

Diagnostic Evaluation of Lung Nodules
From: Medscape April 20,2019

HAMID REZA JABBARI DARJANI
PROFESSOR OF MEDICIN
INTERNIST, INTERVENTIONAL
PULMONOLOGIST

INTRODUCTION

- ▶ *MEN's cancer* 1: prostate 2: Lung
- ▶ *Wemen's cancer* 1: Brest 2: Lung

Important is Risk Factors and screening recommendation for lung cancer

as well as approaches for evaluating lung nodules for malignancy

RISK FACTORS

- ▶ ***Cigarette smoking 80% to 90%***
- ▶ ***Age***
- ▶ ***Cumulative tobacco smoke exposure***
- ▶ ***Years since stopping smoking***
- ▶ ***Occupational exposure to inhaled carcinogen***
- ▶ ***Family history***
- ▶ ***History of COPD or Pulmonary Fibrosis***

SCREENING RECOMMENDATIONS

- ▶ *The US Preventive Task Force (USPSTF) recommend annual CT screening for high risk individuals*
- ▶ *55 to 80 years old and have a history of heavy smoking **ONE pack/ 30 year** or **TOW pack/15 year** or **three pack/ 10 year***

SCREENING RISKS

False- positive

- ▶ *Thus, 365 of 1000 (36.5%) patients who underwent CT had least 1 false-positive result*
- ▶ *These ,25 of 1000 (2.5%) were false-positives that led to unnecessary invasive procedures ,and 3 in 1000 (0.3%) led to patients experiencing major complications from unnecessary invasive diagnostic procedures*

CHARACTERISTICS OF MALIGNANT LUNG NODULES

Nodule size and location : *> 30 mm (MASS) Located Upper lobes*

Opacity : *1. solid type*

2. sub solid type : characterized as part solid or pure “ground-glass” nodules , which have no solid component

NODULE BORDER : *UNEVEN BORDER , SPICULATED ,LOBULATED ,*

SCREENING LOW-DOSE CHEST CT

NEGATIVE

NO nodules and definitely benign nodules

No lung nodules or nodules with specific calcification : complete, central ,or popcorn

Annual screening with low - dose CT in 12 months

Benign appearance

Very low likelihood of malignant growth

Solid <6mm or new < 4mm

Part solid : 6mm total

Diameter at baseline

***Ground-glass: 20mm or
≥ 20mm and unchanged/***

Slowly growing

Probably benign

Low likelihood of malignant growth

Solid: ≥6 to 8mm at baseline or

New 4 to <6 mm

***Part-solid: ≥ 6mm total
diameter/solid component***

<6mm or <6mm total diameter

***Ground-glass: ≥ 20mm on baseline
ct or new***

6-month low – dose ct

Suspicious

Findings prompt additional testing/tissue sampling

Solid: ≥ 8 to < 15 mm at baseline or growing < 8 mm or 6 to < 8 mm

Part-solid: ≥ 6 mm with solid component ≥ 6 mm to < 8 mm or with a new < 4 mm solid component

Endobronchial nodule

**3- month low dose ct ;
FDG-PET when ≥ 8 mm solid
component**

solid: ≥ 15 mm or new or growing , and ≥ 8 mm

Part- solid: < 6 mm total

Diameter at baseline

***Chest CT with or without
contrast
FDG- PET with or without biopsy***

NEW SOLID PULMONARY NODULE 8 to 30 mm IN DIAMETER

Assess clinical probability of malignancy

Very low (<5%)

CT surveillance at 3 to
6, 9, 12, 18 to 24
months

Low dose, thin sections
noncontrast CT

Low/moderate (5% to 65%)

FDG-PET to assess nodule

Negative or mild uptake

**moderate or intense
uptake**

Non surgical biopsy
TTNB, TBB, TBLB, VATS with
resection

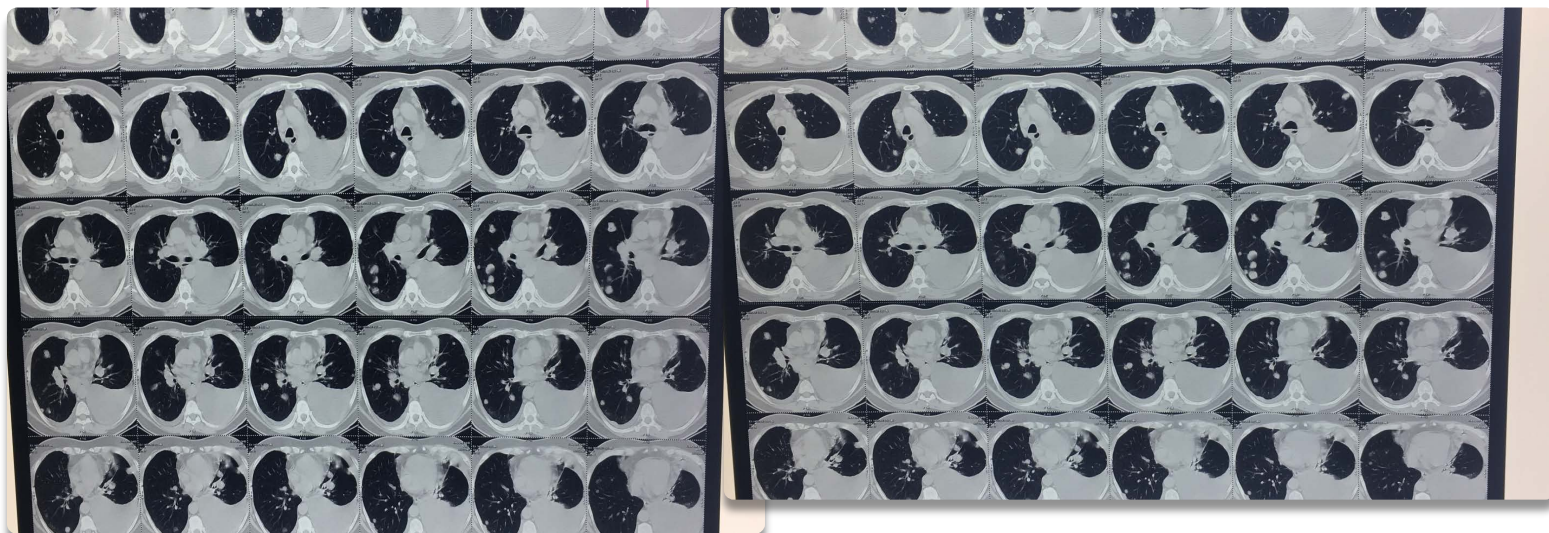
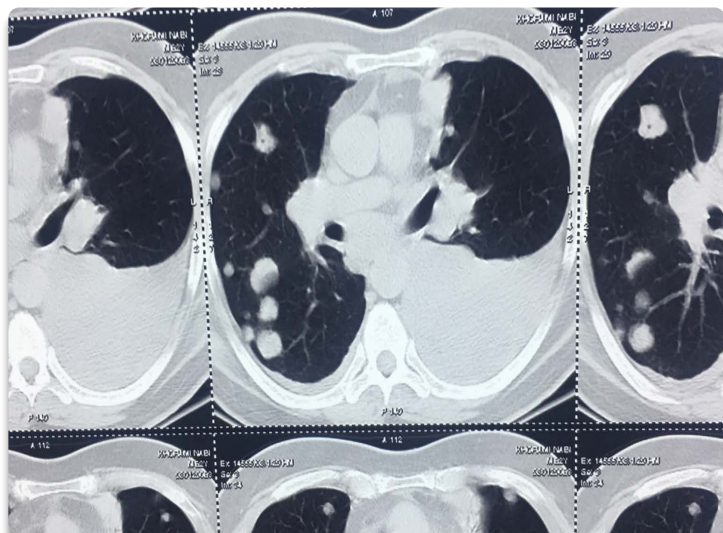
High (>65%)

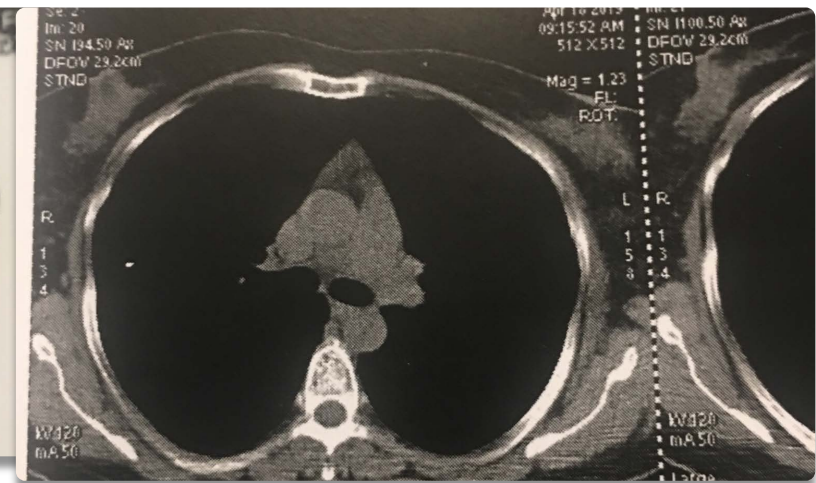
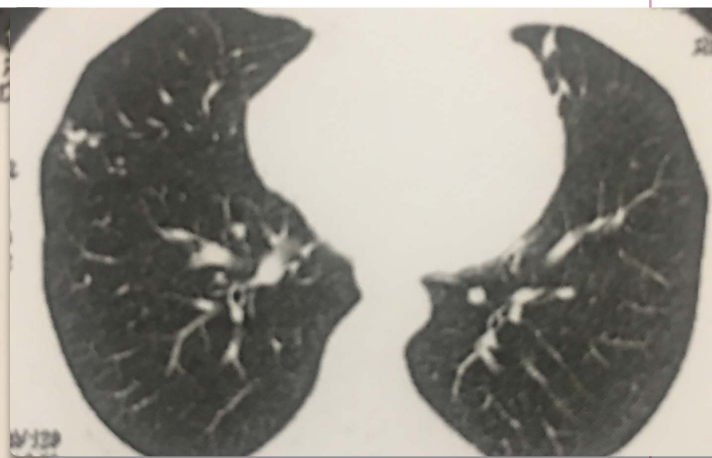
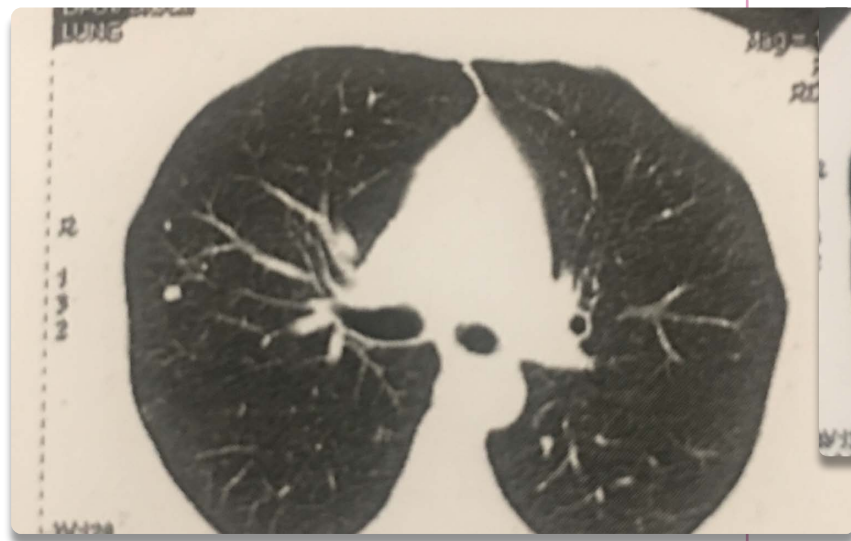
Standard stage
evaluation

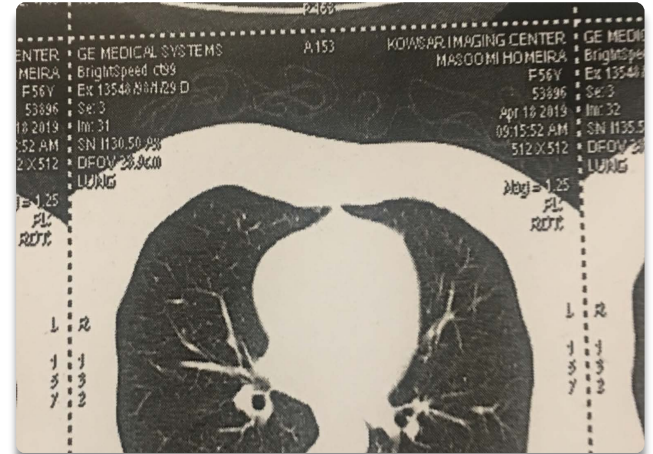
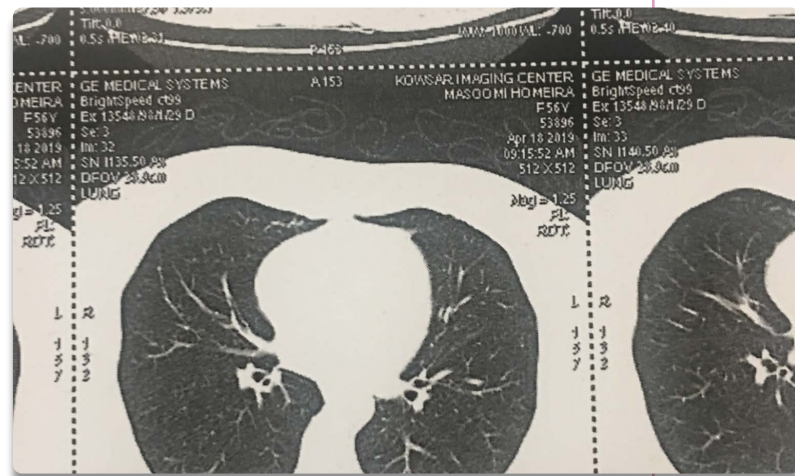
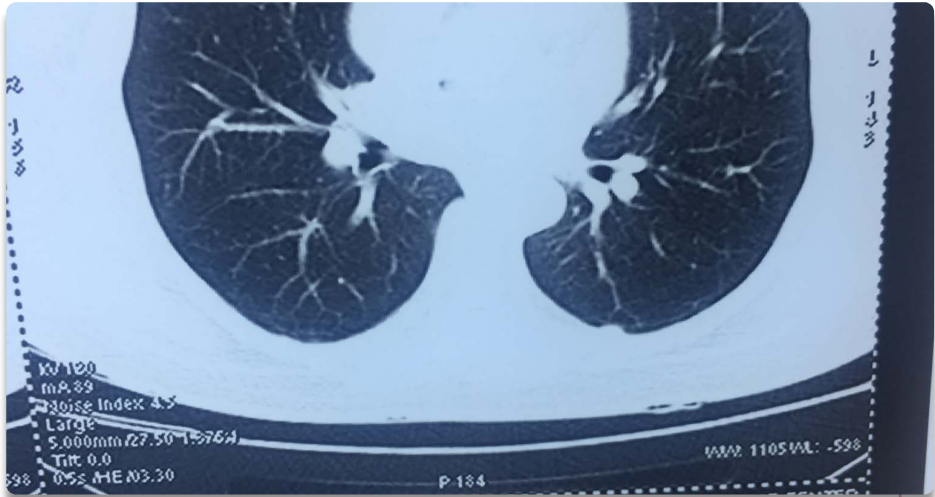
(with or without FDG-
PET

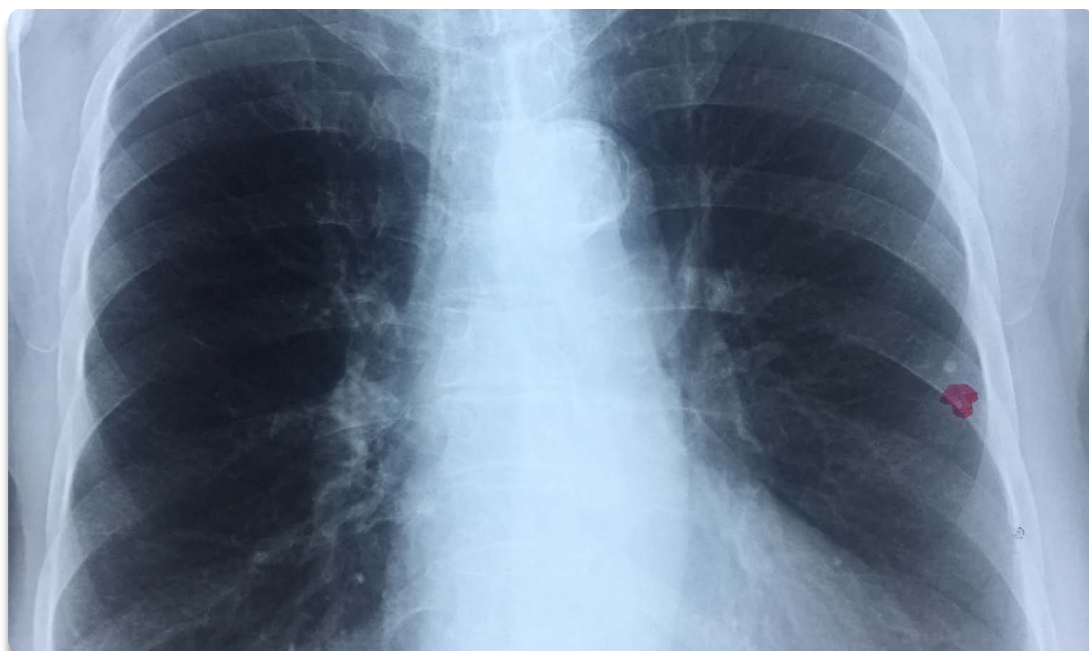
NO metastases
identified

VATS with resection









Diagnostic evaluation of lung nodules

Thanks for your attention

drhrjabbari@yahoo.com