Editorial

Pleurectomy decortication is the preferred surgical procedure in pleural mesothelioma

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Pleural mesothelioma (PM) is a lethal, rare malignant tumor with a grim 5-year survival rate of 5–10% (1). The EMPHACIS trial published in 2004 demonstrated a survival benefit of 11 weeks for patients treated with a combination therapy of cisplatin and pemetrexed (2). In 2020, combination immunotherapy with nivolumab and ipilimumab showed superiority compared to chemotherapy as a first-line therapy, especially for non-epithelioid mesothelioma (3). Pure epithelioid histology is one of the well-known prognostic factors in PM, associated with improved survival (4,5). It is well accepted that the best long-term results for PM are achieved when several treatment modalities, mainly surgery, and chemotherapy, are combined (6,7). The National Comprehensive Cancer Network (NCCN), American Society of Clinical Oncology (ASCO), and European Society of Thoracic Surgeons (ESTS) guidelines support the use of cancer-directed surgery for epithelioid pleural mesothelioma tumors as the main therapeutic option that is often combined with chemotherapy (8-10). Identification of patients with PM that would benefit from multimodality treatments (MMT) protocol has been a major challenge. A small subset of patients in surgical series treated with combined surgery and chemotherapy characterized with epithelioid histology, early to intermediate-stage disease, and are otherwise well-nourished and healthy enjoy long-term survival. The international mesothelioma interest group (IMIG) and the NCCN have emphasized, the vital role of both surgical macroscopic complete resection (MCR) and systemic control of micrometastatic disease as essential components of PM MMT protocols (11). The role of MCR is surgical eradication of all grossly visible and palpable disease (12) and can be achieved by extended pleurectomy and decortication (EPD) or by extrapleural pneumonectomy (EPP). A shift in the surgical procedure in PM from EPP to EPD has occurred during the last two decades in many centers including our institution. The change is based on increasing evidence from retrospective studies that demonstrate lower short-term mortality and morbidity and better quality of life in lung-sparing operations as well as similar or better long-term survival (13-16). Achieving MCR in an EPD operation is long, tedious, and requires experience as well as scrupulous attention to details, but this seems to be rewarding with respect to outcomes. The authors of the paper entitled "*Multimodal therapy of epithelioid pleural mesothelioma: improved survival by changing the surgical treatment approach*" analyzed 20-year single center experience in PM surgery (17). They compared three different treatment approaches. The overall survival in the chemotherapy group (56 patients) was compared with MMTs-neoadjuvant chemo with EPP and postoperative radiation (69 patients) versus EPD with hyperthermic intrathoracic chemoperfusion (HITOC) and

adjuvant chemo (56 patients). The perioperative overall morbidity including the reoperation rate of the EPP group was significantly higher than the EPD cohort. The overall survival in the group who underwent EPD was 38.1 months, significantly prolonged survival compared to 24 months in patients treated with EPP. In the EPD group, patients were significantly older, with a median age of 67 [61–72] versus a median age of 59 [54–65] in the EPP group. The results show greater benefit, especially in the pleurectomy decortication-based multimodality group compared to chemotherapy alone. The authors in this manuscript demonstrated the feasibility of performing extended pleurectomy decortication and achieving a very high macroscopic complete resection rate (89%). There was no 30- and 90-day mortality, acceptable morbidity, and significantly better overall survival compared to EPP. Importantly, applying multivariate analysis, only the EPD group had a significant impact on overall survival. We recently published in the *Annals of Surgery* outcomes of 355 patients who underwent pleurectomy decortication for PM in a high-volume mesothelioma center (18). The overall survival of one hundred and eighty-four patients with epithelioid histology who underwent MCR was superior to a prior published article based on a large cohort of 529 patients with epithelioid mesothelioma who underwent EPP in our institution (19). Importantly the age range of 25% of the patients with epithelioid histology who underwent EPD was 74–85 years. The median survival in the EPD with epithelioid histology was longer than 2.5 years compared to 1.5 years in the EPP group. The median and 5-year survivals for patients with epithelioid histology and T1 disease were 69.8 months and 54.1% respectively. In conclusion, Klotz *et al.* suggest performing lung-sparing surgery as the preferred surgical method. The results are not surprising and strengthen accumulating data that report significantly reduced postoperative morbidity and mortality for patients following EPD versus EPP. Given the scarcity of properly planned clinical trials comparing chemotherapy to surgery based MMT, or EPD to EPP we support the authors' stance and stress the importance of EPD based MMT protocols for epithelioid mesothelioma treatment based on retrospective and prospective cohort studies. Also, we advocate the continuous improvement of patient selection strategies.

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