Letters to the Editor

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Preoperative localization techniques during thoracoscopic operations

To the Editor:

In response to the article by Saito and colleagues,[1] "Indication for Preoperative Localization of Small Peripheral Pulmonary Nodules in Thoracoscopic Surgery," we would like to express our opinion about indications for preoperative localization techniques during thoracoscopic operations. First, we congratulate our colleagues on the results obtained in their study. The localization of small pulmonary nodules still remains an unsolved problem and an open question in thoracoscopic surgery.

We know that localization techniques are necessary for small nonperipheral pulmonary nodules, and in 1999 nodules with smaller dimensions and greater depths from the pleural surface were established as least susceptible to accurate evaluation by computed tomographic scan and thus most likely to require other localization techniques to avoid conversion from thoracoscopy to thoracotomy.[2] We believe, however, that preoperative localization techniques have some negative aspects. First, the use of a needle wire can provoke pneumothorax and lung hemorrhages or parenchymal damage in a high number of patients.[3] We are sure that in most cases these complications are without symptoms, but they can influence the operation and the compliance of a patient. Second, according to the international literature,[3] the needle wire and other preoperative techniques, such as vital dye or radio-guided imaging, do not have optimal sensitivity. In light of these negative aspects, we prefer intraoperative localization techniques, such as intrathoracoscopic ultrasonography.[4-5]

For us, ultrasonography is the most effective method to localize pulmonary nodules without side effects. It is useful not only for the localization of the nodules, providing 100% localization in our small but we think meaningful record of cases (13 cases) and in another case series (18 cases),[4] but also for the study of near structures surrounding the nodule, such as vessels, bronchi, and lymph nodes. It may also, because of different ultrasound patterns, provide some marginal information about the histologic character of a nodule. In experienced hands the technique is low risk and does not involve an excessive loss of time (12 minutes in our case series). The second positive aspect of ultrasonography is the possibility of an intraoperative scan of lung to detect nodules not visible on thoracic computed tomography. In fact, we know that in some cases computed tomographic scan can mistake the real dimension of pulmonary nodule. With ultrasonography, it is not necessary to use mathematic formulas to determine which nodules must be localized because it is not necessary to preoperatively limit localization techniques to nodules of a predetermined dimension or depth.

Moreover, ultrasonography is applicable for patients with more than one nodule, whereas is difficult to position two or three needles. We also are concerned about the possibility that the needle wire during the pulmonary exclusion and the positioning of the patient may become dislodged. Finally, we think that intrathoracoscopic ultrasonography is better than the other intrathoracoscopic techniques, such as finger palpation and indirect palpation, because it provides objective data, whereas direct or indirect palpation provides only subjective data.

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Reply to the Editor:

We appreciate the opportunity to comment on the letter by Sortini and associates regarding our recent article on the indication for preoperative localization of small peripheral pulmonary nodules in thoracoscopic surgery.[1] We agree that intraoperative ultrasonography is noninvasive and effective in locating the solid target nodules.

We have some experience with intraoperative ultrasonographic examination with an ultrasound scanner (B&K Medical, Gentofte, Denmark) with a linear scan multifrequency probe (5-7.5 MHz), and we encountered the same limitations in patients as those faced by Sortini and colleagues.[2] Chief was difficulty in obtaining an image as long as any air remained in the lung, caused by an incomplete lung collapse. Visualizing pulmonary lesion by ultrasonography requires complete collapse of the lung, which is often impossible in patients with obstructive disease such as emphysema. Formless abnormalities may be particularly difficult to visualize. In our experience, intraoperative ultrasonography is effective in locating the multiple solid pulmonary nodules, such as multiple metastatic pulmonary tumors. On the other hand, small and deep nodules may be missed by ultrasonography. Especially soft nodules, such as localized bronchioloalveolar cell carcinoma (BAC), could be more difficult to separate from normal but collapsed lung because the image is soft, small, faint and of similar consistency to the surrounding normal lung parenchyma. BAC shows a replacement growth of atypical cells with mild thickening of the alveolar septa, sometimes without fibrotic foci.[3] BAC is not uncommon; it actually accounted for 45% (n = 32/71 patients) of the adenocarcinoma seen during our study. In such cases, preoperative localization can be more effective. The technical differences mentioned may explain in part the poor yield of ultrasonography in our hands in distinguishing BAC. It is generally accepted, however, that localization with intraoperative ultrasonography has several limitations.[4,5]

From a practical standpoint, we use a preoperative localization technique because at our institution most small pulmonary nodules that require localization are BAC. The procedure is safe and accurate, and we believe that the requirement for preoperative localization will remain as long as the application of thoracoscopic surgery increases. Thus discussion of the indications for preoperative localization is still important.

Again, we agree that intraoperative ultrasonography is effective in selected cases in our experience. We need to make the right choice of localizing method in each case for minimally invasive surgery.

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Negative aspects of preoperative delay in early stage non–small cell lung cancer

To the Editor:

We would like to express or opinion about the article of Quarterman and associates,[1] "Effect of Preoperative Delay on Prognosis for Patients With Early Stage Non–Small Cell Lung Cancer." We think that in this work there are some negative aspects. The first is based on the assumption that larger tumors are larger because they are more aggressive. So if you diagnose a solitary pulmonary nodule of 2 cm diameter and if the contention that "larger tumors might present as larger tumors because they are more aggressive and not simply because they are older"[1] is biologically true, is the nodule that you have diagnosed an older less aggressive nodule or an aggressive nodule in early phase? If the nodule diagnosed is an aggressive nodule in the early phase, is it acceptable to take a "watch and wait" approach, or, without any histologic findings from less invasive methods, is prompt surgery a better option? Until it can be ascertained that a nodule is nonaggressive without a histologic diagnosis, we prefer the surgical approach.

The second negative aspect in the work of Quarterman and associates[1] is the cutoff between diagnosis and delayed resection. We think that no surgeon should wait so long for perform a surgical operation in a patient with the diagnosis of solitary pulmonary nodule. In fact, isn't the correct cutoff 90 days, because the maximum delay between diagnosis and treatment is 10 or 15 days? We therefore consider it wrong to compare patients operated on within 90 days and at least 90 days after presentation. It would be more correct to compare patients operated on within 15 days and patients operated on at least 90 days after diagnosis. We think that the watch and wait approach is not the best choice. We prefer the surgical approach, because the survival after surgical resection improves dramatically for stage 1A; in fact, for primary lesions smaller than 3 cm with no nodal spread, the 5-year survival approaches 70% to 80%.[2] For us the surgical approach for solitary pulmonary nodules is the criterion standard even for patients with a history of malignancy,[3] for whom an immediate histologic diagnosis is still more important. We do apply the watch and wait approach,