Pleurectomy and Decortication is Associated with Better Survival for Bicavitary Cytoreductive Surgery for Mesothelioma Compared to Extrapleural Pneumonectomy.

Objectives: Malignant mesothelioma of the chest or abdomen is a nearly-uniformly fatal tumor. Multimodality therapy including cytoreductive surgery and chemotherapy is associated with long-term survival in some patients. Cytoreductive surgery for thoracic disease includes a lung-sparing operation called an extended pleurectomy / decortication (ePD) or a lung-sacrificing surgery called an extrapleural pneumonectomy (EPP). Cytoreductive surgery for peritoneal mesothelioma removes all the peritoneal lining and tumor of the abdominopelvic cavity. However, the benefit of cytoreductive surgery for bicavitary disease (chest and abdomen) is poorly understood. Our objective was to evaluate the long-term survivals for patients undergoing cytoreductive surgery for bicavitary disease and to determine whether any prognostic factors were associated with outcome.

Methods: We performed a retrospective review of our institutional review board-approved database for the International Associated for the Study of Lung (IASLC) Cancer Mesothelioma Staging Project. Inclusion criteria were all patients who underwent cytoreductive surgery for both chest and abdominal mesothelioma. All data elements of the IASLC database including demographic data, treatment data, tumor measurements, and clinical and pathological staging data were evaluated by univariable analysis. Overall survival was calculated by Kaplan-Meier methodology from the date of the second operation until the date of death or last follow up.

Results: From February 2014 until August 2021, 440 patients with epithelioid mesothelioma were evaluated at our center. Fifteen patients (3%) underwent cytoreductive surgery of both the chest and abdomen as a planned two-stage operation. Most patients (14/15; 93%) underwent chest surgery prior to abdomen surgery. For the entire cohort, the median overall survival was 36.6 months with a five-year survival of 22%. On univariable analysis from the date of the second operation, undergoing an ePD was associated with a better outcome compared to EPP (HR 5.63 (1.11 – 28.46)). The median overall survival for patients undergoing ePD versus EPP was 58.2 versus 13.5 months, respectively (P = 0.063 / Figure 1).

Conclusions: For a highly selected group of patients with bicavitary mesothelioma, long-term survival can be achieved with an aggressive, staged surgical approach. The patients who undergo ePD with preservation of the lung appear to have more favorable outcomes compared to patients undergoing EPP. When considering bicavitary cytoreductive surgery for mesothelioma, we would recommend only performing ePD and avoiding EPP in this cohort of patients.

Figure 1: Overall Survival after cytoreductive surgery of both the chest and abdomen based on whether patients underwent an extended pleurectomy and decortication (ePD) versus an extrapleural pneumonectomy (EPP).

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Overall Survival from Second Staged Operation

Median OS:
- ePD: 68.2 months
- EPP: 13.6 months
(p=0.063)