Crossing the boundaries

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Central Message

Tumor infiltration of the adjacent lobe reveals the limitations of the current staging system. Biology of the tumor and its interaction with the host should be also taken into consideration.

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Tumor infiltration of the adjacent lobe (TIAL) is rare. As seen in the article from Liu and colleagues¹ published in this issue of the *Journal*, only 2.9% of tumors were smaller than 5 cm and invaded the adjacent lobe. This rate is similar to what previously reported in larger multicenter series.² Even though TIAL represents a serious staging and treatment challenge, it has not been taken into consideration as a T descriptor in the eighth edition of TNM classification proposed by the International Association for the Study of Lung Cancer.³ The article of Liu and colleagues¹ is an important addition to the existing literature, contributing to build a solid base of evidence to support the inclusion of TIAL as a T descriptor in future revisions of the TNM classification.

TNM staging is essential in our daily surgical practice. It is the common language spoken by the members of a multidisciplinary oncologic team. Nevertheless, TNM represents a simplification of the tumor biology and its complex interaction with the host. In this context, what is the real meaning of a tumor crossing the interlobar fissure and invading the adjacent lobe?

We know from this and previous studies that the prognosis of a tumor invading the adjacent lobe is more similar to T3 than to T2. Is our relentless effort to classify a certain aspect or behavior of tumors, however, only a reflection of our incomplete knowledge of their real biologic mechanisms?

There are other factors that need to be taken into consideration when analyzing the prognosis of patients with TIAL. The development of the interlobar fissure may play an important role. If the fissure is well developed, infiltration of an adjacent lobe can only occur after breaching the integrity of the visceral pleura of the lobe bearing the tumor and of the adjacent lobe. This condition resembles the infiltration of the parietal pleura and chest wall in typical T3 tumors, which need to cross the visceral pleura and the pleural space to reach the chest wall.

On the other hand, when the fissure is incomplete, the interlobar plane is indeterminate because no visceral pleura separates the two lobes. This favors the diffusion of the tumor through the lung parenchyma and lymphatics of both

lobes. Previous evidence has shown that the presence of an incomplete fissure is a negative prognostic factor in stage I adenocarcinoma.⁴

Finally, a tumor infiltrating the adjacent lobe is generally treated with larger resections involving 2 lobes (bilobectomy) or the entire lung (pneumonectomy). The negative effect of pneumonectomy on survival is well known and can itself contribute to the lower survival rate of these patients.² In this study,¹ this factor was appropriately accounted for in the propensity score matching.

Liu and colleagues¹ from Mayo Clinic are to be congratulated for a timely study. It prompts us to reflect on this and other aspects of cancer staging, which are critical for selecting the most appropriate cancer management for our patients.

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