Editorial Commentary

Different segments different survival for T1N0 non-small cell lung cancer: should we change our paradigm in patients with superior segment tumors?

Fabrizio Minervini[1]^, Marco Scarci[2]^

[1]Department of Thoracic Surgery, Cantonal Hospital Lucerne, Lucerne, Switzerland; [2]Department of Thoracic Surgery, San Gerardo Hospital, Monza, Italy

Correspondence to: Fabrizio Minervini. Department of Thoracic Surgery, Cantonal Hospital Lucerne, Lucerne, Switzerland.
Email: fabrizio minervini@hotmail.com.

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The optimal management of early stage lung cancer is still a matter of discussion among thoracic surgeons. Many studies have already compared disease free survival (DFS) and overall survival (OS) between lobectomy and segmentectomy (1-3). Nowadays, the general consensus is that anatomical sublobar resections are considered equivalent to lobectomy for patients with tumors <2 cm even if the lung function is not impaired (4-6). The parenchyma sparing resulting from a segmentectomy could preserve vital lung in case of a further resection in the context of the emerging trend of multifocal adenocarcinomas.

Furthermore, the optimal lymph node resection for early stage non-small cell lung cancers (NSCLC) remained controversial for many years with several trials showing that patients with lobe specific lymph node dissection had lower perioperative morbidities with similar survival when compared with the patients who underwent systematic nodal resection (7,8). The rationale of performing a radical mediastinal node dissection results from observation that basal segment tumors have an increased incidence of positive infracarinal nodes, whereas superior segment tumors often metastasize directly to the upper mediastinum (9).

We read with acute interest the retrospective study of Dr. Jones and colleagues from Memorial Sloan Kettering Cancer Center published in the *Annals of Thoracic Surgery*.

The authors included 416 patients who underwent intentional segmentectomy for T1N0M0 NSCLC and assessed whether OS and DSF are related to the resected segment.

Even if the 5 years OS was 73.1% (95% CI, 67.9–78.7%) in the entire population (comparable with data from the literature reporting a 5 years OS between 58 and 93%), the authors found that a superior segmentectomy on the right side is associated with worse OS, DFS and aggressive tumor biology. The same conclusions were drawn by Handa and his colleagues from Japan who reported in a retrospective analysis that segment 6 tumors have a poor OS (hazard ratio 3.33, 95% CI, 1.22 to 13.5, P=0.010), DFS (hazard ratio 2.90, 95% CI, 1.20 to 7.00, P=0.008) with more pathological lymph nodes than basal segment group (15% versus 5.4%, P=0.080) (10). A recent article compared outcomes after superior segmentectomy versus lower lobectomy reporting similar 5-year overall, disease free and locoregional-recurrence-free survival rates. Even if the laterality was not analyzed, Dolan observed similar

^ ORCID: Fabrizio Minervini, 0000-0003-3595-7307; Marco Scarci, 0000-0002-4459-7721.

5 years OS (56.9%) and DFS (67%) (11) after a superior segmentectomy.

Besides some limitations of the study (retrospective, single center study), Jones and his group highlight an important but still unanswered topic: should we approach T1N0M0 superior segment tumor in a different manner?

Maybe we have to be more aggressive with this cohort of patients performing an intentional lobectomy (if the lung function allows it) with a radical mediastinal lymphadenectomy given that superior segment tumors often metastasize in the upper mediastinum?

The influence of a segmentectomy on the patient prognosis is still debated and, in the light of the data indicating different survival depending on the resected segment, the tumor location should be taken in account as risk factor.

Further studies, preferably randomized controlled trials, are needed to clarify the therapeutic surgical strategies in patients with superior segment early stage NSCLC.

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