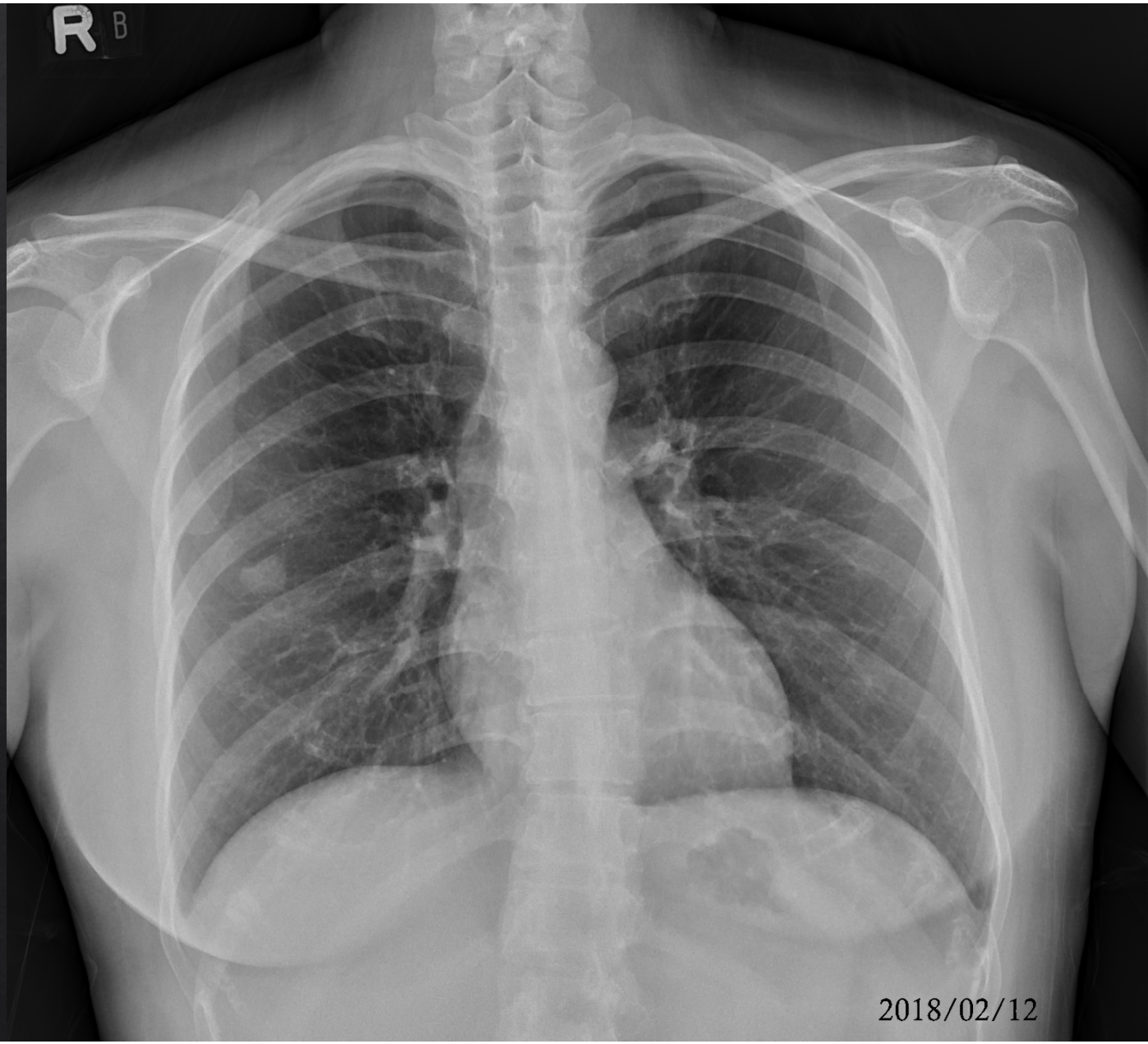
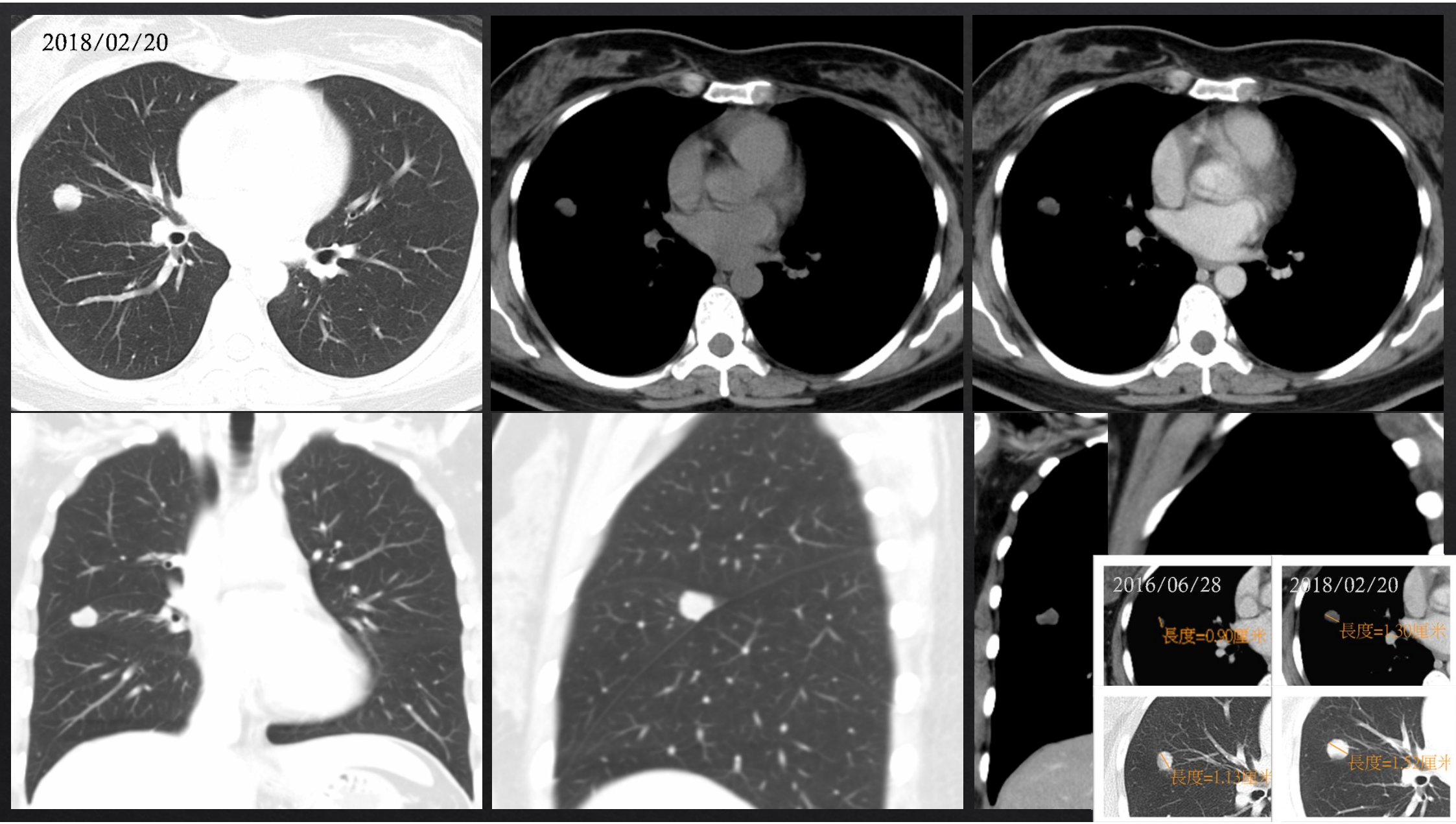
Case 2

- 43 y/o, female
- Cough (1 mo)
- Smoking (-)
- PHx: nil
- Lab:
  - CEA (-)
  - SCC (-)
- Image:
  - 2016/06/28 Chest CT (No C +C)
  - 2018/02/20 Chest CT (No C +C)




2018/02/20
2016/06/28
長度=0.90厘米
2018/02/20
長度=1.30厘米
長度=1.13厘米
長度=1.52厘米

Pathology

- Diagnosis:

Lung, middle lobe, right, VATS lobectomy, adenocarcinoma, acinar predominant & focal micropapillary (10%)

Pleura, middle lobe, right, VATS lobectomy, carcinoma involved

Bronchus, margin, VATS lobectomy, no carcinoma involvement

Lymph node, regional, N1 (No. 10, 11), lymphadenectomy, no metastasis (0/ 9)

Lymph node, regional, N2 (No.2, 4 and 7), lymphadenectomy, no metastasis (0/ 25)

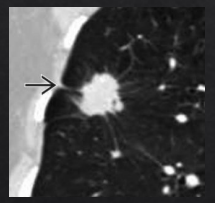
- Pathologic Staging (pTNM): (AJCC/UICC TNM, 8th edition)
  1. Primary Tumor (pT): pT2: Invades visceral pleura (PL1 or PL2)
  2. Regional Lymph Nodes (pN): pN0: No regional lymph node metastasis
  3. Distant Metastasis (pM): not applicable

  TNM Stage Groupings: pStage IB, pT2a N0 Mx

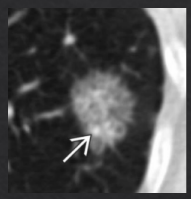
- Additional Pathologic Findings:
  1. Focal hemorrhage
  2. Focal emphysema and atelectasis
  3. The tumor over the pleural surface is proved by positive EMA and negative for calretinin immunostains and the elastic stain.

Solitary Pulmonary Nodule

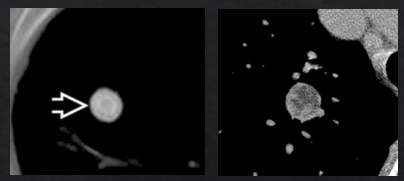
- **Size**: 90% of nodules < 2 cm are benign
- **Growth pattern**
  - 2-year stability implies benignity, but indolent lung cancers occur, especially in screening studies
  - Doubling time < 7 days or > 465 days suggests benignity
- **Morphology and border characteristics**



  - Spiculation: Highly suggestive of malignancy, occasionally seen in inflammatory processes
  - Pleural tags in 60-80% of peripheral lung cancers
  - Lobulation (histologic heterogeneity) seen in 40% of malignant nodules
  - Spherical, more characteristic of benign lesions
- **Attenuation**
  - Solid: Most lung cancers, but less likely malignant than part-solid or non-solid SPNs
  - Part-solid: 40-50% of part-solid SPNs < 1.5 cm are malignant; risk increases with size
  - Non-solid: 34% are malignant; particularly if > 1.5 cm
  - Air bronchograms more common in malignant SPNs
  - Cavitation: Irregular walls > 16 mm thick suggest malignancy



- **Density**
  - Calcification; benign vs. indeterminate
  - Fat: Hamartomas, lipomas



- **Enhancement on dynamic CT**
  - Enhancement < 15 HU strongly indicative of benignity
  - Enhancement > 15 HU sensitive but not specific for malignancy

SPN: Common Diagnosis

- **Granuloma**
  - Solid, rounded SPN
  - Stable size
  - Satellite nodules
  - Calcification
    - Laminar or concentric, most predictive of benignity
    - Complete or diffuse (pitfall, metastatic osteosarcoma)
    - Central, > 10% of SPN cross section (pitfall, calcified carcinoid tumor)
  - More common with endemic fungal infections
  - Histoplasmosis
- **Lung Cancer**
  - Upper lobe predominant, typically RUL
    - Peripheral & basilar in patients with preexisting pulmonary fibrosis
  - Increased risk of cancer in nodules > 1 cm
  - Doubling times typically between 1 & 18 months
  - Irregular, spiculated, or lobular borders
- **Intrapulmonary Lymph Node**
  - Solitary & sharply circumscribed
  - Elongate morphology, fissural location
  - Usually located below carina
  - Typically located with 20 mm of pleural surface (mean 11 mm)
  - May wax & wane over time

SPN: Less Common Diagnosis

- **Hamartoma**
  - Fat (33%) or calcification (25%) in 50%
  - Slow growth
  - If multiple consider
    - *Carney triad*: Multiple chondromas, extra-adrenal paraganglioma, gastric leiomyosarcoma
    - *Cowden syndrome*: Multiple hamartomas, thyroid carcinoma (men) & breast cancer (women), mucocutaneous lesions
- **Carcinoid**
  - Relationship to airway
  - Contrast enhancement, vascularity
  - Multifocal or coarse calcification
- **Solitary Metastasis**
  - Typically from *sarcomas, melanomas, testicular cancers*
- **Infectious/Inflammatory Process**
  - Nonsolid SPN, air bronchograms
  - May exhibit spiculation in emphysema