Surgical Management of Lung Metastases: Selection Factors and Results

By Jack A. Roth, MD, FACS

Published on Physicians Practice (http://www.physicianspractice.com)

May 01, 1996

The appearance of metastases is generally thought to herald widespread dissemination of a primary cancer. At this point, surgery usually is either not indicated or palliative. Thus, it is somewhat surprising that surgical resection of metastases has become an accepted treatment modality in several clinical situations. This is due, in part, to the unique biology of several types of cancers and to well-defined clinical presentations that can be identified. Drs. Dresler and Goldberg succinctly review the indications for and results of resection of pulmonary metastases.

A question that frequently arises is whether a tissue diagnosis is necessary prior to resection in patients with a known primary presenting with chest lesions. For patients with more than one lung lesion, the probability of metastatic cancer exceeds 95% [1]. I agree with the authors that a tissue diagnosis usually is not required prior to resection. The finding of benign disease (for example, multiple granulomas, which are usually infectious in origin) may have important treatment implications. In the case of a solitary lung lesion, percutaneous fine-needle aspiration may establish a diagnosis. I do not rely solely on the radiologic characteristics of the lesion. The diagnosis of a second lung primary is useful to know prior to surgery, as the planned operation (lobectomy or pneumonectomy) may be much different from that contemplated for a metastasis (segmentectomy or wedge resection).

Patients with pulmonary metastases can present with symptoms, and these are important to elicit. Hemoptysis, for example, may indicate an endobronchial metastasis, which is associated with a poor prognosis [2]. The extent of the evaluation for other sites of metastasis depends on the primary tumor histology. For sarcomas, this evaluation may be limited to a bone scan, as most have a predilection only for the lung. However, any symptomatic area should be evaluated radiographically.

Video-Assisted Thorascopy Surgery Has Narrow Indications

Currently, video-assisted thorascopy surgery (VATS) for resection of metastases has very narrowly defined indications, as discussed by the authors. This technique has inherent limitations in identifying intraparenchymal metastases. Thus, resections using VATS may be incomplete. An equally serious problem is the possibility of pleural and incisional seeding of tumor cells during resection with VATS. Several reports of this have appeared. It is not clear whether the risk of tumor seeding with VATS exceeds that of an open procedure. However, the rapidity with which the recurrences appear and their extensiveness argue for an association with the VATS technique. This could occur from contamination of the incision or pleural space from the instruments or from the endostapling device used to cut across the tumor.

My current preference is to perform an open procedure if there is a high degree of suspicion for malignancy. The use of muscle-sparing incisions and epidural anesthesia minimizes pain and respiratory compromise following thoracotomy.

Survival following resection of pulmonary metastases for osteogenic sarcomas in the era of postoperative adjuvant chemotherapy appears to be increasing, although rigorous comparative studies have not been done. Resection of liver and lung metastases from colorectal cancer has been reported in a limited number of patients. Survival for resectable patients with involvement of both sites appears to be similar to the outcome for those with either isolated liver or lung metastases [3]. An aggressive approach to resection of sarcomatous lung metastases also appears warranted, as
patients with extended resections, including chest wall or extrapulmonary sites, may have a prolonged survival.

**Important Unresolved Issues**
A number of important issues remain to be resolved. Despite the publication of data on large series of patients, resection of pulmonary metastases has never been evaluated in a prospective randomized trial. The difficulties of conducting such a trial include the relative rarity and heterogeneity of the tumors and the low incidence of patients with common malignancies who are candidates for resection. However, to date no other therapy has resulted in apparent cures. The selection of patients for surgery is still problematic. Although many prognostic factors have been studied, none predicts outcomes with certainty. While prognostic factors are helpful in making the decision of whether or not to recommend a resection, I concur with the authors that these factors should not be used as absolute exclusion criteria. Many patients with pulmonary metastases are young and have no comorbid conditions. Given that there is frequently no other effective treatment, these individuals should undergo resection if there is a reasonable chance that all the metastases can be removed. The use of chemotherapy in conjunction with surgery has not been well defined. Further studies are needed in this area.

**Room for Improvement**
It is evident that much improvement could be made in the outcome following resection. The development of more effective systemic agents or more effective ways of using existing agents will improve outcomes. New techniques, such as isolated lung perfusion, may permit the delivery of high drug levels to the lung with minimal toxicity.
Study of the molecular genetic abnormalities in metastases and comparison with those in the primary tumor and in premalignant lesions is important for understanding the genetic events responsible for tumor progression. Gene transfer techniques may allow correction of genetic abnormalities within the cancer cell. An understanding of these events may also lead to the identification of new therapeutic targets.

**References:**

**Source URL:**

**Links:**