The Toronto group has established a center of excellence with expert medical oncologists, urologic, and thoracic surgeons for a multidisciplinary approach to nonseminomatous germ cell cancers. This multidisciplinary approach optimizes outcomes for these otherwise-young and healthy patients and is particularly important for the challenging patients with chemorefractory disease. Donahoe and colleagues are to be congratulated on an excellent study that helps define the management of disseminated testicular cancer.

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Commentary: Predicting intrathoracic pathologic concordance in patients with metastatic nonseminomatous germ cell tumor is clearly unclear

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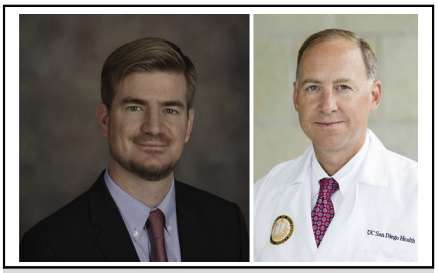

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CENTRAL MESSAGE

Pathologic concordance of nonseminomatous germ cell tumors in the chest is poor; thus, aggressive surgical management of multiple sites is still recommended after multidisciplinary evaluation.

Up to 30% of men with nonseminomatous germ cell tumor (NSGCT) will have intrathoracic tumors after initial chemotherapy treatment.[1,2] Current treatment guidelines recommend resection of residual tumors larger than 1 cm with normal serum tumor markers (STMs) to prevent future transformation and control ongoing malignancy.[3,4] However, intrathoracic NSGCT is frequently multifocal (mediastinal and pulmonary), and whether pathology from one site of resection can reliably predict concordance at another site is unknown. If concordance between intrathoracic metastatic sites were reliable, then patients with necrosis on pathology could be spared additional surgical resection.

In their study reported in this issue of the *Journal*, Donahoe and colleagues[1] hypothesize that great variability exists in the histology of these lesions, making it difficult to determine which patients may avoid surgery. They performed a single-institution retrospective review of 89 male patients with intrathoracic NSGCT metastases mostly from testis (96%). Eighty-six percent received cisplatin-etoposide and bleomycin before the operation. The median age was 29 years. The patients were divided into 2 groups. Group 1 patients (21%) had malignant disease (viable germ cell malignancy or somatic transformation), and group 2 (79%) had benign disease (immature and mature teratoma, necrosis, or other benign pathology) at the time of initial chest operation. There was a significant difference in the median time to operation between group 1 at 2 years and group 2 at 1 year, as well as a higher rate of elevated

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STMs prior to operating room in group 1. In group 1, the concordance rates were 0% for bilateral lung resection and 50% for lung and mediastinal resection. In group 2, the concordance rates were 91% for bilateral lung resection and 73% for lung and mediastinal resection. Of note, 2 patients were found to have benign disease (teratoma and necrosis) in one lung and malignant disease in the other lung. Their overall 10-year survival was 68% for malignant disease and 93% for benign disease, with no operative mortality. Survival was the lowest in patients with malignant disease and normal STMs and best in patients with benign disease and normal STMs.

The authors conclude that aggressive surgical therapy is warranted because of the low concordance rates between sites. However, several unanswered questions remain. Although the study is well done and captures 89 patients over a long time period at a single institution, impact of adjuvant chemotherapy and disease-free survival are not addressed. Also, certain relatively common clinical scenarios are not definitively addressed: when the serum tumor markers have normalized and resection of one lesion is "necrosis," many would observe the remaining sites of disease closely even though some of them will have discordant pathology (mainly teratoma, in this study). In addition, patients with serum markers that do not normalize are most often treated with systemic therapy with or without stem cell transplantation, and this control group is absent. Aggressive surgical management of the contralateral side may be best recommended when the markers have normalized or after multidisciplinary tumor discussion. That said, the 75% survival of this group in the current study is impressive.

All in all, Donahue and colleagues present clear evidence that this is a heterogeneous disease group with variable pathologic concordance rates that is best treated in an individualized manner in a multidisciplinary group. In the era of minimally invasive thoracic surgery, we agree that given their young age and potential for long-term survival, surgical management of intrathoracic disease should be considered for these patients.

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