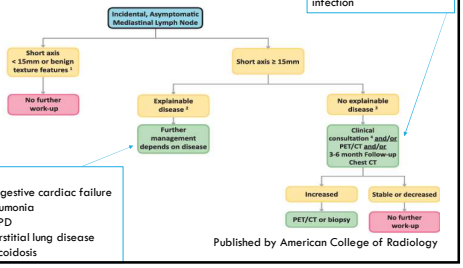
MEDIASTINAL LYMPH NODES

1-6% prevalence



Consider lymphoma, undiagnosed metastatic disease (including testicular cancer in young males), infection

E.g.
Congestive cardiac failure
Pneumonia
COPD
Interstitial lung disease
Sarcoidosis

Published by American College of Radiology

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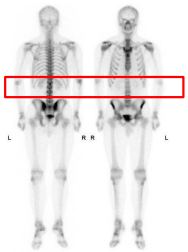
ABDOMEN



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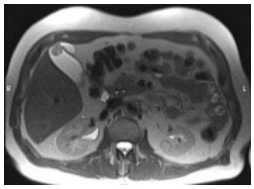
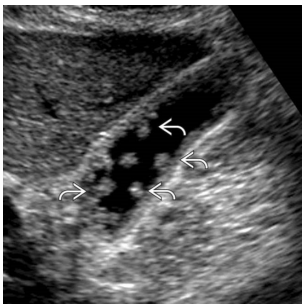
GALLBLADDER POLYPS





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GALLBLADDER POLYPS

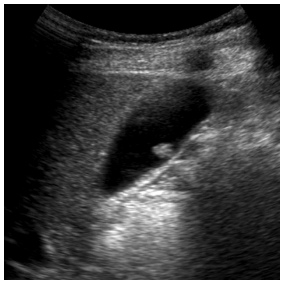
MTW US dept guidance

<5mm No follow up

5-10mm 6 month repeat US

If no change then repeat at 1 year, if no change then another repeat US at 1 year, if still unchanged then no further f/u

>10mm Surgical referral & should be FAST tracked back to referrer



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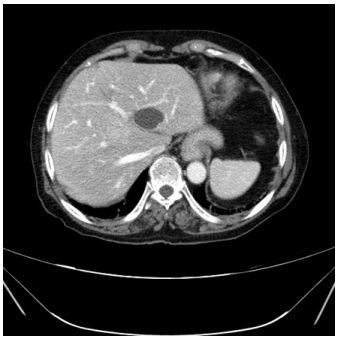
HEPATIC CYSTS



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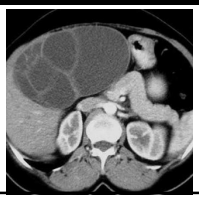
HEPATIC CYSTS

If entirely simple (thin walled, anechoic) then no follow up required

If any concern regarding features consider repeat US at 6 months or if more suspicious (e.g. septations, nodularity) an MRI liver to clarify



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HEPATIC HAEMANGIOMA

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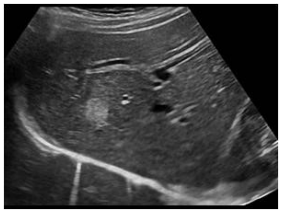
HEPATIC HAEMANGIOMA

If entirely typical on imaging, asymptomatic, patient young and small (<5cm) then no further follow up

If large, multiple, atypical features or found in a cancer patient then consider MRI liver to clarify



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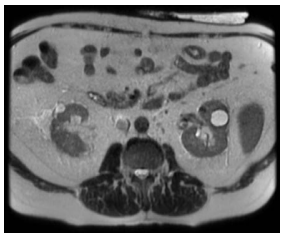
RENAL CYSTS



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RENAL CYSTS

Classification based on Bozniak criteria

Bozniak 1: Entirely simple, any size	0% malignant risk
Bozniak II: Minimally complex <3cm	~0% malignant risk

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Sometimes if cyst detected on CT we will suggest an US to further characterise

RENAL CYSTS

Classification based on Bozniak criteria

Bozniak 1: Entirely simple, any size	0% malignant risk	
Bozniak II: Minimally complex <3cm	~0% malignant risk	
Bozniak IIF: 'F' for follow up	5% malignant risk	Repeat US 6 months
Bozniak III: Indeterminate cystic mass	55% malignant risk	Urology referral (Partial nephrectomy)
Bozniak IV: Malignant cystic mass	~100% malignant risk	Urology referral (Partial/total nephrectomy)

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SPLENIC ARTERY ANEURYSM

Most common (60%) visceral artery aneurysm

<2cm Follow up at 1 year if no risk factors

≥2cm Treatment required

RISK FACTORS
-Rapidly increasing size
- Cirrhosis
- Premenopausal women

Renal artery aneurysm are 2nd most common (15-22%)
<1.5cm - 1 year follow up unless premenopausal
>1.5cm - Treatment required

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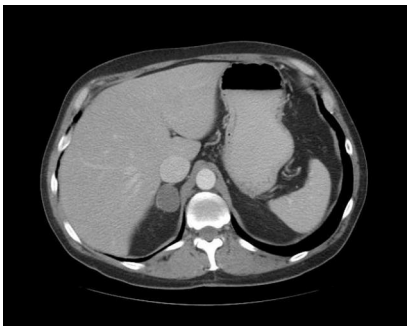

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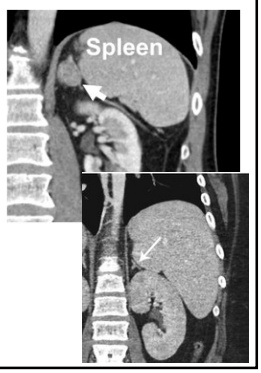
ADRENAL NODULES



Common (3-7% of adults)

If no PMHx the chance of malignancy is low (0/973 patients)

If PMHx of malignancy then still likely to be benign (28/46 nodules)

If <1cm no further f/u

Concerning features include:
- Large
- Interval growth

To further characterise: CT adrenals (with contrast) or MRI adrenals

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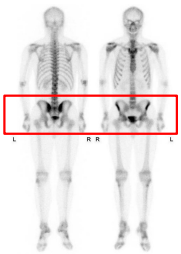
PELVIS



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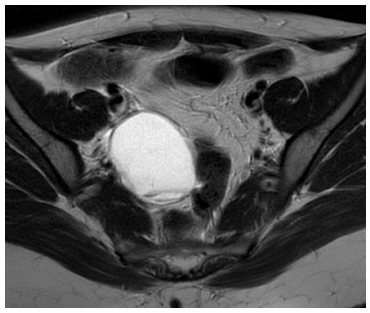

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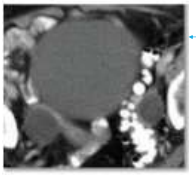
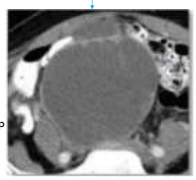
OVARIAN CYSTS



Thin walled, low density, uniform, well-defined

Septation, wall thickening, mural nodularity



Follow up depends on
- Imaging characteristics
- Size of cyst
- Age of patient
- Has it been there previously?

It should be stated in the radiology report regarding follow up
Usually:

Any age	≤ 1cm	Any appearance	=>	No follow up
Premenopausal	≤5cm	Simple appearance	=>	No follow up

More complex features, older patient and larger size warrants faster follow up

US 6-12 weeks → Ca125 → US 2 weeks → MDM referral

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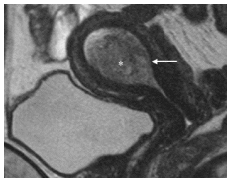
ENDOMETRIAL THICKENING

Premenopausal – very variable
- Up to 16mm

Post menopausal
- Asymptomatic & incidental <10mm



If vaginal bleeding or on HRT then upper limit 5mm
If on tamoxifen then upper limit 8mm
If vaginal bleeding + tamoxifen then lower threshold for referral +/- hysteroscopy and biopsy

If detected on CT scan – likely TVUS 1st line investigation
Otherwise MRI pelvis

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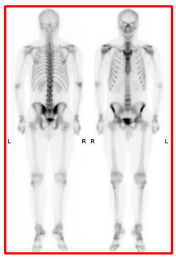
OTHER



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BONE LESIONS

Depends on:
- age of patient
- solitary or multiple
- PMHx
- sclerotic or lytic

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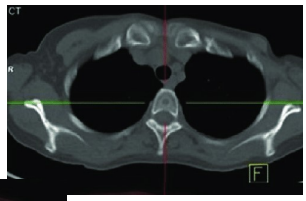
CASE 1

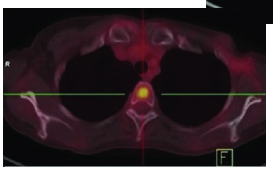
52F PMHx breast Ca 3 years ago

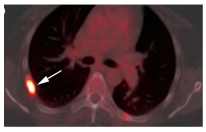
Pleuritic chest pain, SOB

Lytic vertebral and sternal lesion on CTPA

Mx: PET/CT







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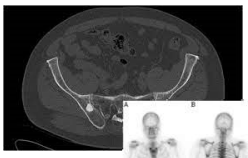
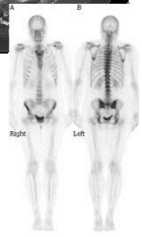
CASE 2

- 65M PMHx Hypertension
- Couple of sclerotic bone lesions on CT KUB ?renal stones
- No previous imaging





- Mx: Nuclear medicine bone scan
- Bone scan: no focal tracer uptake

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CASE 3

- 55M PMHx GORD, HTN
- Right knee injury
- Lytic femoral lesion on radiograph right knee

- Mx: MRI
- Diagnosis: Giant Cell Tumour – orthopaedic referral for further management

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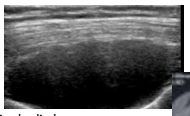
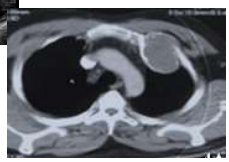
CASE 4





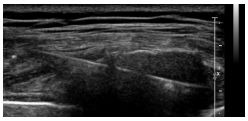
60F 2WW breast referral for nipple discharge

Clinical history – not spontaneous, bilateral, multi duct, clear

Mammogram – M1 (benign)

Ultrasound – no retro areolar abnormality, axilla NAD

but incidental expansile rib lesion



Mx: 1. CT CAP

Diagnosis: US guided biopsy confirmed plasmacytoma

→ Haematology referral

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20F lump right knee

Right knee radiograph – well-defined protuberance from lateral aspect of proximal tibia

Mx: MRI right knee

Diagnosis: Osteochondroma and helped to assess cartilage cap & exclude malignant features

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SUMMARY

Incidental findings are common and increasing

Important to consider benefit vs. risk to patient, when thinking about follow up and further investigation

If in doubt or ambiguous report, you can clarify with radiology department

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QUESTIONS?

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RADIOLOGY INCIDENTAL FINDINGS
(AND WHAT TO DO WITH THEM)

MTW

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