OBJECTIVES

Understand the definition and prevalence of incidental findings (incidentalomas) on chest CT.

Review a few scenarios where incidentalomas on chest CT are encountered.

Utilize specific algorithms and recommendations to guide appropriate evaluation and management of incidentalomas seen on chest CT.

INCIDENTALOMA

Defined as an incidentally discovered and previously unsuspected finding or abnormality, detected on imaging study performed for an unrelated reason.

Increasingly recognized due to widespread utilization of imaging studies.

The incidence of unexpected findings on all screening studies is highly variable, ranging from 3% to 41.5%.

Incidentalomas may represent normal findings, normal variants, or abnormalities that may or may not be clinically significant.

Evidence-based management guidelines exist for some chest findings such as solid and subsolid pulmonary nodules.

CASE 1

Clinical History

A 56-year-old man with...

Question

What is the next best step in the management of this patient?

A. No further evaluation is necessary
B. Recommend thyroid ultrasonography
C. Recommend nuclear medicine thyroid scan
D. Recommend fine needle aspiration

INCIDENTAL THYROID NODULE

Key Facts

- Incidental thyroid nodules are common
- 16-18% of patients undergoing CT or MRI will have an incidental nodule
- Thyroid cancer is uncommon
- 1.6% of patients with one or more thyroid nodules will have a cancer
- Small thyroid cancers are usually indolent and affected patients will die of other causes
- Detection of thyroid cancer has markedly increased, but mortality is stable
- CT characteristics not useful in distinguishing benign from malignant thyroid nodules
INCIDENTAL THYROID NODULE

Clinical History

Question

What is the next best step in the management of this patient?
A. Contrast-enhanced CT
B. Thoracic MRI
C. Ultrasound guided biopsy
D. Open surgical biopsy

INCIDENTAL FDG AVID THYROID NODULE

Clinical History

Question

What is the next best step in the management of this patient?
A. FDG-PET/CT
B. Thoracic MRI
C. CT-guided biopsy
D. Open surgical biopsy

INCIDENTAL MEDIASTINAL MASSES

Key Facts and Approach

- Incidental mediastinal masses are rare
  - Prevalence of <1% in asymptomatic but high-risk patients undergoing lung cancer screening
  - Incidental mediastinal masses (IMM) are a common incidental finding (5-15%)
  - Differential diagnoses for IMM include thymoma, lymphoma, neurogenic tumors, and metastatic tumors

Imaging Features

- Location: IMM are typically found in the posterior mediastinum
  - Thoracic cavity
  - Lungs
  - Pleura
  - Mediastinum
- Size: IMM can vary in size, with some being pedunculated or sessile
- Density: IMM can appear hypoattenuating on CT, hyperattenuating on MRI, or mixed attenuation
- Calcification: IMM may show calcification, which can be helpful in distinguishing between different types of masses
- Enhancement: IMM may show enhancement on contrast-enhanced CT or MRI
- Nodules: IMM may show nodules within the mass, which can be helpful in distinguishing between different types of masses

CASE 2

A. 

B.
**CASE 3**

**Clinical History**
A 40-year-old man with.

**Question**
What is the next best step in the management of this patient?
A. Pretend that the finding is not there
B. Recommend V/Q scan
C. Call the referring physician to discuss the finding
D. Recommend anti-coagulation

**INCIDENTAL PULMONARY EMBOLI**

**Key Facts**
- Pulmonary emboli: substantial cause of mortality and morbidity in the United States
- Incidence: 100,000-300,000 per year
- Incidentally detected in asymptomatic patients in 1-4% of the general patient population
- Higher incidence in oncologic patients and inpatients
- Increased detection rates due primarily to advancing CT technology
- Management depends on clinical scenario and clot burden
- ACCP guidelines suggest asymptomatic PE should be treated as symptomatic PE

**Imaging Pearls and Pitfalls**
- Incidental pulmonary embol on routine CT reported in only 25% of cases
- Small size of involved subsegmental pulmonary arteries
- Low clinical and imaging suspicion
- Confounding factors such as pneumonia and malignancy

**INCIDENTAL ADRENAL MASS**

**Key Facts**
- Estimated to occur in 3-7% of adult population
- Most frequent pathology: non-hyperfunctioning adenoma
- Incidental adrenal mass in an oncology patient is most likely benign
- Adrenal is a common site for lung cancer metastasis
- PET-CT has been shown to be highly accurate in differentiating benign from malignant adrenal mass in cancer patients

**Imaging Pearls**
- Benign imaging features
  - Macroscopic fat
  - Simple cyst-appearing, no enhancement
  - Density ≤ 10 HU
  - Stable for ≥ 1 year

**INCIDENTAL ADRENAL MASS**

**CONCLUSIONS**

Unexpected abnormalities detected on imaging studies performed for an unrelated reason are referred to as incidentalomas.

Incidentalomas are being detected more frequently due to the increased utilization of imaging for screening and diagnosis.

Specific algorithms and recommendations exist for management of some incidentalomas detected on chest CT.
REFERENCES