



Thymic tumours with pleural involvement: does surgery play a role in this orphan disease?

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Moser *et al.* conducted a multicentre retrospective analysis to assess the role of surgical therapy for thymic epithelial tumours (TETs) with pleural involvement (1). The study included 152 patients. The authors found that complete resection was an important cornerstone in treatment of TETs with pleural involvement. However, there was no control group with non-surgical treatment concepts. According to the current analysis, there were no significant differences regarding overall survival (OS), cause-specific (CSS) and disease-free survival (DFS) as well as freedom from recurrence (FFR) between the three surgical approaches compared in this study which comprised extrapleural pneumonectomy (EPP), total pleurectomy (TP) and local pleurectomy (LP).

One major concern about the study is the heterogeneity of study group. A total of 152 were included in the analysis from 12 different centres between 1977 and 2014. That means on average 4 patients/year and 12 patients/institution as well as 0.35 patient/year/institution. This fact demonstrates that TET with pleural involvement is definitely an orphan disease.

In 45 patients, surgery was performed for recurrent disease after prior surgical resection. Whereas, pleural involvement was present at primary diagnosis in 107 cases. These are two different oncological situations and might therefore be a potential bias in the analysis. Moreover, only two patients were included in the analyses in the time period between 1977 and 1990. It would have been probably better to exclude these patients from the analysis to minimize potential bias. Both surgical approaches as well as radio-/chemotherapies have developed rapidly over

the past three decades. Therefore, patients from different time periods would lead to unreliable results, which do not reflect the status quo of treatment.

Another important concern is the definition of complete resection (R0) in case of usually diffuse pleural spread in the thoracic cavity and partial or (sub-) total resection of the pleura. It is really challenging and difficult for such a huge resection surface to accurately discriminate complete resection from pathological point of view. It would have been more interesting to compare macroscopic complete resection (R0/R1) with R2 resections.

Regarding the surgical approaches to achieve complete resection, EPP was shown to have no relevant effects on long-term DFS, OS, CCS and FFR. However, the log-rank analysis was obviously performed between the three groups EPP, TP and LP. Looking at the result in the supplementary data however, clearly shows a relevant advantage of TP and LP over EPP in 10-year OS (87.7% and 68% *vs.* 40.1%). Even if statistically not significant, this clearly demonstrates the already well-known data about EPP in other settings such as malignant pleural mesothelioma (2,3). It would have been more accurate to include TP and LP in one group versus EPP. However, there might be a potential selection bias in the three surgical procedures that might have resulted in the difference in outcomes. For instance, pleurectomy was selected for patients with more limited lesions, while EPP was preferred for more extensive diseases.

Moreover, it has been previously shown that extended thymectomy and lung-sparing radical pleurectomy is associated with a prolonged survival in patients with TET and pleural

spread (4). One more point, which has not been addressed in the current analysis, is the role of lymph node dissection. This is mostly important to obtain a precise tumour stage (IVa vs. IVb), which affects the prognosis and OS (5).

Taken together, Moser *et al.* gave a great effort in this current study to work out new relevant information in this orphan disease. After reading this very interesting article, we would absolutely recommend not to exclude patients with TET and pleural involvement from multimodal treatment concept including surgery. However, pleurectomy should be the approach of choice to minimize the surgical associated morbidity and mortality as well as to provide better long-term outcomes.

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