Editorial

Non-small cell lung cancer transgressing an adjacent fissure: does one T category fit all?

Paul E. Van Schil

Department of Thoracic and Vascular Surgery, Antwerp University Hospital and Antwerp University, Antwerpen, Belgium

Correspondence to: Paul E. Van Schil, MD, PhD. Department of Thoracic and Vascular Surgery, Antwerp University Hospital and Antwerp University, Wilrijkstraat 10, B-2650 Edegem (Antwerp), Belgium. Email: paul.van.schil@uza.be.

Comment on: Liu M, Wigle D, Wampfler JA, *et al.* T category of non-small cell lung cancer invading the fissure to the adjacent lobe. J Thorac Cardiovasc Surg 2017;154:1777-83.

Submitted Aug 11, 2018. Accepted for publication Aug 22, 2018.
doi: 10.21037/jtd.2018.08.106
View this article at: http://dx.doi.org/10.21037/jtd.2018.08.106

Precise classification of non-small cell lung cancer (NSCLC) invading, transgressing or extending into an adjacent lobe has not been clearly established and no specific recommendations are given in the 8th TNM classification. This clinically relevant topic was addressed in a retrospective study by Liu and coworkers (1). They collected 53 patients with NSCLC invading the adjacent lobe who were operated on between 1997 and 2014 in the Mayo Clinic, Rochester, MN, USA. By propensity score matching they were able to create 3 matched sets: the so-called fissure group which was compared to T2a, T2b, and T3 disease. Five-year survival rates for T2a, T2b, T3 disease, and fissure group were 64.2%, 54.6%, 35.8%, and 38.6%, respectively. By multivariate analysis the authors found that the fissure group had the same risk of dying as the T3 subset. For this reason, these clinical researchers propose to classify NSCLC invading an adjacent lobe as T3 disease.

The classification of lung cancers invading the fissure and extending into a nearby lobe, remains a difficult issue. Due to a lack of sufficiently valid data dealing with this particular characteristic, no specific T category is assigned in the current TNM classification in contrast to the previous one. This is also addressed in an accompanying editorial to the paper of Liu and colleagues (2). Their well-performed but retrospective study provides some additional and detailed data regarding this subcategory. They propose to further investigate this specific topic and to add fissure invasion for tumors until 5 cm to the T3 descriptors due to the negative impact on patients' prognosis (1). However, it should be mentioned that there were a lot of exclusion criteria in their study: tumors >5 cm were not included, only surgically treated tumors were considered that were located in the periphery of the lung and were invading an adjacent lobe. Also, N2 disease was excluded, as well as those patients dying within 30 days after surgery or those with a follow-up less than 30 days.

To reduce bias a carefully designed propensity score matched analysis was performed, clearly augmenting the scientific value of this paper. Unfortunately, the incidence of locoregional recurrences and causes of mortality could not be studied; so, the question remains what is the precise reason for a poorer prognosis in this subset of patients?

When considering tumors transgressing the fissure to an adjacent lobe several specific issues should be considered as in fact, these tumors do not represent a single entity but are a quite heterogenous group. In case of a complete fissure between adjacent lobes, it is clear that the visceral pleura is breached twice representing a more aggressive behavior providing a valid reason to assign these tumors to a higher T category. In contrast, when the fissure is incomplete or totally absent, extension into an adjacent lobe occurs more easily without invading any boundaries, and the question arises whether these tumors have a similar prognosis as the first category? Also, a clear difference exists between right- and left-sided tumors with only 2 lobes being present on the left side, and the lingula being the equivalent of the middle lobe on the right side. As the fissure is often absent between the pars superior of the upper lobe and the lingula, are tumors invading the complete upper lobe not equivalent to

tumors crossing the minor fissure between the right upper and middle lobes? Regarding size, is there a difference between T3 tumors of the right upper lobe larger than 5.0 cm not invading the minor fissure with the middle lobe, and those that do cross the fissure? Should the latter be considered equivalent to T4 disease?

Equally, the incidence of lymph node involvement and the extent of resection which are important prognostic factors, should be taken into consideration. Do tumors extending to an adjacent lobe have a more aggressive behavior resulting in a higher incidence of N1 and N2 involvement? What is the influence of an individual thoracic surgeon's decision to perform a pneumonectomy? Considering that in comparison with a lobectomy or bilobectomy, a pneumonectomy entails a significantly higher mortality and morbidity due to a higher rate of arrhythmias, empyema and bronchopleural fistula, this procedure may have a profound impact on patients' prognosis (3). As already mentioned, on the left side there are only 2 lobes and the decision to proceed with pneumonectomy will most probably more easily be made on the left than on the right side. When a right upper lobe tumor crosses the minor fissure, most surgeons will proceed with a bilobectomy. However, when a posteriorly located tumor in the right upper lobe crosses the posterior part of the major fissure, does a lobectomy of the right upper lobe with anatomical segmentectomy of the apical segment of the lower lobe yields similar results as lobectomy with wedge resection, or does a pneumonectomy provides a more complete eradication of locoregional tumor involvement?

In conclusion, the paper by Liu provides some more insight in NSCLC crossing an adjacent fissure but on the other hand, it raises more questions than it is able to answer. Many different entities exist and a multitude of questions remain unanswered. Only carefully analysed, prospective data will be able to assign the right category to these still enigmatic tumors. Hopefully, the prospective database constructed for the 9th TNM classification will include a sufficient number of patients in this category to be able to accomplish this task, and every thoracic center worldwide is encouraged to submit as many data as possible (4).

Cite this article as: Van Schil PE. Non-small cell lung cancer transgressing an adjacent fissure: does one T category fit all? J Thorac Dis 2018;10(Suppl 26):S3290-S3291. doi: 10.21037/jtd.2018.08.106

Acknowledgements

None.

Footnote

Conflicts of Interest: The author has no conflicts of interest to declare.

References

1. Liu M, Wigle D, Wampfler JA, et al. T category of non-small cell lung cancer invading the fissure to the adjacent lobe. J Thorac Cardiovasc Surg 2017;154:1777-83.
2. Brunelli A. Crossing the boundaries. J Thorac Cardiovasc Surg 2017;154:1784.
3. Van Schil PE, Hendriks JM, Lauwers P. Focus on treatment complications and optimal management surgery. Transl Lung Cancer Res 2014;3:181-6.
4. Giroux DJ, Van Schil P, Asamura H, et al. The IASLC lung cancer staging project: a renewed call to participation. J Thorac Oncol 2018;13:801-9.

