

Pulmonary nodules as incidental findings

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1 Pulmonary nodules are common incidental findings on imaging

About 30% of all chest computed tomography (CT) scans contain one or more pulmonary nodules.¹ Larger nodules can also be seen on chest radiographs.²

2 Most pulmonary nodules are benign

The most common cause of a pulmonary nodule is a previous infection. Other benign entities include active infection and hamartomas.² Malignant disease (both primary and metastatic) is less common, although it is the possibility of malignant disease that drives the need for follow-up. Even in smokers — those at highest risk for lung cancer — nodules are usually benign; in the National Lung Screening Trial, 96% of all nodules (and 93% of nodules \geq 6 mm) were benign.³

3 Patient and nodule risk factors are important for determining the next step

The recently updated Fleischner Society guideline for management of incidental pulmonary nodules recommends assessing patient risk factors, such as smoking history, exposures and family history, as well as nodule risk factors, such as size, density, multiplicity, morphology and growth.⁴

4 Not all nodules require routine follow-up

Nodules smaller than 6 mm do not need to be routinely followed up, given that such nodules have been determined to be very low risk. In those nodules that require follow-up, chest CT is usually recommended between 3 and 12 months.⁴ In patients who meet guideline criteria for lung cancer screening, recommendations for follow-up are typically based on the Lung CT Screening Reporting and Data system (Lung-RADS), which is tailored to, and validated in, screening populations (www.acr.org/Clinical-Resources/Reporting-and-Data-Systems/Lung-Rads).

5 Chest CT is useful for following pulmonary nodules⁴

Chest CT can detect a 1–2 mm change in pulmonary nodule size and can be performed with a noncontrast, low-radiation exposure technique.² Positron emission tomography/CT is sometimes used to evaluate larger, higher-risk pulmonary nodules.⁵

References

1. Gould MK, Tang T, Liu IL, et al. Recent trends in the identification of incidental pulmonary nodules. *Am J Respir Crit Care Med* 2015; 192:1208-14.
2. Sim YT, Poon FW. Imaging of solitary pulmonary nodule: a clinical review. *Quant Imaging Med Surg* 2013;3:316-26.
3. Aberle DR, Adams AM, Berg CD, et al.; National Lung Screening Trial Research Team. Reduced lung-cancer mortality with low-dose computed tomographic screening. *N Engl J Med* 2011;365: 395-409.
4. MacMahon H, Naidich DP, Goo JM, et al. Guidelines for management of incidental pulmonary nodules detected on CT images: from the Fleischner Society 2017. *Radiology* 2017;284:228-43.
5. Mosmann MP, Borba MA, de Macedo FP, et al. Solitary pulmonary nodule and (18)F-FDG PET/CT. Part 2: accuracy, cost-effectiveness and current recommendations. *Radiol Bras* 2016; 49:104-11.

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