

CT偶发肺结节的应对措施

安徽医科大学第一附属医院

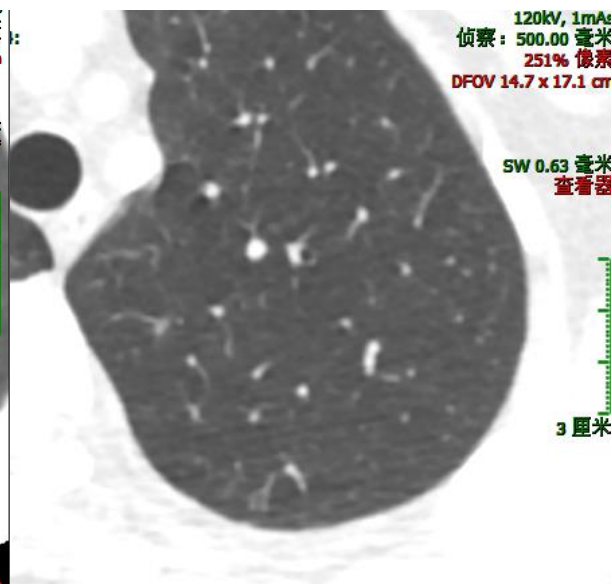
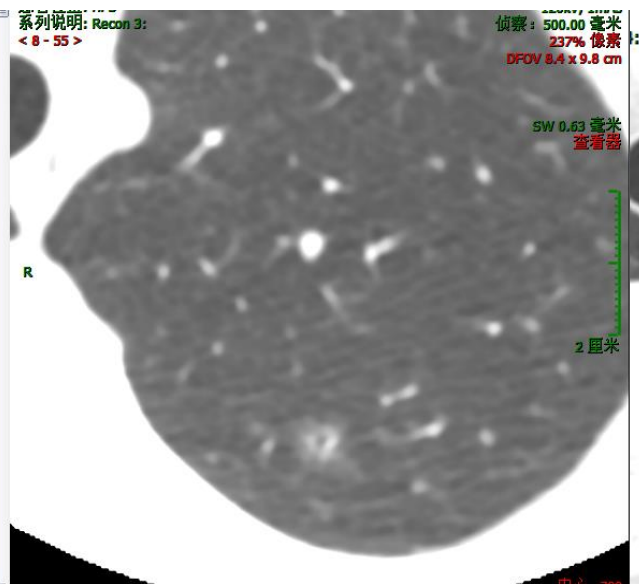
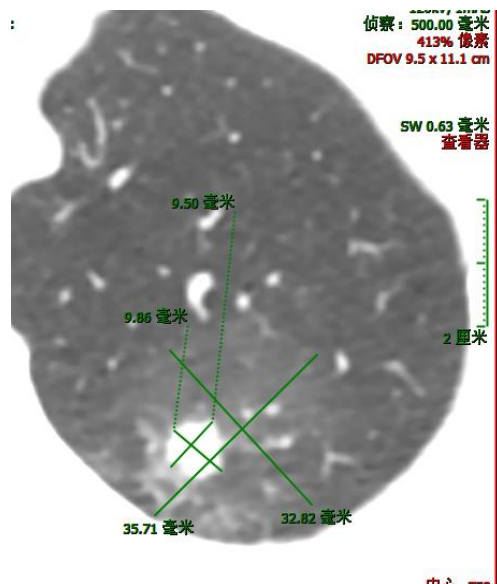
吴兴旺

女性，50岁，无特殊不适

2019.6.20

2019.7.20

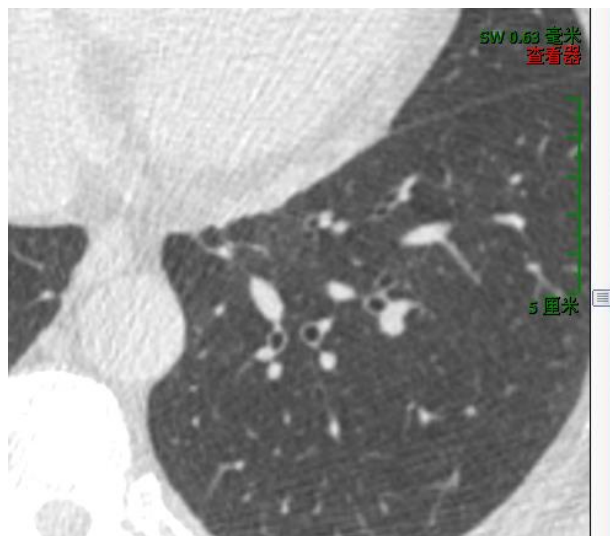
2019.1.22



结果：炎症

男性，49岁。正常体检

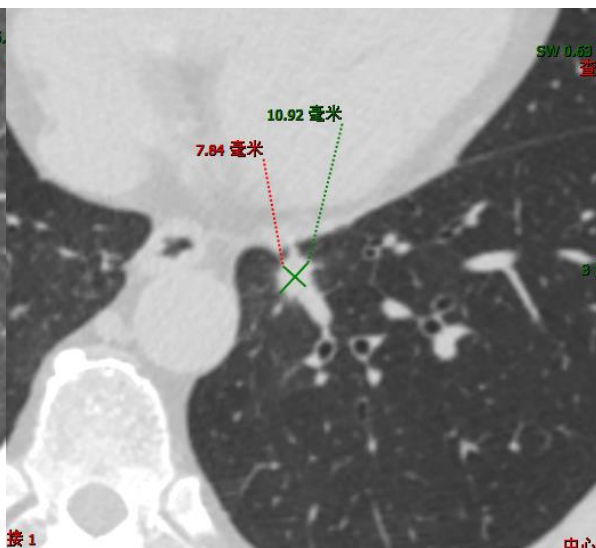
2016.9.7



2017.8.3



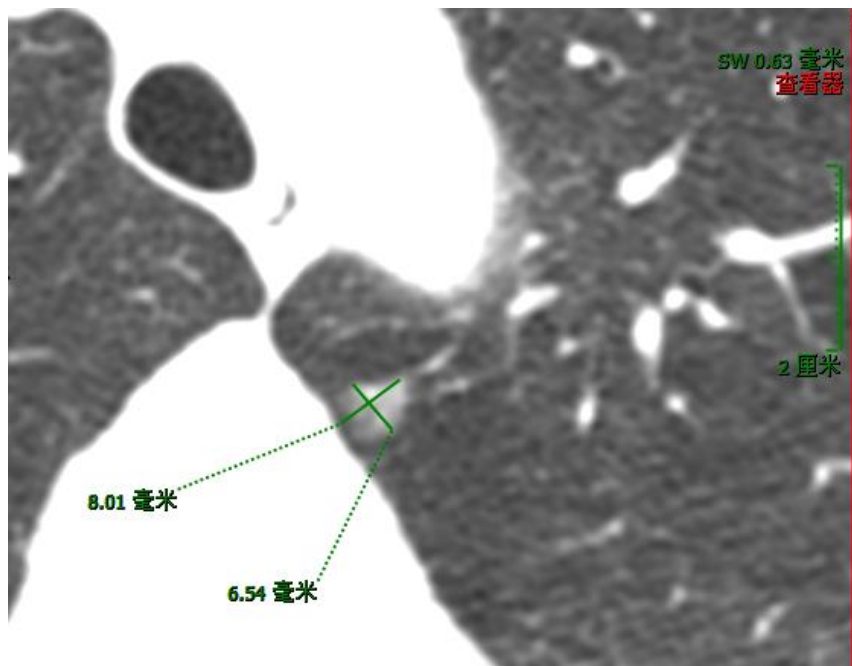
2019.4.9



手术结果：浸润型腺癌

女性，45岁。正常体检

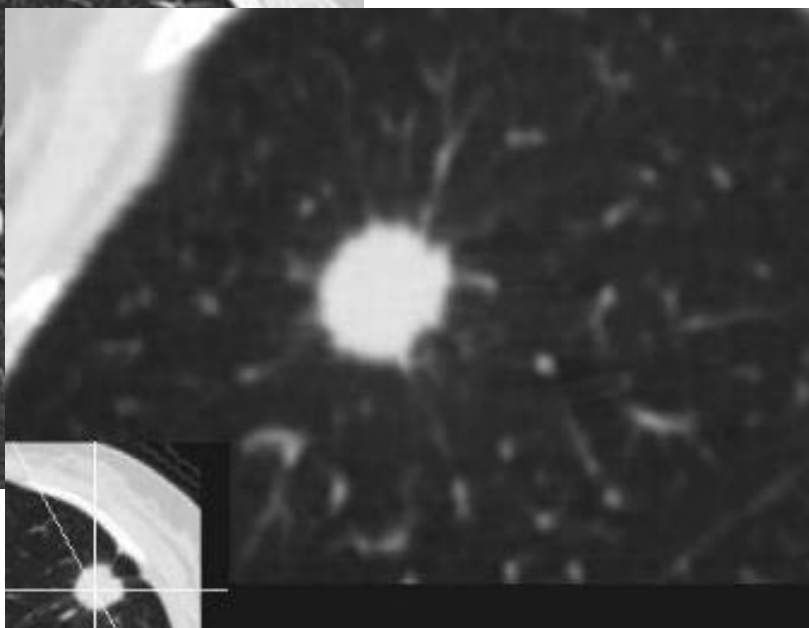
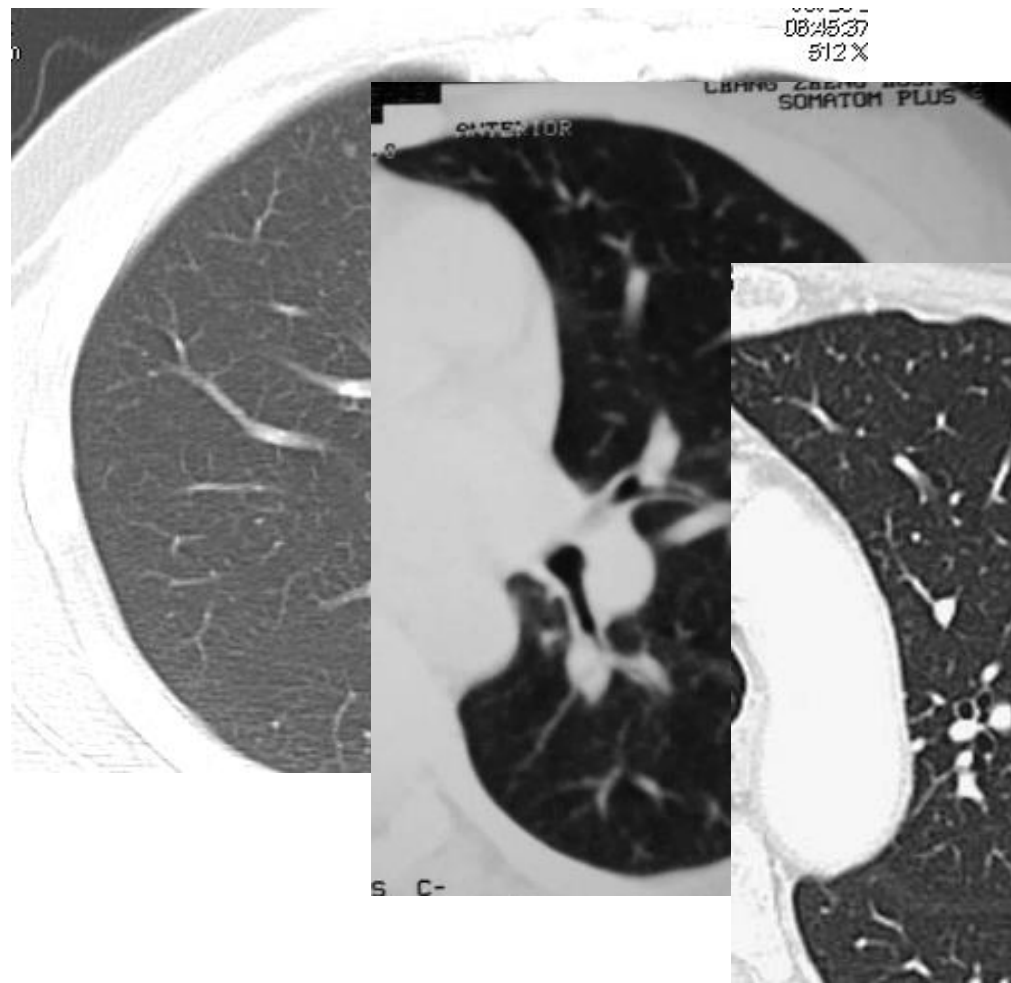
2017.6.8



2018.6.10



手术结果：微浸润型腺癌



概念

- ▶ 结节：单个病变最大径 $<3\text{cm}$ ；多发病变

最大径之和 $<3\text{cm}$ 。

- ▶ 肿块：最大径 $>3\text{cm}$ 。

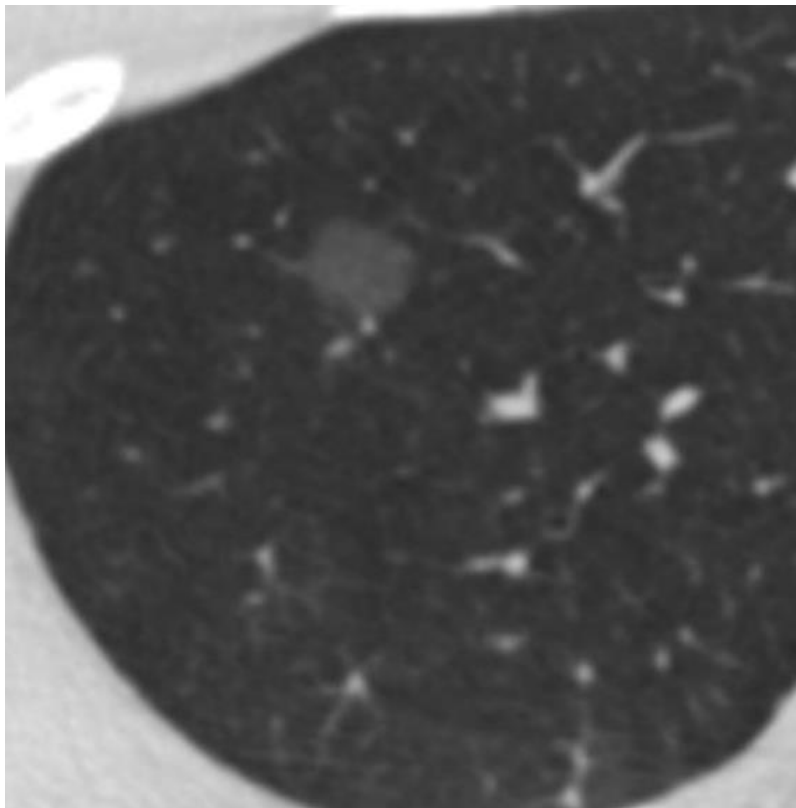


肺结节的种类（组织病理学）

- ▶ 不典型腺瘤样增生（AAH）；
- ▶ 原位癌（AIS）；
- ▶ 微浸润型腺癌（MIS）；
- ▶ 浸润型腺癌（IS）。



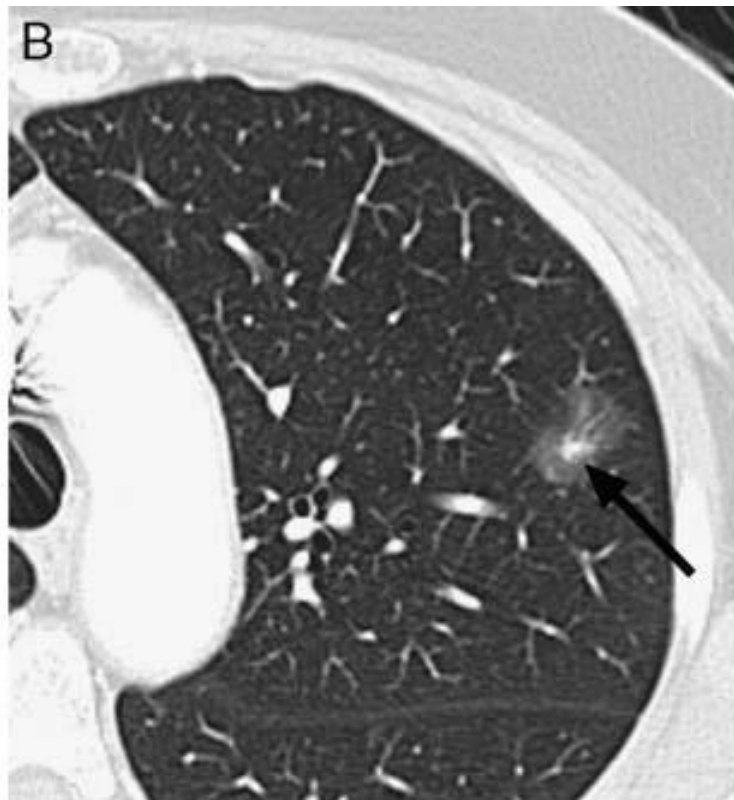
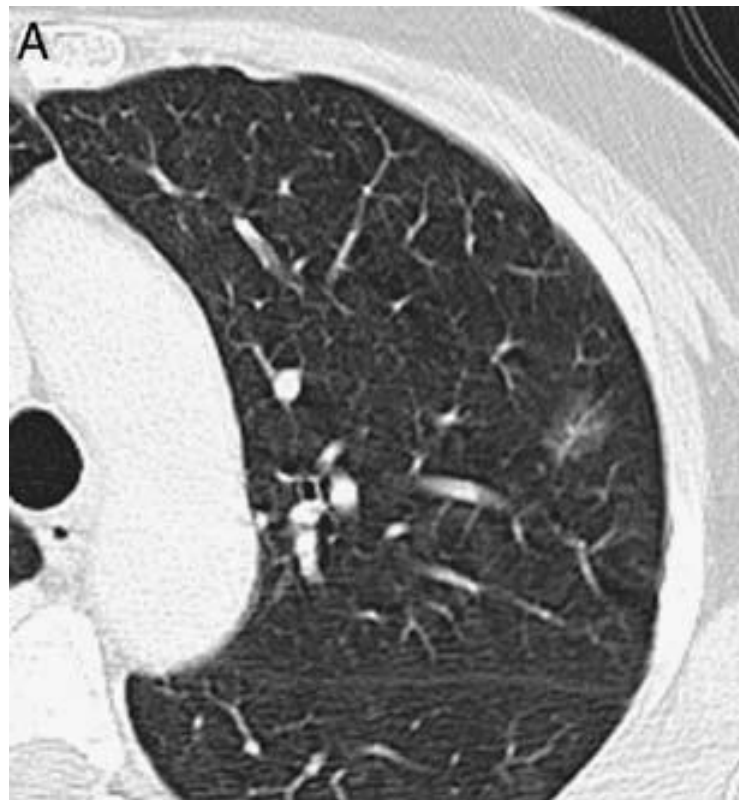
不典型腺瘤样增生（**AAH**）



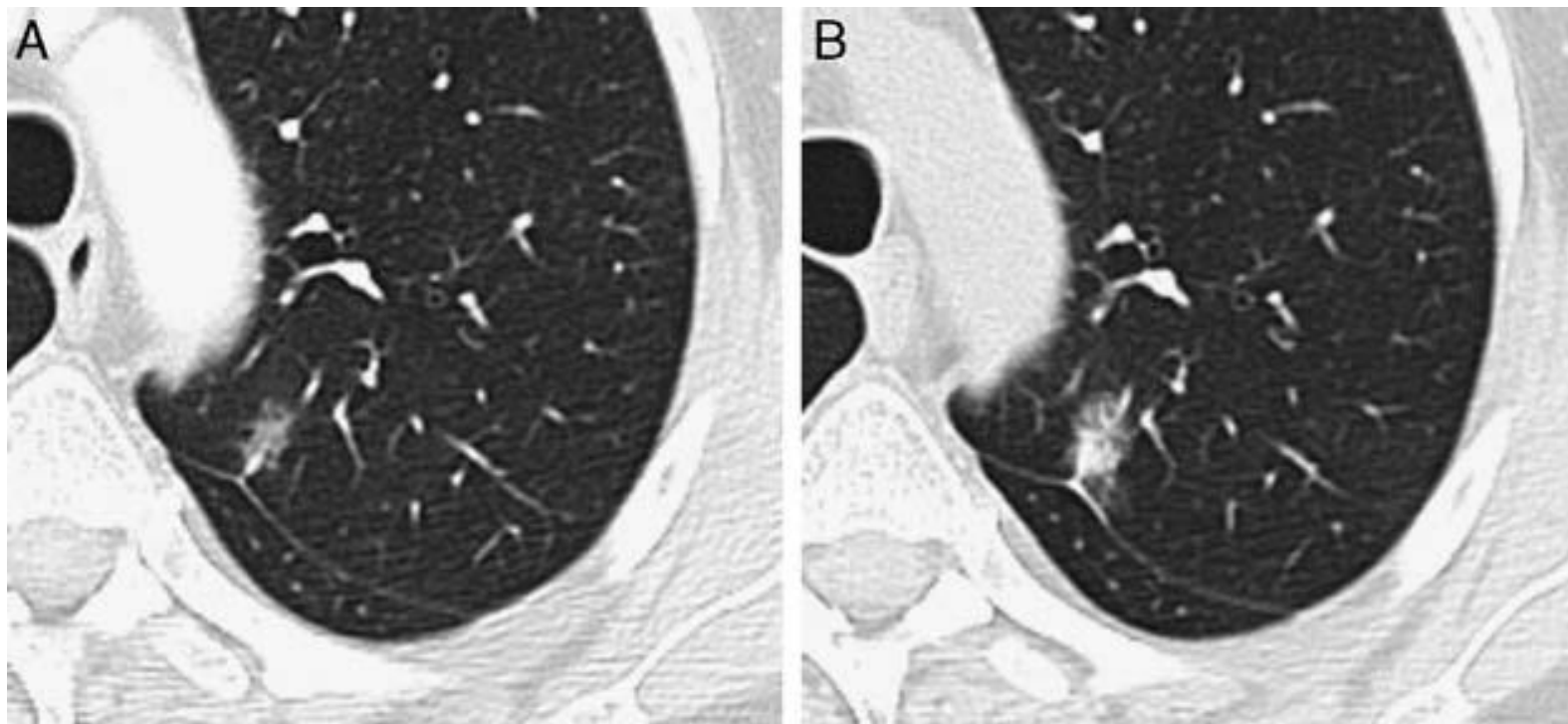
原位癌（**AIS**）



微浸润腺癌（**MIS**）



浸润型腺癌（IS）

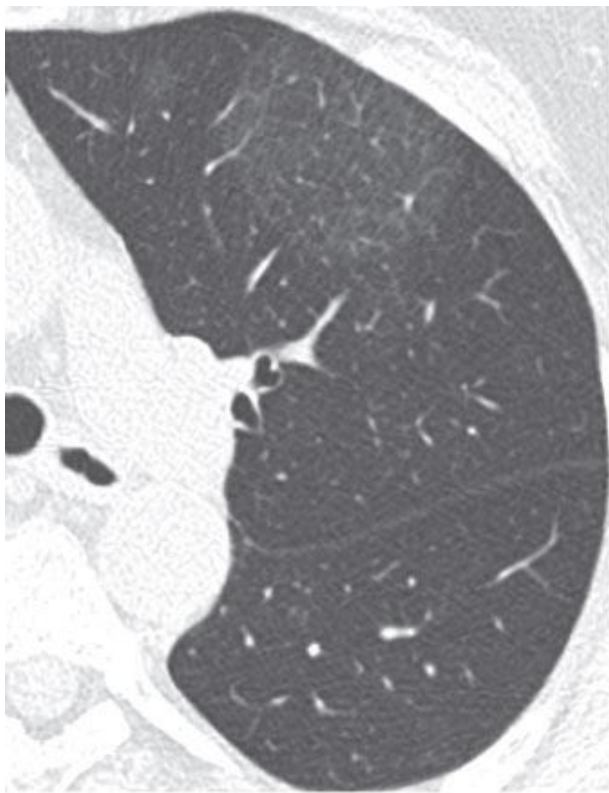


肺结节分类（**CT**密度）

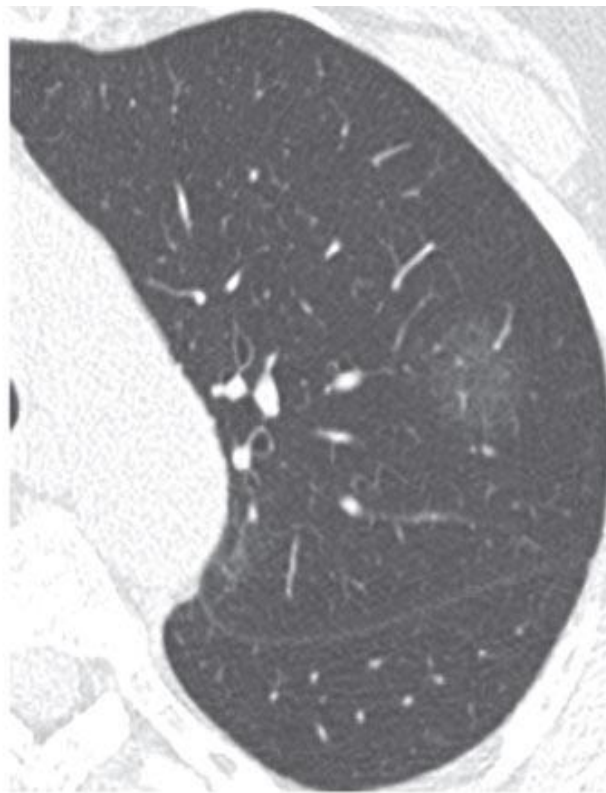
- ▶ 纯磨玻璃结节；
- ▶ 混合密度结节；
- ▶ 实性结节。



纯磨玻璃结节



a.

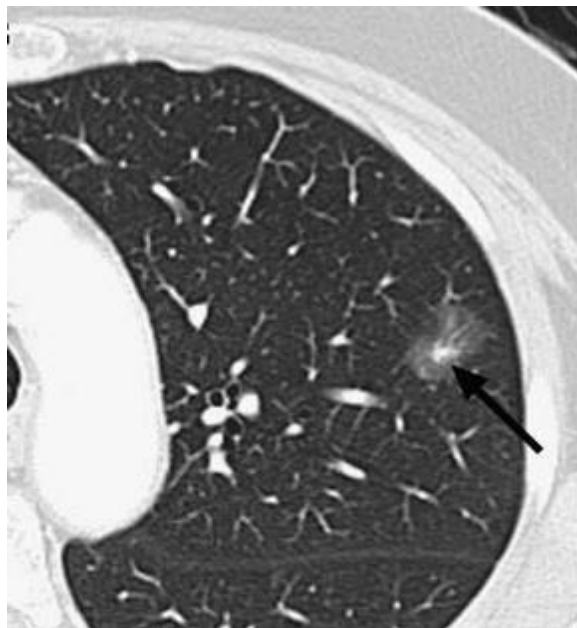


b.

混合密度结节

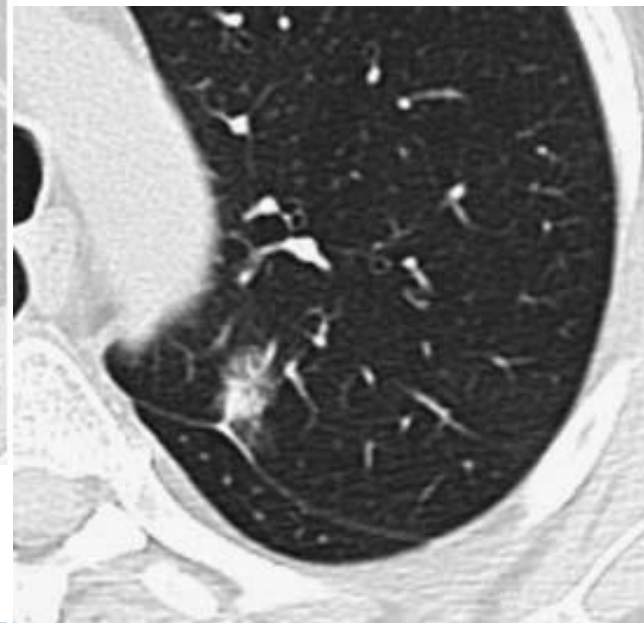


AIS

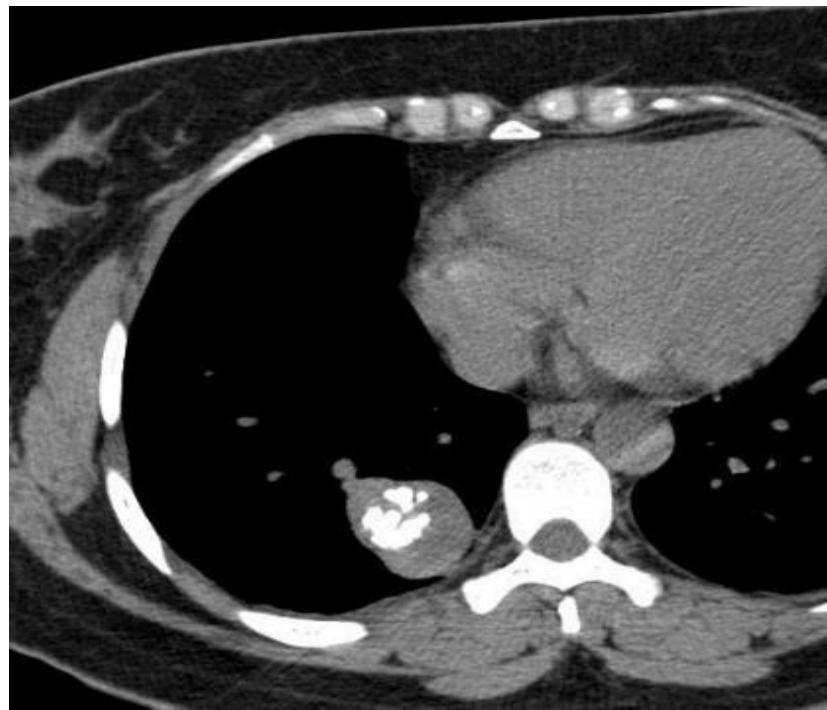
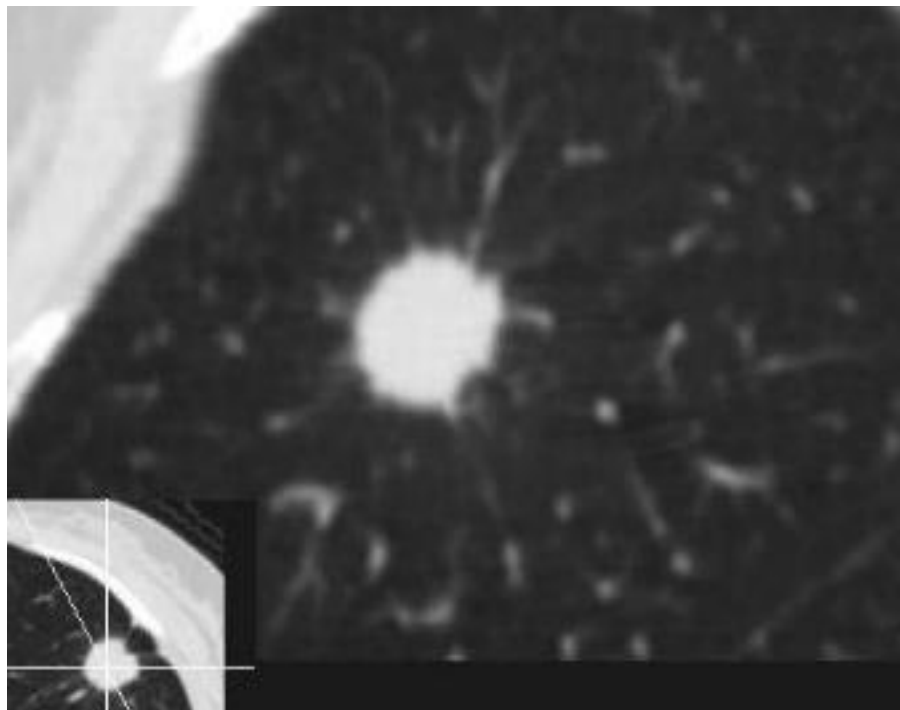


MIA

IA



实性结节



肺结节的危险度评估

■ 低恶性概率结节

- 小于35岁。
- 不具备其他高危因素

■ 高恶性结节概率

- 大于35岁。
- 吸烟。
- 有家族史接触过石棉等高危因素。
- CT表现形态学可疑



肺结节倍增时间

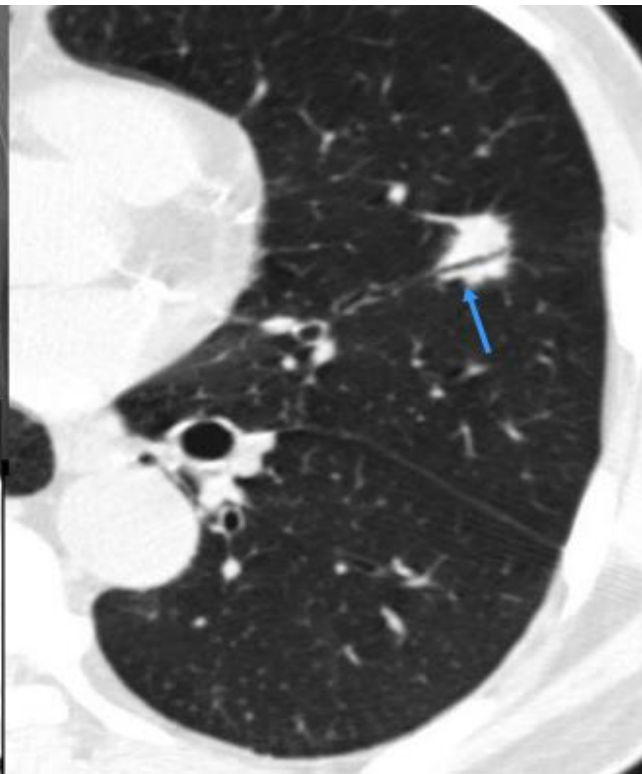
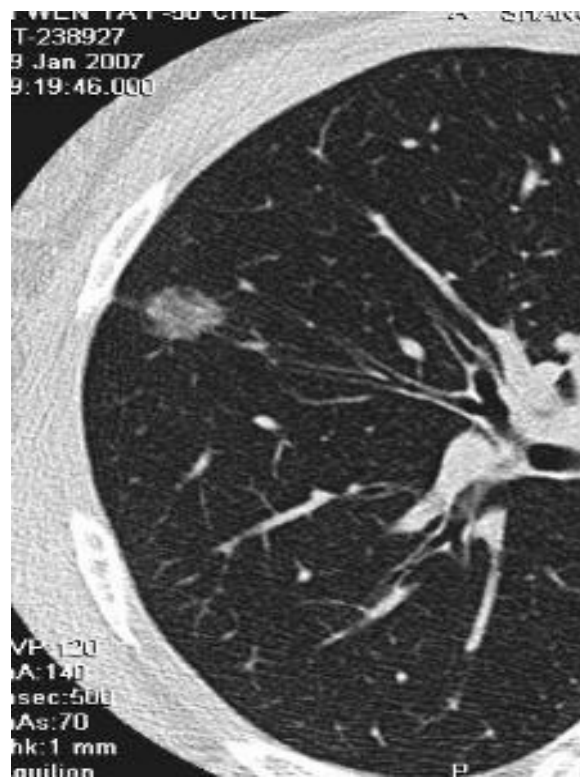
- ▶ AAH: 988 ± 470 d
- ▶ AIS: 567 ± 168 d
- ▶ IA: 384 ± 212 d
- ▶ peripheral squamous cell carcinomas: 122 ± 68 d

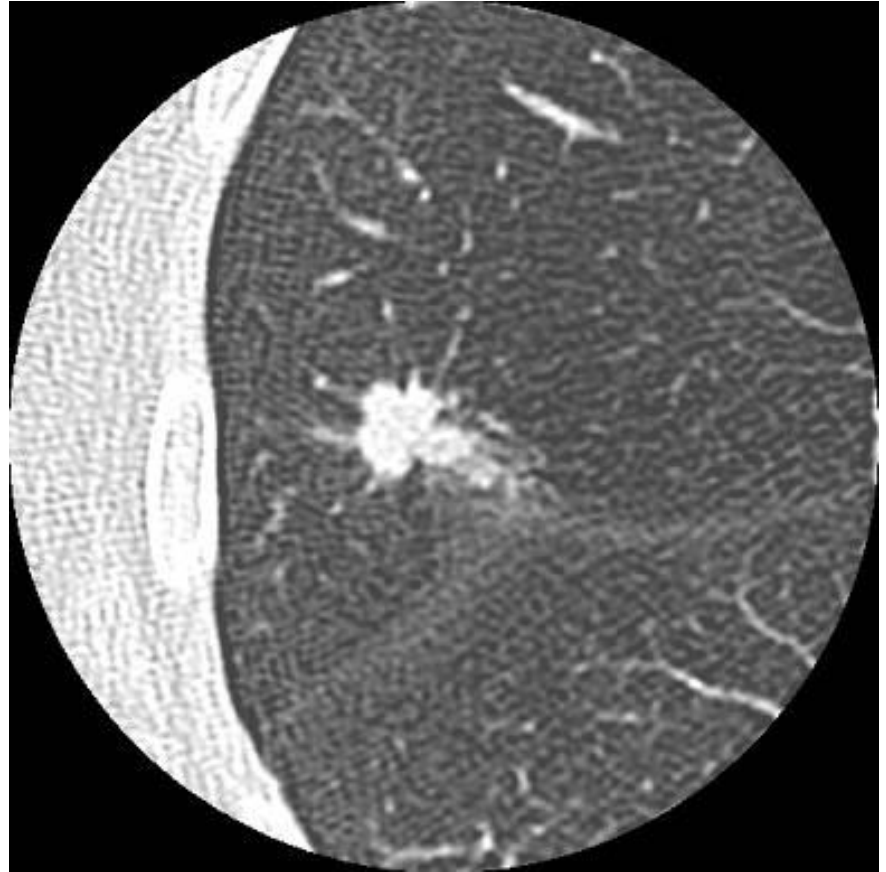
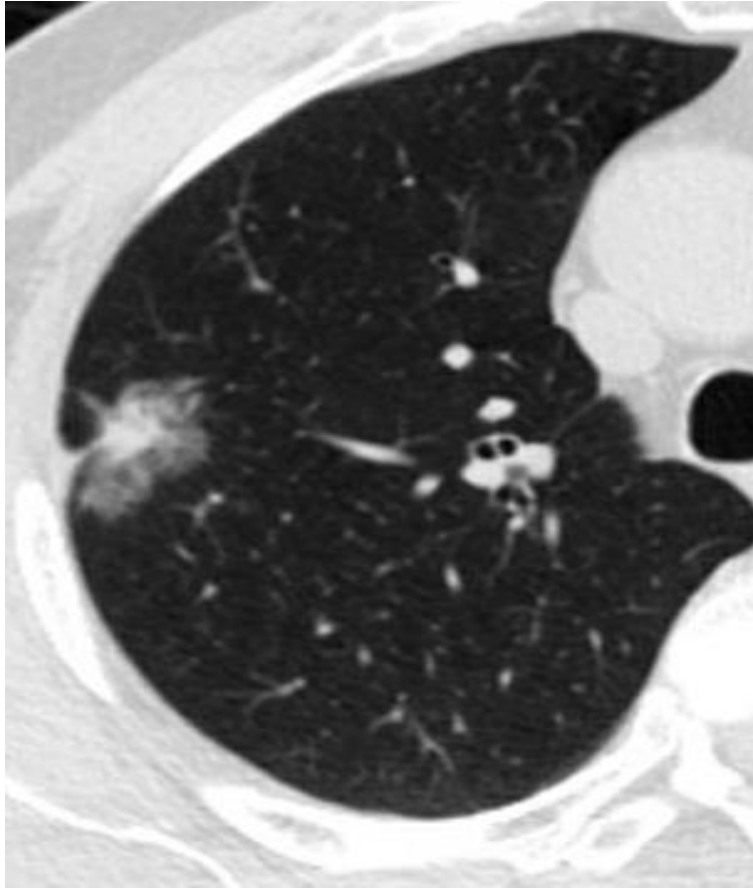


提示恶性的形态学征象

- 结节分叶状。
- 毛糙边缘，早期病灶毛刺率低。
- 混杂密度结节，有强化。
- 动态随访，结节增大或GGO变密实。
- 结节内部有空泡和细支气管征。



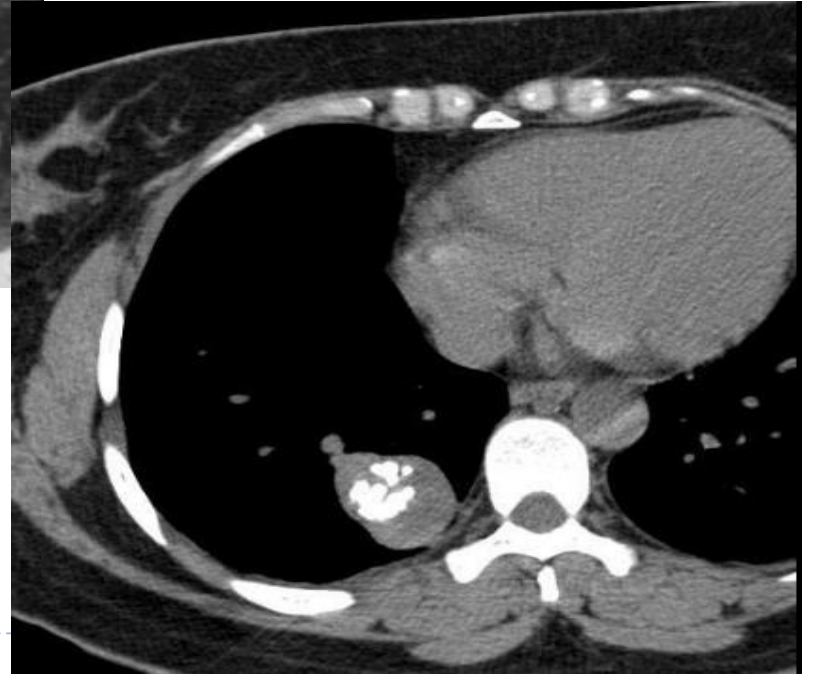
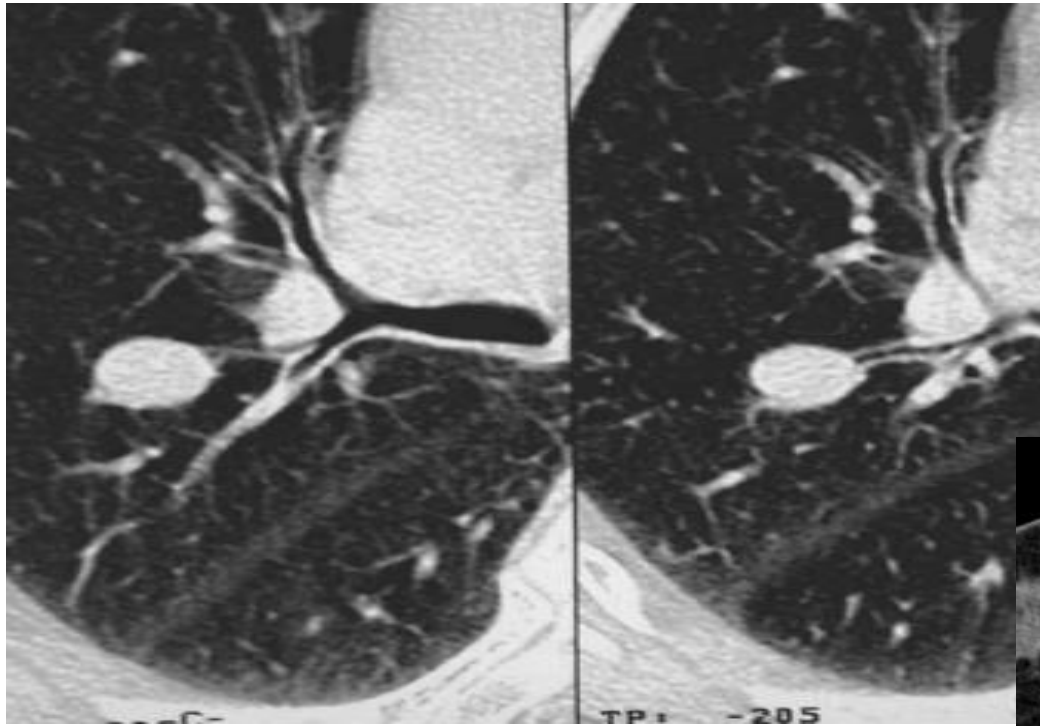


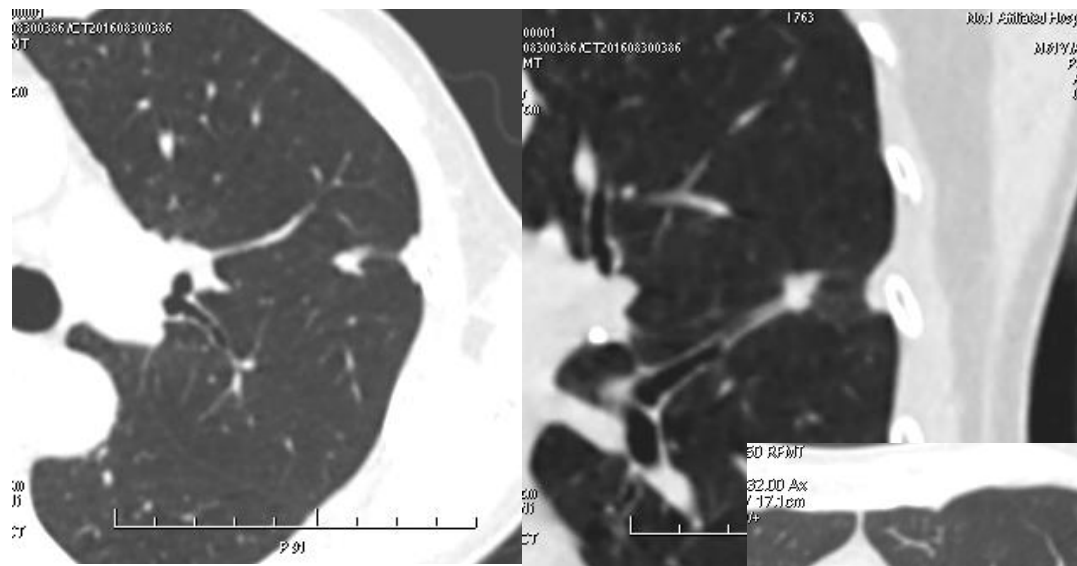


提示良性的形态学特征

- 体积小，形态规则。
- 边缘光滑。
- 密度均匀，没有或轻度强化。
- 病灶内有钙化，尤其是爆米花样钙化。
- 动态观察病灶缩小或两年内稳定。

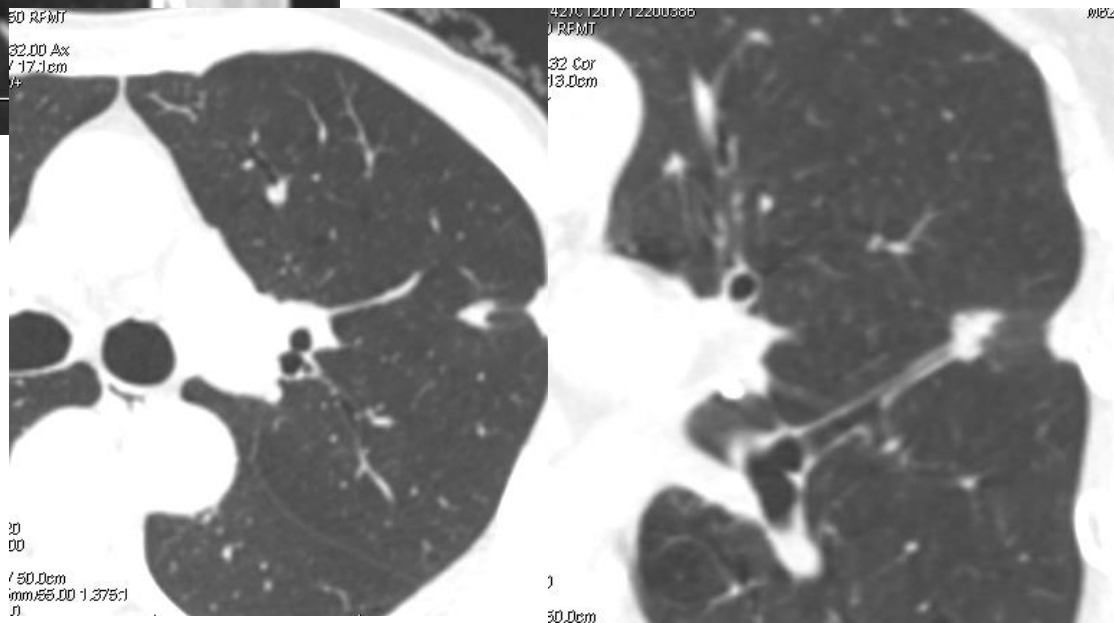






63岁男性患者，2016.8.30

2017.12.20



如何对待肺结节

Fleischner Society 2017 Guidelines for Management of Incidentally Detected Pulmonary Nodules in Adults

A: Solid Nodules*

Nodule Type	Size			Comments
	<6 mm (<100 mm³)	6–8 mm (100–250 mm³)	>8 mm (>250 mm³)	
Single				
Low risk†	No routine follow-up	CT at 6–12 months, then consider CT at 18–24 months	Consider CT at 3 months, PET/CT, or tissue sampling	Nodules <6 mm do not require routine follow-up in low-risk patients (recommendation 1A).
High risk†	Optional CT at 12 months	CT at 6–12 months, then CT at 18–24 months	Consider CT at 3 months, PET/CT, or tissue sampling	Certain patients at high risk with suspicious nodule morphology, upper lobe location, or both may warrant 12-month follow-up (recommendation 1A).
Multiple				
Low risk†	No routine follow-up	CT at 3–6 months, then consider CT at 18–24 months	CT at 3–6 months, then consider CT at 18–24 months	Use most suspicious nodule as guide to management. Follow-up intervals may vary according to size and risk (recommendation 2A).
High risk†	Optional CT at 12 months	CT at 3–6 months, then at 18–24 months	CT at 3–6 months, then at 18–24 months	Use most suspicious nodule as guide to management. Follow-up intervals may vary according to size and risk (recommendation 2A).

如何对待肺结节

B: Subsolid Nodules*

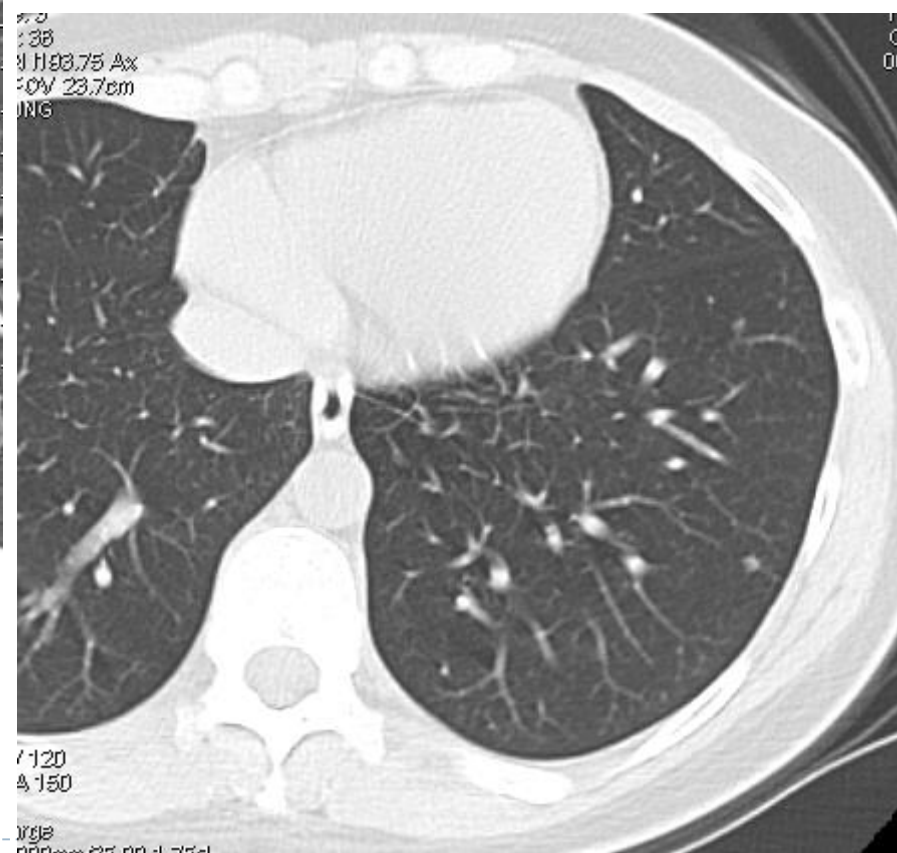
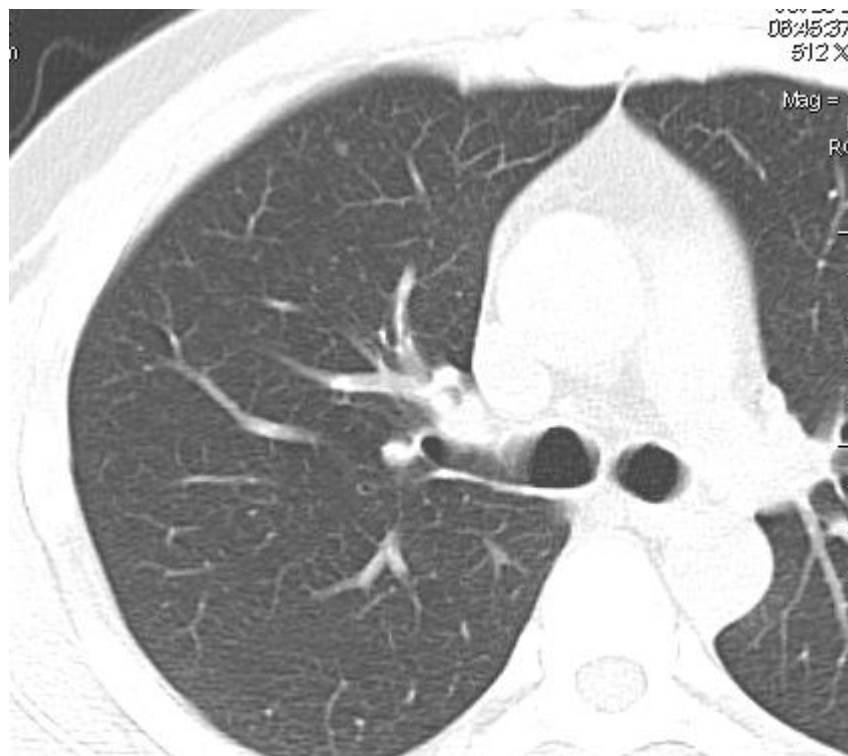
Nodule Type	Size		Comments
	<6 mm (<100 mm ³)	≥6 mm (>100 mm ³)	
Single			
Ground glass	No routine follow-up	CT at 6–12 months to confirm persistence, then CT every 2 years until 5 years	In certain suspicious nodules < 6 mm, consider follow-up at 2 and 4 years. If solid component(s) or growth develops, consider resection. (Recommendations 3A and 4A).
Part solid	No routine follow-up	CT at 3–6 months to confirm persistence. If unchanged and solid component remains <6 mm, annual CT should be performed for 5 years.	In practice, part-solid nodules cannot be defined as such until ≥6 mm, and nodules <6 mm do not usually require follow-up. Persistent part-solid nodules with solid components ≥6 mm should be considered highly suspicious (recommendations 4A-4C)
Multiple	CT at 3–6 months. If stable, consider CT at 2 and 4 years.	CT at 3–6 months. Subsequent management based on the most suspicious nodule(s).	Multiple <6 mm pure ground-glass nodules are usually benign, but consider follow-up in selected patients at high risk at 2 and 4 years (recommendation 5A).

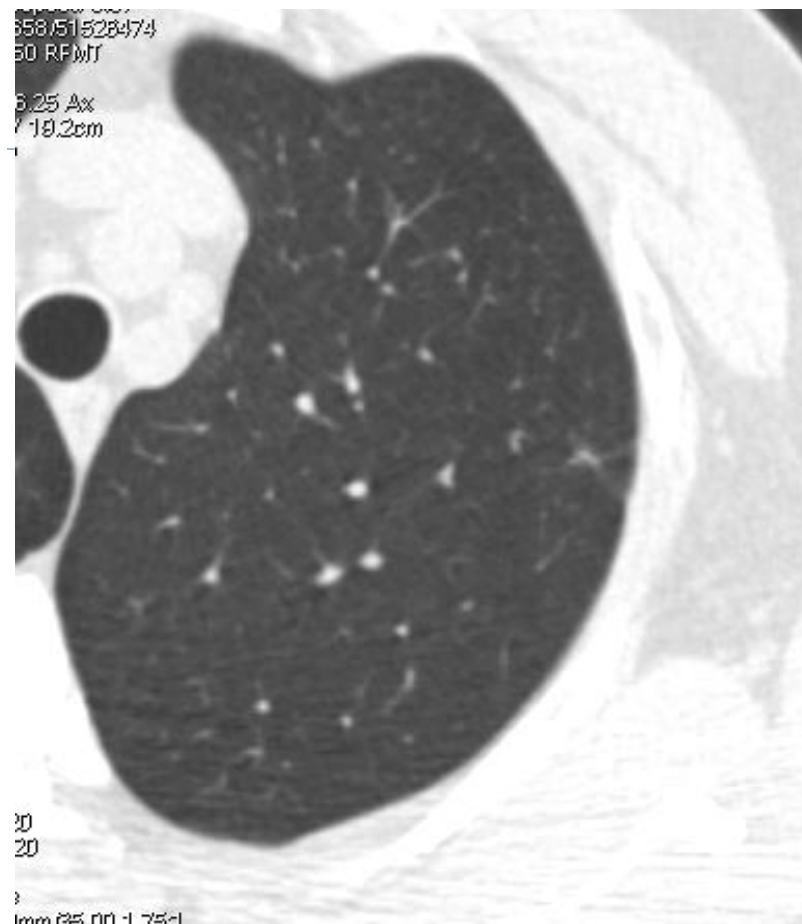


无须紧张的结节

- ▶ 直径 $<6\text{mm}$ 的结节；
- ▶ 有钙化的结节；
- ▶ 实性、边缘光滑清晰的结节。







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M/E

CMD

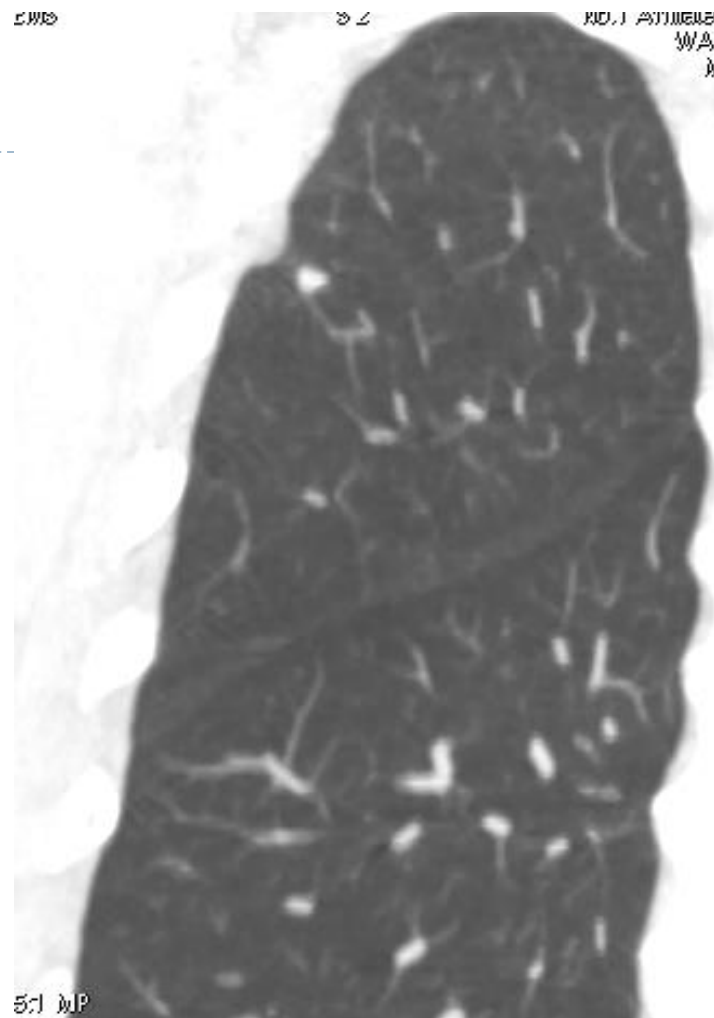
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0.2cm

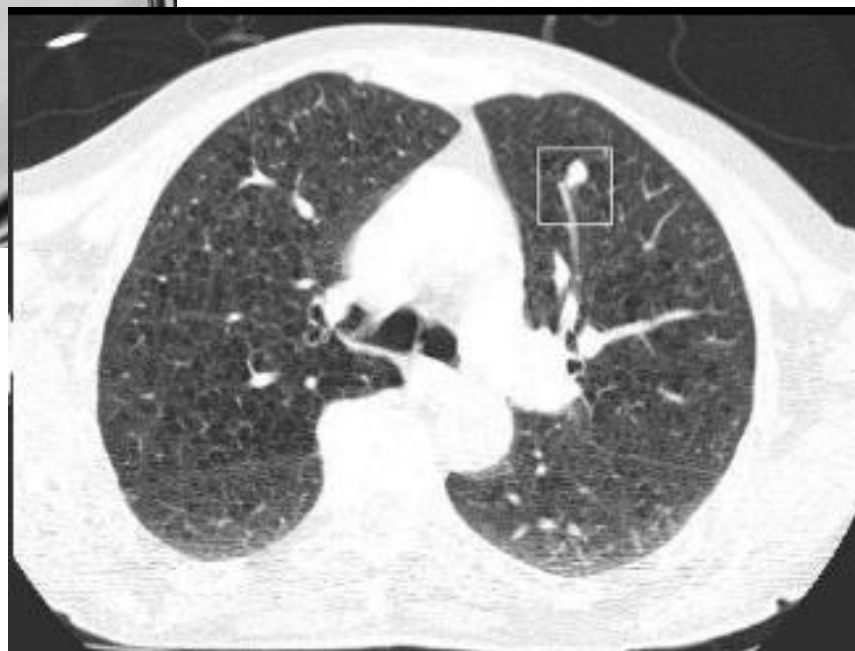


S/L

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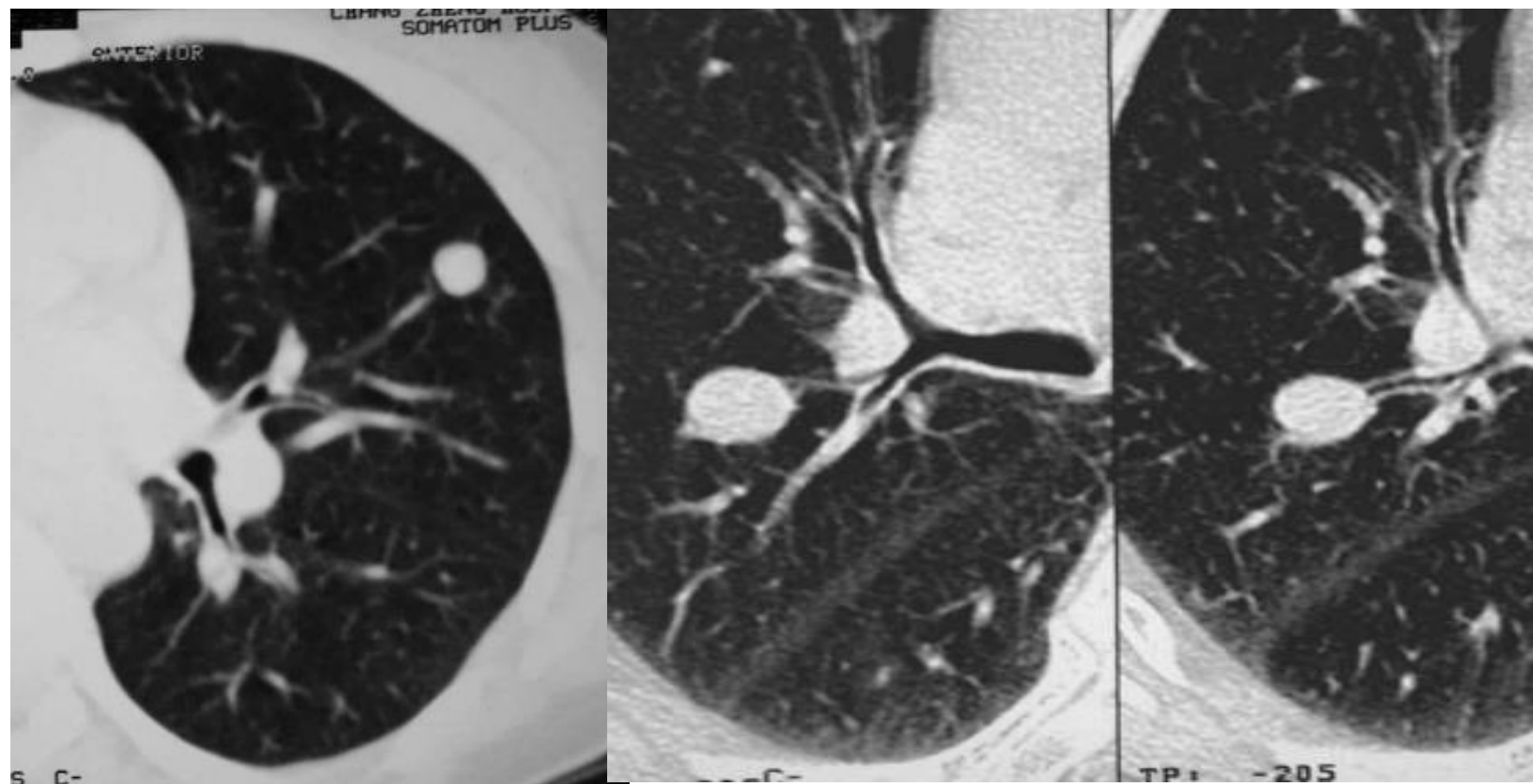
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错构瘤

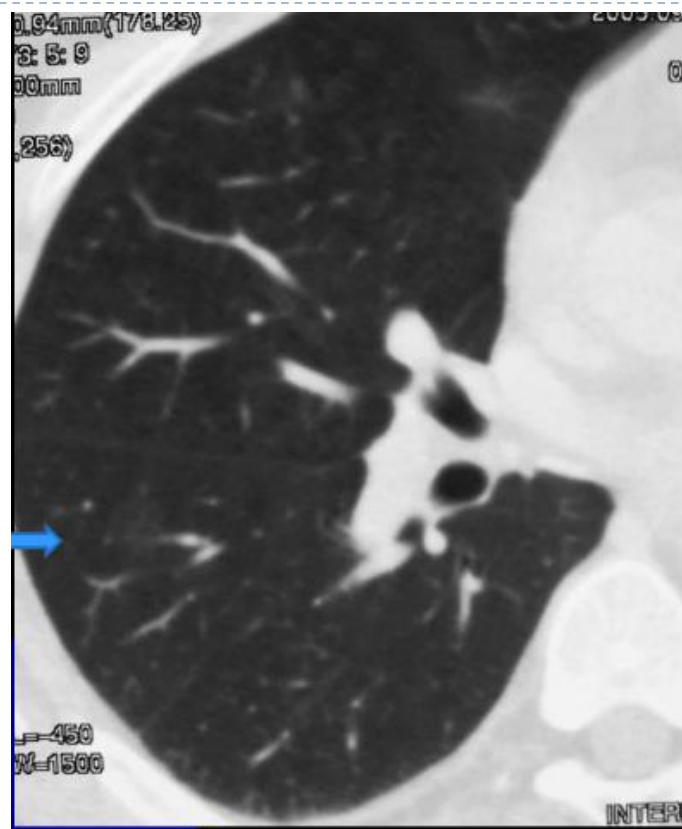




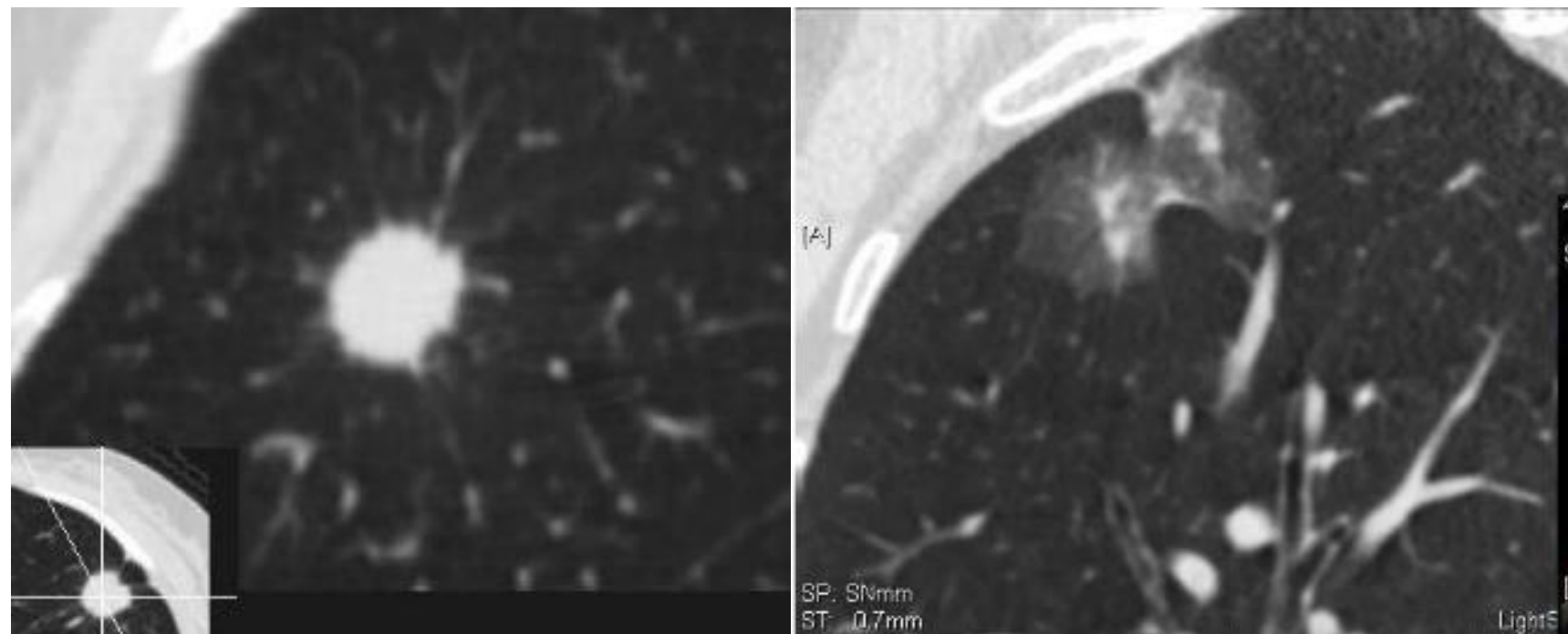
需要警惕的结节

- ▶ 磨玻璃结节；
- ▶ 有实性成分的结节；
- ▶ 边缘毛糙、不规则的结节。

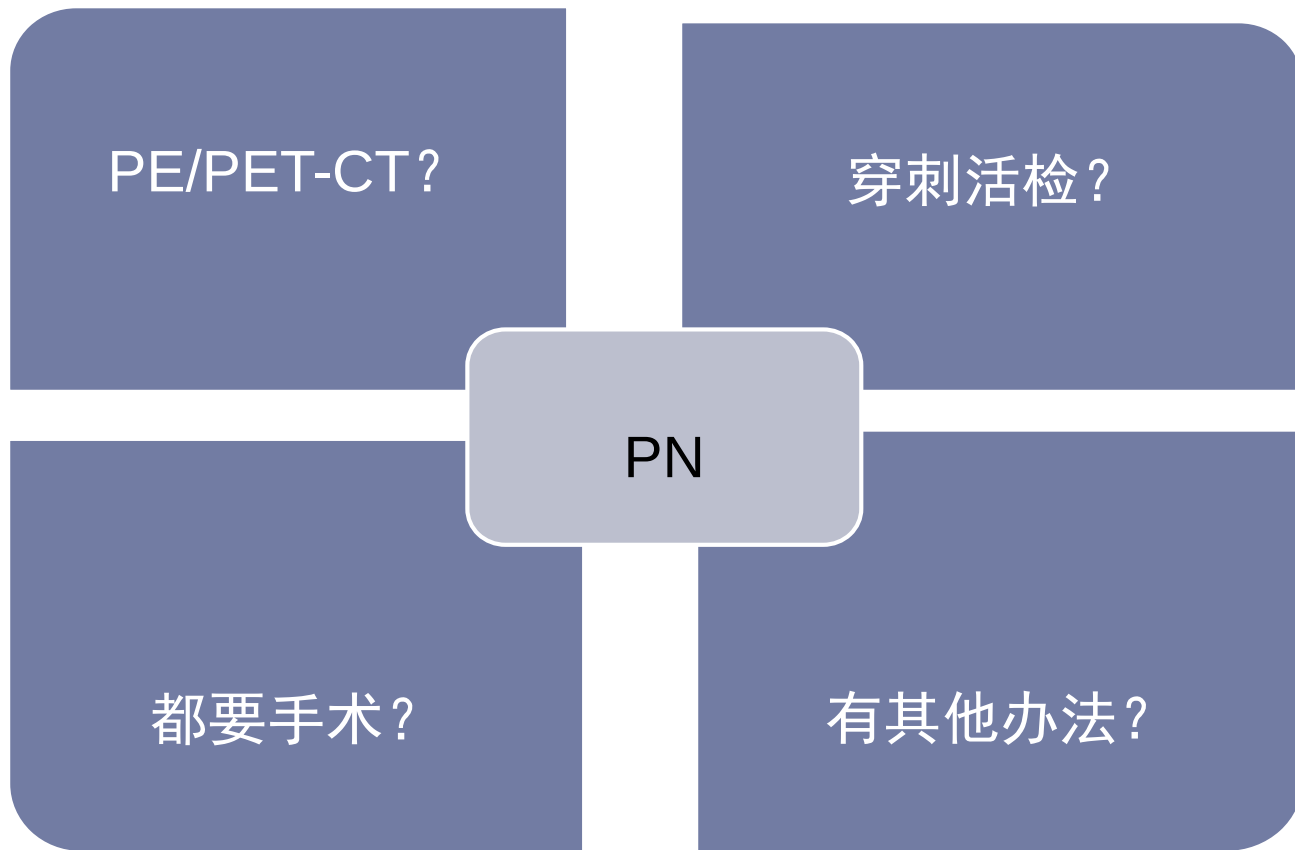








随访方法的选择



PET/CT

- ▶ 8–10 mm in size: sensitivity, specificity, and accuracy of 96%, 88%, and 94%, respectively;

False negative rate for ≤ 10 mm or close proximity

Do not infatuation PET or PET\CT

AAH:100%

AIS: 80%

MIA:47%

- ▶ Higher truepositive rate for IA.

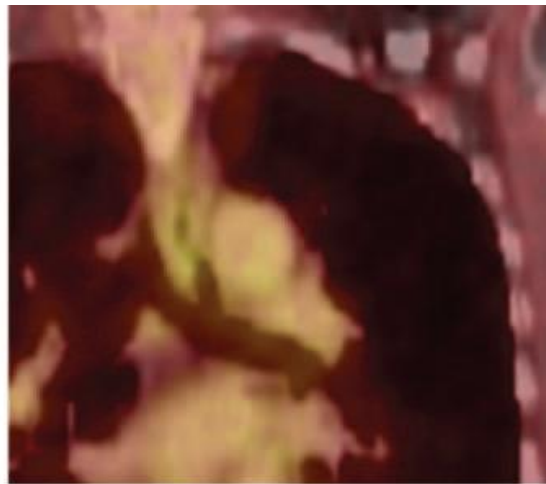




AIS.7mm, 18个月后15mm, PET/CT阴性

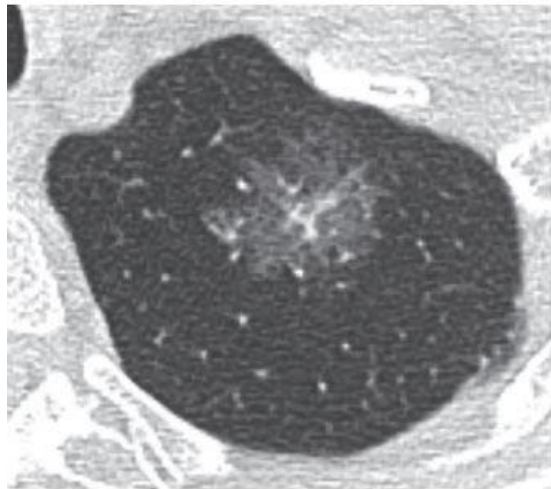


a.

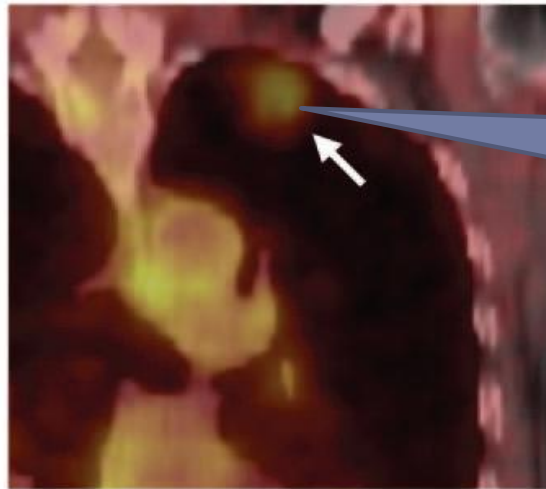


b.

• AIS, PET\CT
negative



c.



d.

• IA, PET\CT
positive



PET/CT价值

- ▶ 分期
- ▶ 评价预后

Low FDG uptake: good prognosis

High FDG uptake: with poorer survival

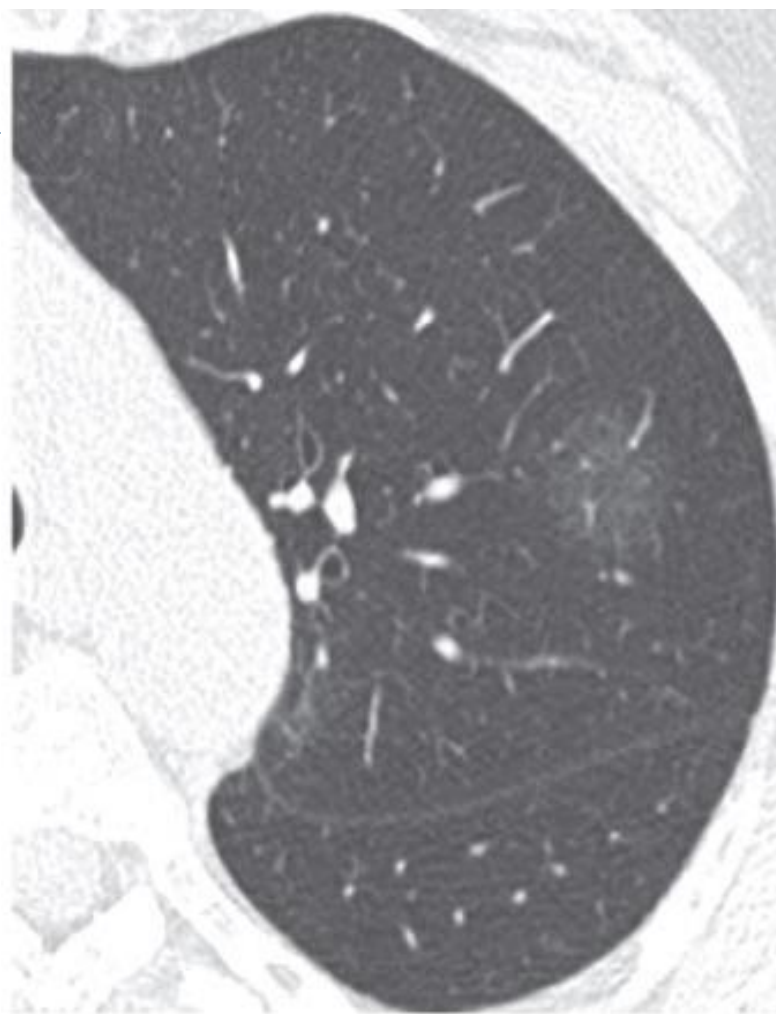


活检

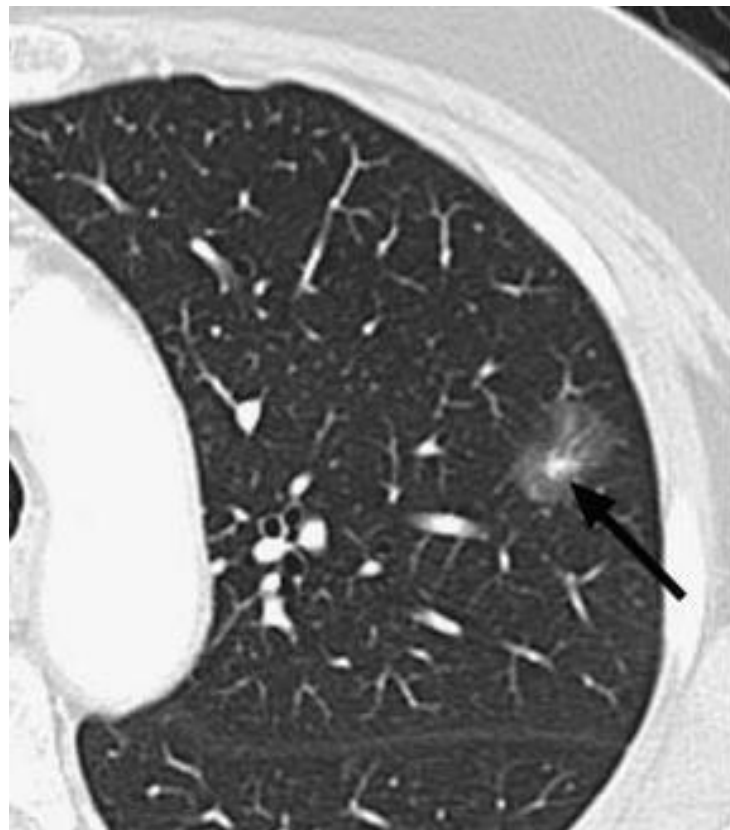
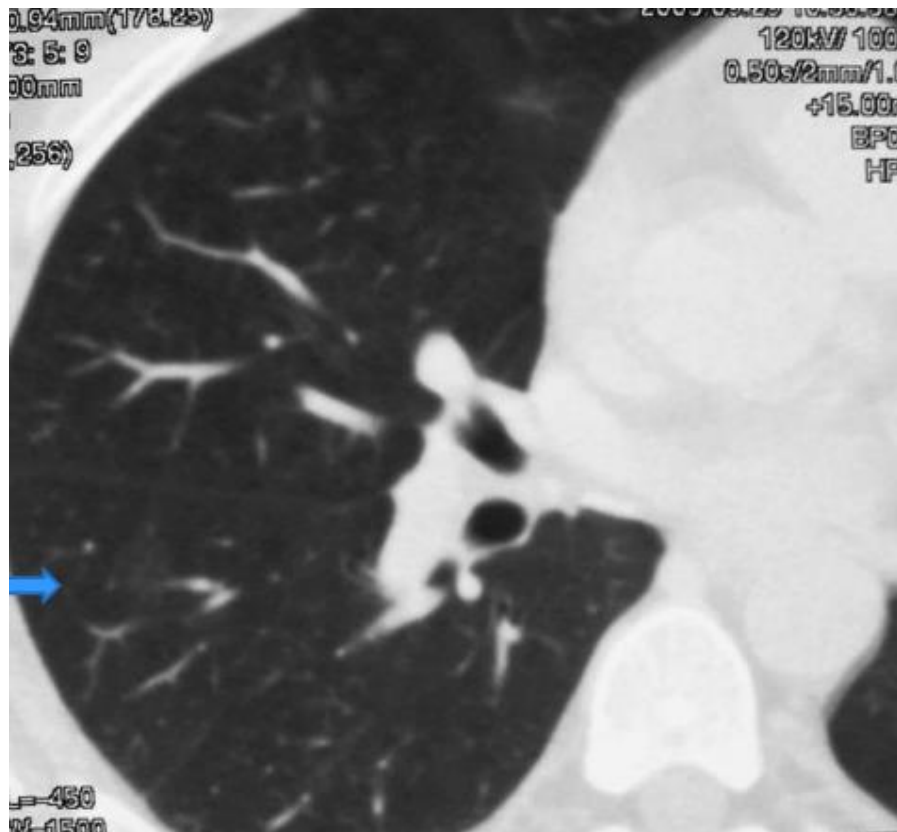
▶ 诊断获益:

主要针对实性或实性成分为主的结节，对纯磨玻璃结节价值有限。





都需要手术吗？



What can we do?

- ▶ 低剂量CT随访复查：

Low-dose (80mAs) ;

Thin sections (1.25mm) ;

High resolution CT surveillance ;

- ▶ At least follow-up in 3 months for 3 to 5 years.

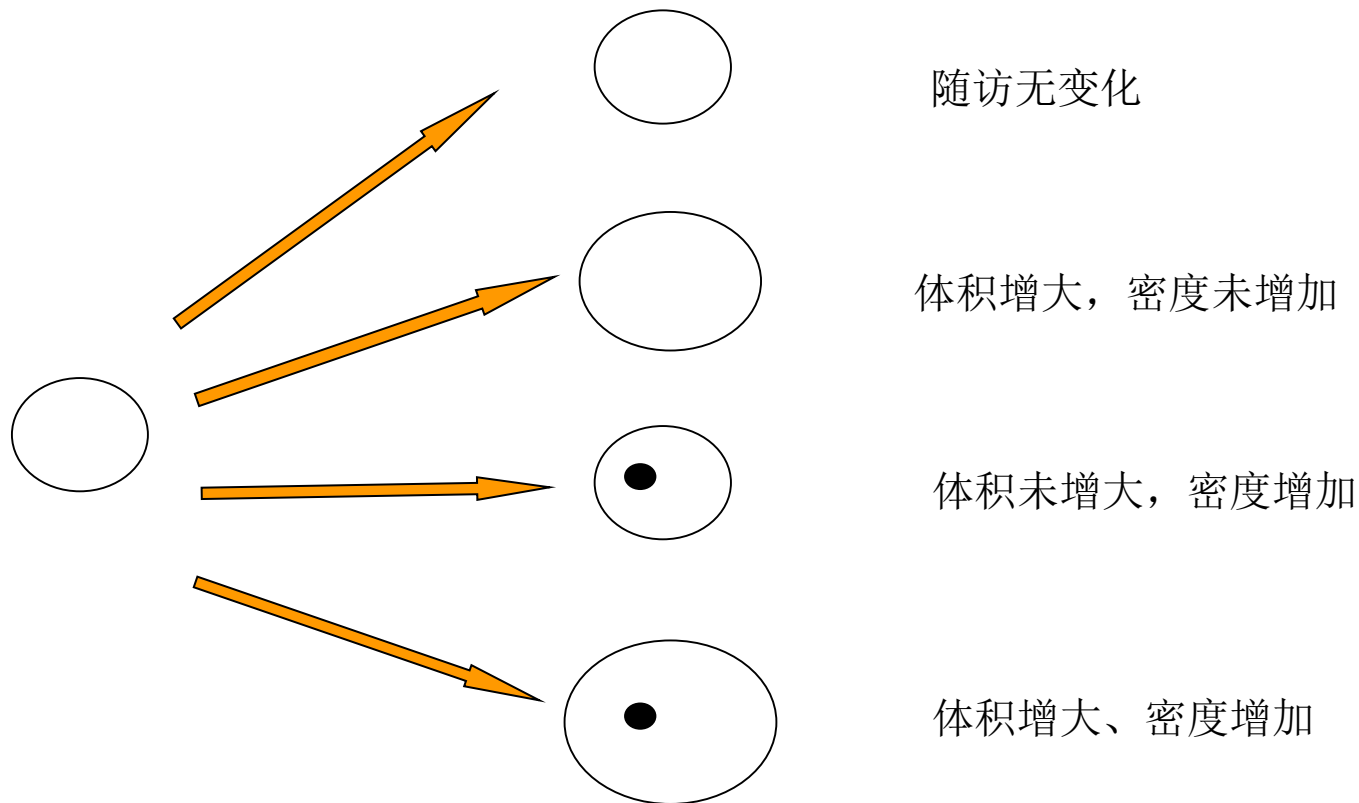


怎么关注：动态观察结节演变的特征

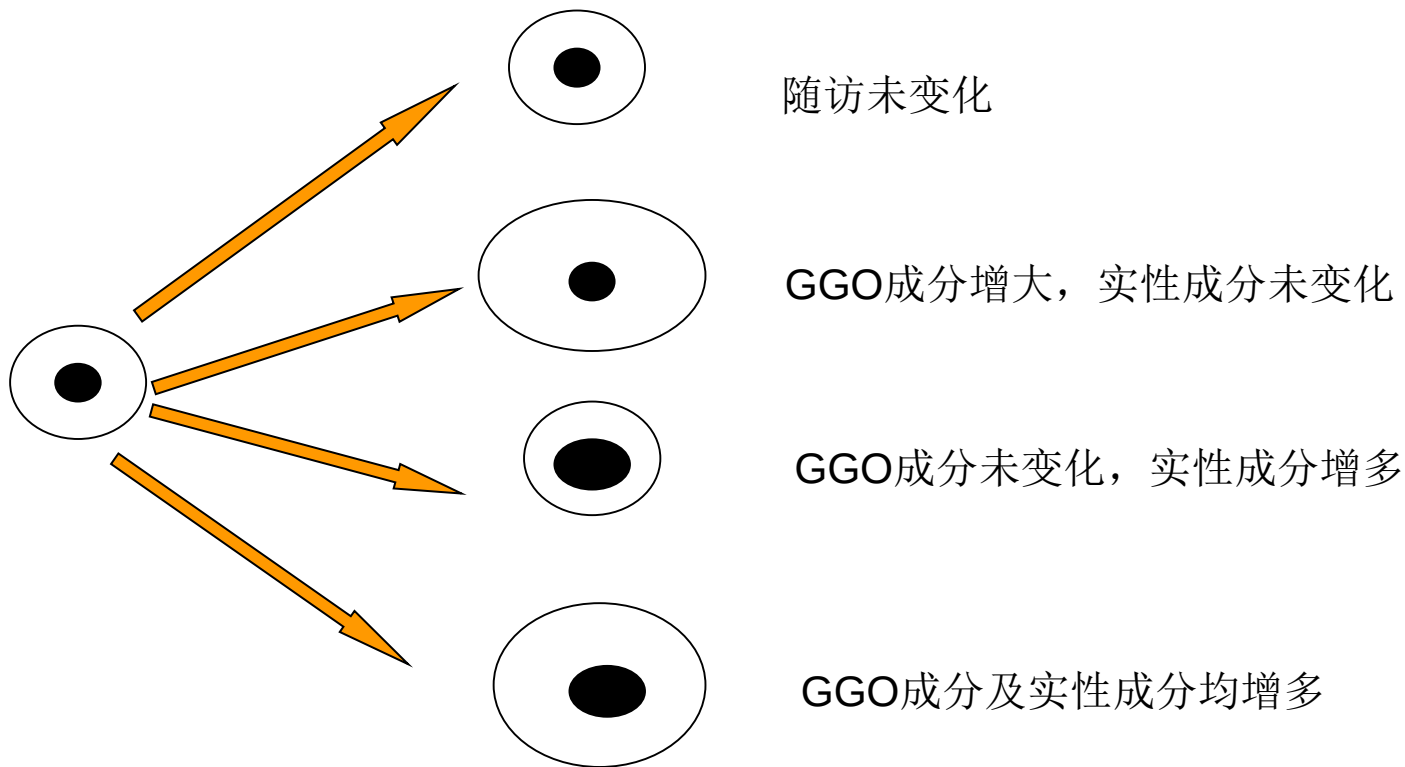
- 大小
- 形态
- 密度（成分的改变）
- 稳定性



纯磨玻璃结节的随访变化



有实性成分的结节

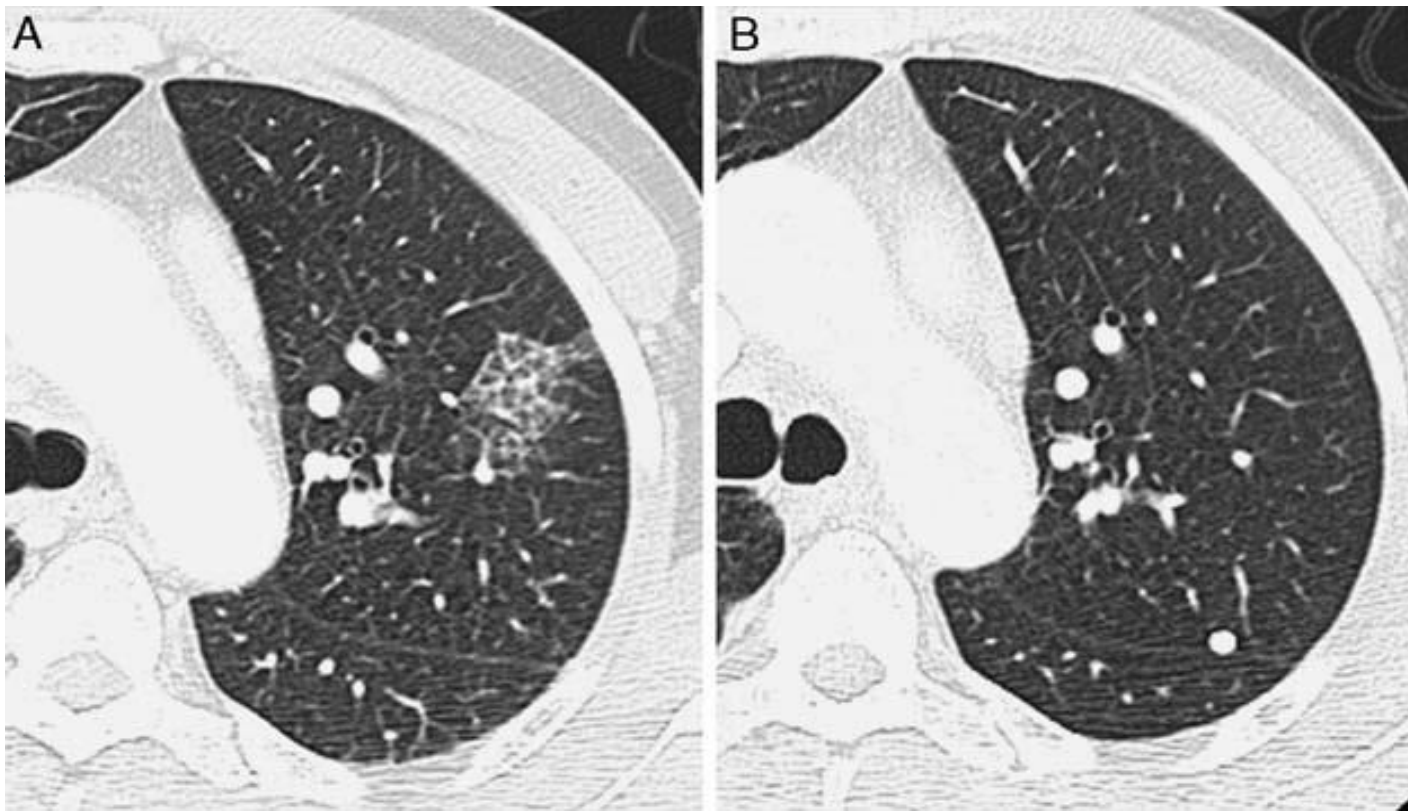


Pure GGNs < 5mm in Size

- ▶ <5mm的孤立性病变: Foci of AAH
- ▶ <5mm的多发病变: 有吸烟史的患者

At least a 1-year follow-up

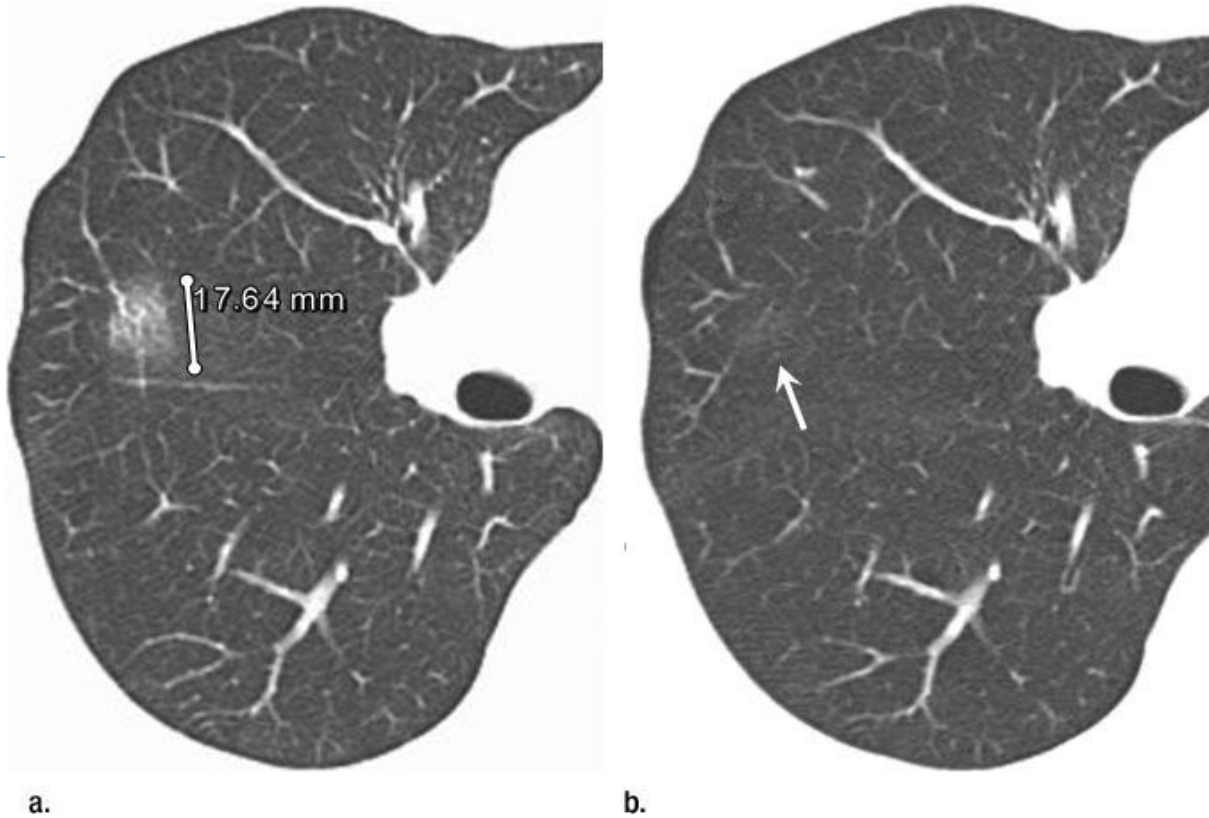




GGN in a 65-year-old man. A, CT scan (1.25-mm-thick section) shows a pure GGN in the left upper lobe.

B, Follow-up CT in 3 months shows resolution of the nodule, consistent with an infectious process or aspiration.





(a) Magnified 1-mm CT section through the right upper lobe shows nodules with. (b) Follow-up CT scan obtained 3 months later shows near complete resolution of the lesion (arrow), focal nonspecific inflammation.

Solitary Pure GGNs $\geq 5\text{mm}$ in Size

- ▶ At least follow-up in 3 months for 3 to 5 years

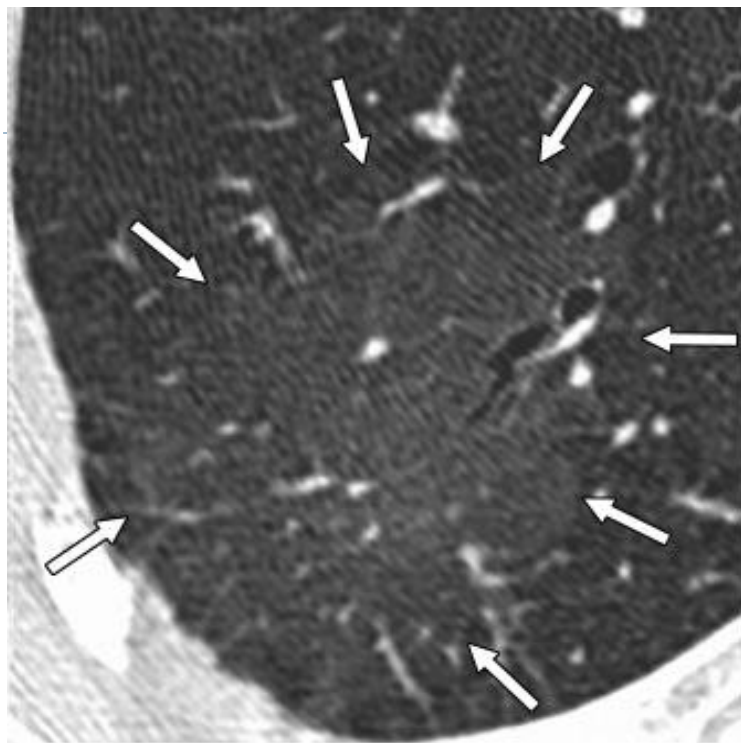
体积增大

密度升高

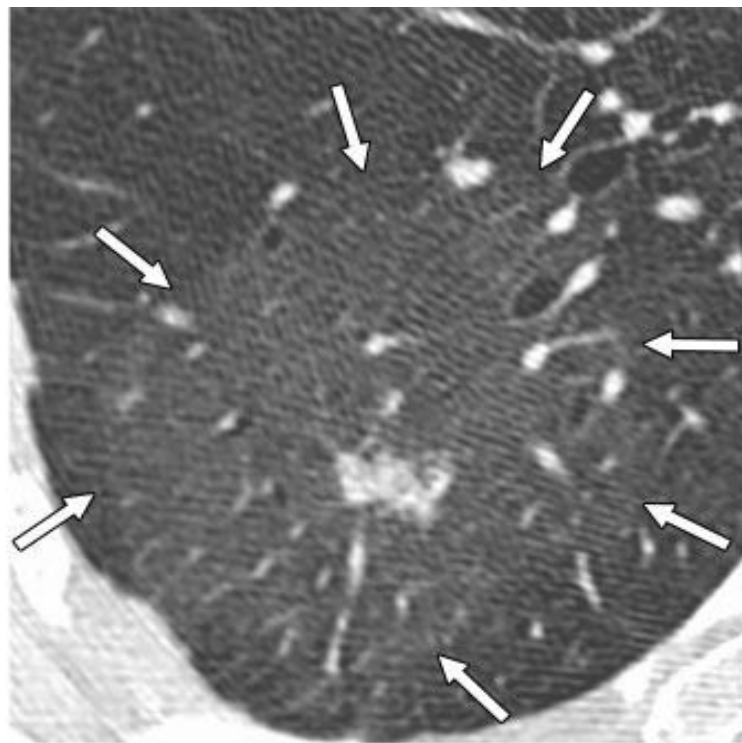
有实性成分出现

病灶中心活检或手术切除





a.



b.

右上肺磨玻璃结节，随访1年后，大小未变，中心出现实性成分。



a.



b.

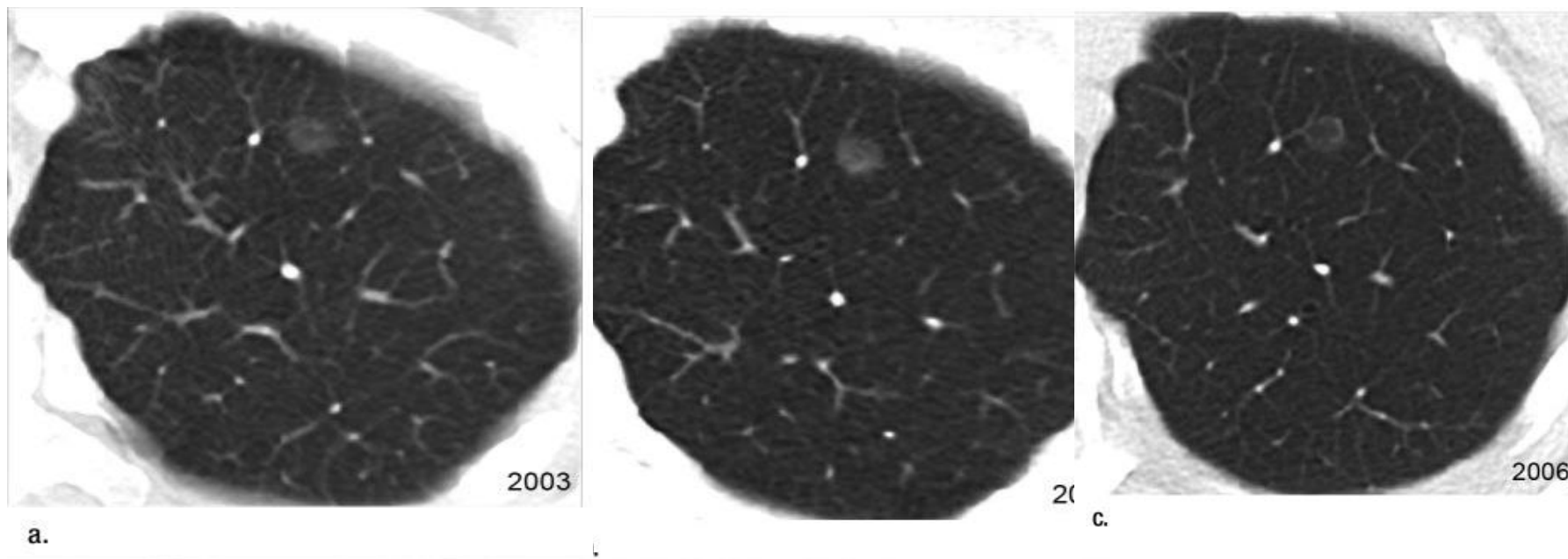


c.

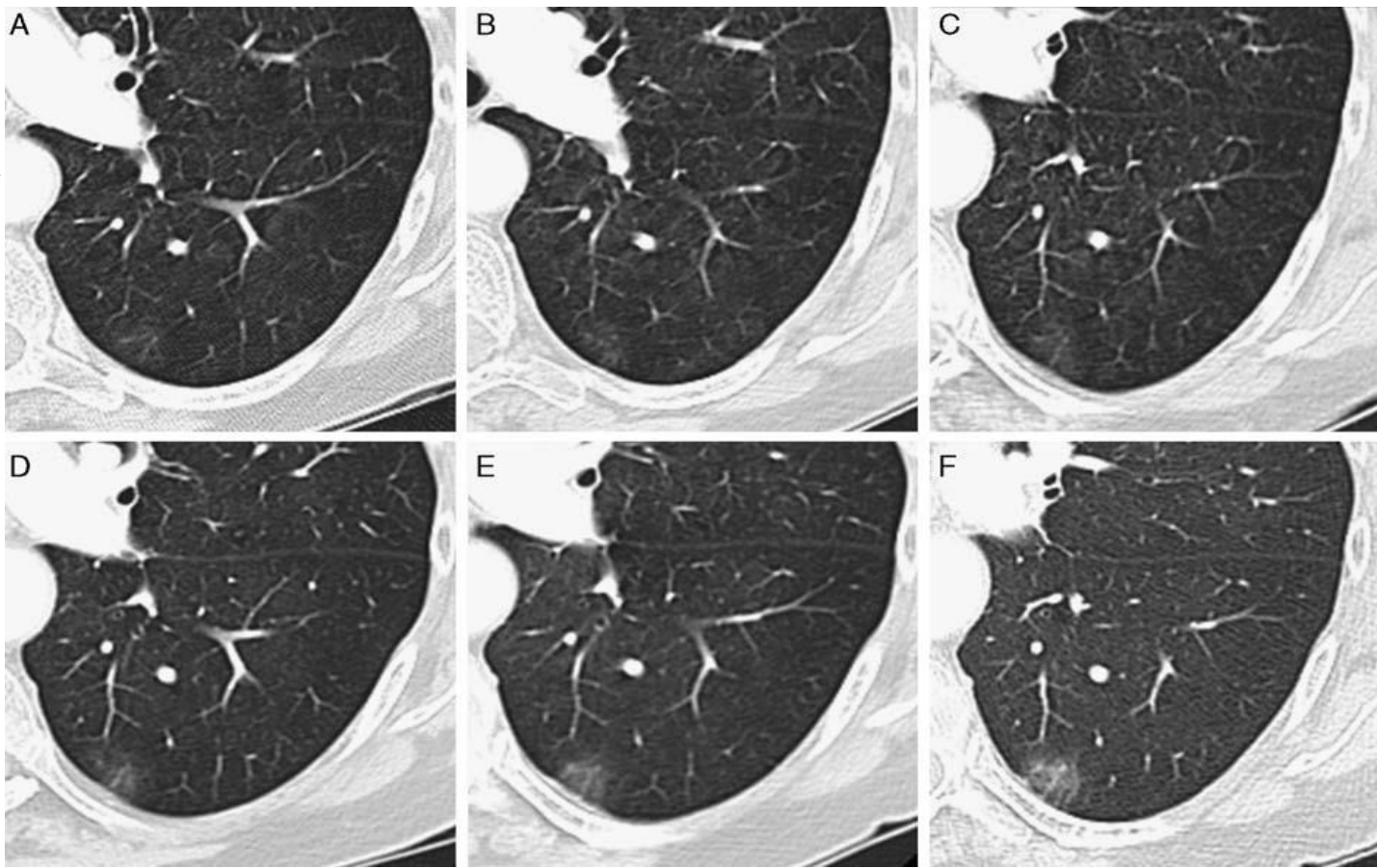


d.

- CT sections show minimal increase in size of a nodule with GGO over a 3-year period.



- The left upper lobe GGOs initially measuring 8mm in size over a 3-year period.
- The nodule with were remained stable



A–F, Yearly axial CT follow-up images from 2005 to 2010 show slow increase in size and density of an initially subtle ground-glass opacity in the left lower lobe.

- ▶ 低剂量、薄层、高分辨率CT随访

密切关注病变阶段性变化

对实性成分准确地测量

Solitary Part-solid GGN

- ▶ 无论大小如何：侵袭性病变

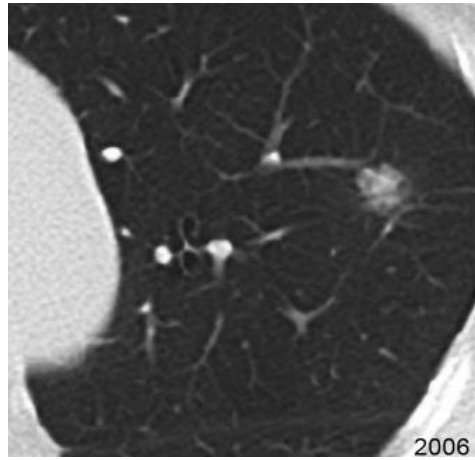
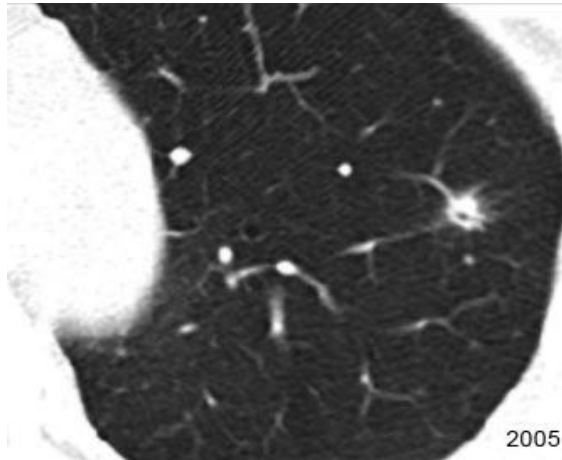
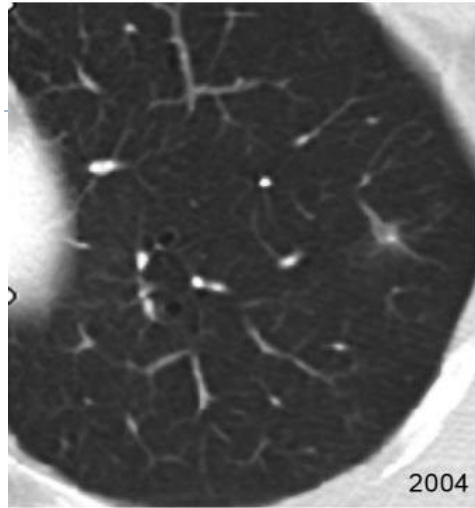
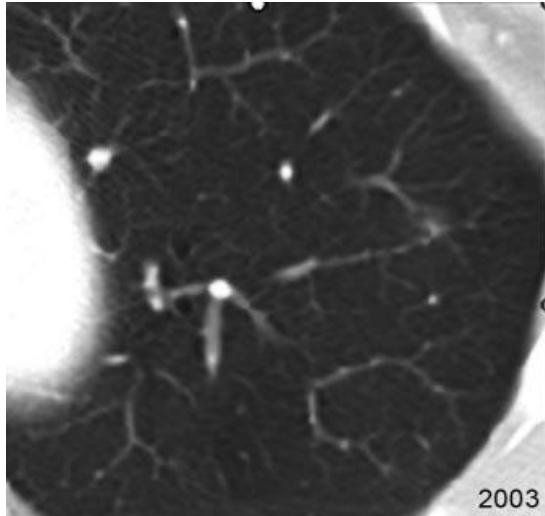
Must 3-month follow-up

- ▶ 实性成分 >10 mm

PET or preferably PET/CT

结节生物学行为、术前分期、预后评价

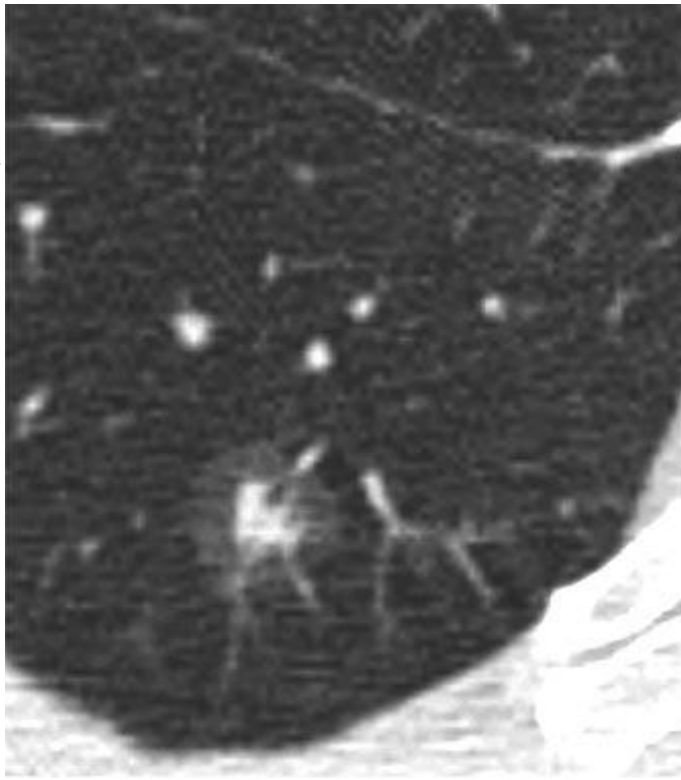




- Increase in size and subsequent development of a solid component.

Histologic analysis shows IA





a, left lower lobe shows a SSNs. b, Follow-up 6 months later shows increase in the extent of the solid.

IA

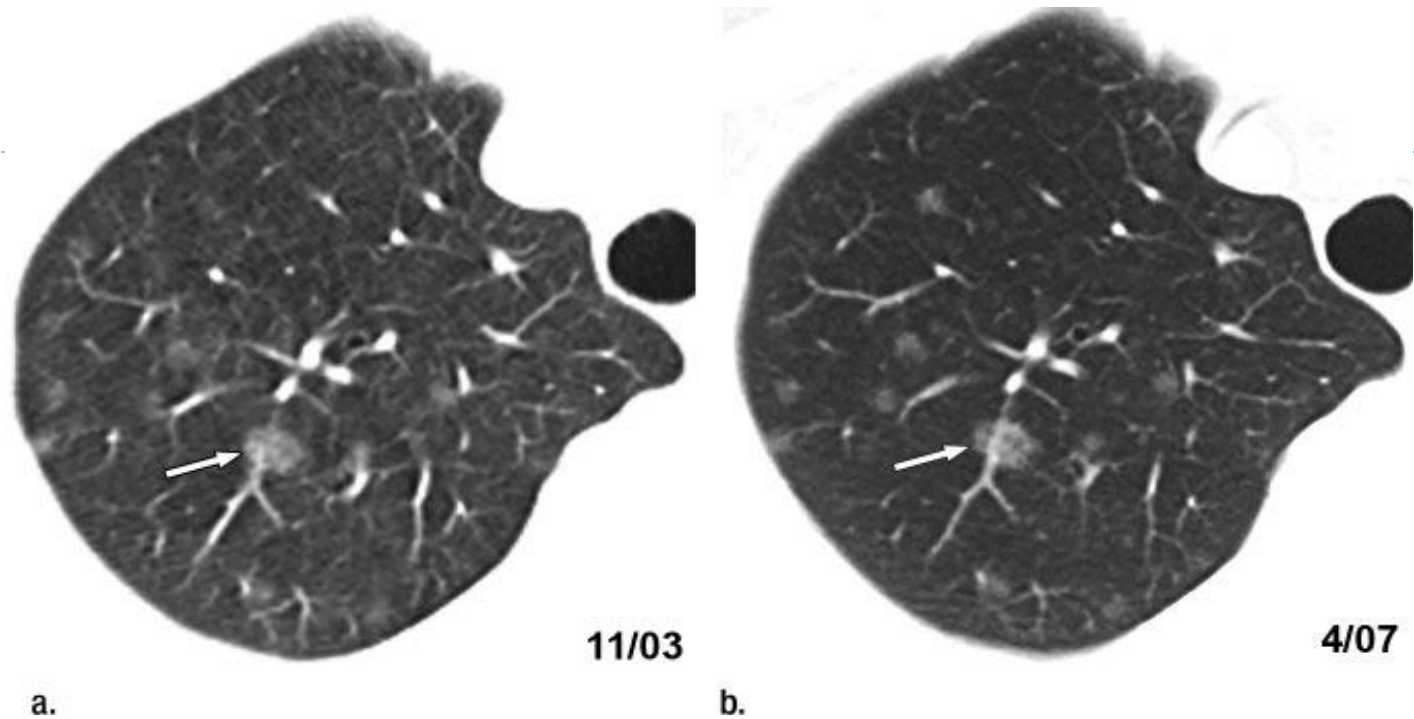
Multiple SSNs

- ▶ 3个月随访一次
- ▶ 持续性,大小和密度增加的患者, 尤其是实性成分 >10mm

PET/CT should be considered

手术切除: 一个或几个大的结节





a,CT section shows multiple small lesions with GGO and one dominant larger nodule with GGO (arrow).b,CT scan at 4-year follow-up shows no substantial interval change (arrow) and the lesions were presumed to represent AAH and AIS (dominant lesion).

Postsurgical Surveillance

- ▶ After resection of a malignant SSNs

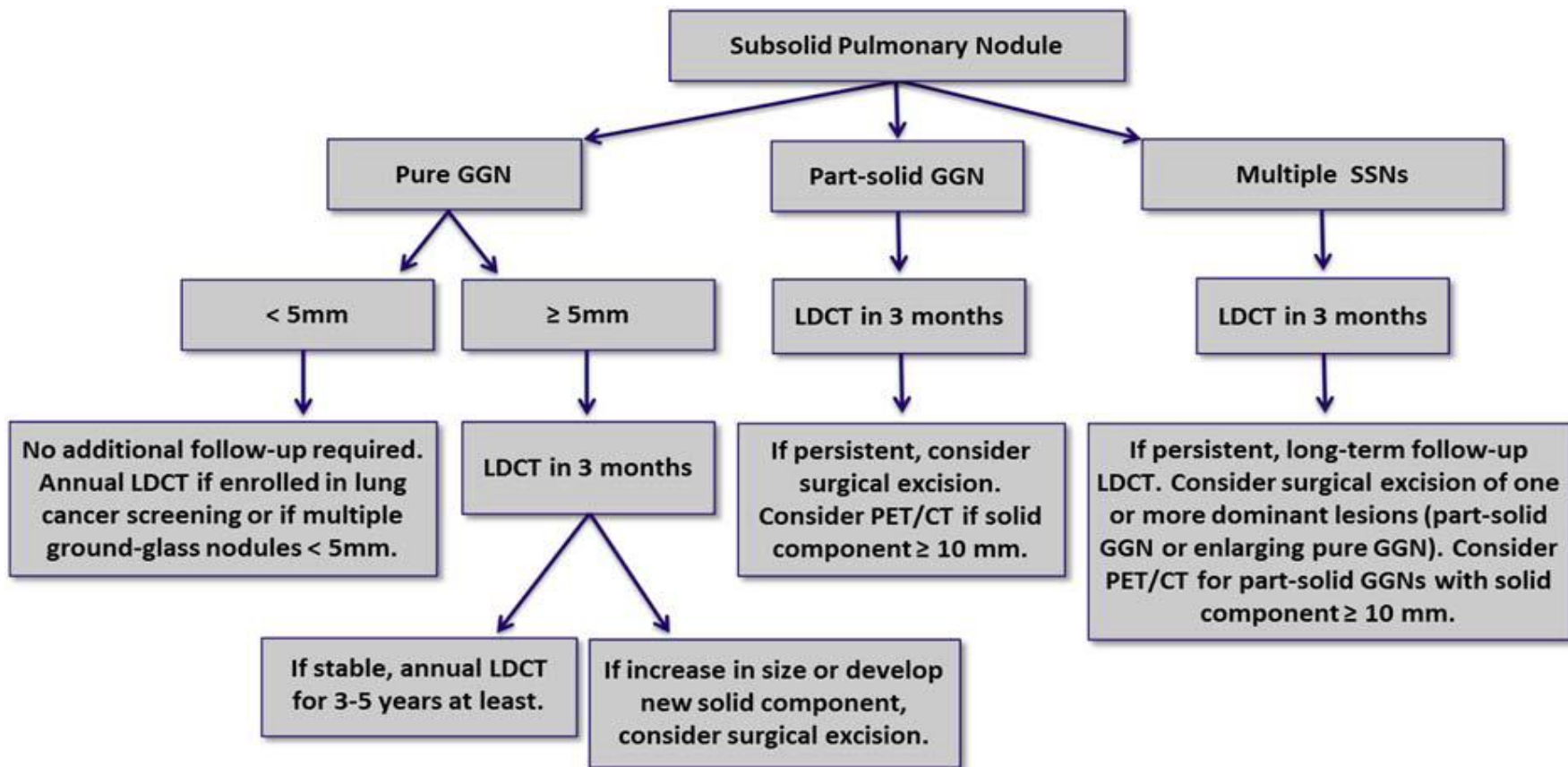
实性也好，多发也罢

每年1次低剂量CT

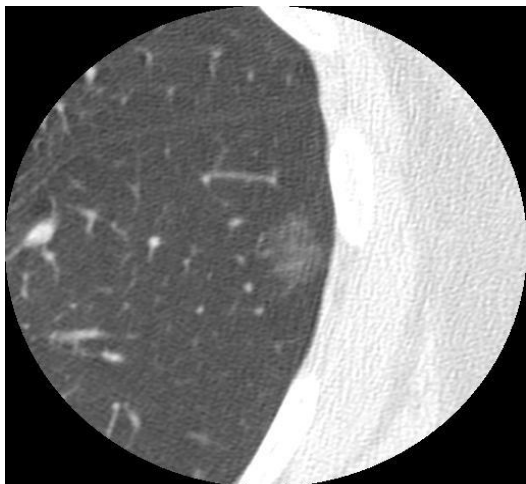
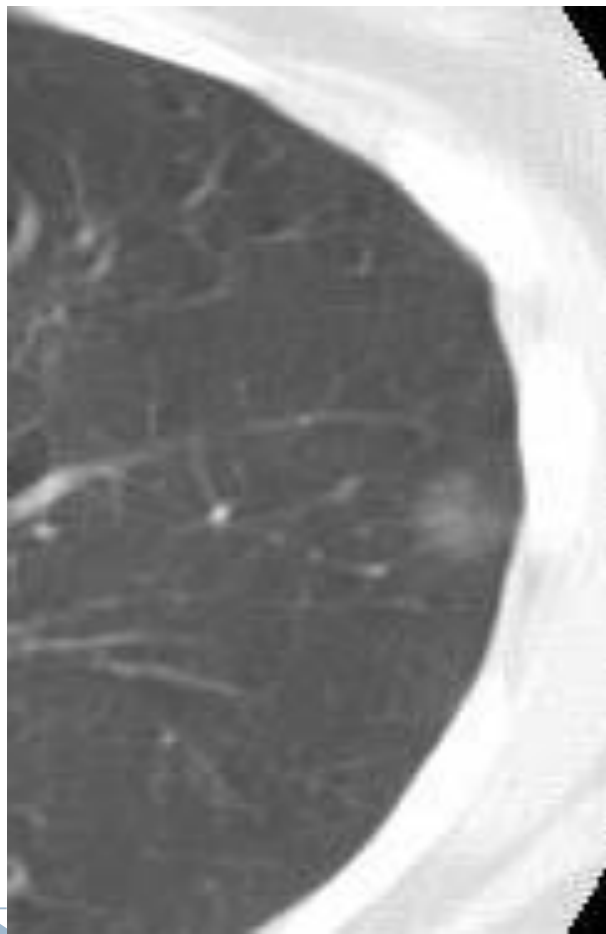
至少3~5年



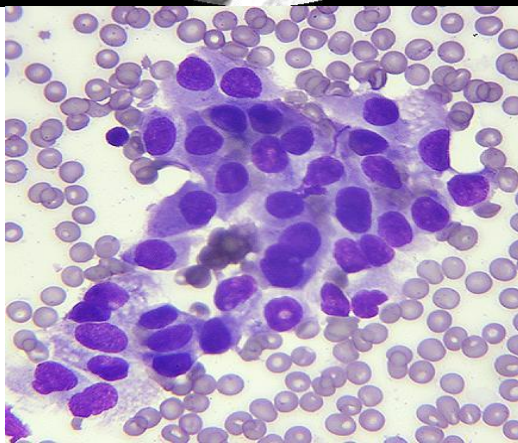
总结



▶ 左下肺10×10 mm结节



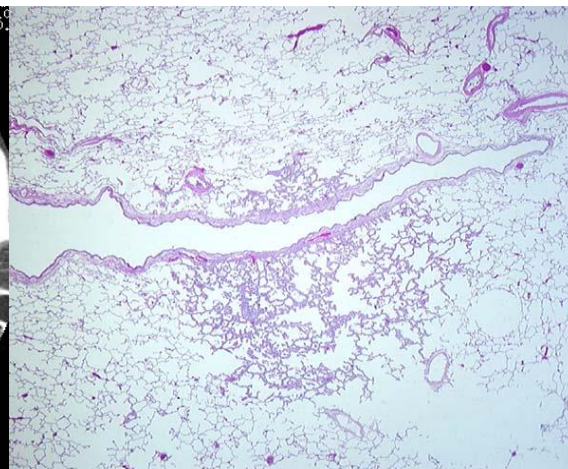
抗炎后一个月（同前）



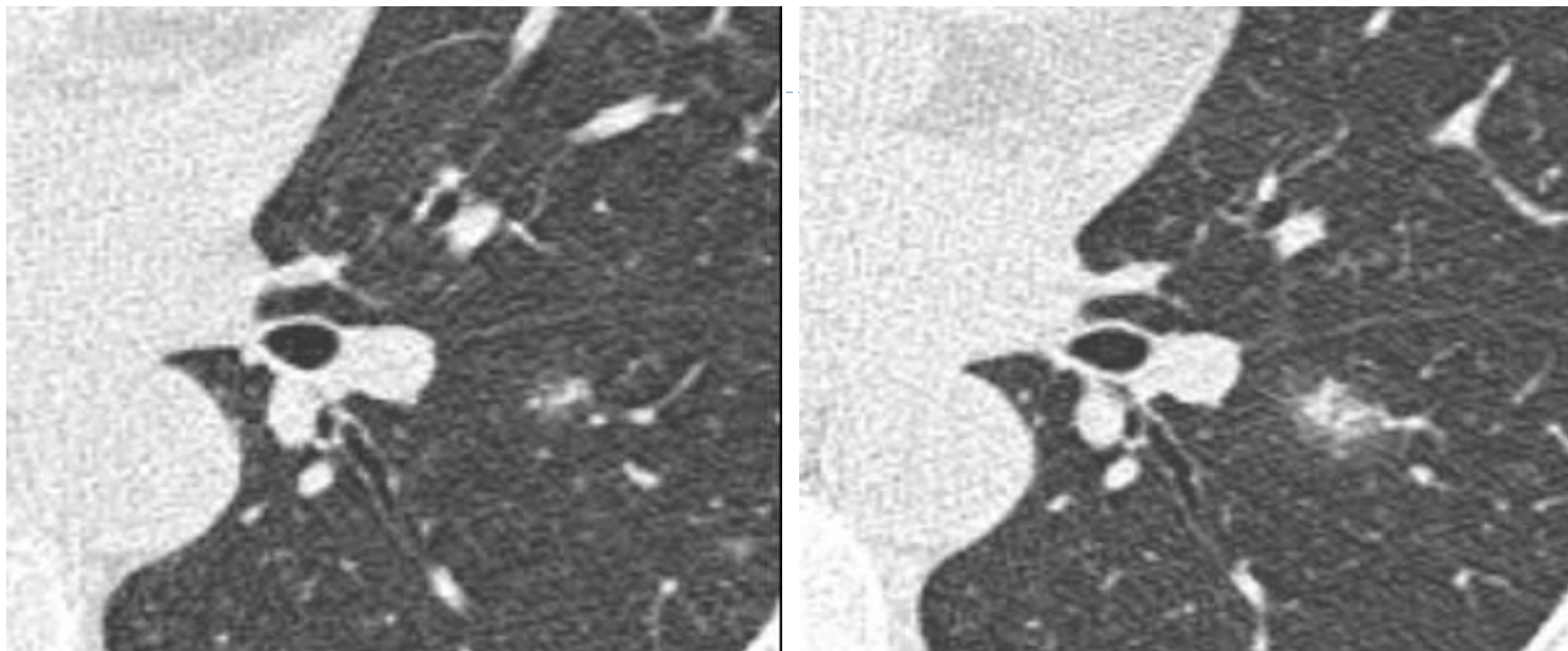
不典型增生



右中叶不规则结节



随访6个月。
原位癌，分期：IA期

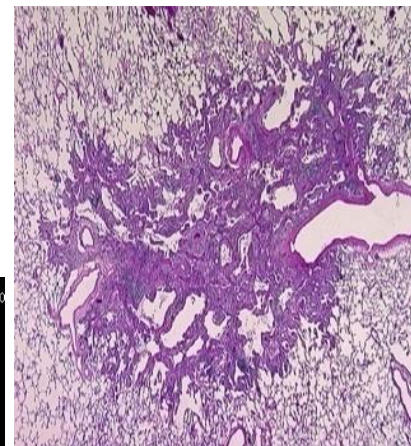


随访3个月增大，高分化腺癌

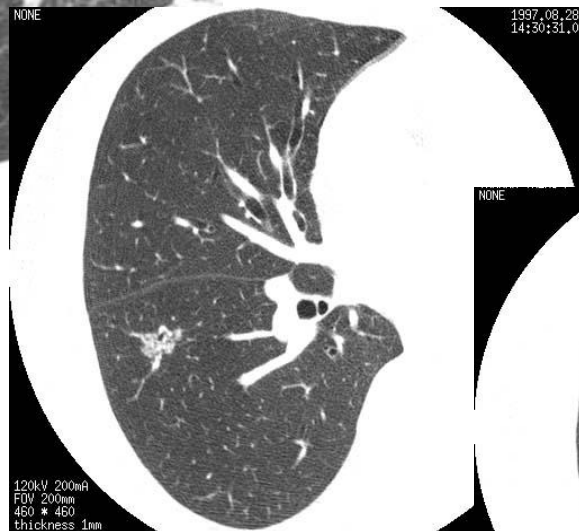


中分化腺癌

12个月 16×9 mm



15个月 16×9 mm

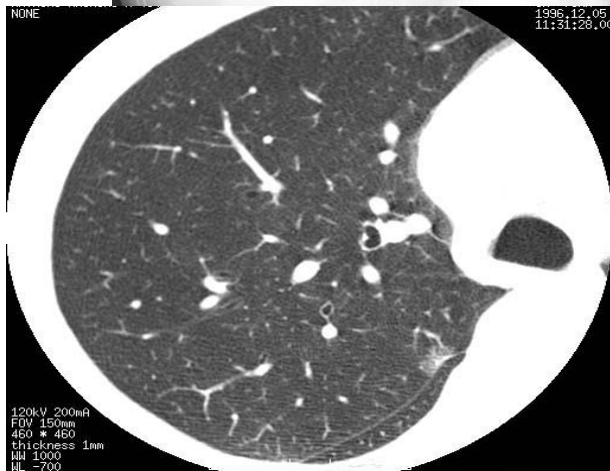


23个月 20×12 mm

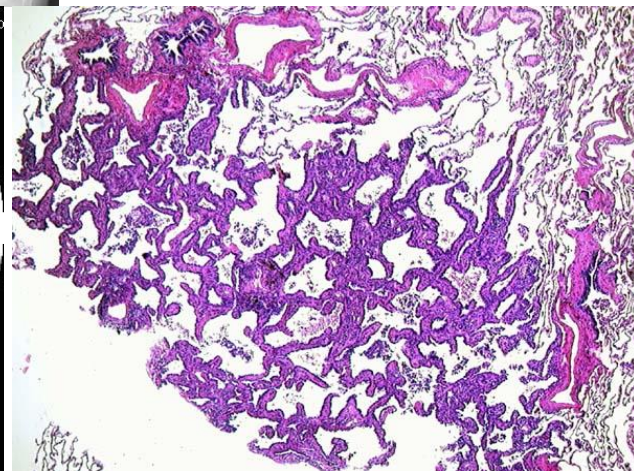




胸片（一）



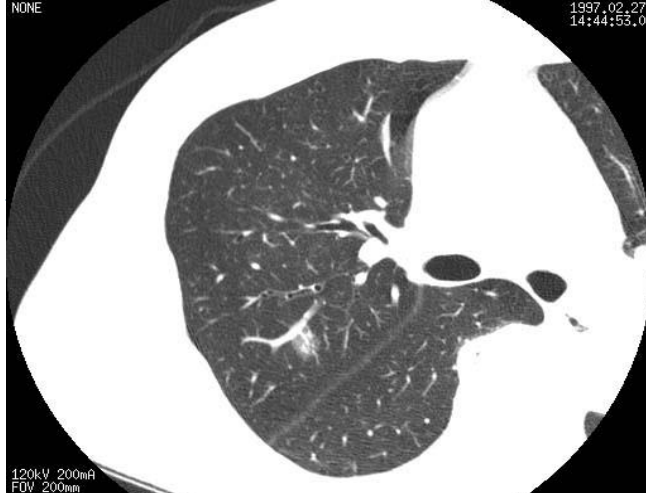
1个月 CT随访（同前）



原位癌



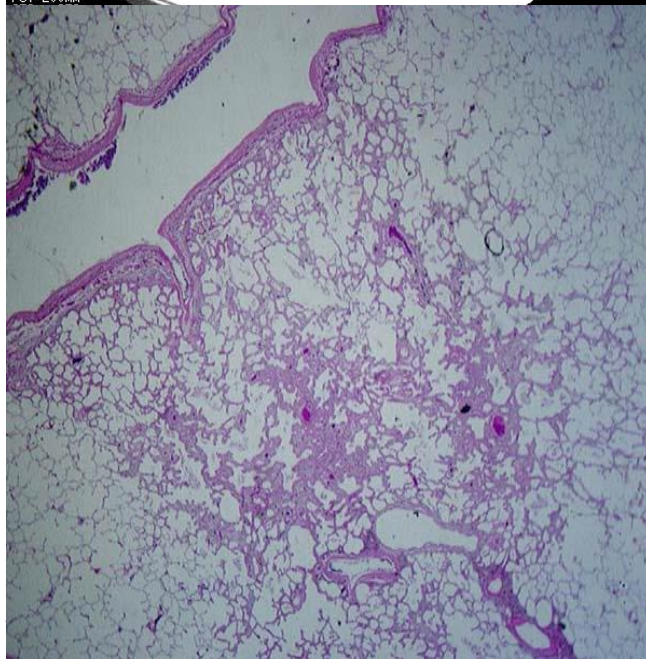
右上叶不规则结节



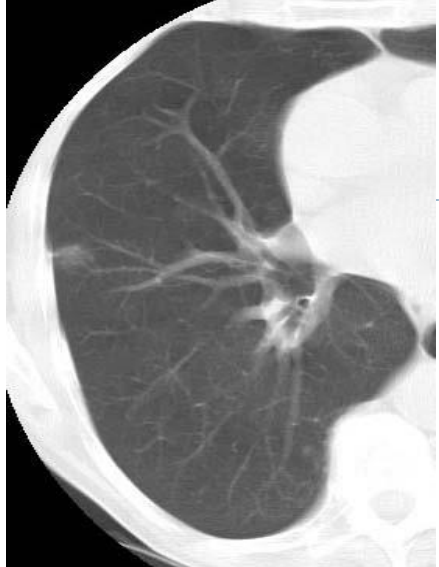
3个月 CT随访



胸片（一）



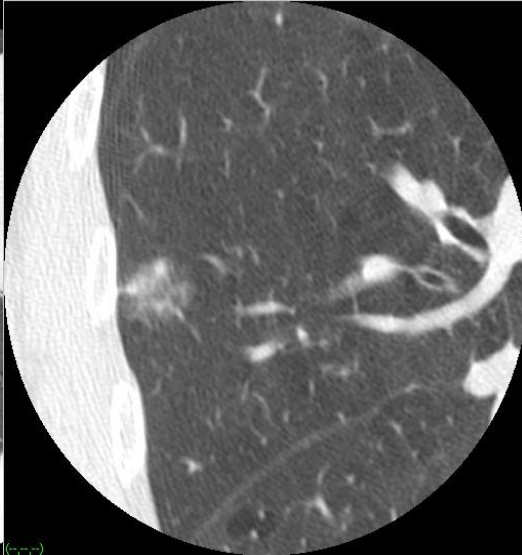
腺癌：1A期



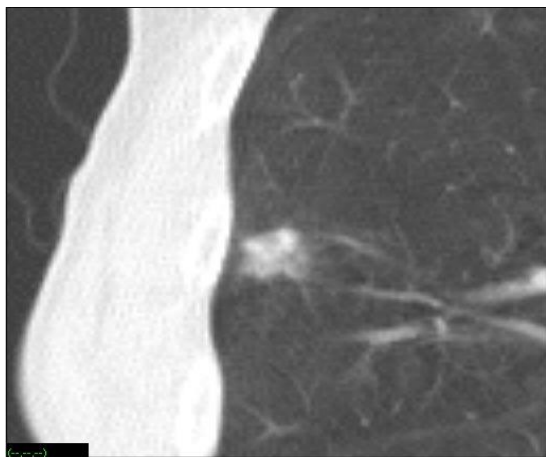
右中叶结节



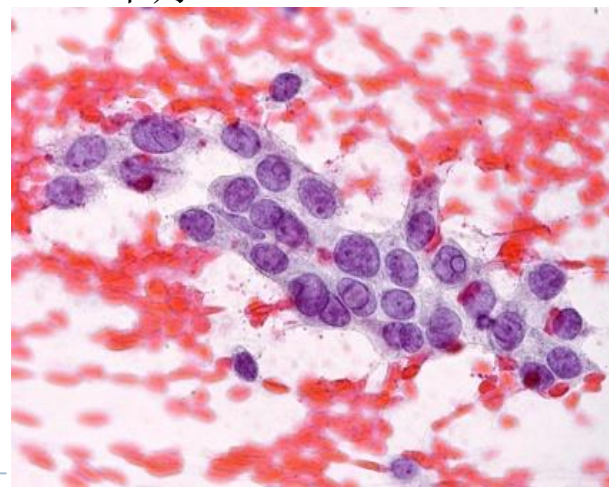
3个月



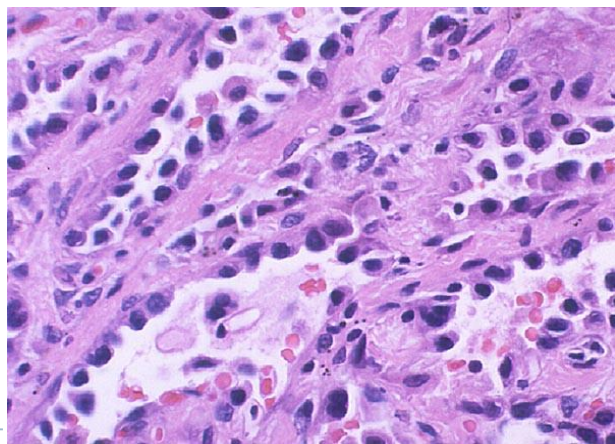
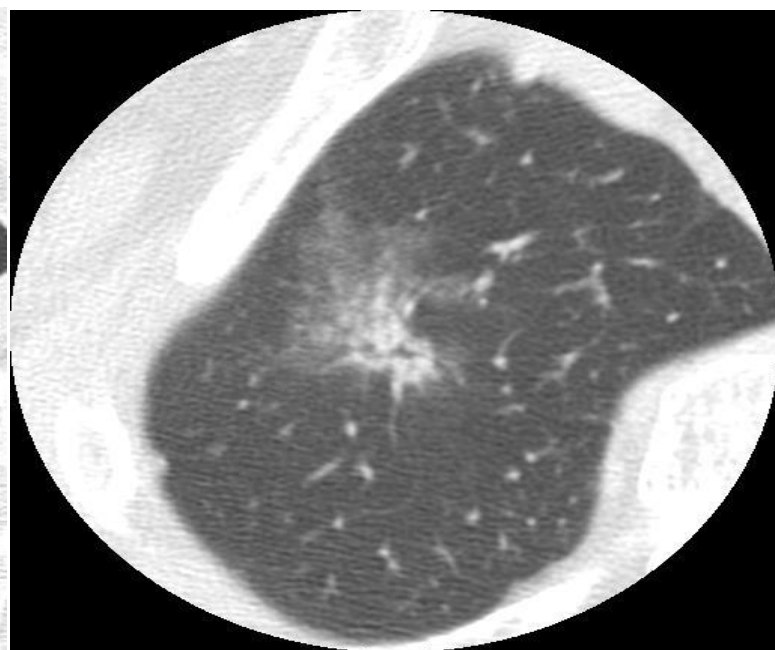
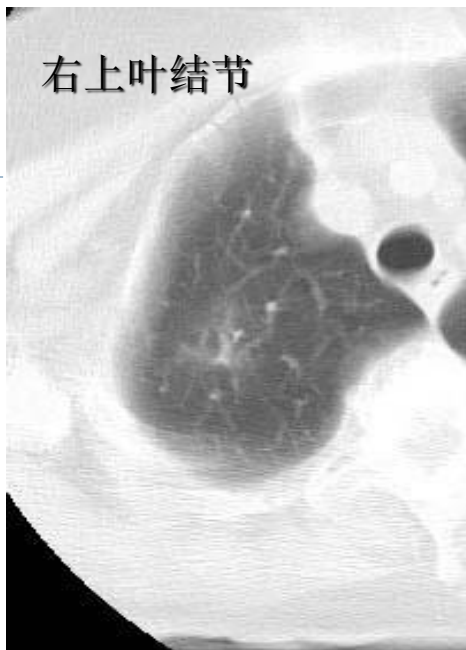
16个月



5年后轻度增大

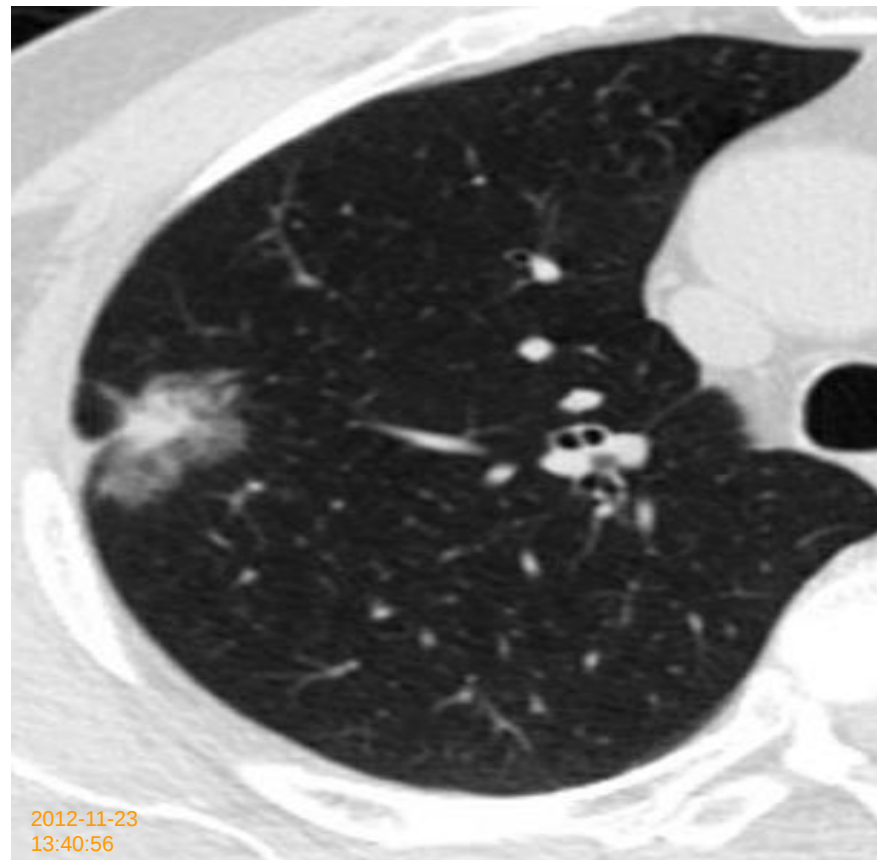


腺癌



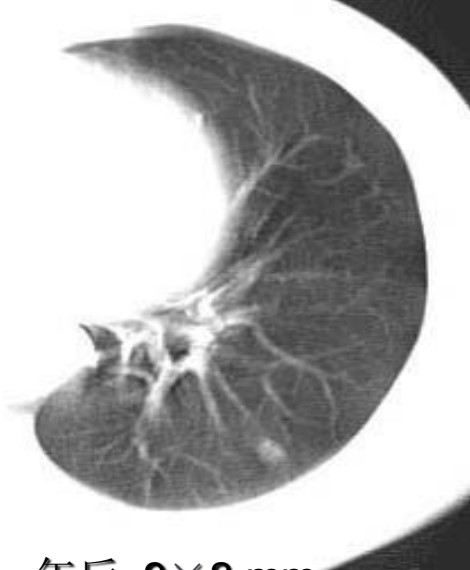
腺癌

GGO成分及实性成分均增多

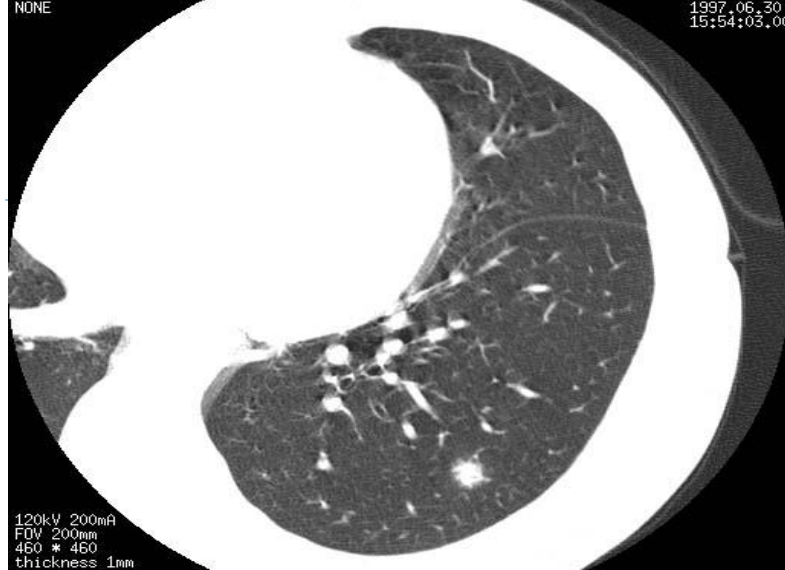




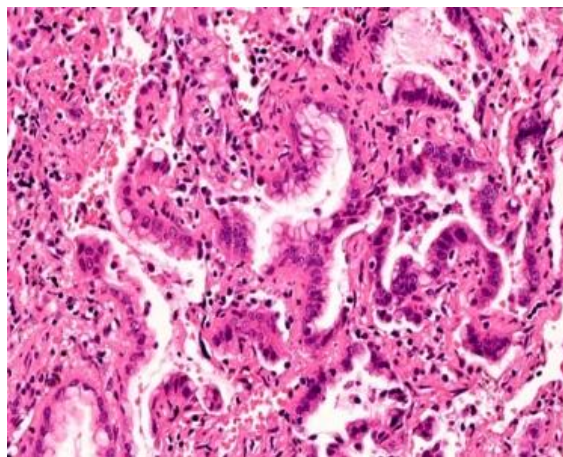
左下叶结节



一年后 9×8 mm



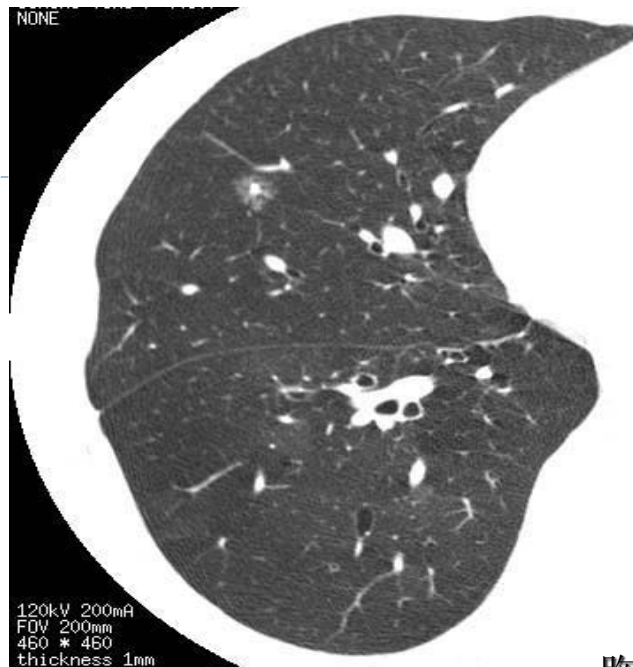
14个月后 9×8 mm



高分化腺癌



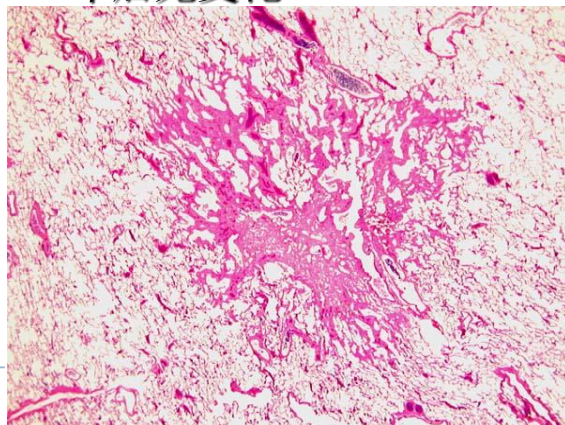
右中叶结节



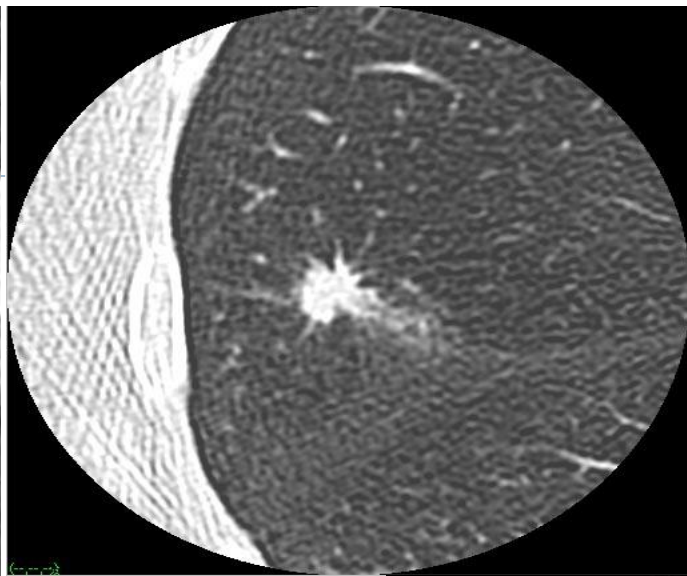
一年后无变化



胸片 (-)



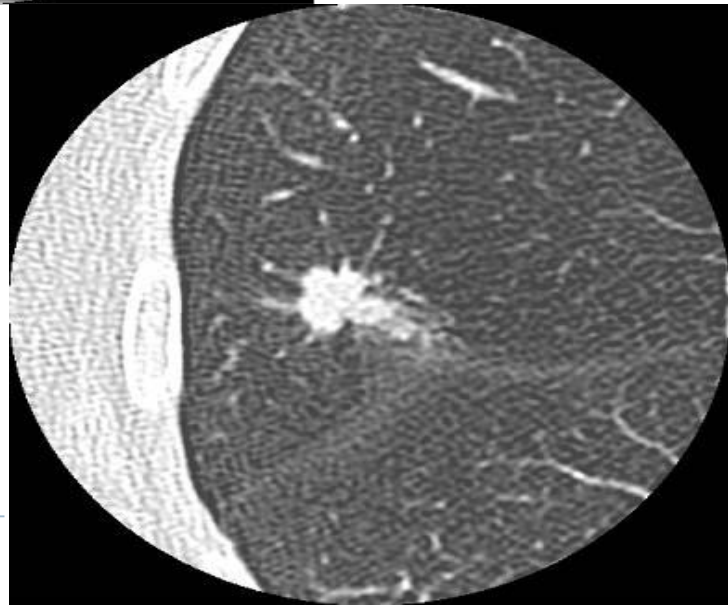
高分化腺癌



1个月 10.1×9.6 mm

5个月，腺癌侵犯胸膜

3个月



Thank you for your presence!

