Invited Commentary on “Thoraco-pleuro-pneumonectomy (TPP) with Riblike Reconstruction for Recurrent Thoracic Sarcomas” by A. Gronchi et al., (ASO-2013-09-1533.R1)

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The authors' solution for recurrent advanced low-intermediate grade thoracic sarcomas is interesting, promising, and unique. As stated, there are no other reported interventions of this scale. The organic shape and fluid kinetics of the thorax are critical to its function. Previous attempts at lesser resections of the chest wall have been successful when combined with reconstruction. For the reconstruction, surgeons have used muscle, autologous bone, biologic mesh, synthetic mesh, and synthetic sternal shields to try and attain the perfect balance of rigidity and pliability to most accurately reflect normal chest physiology.¹ This paper increases the definition of resectability and expands the methods of reconstruction and hence the boundaries of potential cure for large low-grade chest wall sarcomas.

Soft tissue sarcomas are rare malignant tumors whose benign counterparts are 100 times more common. They occur in every anatomic location, but are predominantly found in extremities and the retroperitoneum. Approximately 10 % of these tumors are found in the trunk, making the chest wall one of the least common locations.² As shown in the NCCN guidelines, the main decision point in the treatment algorithm for sarcomas is resectable versus nonresectable.

The resection of the hemithorax in this paper was extensive and thorough, but the resection would have been in vain if not for the unique reconstruction that followed. Chest wall reconstruction is performed for four reasons: malignancy, radiation injuries, infection, and trauma.³

Reconstruction should always be functional and has been described in the literature. There are biologic materials and synthetic meshes on the market today of all sizes and pliability, yet these are all less than ideal for such a large-scale resection.⁴ The authors used riblike reconstruction, which mimics the 3-dimensional attributes of the human rib cage. This may provide more functionality than its mesh predecessors, and it aesthetically looks natural as the authors have demonstrated.

As with any large resection with foreign material implantation, there are some concerns: the scope of the resection is extensive, the technology of reconstruction is not common, and a risk of infection is real. In spite of this, there exists no good alternative therapy. The large, low-grade sarcomas are unlikely to be cured by chemotherapy and/or radiation therapy. The authors have demonstrated that immediate riblike reconstruction is a valid option for this select group of individuals within an experienced center.

While this procedure is currently being performed in one center, it would seem reasonable to expand its use to experienced hands in high-volume tertiary thoracic centers. Currently, its effectiveness is only reaching a small fraction of the patient population who may benefit. With any multistep, innovative operation there will be a steep learning curve. With appropriate mentoring and a structured program of education, it is possible to effectively reduce the learning curve of complex thoracic operations.⁵

The follow-up by this group does show promising results in terms of short-term survival, infection rate, and graft durability. With further investigation, this operation may become a more common option for the patient with a first time diagnosis of large low-grade chest wall sarcoma. Recurrence is treated with a similar algorithm as the initial tumor as seen again in the NCCN guidelines. It is

reasonable this procedure could not only be a primary treatment pathway for initial treatment but also for locally recurrent large low-grade sarcomas involving the lung, diaphragm, pleural, and chest wall involvement.

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