A thinner peel to peel: Pleural thickness is prognostic in mesothelioma

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Central Message

For patients with MPM, tumor thickness measured by computed tomography imaging after neoadjuvant chemotherapy is associated with survival.

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Accurate clinical staging is essential for all solid-organ malignancies to facilitate evidence-based patient treatment decisions. Clinical staging must be monotonic and prognostic; with increasing stage, survival should decrease. However, establishing a T descriptor for TNM staging of malignant pleural mesothelioma (MPM) has been challenging. Unlike other solid-organ malignancies, which grow outward from an epicenter, MPM has a complex, nonuniform distribution.

Currently, the clinical T stage for MPM is based on an estimate of the tumor's relationship to surrounding structures.¹ A number of investigators have recognized the potential utility of a quantitative metric for evaluation of the T descriptor. Some reports have assessed manually measuring tumor thickness² on fine-cut computed tomography scans, whereas others have proposed using radiographic overall tumor volume.³ One study demonstrated that a quantitative clinical staging model using the volume from 3-dimensional reconstruction and maximal tumor thickness statistically outperformed the American Joint Committee on Cancer 7th edition clinical staging system with regards to its ability to prognosticate patients with MPM.³

In light of these limitations, the International Association for the Study of Lung Cancer and the International Mesothelioma Interest Group jointly proposed revisions to the T descriptors for the 8th Edition of the TNM classification system. In their studies, the authors quantified pleural thickness as the maximum level of tumor perpendicular to the chest wall or mediastinum on axial computed tomography images in the upper, middle, and lower hemithorax, and recognized this metric as prognostic.⁴ In this edition of the *Journal*, Hashimoto and colleagues⁵ queried the prognostic implications of tumor thickness in 104 patients with predominantly epithelial (94.2%) MPM who underwent neoadjuvant therapy and cytoreductive surgery at a single institution over approximately 10 years.

In their dataset, Hashimoto and colleagues⁵ demonstrated that maximal tumor diameter and the sum of tumor thickness at multiple levels were independently associated with over-

all survival. Importantly, they evaluated tumor thickness both before and after neoadjuvant therapy. Although tumor thickness *before* neoadjuvant therapy was not prognostic, tumor thickness *after* neoadjuvant chemotherapy was associated with overall survival. On the basis of this finding, the authors state that “neoadjuvant chemotherapy strongly influenced the outcome in patients undergoing multimodality therapy.” We interpret these findings somewhat differently and suggest that the “post sum” is a more of a surrogate for survival, and these measurements may identify patients whose tumor is responsive to the chosen regimen. Nonetheless, Hashimoto and colleagues⁵ should be commended for identifying a method to assess patients with a disease that is notoriously difficult to predict and measure.

In the future, tumor thickness, whether by 2-dimensional or 3-dimensional imaging, will likely be incorporated into the clinical staging of MPM and could be used to provide more objective inclusion criteria for enrollment in clinical trials and assessment of treatment response. In addition, documenting changes in tumor thickness before and after neoadjuvant chemotherapy may be a valuable measure of response to therapy.

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