Viewpoint

Asymptomatic malignant pleural effusion: to observe or to manage

Sevak Keshishyan, Kassem Harris

Division of Pulmonary, Critical Care, and Sleep Medicine, Interventional Pulmonology Section, Westchester Medical Center, Valhalla, NY, USA
Correspondence to: Kassem Harris, MD, FCCP. Westchester Medical Center, 100 Woods Road, Valhalla, NY 10595, USA. Email: Kassemharris@gmail.com.

Submitted Jun 07, 2017. Accepted for publication Jun 08, 2017.
doi: 10.21037/jtd.2017.06.52
View this article at: http://dx.doi.org/10.21037/jtd.2017.06.52

The malignant pleural effusion (MPE) incidence in the United States is estimated to be more than 150,000 cases annually (1). Most of the MPEs are symptomatic and commonly present with dyspnea, dry cough, dull chest pain and constitutional symptoms (2). While there is a fair amount of data about symptomatic MPEs, including epidemiology, clinical presentation and treatment options, the management of asymptomatic MPEs is mostly through observation (3,4).

Small studies showed that the prevalence of asymptomatic MPEs varies from 14% to 41% (5,6). Data regarding the size of asymptomatic MPE is not clear in the literature. After diagnostic thoracentesis, asymptomatic MPEs are managed mainly by observation, and other interventions are only performed if symptoms develop.

The life expectancy of patients with MPE is limited to an average of 3 to 12 months (7). The goal of managing MPE is to palliate symptoms using one of the available approaches such as repeated thoracentesis, chest tube thoracostomy with pleurodesis, indwelling pleural catheter placement with or without concomitant pleurodesis and in some cases surgical pleurodesis (3).

In the era of new cancer agents using mutations-targeted drugs and immunotherapy, many patients with metastatic disease are expected to have longer survival (8,9). Moreover, patients with non-lung cancer MPEs such as breast, colon, and lymphoma have a better outcome compared to those with MPEs of lung cancer etiology (3,10).

Long standing MPE's have been associated with trapped lung and loculation (11). MPE's affect lung volumes, decrease total lung capacity, and may cause restrictive lung physiology (12). The larger the MPE, the more the impact is on lung function. Typically, asymptomatic MPE's are managed with observation whether they are mild, moderate, or large.

It is not clearly known how many asymptomatic MPE's become symptomatic, and it's hard to predict which asymptomatic MPE will eventually become symptomatic. This probably depends on the size of the effusion, type of primary malignancy and the general medical condition of the patient. In one small group of patients with MPE investigated by Tremblay *et al*., only one patient out of fourteen (7.1%) developed symptoms over time (6). Others stated that all MPE's eventually become symptomatic at one point of their disease (13).

In patients with symptomatic MPE's caused by rapidly-responsive malignant disease, it is reasonable to observe these patients after starting systemic therapy. Many of these effusions will decrease or resolve with cancer therapy, and therapeutic thoracentesis can be performed as needed (3,14). Other clinical situations may justify treating asymptomatic MPE with drainage.

Herrtedt *et al*. compared 30 patients with small cell lung cancer (SCLC) with MPE with 30 patients with SCLC without MPE. They showed that in patients with MPE, initial chemotherapy led to a significant drop in blood cell and thrombocyte counts compared to patients without MPE, which necessitated a reduction in the chemotherapy dose. This finding suggests that some chemotherapeutic agents may accumulate in the pleural fluid and cause toxicity (15).

Whether asymptomatic MPEs should all be observed without any intervention warrants more investigation. Small MPEs will probably not benefit from intervention, but in

patients with moderate and large MPEs, the management should probably be personalized, and more studies are needed to investigate this hypothesis. Patients with asymptomatic moderate to large MPEs, which negatively impact lung function, may be more vulnerable to hypoxia or other respiratory symptoms if they subsequently develop new lung diseases such as pneumonia or contralateral pleural effusions. Therefore, patients with malignancies who are likely to have long-term survival should be considered for intervention to manage their asymptomatic moderate to large MPEs. Nevertheless, more investigational trials are warranted before making such recommendations.

Acknowledgements

None.

Footnote

Conflicts of Interest: The authors have no conflicts of interest to declare.

References

1. Antony VB, Loddenkemper R, Astoul P, et al. Management of malignant pleural effusions. Am J Respir Crit Care Med 2000;162:1987-2001.
2. Boshuizen RC, Vincent AD, van den Heuvel MM. Comparison of modified Borg scale and visual analog scale dyspnea scores in predicting re-intervention after drainage of malignant pleural effusion. Support Care Cancer 2013;21:3109-16.
3. Porcel JM, Lui MM, Lerner AD, et al. Comparing approaches to the management of malignant pleural effusions. Expert Rev Respir Med 2017;11:273-84.
4. Fortin M, Tremblay A. Pleural controversies: indwelling pleural catheter vs. pleurodesis for malignant pleural effusions. J Thorac Dis 2015;7:1052-7.
5. Smyrnios NA, Jederlinic PJ, Irtvin RS. Pleural effusion in an asymptomatic patient: spectrum and frequency of causes and management considerations. Chest 1990;97:192-6.
6. Tremblay A, Robbins S, Berthiaume L, et al. Natural history of asymptomatic pleural effusions in lung cancer patients. Journal of Bronchology 2007;14:98-100.
7. Roberts ME, Neville E, Berrisford RG, et al. Management of a malignant pleural effusion: British Thoracic Society pleural disease guideline 2010. Thorax 2010;65:ii32-40.
8. Dai Y, Morishita Y, Mase K, et al. Application of the p53 and K-ras gene mutation patterns for cytologic diagnosis of recurrent lung carcinomas. Cancer 2000;90:258-63.
9. Soh J, Toyooka S, Aoe K, et al. Usefulness of EGFR mutation screening in pleural fluid to predict the clinical outcome of gefitinib treated patients with lung cancer. Int J Cancer 2006;119:2353-8.
10. Thomas JM, Musani AI. Malignant pleural effusions: a review. Clin Chest Med 2013;34:459-71.
11. Khaleeq G, Musani AI. Emerging paradigms in the management of malignant pleural effusions. Respir Med 2008;102:939-48.
12. Mitrouska I, Klimathianaki M, Siafakas NM. Effects of pleural effusion on respiratory function. Can Respir J 2004;11:499-503.
13. Fenton KN, Richardson JD. Diagnosis and management of malignant pleural effusions. The Am J Surg 1995;170:69-74.
14. Lee YC, Light RW. Management of malignant pleural effusions. Respirology 2004;9:148-56.
15. Herrstedt J, Clementsen P, Hansen OP. Increased myelosuppression during cytostatic treatment and pleural effusion in patients with small cell lung cancer. Eur J Cancer 1992;28A:1070-3.

Cite this article as: Keshishyan S, Harris K. Asymptomatic malignant pleural effusion: to observe or to manage. J Thorac Dis 2017;9(Suppl 10):S1146-S1147. doi: 10.21037/jtd.2017.06.52

