Resection of pulmonary sarcomatous metastases: Cut to cure?

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Soft tissue sarcoma (STS) represents a relatively rare and complex tumor type with an extensive subgrouping of histology that reflects heterogeneous biology.¹ The molecular mechanisms driving metastasis, with a predilection for occurrence in the lungs, of this mesenchymal tumor group are poorly understood.^{2,3} Until further innovation in medical treatment of metastatic STS is realized, pulmonary metastasectomy is increasingly accepted as an integral treatment modality, despite the lack of prospective, randomized data to support the optimal management of these patients.⁴

In this issue of the *Journal*, Chudgar and colleagues⁵ present their institutional experience of therapeutic intent pulmonary metastasectomy in more than 500 patients. They reviewed data as far back as 1991 exclusively in those patients with STS, excluding those with osteogenic sarcoma. Multivariate analysis revealed that the leiomyosarcoma subtype, among several other clinicopathologic factors, was associated with improved survival. This study represents one of the largest modern series uniquely focused on identifying practical, clinically relevant factors that can help guide thoracic surgeons in selecting pulmonary metastasectomy candidates who harbor advanced-stage STS. The authors astutely point out the relative logistic barriers in being able to conduct a prospective randomized trial for STS tumors, so their findings are evermore salient. This study highlights that careful patient selection, at least in part, contributes to the perceived extended survival for pulmonary metastasectomy. Thus, for fit patients who meet criteria for safe metastasectomy, the overall expected benefits of prolonged survival regardless of the underlying beneficial factor (specific patient biology or metastasectomy effect) may be an individualized reason to proceed. A secondary and vital benefit of this practice paradigm is access to metastatic tumor tissue that contributes to ongoing research.

However, some equipoise is required on this matter. There remains debate and doubt about whether metastasectomy

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Central Message

Pulmonary metastasectomy requires high-level evidence in the context of mounting observational studies, such as the current one, consistently identifying similar reliable surgical prognostic factors.

See Article page 319.

directly improves survival in any solid tumor type. Clinicians await the results of the Pulmonary Metastasectomy in Colorectal Cancer controlled trial using a noninferiority nested randomization to determine the survival effect, if any, of pulmonary metastasectomy per se in colorectal cancer.⁶ Patients who have lung metastases cannot wait because this trial, initiated in 2010, is still accruing subjects with an estimated study completion of 2025. Finally, I am curious to ask the authors why specifically they think that the Pulmonary Metastasectomy in Colorectal Cancer trial results “may not be readily extrapolated to STS”?

References

1. Quesada J, Amato R. The molecular biology of soft-tissue sarcomas and current trends in therapy. *Sarcoma*. 2012;2012:849456.
2. Chiang AC, Massague J. Molecular basis of metastasis. *N Engl J Med*. 2008;359:2814-23.
3. Weidle UH, Birzle F, Kollmorgen G, Ruger R. Molecular basis of lung tropism of metastasis. *Cancer Genomics Proteomics*. 2016;13:129-39.
4. Digesu CS, Wiesel O, Vaporciyan AA, Colson YL. Management of sarcoma metastases to the lung. *Surg Oncol Clin N Am*. 2016;25:721-33.
5. Chudgar NP, Brennan MF, Munhoz RR, Bucciarelli PR, Tan KS, D'Angelo SP, et al. Pulmonary metastasectomy with therapeutic intent for soft tissue sarcoma. *J Thorac Cardiovasc Surg*. 2017;154:319-30.e1.
6. Migliore M, Milosevic M, Lees B, Treasure T, Di Maria G. Finding the evidence for pulmonary metastasectomy in colorectal cancer: the PulMicc trial. *Future Oncol*. 2015;11(2 Suppl):15-8.