The Management of adrenal incidentaloma

Dimitrios Linos, MD

Director of Surgery, “Hygeia” Hospital, Athens, Greece

Consultant in Surgery, Massachusetts General Hospital, Boston, USA

8th Postgraduate Course in Endocrine Surgery
Aghia Pelaghia, Herakleion Crete
21-24 September 2006

What do we mean by adrenal Incidentaloma?

Most people by adrenal incidentaloma mean the adrenal tumor that was discovered incidentally, usually during an imaging procedure (CT, MRI, Ultrasound) for symptoms unrelated to adrenal disease (e.g. back pain).

- "adrenaloma"

- "Clinically inapparent adrenal mass" (N.I.H.)

What is an adrenal incidentaloma?

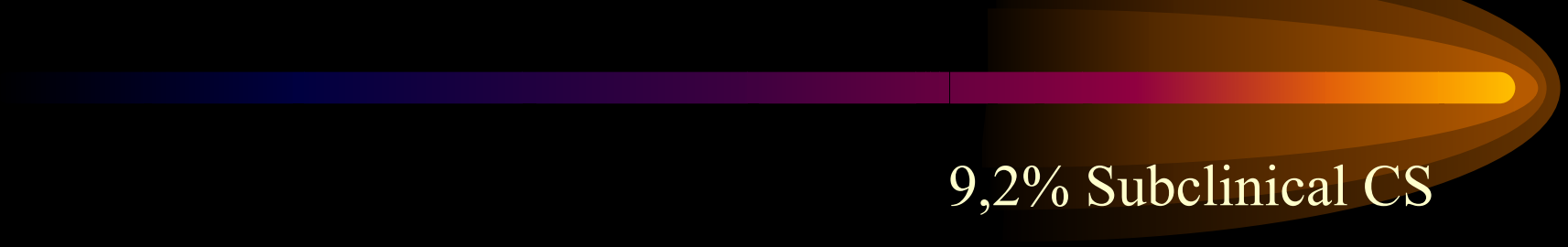
Diagnosis	(%)
Cortical Adenoma	55
Cortical Carcinoma	10
Pheochromocytoma	10
Myelolipomas	8
Cysts	5
Ganglioneuromas	5
Metastatic lesions	2
Other	5

How frequently we discover these tumors?

87.065 autopsies	5.9%
61.054 patients	3.4%
520 patients	4.4%

5%

Are these tumors indeed "asymptomatic", "indolent", "clinically unimportant"?



9,2% Subclinical CS

N.I.S.G. 1096 pts

4.2% pheo

1.6% aldos

Rossi et al 50 pts prospectively

24% Subclinical CS

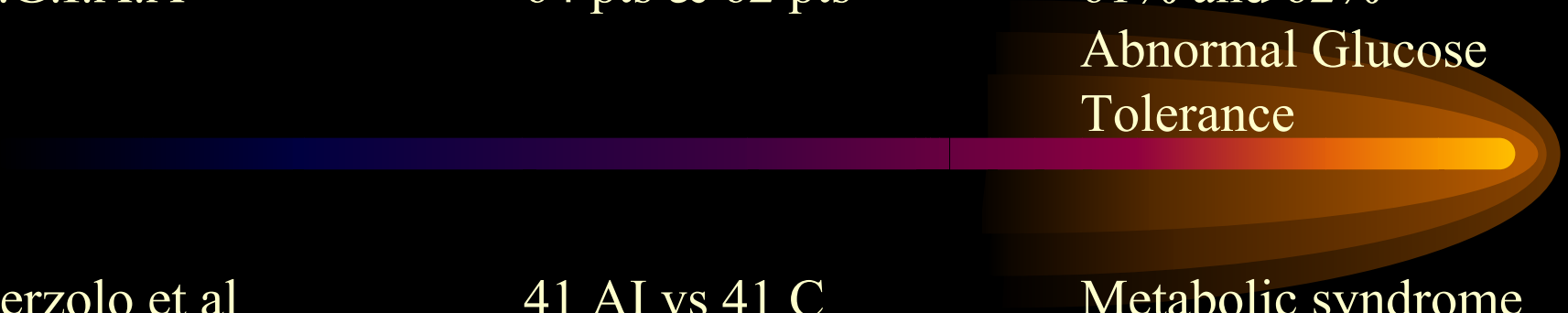
92% Hypertension

50% Obesity

42% Diabetes

50% Abnormal lipids

S.G.I.A.A	64 pts & 62 pts	61% and 62% Abnormal Glucose Tolerance
Terzolo et al	41 AI vs 41 C	Metabolic syndrome
Garrapa et al	12 AI vs 15 CS vs 20 C	Higher risk for CV disease
Erbil et al (2006)	91 pts AI	11.8% Subclinical CS Similar CV risks as CS pts



Are adrenal incidentalomas indolent and clinically unimportant?

Adrenal incidentalomas although “clinically inapparent” are not indolent because they have a 20% possibility of cortical hypersecretion and autonomy that doesn’t necessarily lead to the full blown Cushing syndrome and its catastrophic Health results but is associated with significant cardiovascular risks.

Are there any other risks associated with the adrenal incidentalomas?

- Subclinical pheochromocytoma — 4%-40%
- Subclinical 1°Aldosteronism — 40% normokalemic
- Early Adrenal Ca — Low risk

What is the Goal of Evaluation of Adrenal Incidentalomas?

To rule out:

- Subclinical Cushing's syndrome
- Subclinical pheochromocytoma
- Subclinical primary aldosteronism
- Adrenal carcinoma (primary or solitary metastasis)

How to screen for Subclinical Cushing's Syndrome

1mg dexamethasone suppression test

A suppressed serum cortisol excludes Cushing's

Adrenal scintigraphy with NP 59

How to screen for "Subclinical Pheochromocytoma"

- 24-hour urinary metanephrines & vanillylmandelic acid (VMA)
- fractionated urinary catecholamines
- Plasma free metanephrines

How to screen for "Subclinical Aldosteronism"

Normotensive pts with s. $K^+ > 3.9$ nmol/L→no further evaluation

- If aldosterone /PRA ratio>40:

  Fluorocortisone suppression test

  Acute saline suppression test

- Bilateral adrenal venous sampling

How to screen for Adrenal Carcinoma

- Size:

  CT scan size usually less than histological size

  The Linos formula:

  Histologic Size= 0.85 + (1.09 X CT size)

- Imaging:
  - CT scan — poorly delineated rugged tumor with stippled calcifications & areas of necrosis more accurate, especially if enlarged lymphnodes or local invasion also detected.
  - MRI — Heterogeneously increased early T2-signal
  - PET — 18FDG-PET the best test to differentiate benign from malignant incidentaloma

- FNA Biopsy — Limited role

  Useful with coexistent extra-adrenal carcinoma

MANAGEMENT OF ADRENAL INCIDENTALOMAS

When do we suggest surgery?

1. Hormonal hypersecretion:
   i. Subclinical Cushing
   ii. Pheochromocytoma
   iii. Aldosteronoma
2. Evidence of malignancy:
   i. Size
   ii. Radiology

MANAGEMENT OF ADRENAL INCIDENTALOMAS

When do we suggest conservative management and follow-up?

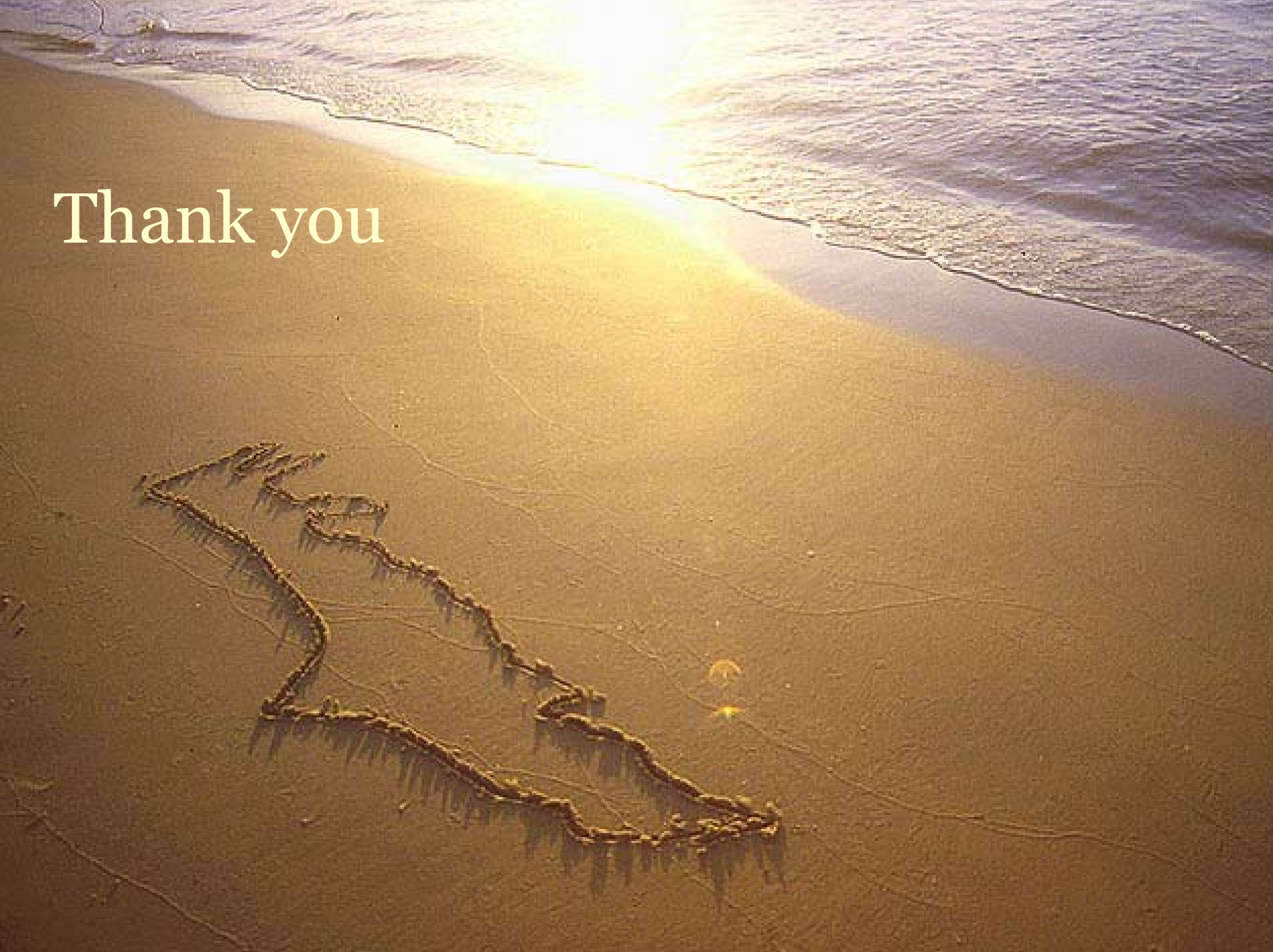
- No clinical & laboratory evidence for subclinical function
- No associated symptoms (hypertension, diabetes, obesity, osteoporosis etc.) potentially related to the incidentaloma
- No suspicion for adrenal carcinoma

MANAGEMENT OF ADRENAL INCIDENTALOMAS
What is the best follow-up?

- Imaging studies (mainly CT)→enlargement
- Hormonal studies→change in the secretory status

- Yearly follow up

Authors	No pts	Follow-up	Results
Barzon et al (2000)	75	4 years	9 ↑ 2CS 3SCS 1 Pheo
Grossrubatscher (2001)	51	24 months	23↑ 6↓
Swedish Prospective Study (2006)	229 151	25 months	27↑ 12 ↓ 2% hypersecretion


Thank you