Authors have nothing to disclose with regard to commercial support.

WHEN AND HOW SHOULD SURGEONS TREAT SUBSOLID NODULE?

To the Editor:

We have read the article by Jin and colleagues¹ about the development of a nomogram to predict the risk of invasive pulmonary adenocarcinoma for patients with a solitary peripheral subsolid nodule.

The nomogram could help clinicians in the management of pure or partial ground-glass opacity, because these entities should be treated by adopting different surgical strategies depending on the presence of an invasive component. The nomogram was constructed to incorporate 6 significant variables and generated a classification accuracy for the prediction of invasive pulmonary adenocarcinoma at different risk cutoff points for the model.

Surprisingly, the factor “solid proportion” showed the smallest effect on the probability of invasive pulmonary adenocarcinoma, despite many articles showing how mixed ground-glass opacity is affected by a worse prognosis.²

We appreciate the article because there is a need for this kind of nomogram in clinical practice, considering that the diagnosis of invasive or noninvasive carcinoma cannot be made intraoperatively and surgical management often is chosen without a definite diagnosis.

However, we have some concerns, especially about putting the nomogram into practice. In fact, it provides the prediction of a probability that according to the authors¹ should be used by surgeons on the basis of individual interpretation.

One of the most demanding issues in solitary subsolid nodule management is to obtain a clinical diagnosis (malignant vs benign nodule) because it is rarely available preoperatively, and it is demanding even at frozen section. Therefore, subanatomic resection often is preferred to wider resection because malignancy cannot be proven preoperatively or intraoperatively.

The Editor welcomes submissions for possible publication in the Letters to the Editor section that consist of commentary on an article published in the Journal or other relevant issues. Authors should: • Include no more than 500 words of text, three authors, and five references. • Type with double-spacing. • See <http://jtcvs.ctsnetjournals.org/misc/fora.shtml> for detailed submission instructions. • Submit the letter electronically via jtcvs.editorialmanager.com. Letters commenting on an article published in the JTCVS will be considered if they are received within 6 weeks of the time the article was published. Authors of the article being commented on will be given an opportunity to offer a timely response (2 weeks) to the letter. Authors of letters will be notified that the letter has been received. Unpublished letters cannot be returned.

Moreover, guidelines usually recommend to observe and repeat the computed tomography scan (based on solitary subsolid nodule size)³ before surgery, because an increase in mean diameter is a main prognostic factor for malignancy.

The nomogram of Jin and colleagues¹ considers tumor size but not its increase in time. This could be convenient because it reduces the waiting time between the computed tomography findings and the potential surgery. However, especially in pure ground-glass opacity without a clinical diagnosis, an increase in mean diameter should be taken into account to avoid false-positive nodule resection.

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<http://dx.doi.org/10.1016/j.jtcvs.2017.02.029>

GROUND-GLASS OPACITIES: A CURABLE DISEASE BUT A BIG CHALLENGE FOR SURGEONS

Reply to the Editor:

Ground-glass opacity (GGO) nodules are radiologic findings with focal areas of slightly increased computed tomographic attenuation through which the normal lung parenchyma structures are visually preserved. GGOs are potentially malignant, but at the same time it is important to keep in mind that “GGO” is a rather unspecific radiologic feature seen in a number of clinical conditions involving different pathologic processes. In the case of malignancy, GGOs are adenocarcinomas or its precursors, ranging from preinvasive lesions to minimally invasive and invasive carcinoma. Despite favorable prognosis after surgery, their diagnosis and treatment are challenging issues for thoracic surgeons.¹ First, radiologic

Authors have nothing to disclose with regard to commercial support.

features do not distinguish benign from malignant GGOs, nor do they indicate their invasiveness. Unfortunately, transthoracic needle biopsy is affected by unsatisfactory negative predictive value, as shown by Lu and colleagues.² They reported an overall diagnostic accuracy of 91%, with a positive predictive value of 97% but a negative predictive value of 75%, and above all they showed that stromal invasion was underestimated. Furthermore, some studies have shown that the use of positron emission tomography or computed tomography to discriminate between benign and malignant GGOs is inappropriate, especially in the case of pure GGOs.³⁻⁵ This means that clinical diagnosis and tumor invasiveness are often not available, and surgical diagnosis is necessary.

Second, GGOs are difficult to detect at parenchymal palpation, especially during video-assisted thoracoscopy surgery, even if in the subpleural area (Figure 1). Effective marking techniques must therefore be adopted, and in the case of centrally located lesions, a diagnostic lobectomy may be required.⁶ Moreover, stromal invasion cannot be excluded by pathologists by intraoperative frozen section.⁷ This means that surgical diagnosis is also sometimes very demanding.

Third, once an intraoperative diagnosis of adenocarcinoma has been made, surgeons have to decide which curative resection is to be performed. In fact, because of GGOs' favorable behavior, some have surgeons consider the evaluation of sublobar resections in patients not at high risk.⁸ This means that surgeons must decide intraoperatively among lobectomy, segmentectomy, or wedge resection,

with or without lymphadenectomy, even if invasiveness is unclear. To face these issues, in cases of GGO findings, we adopt a follow-up that is based on computed tomographic surveillance according to National Comprehensive Cancer Network guidelines criteria.⁹ In response to nodal increase in size or consolidation suspicious for malignancy, we opt immediately for video-assisted thoracoscopic wedge resection with intraoperative frozen sections.¹⁰ For malignant disease, we suggest anatomic resection and nodal dissection. Final recommendations with regard to these topics are needed but must await the results of ongoing randomized trials in the United States and Japan.

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FIGURE 1. Right lung single ground-glass opacity not recognizable at parenchymal palpation.

<http://dx.doi.org/10.1016/j.jtcvs.2017.03.080>