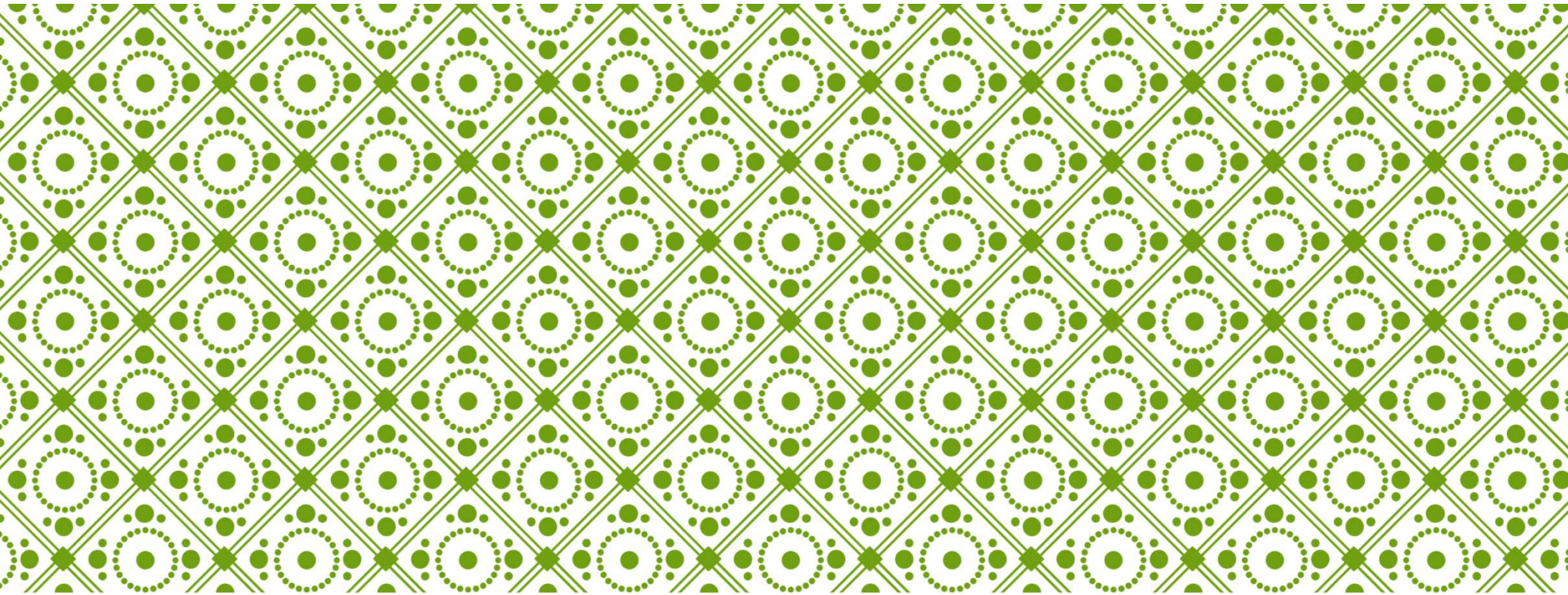

GLMS GP CME MARCH 2026

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ADRENAL INCIDENTALOMAS

Clinically in apparent masses in the Adrenal>1cm in size

Increasing in Prevalence

Found in about 5-7% of abdominal cross sectional scans

2 questions

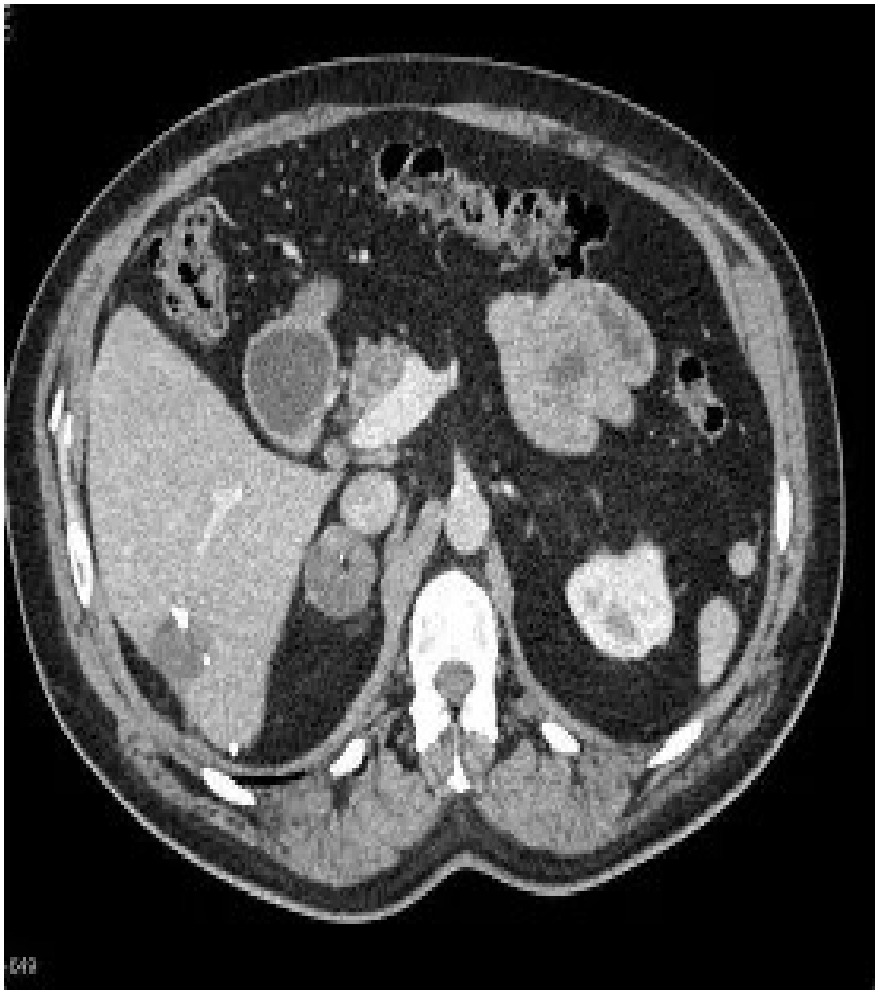
-Are they functional? Around 3-5% are in total

--5 to 30% have MACS

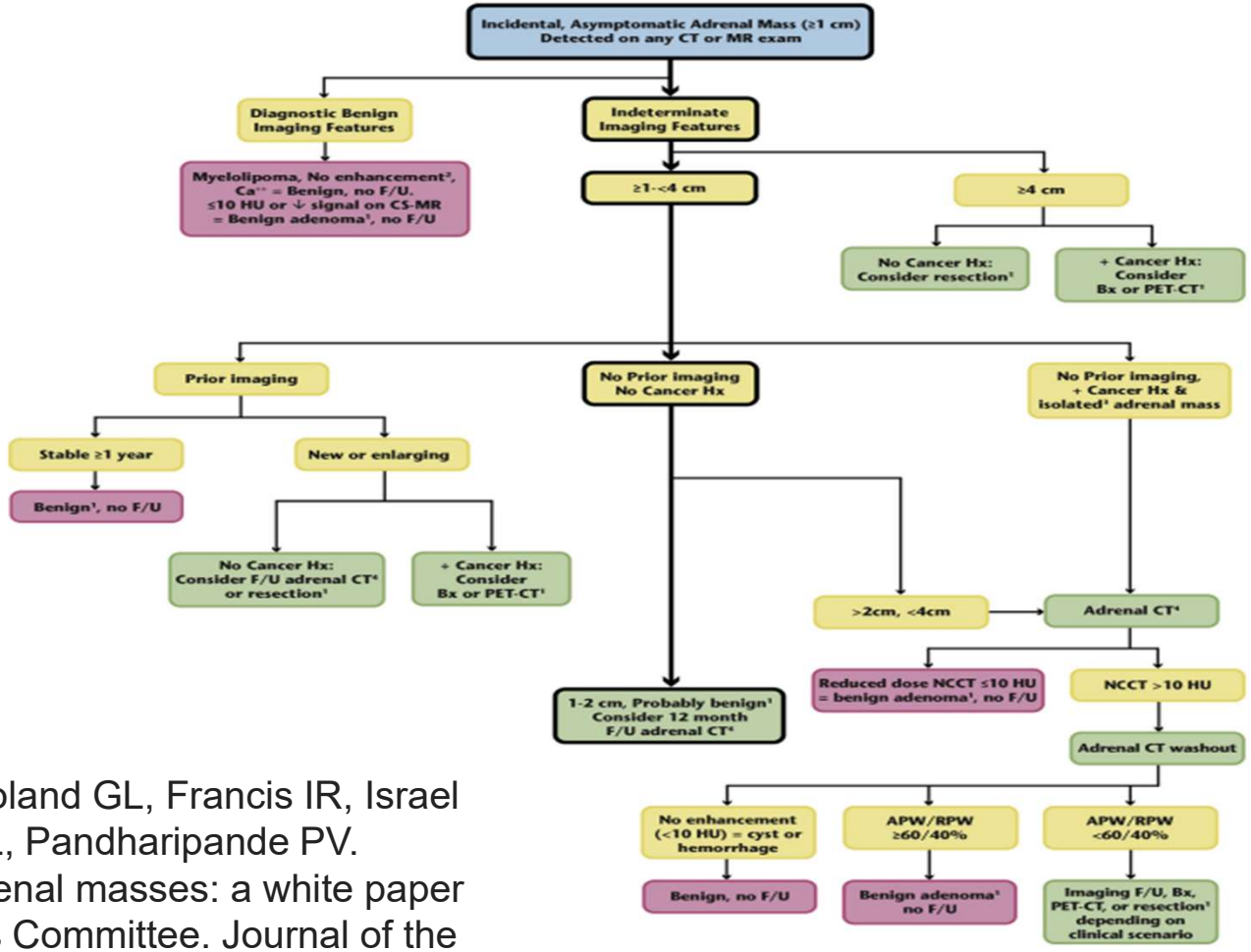
--5% have phaeochromocytoma

--Aldosterone producing adenomas 1-5%

-Are they associated with any malignancy?



RADIOLOGY



Mayo-Smith WW, Song JH, Boland GL, Francis IR, Israel GM, Mazzaglia PJ, Berland LL, Pandharipande PV. Management of incidental adrenal masses: a white paper of the ACR Incidental Findings Committee. Journal of the American College of Radiology. 2017 Aug 1;14(8):1038-44.

Washed up: the end of an era for adrenal incidentaloma CT

EUROPEAN SOCIETY OF RADIOLOGY

Attenuation on noncontrast CT	Size	
	1-4 cm	>4 cm
<10 HU		
10-20 HU		
>20 HU		

CATEGORY 1 – BENIGN

No further imaging required

CATEGORY 2 – LIKELY BENIGN

6-12 month noncontrast CT

CATEGORY 3 – HIGHER RISK

Multidisciplinary/surgical referral

Consider a more cautious approach if >40 HU and/or >6 cm

Key Points:

- True incidentalomas exclude current or prior extra-adrenal malignancy & clinically suspected adrenal disease.
- Adrenal washout CT was never proven in the malignancy-sparse true incidentaloma population.
- Hormonal correlation in parallel with < 20 HU and < 4 cm thresholds of homogeneous lesions on non-contrast CT effectively exclude malignancy.

Adrenal washout CT has no role in evaluation of adrenal incidentalomas, and the 10 HU threshold for benignity should be revised to 20 HU for lesions < 4 cm.

Insights into Imaging

Insights Imaging (2025) Seow JH, Stella DL, Welman CJ, Somasundaram AJ, Gerstenmaier JF; DOI: 10.1186/s13244-025-02015-4

HORMONAL EVALUATION

No national guidelines

ESE guidelines 2023

1 mg Dex suppression test for all

-ACTH and DHEAS

- Both the UFC and Salivary Cortisol can be considered alternatives

Plasma Metanephrines for phaechromocytoma evaluation

- Used to be for all (2016)
- Now only for HU>10 OR masses 'non benign'
- Renin Aldosterone – Hypertension and/or Hypokalaemia

- Fassnacht M, Tsagarakis S, Terzolo M, Tabarin A, Sahdev A, Newell-Price J, Pelsma I, Marina L, Lorenz K, Bancos I, Arlt W. European Society of Endocrinology clinical practice guidelines on the management of adrenal incidentalomas, in collaboration with the European Network for the Study of Adrenal Tumors. European journal of endocrinology. 2023 Jul;189(1):G1-42

PRIOR STUDIES

UK cohort (Munnings et al) -> Prevalence 0.7%

- 80% no Endocrine follow up
- 10% referred to Endocrine

Ebbehoj et al(US-JAMA 2020)

- Adrenal incidentaloma incidence quadrupled 1995->2017
- Only 1.1% Pheochromocytoma
- 4.1% cortisol excess
- Malignancy more common in children, bilateral masses

Vast majority of incidentalomas

Use of dedicated AI clinics improved screening to over 50%

Munnings M, Koh S, Gilfillan C. Adrenal incidentaloma: Prevalence and evaluation. Experiences from a single health network. Endocrine and Metabolic Science. 2025 Jun 1;18:100238.

Ebbehoj A, Li D, Kaur RJ, Zhang C, Singh S, Li T, Atkinson E, Achenbach S, Khosla S, Arlt W, Young WF. Epidemiology of adrenal tumours in Olmsted County, Minnesota, USA: a

REGIONAL AND NATIONAL

Regional/NZ

Waikato(2016)

125 patients with adenomas

- 26% referred to Endocrinology
- 28% Biochemical workup
- 32% had radiology follow up
- **Radiology report matters**

Christchurch(AI clinic)-Goh(2018)

306 Adenoma lesions

26 functional lesions

18 Subclinical Cushing's

Goh Z, Phillips I, Hunt PJ, Soule S, Cawood TJ. Characteristics of adrenal incidentalomas in a New Zealand centre. Internal medicine journal. 2018 Feb;48(2):173-8.

Wickramarachchi BN, Meyer-Rochow GY, McAnulty K, Conaglen JV, Elston MS. Adherence to adrenal incidentaloma guidelines is influenced by radiology report recommendations. ANZ journal of surgery. 2016 Jun;86(6):483-6.

OUR DATA- NSH/WTK

Audit phase

143 Patients

Significant gap between clinical practice and established international guidelines

-ACR imaging follow up congruence 45.5%

-Multiple reasons – difficult to follow(see image), need to order additional scans,

-Older patients less likely to receive follow up

-Adherence to ESE biochemical guidelines even lower-> 17.5%

Only 11% referred to endocrinology

-Those referred to Endocrinology ->higher rate of ACR/ESE Guideline congruent testing (81.8% vs. 12.1%)

Vast majority benign non secretory adenomas

MACS

Mild autonomous cortisol secretion (MACS) is diagnosed based on the 1 mg overnight dexamethasone test and is found in 20–50% of patients with adrenal adenomas lacking signs and symptoms of Cushing syndrome.

Patients with adrenal adenomas show distinct changes in the steroid and global metabolome, which correlate with the degree of cortisol excess across MACS and Cushing syndrome.

MACS is associated with an increased likelihood of having cardiovascular risk factors and an increased risk of mortality.

Comorbidities & Risks

MACS is associated with cardiovascular morbidity, frailty, fragility fractures, reduced quality of life, and increased mortality.

Higher cortisol after DST correlates with hypertension, insulin resistance, and central adiposity.

Adverse "female sex, younger age, bilateral tumours, and higher cortisol after 1 mg-DST."

Prete A, Bancos I. Mild autonomous cortisol secretion: pathophysiology, comorbidities and management approaches. Nature Reviews Endocrinology. 2024 Aug;20(8):460-7

WHY MACS MATTERS

Natural History

NFAT → MACS progression occurs in 4–12%; MACS → overt Cushing syndrome is <1%

Bilateral disease is more common in MACS.

Management Approaches

Individualized based on symptoms, comorbidities, tumour characteristics, and patient preference.

Options:

- **Adrenalectomy** — improves cardiometabolic outcomes in some but not all patients; ~50% develop postoperative adrenal insufficiency.
- **Conservative management** — treat comorbidities (hypertension, diabetes, osteoporosis) and monitor tumour/hormonal progression.

Bilateral MACS is especially challenging