



Chest wall resections and reconstructions

The chest wall is a complex framework that provides (semi-)rigid protection to the vital organs, supports respiration, and stabilizes the upper extremity. Despite their individual importance, chest wall disorders, syndromes, and diseases are relatively rare and therefore uncommon to encounter on a regular basis. However, taken together rare entities represent a major health burden, associated with significant financial and economic burdens, both indirect and direct, even further impacted by whether appropriate treatment is available (1).

Chest wall disorders, syndromes and diseases can be due to a multitude of causes, often divided under the hijab of congenital and acquired (including trauma and oncological). Regardless of whether it concerns a disorder, syndrome, or disease, all can result in functional and aesthetic impairments of the thoracic wall. The purpose of surgical procedures is therefore aimed at resolution—yet at the same time—protect intrathoracic structures, preserve cardiorespiratory function, and obtain tumor free margins among various others. The latter is especially at risk when the deeper tissue layers are affected. Although radical resection is considered key to treatment, the extent of resection is inherently associated with the extent of reconstruction and morbidity which has been mainly attributed to postoperative chest wall instability (2,3).

Despite the first known resection of a chest wall tumor by Osias Aimar dating back to 1778 (4), to date, there are no guidelines available on the indications for resection of the chest wall, nor the means and materials on how to achieve subsequent reconstruction. As a result, resections and reconstructions are often based on (local) expertise to which is also added that most of the published studies are single-center, retrospective studies enrolling only few patients. This is best demonstrated by the fact that a simple PubMed search using the “chest wall resection reconstruction” query reveals 1,335 reports of which 576 case reports and only a single randomized controlled trial (date of search: August 29th, 2023). To fill this gap, an (updated) expert consensus statement was recently published on different controversial issues regarding chest wall tumor management (5).

The PubMed search and its results, moreover, emphasize the relative rarity and heterogeneity of chest wall disorders, diseases, and syndromes, from which it can be inferred that their treatment often takes place in so-called low-volume centers. The relation between surgeon volume and outcomes is a widely studied topic. Although there are exceptions, in general it can be said that there is a positive volume-outcome relationship for most procedures and/or conditions (6). Therefore, chest wall resections and reconstructions should ideally be performed in high-volume centers, concentrating expertise. Propagating this expertise at the regional or national level may overcome a multitude of challenges faced with rare diseases, such as: a knowledge gap in providers, lengthy and costly journey to diagnosis and appropriate treatment, difficulty in connecting with similar patients, as well as educational issues (1). In addition, given that all cases are unique and generally require reconstruction after resection, surgery should be patient-tailored and performed through a multi-disciplinary approach to facilitate satisfactory results in terms of functional, oncological, and aesthetic outcome, all together advocating centralization. Not even to speak about complication management. Lastly, concentration of care in high-volume, high-expertise centers also creates the opportunity to perform well-designed clinical trials with an adequate sample size, eventually aiming to optimize treatment (outcomes) including survival based on evidence rather than expertise.

Given that the subject of chest wall resections and reconstructions is a niche subject with a wide heterogeneity that is partially attributed to case-uniqueness, the aim of the present special series is to provide a comprehensive overview and elucidate future perspectives on chest wall resections and reconstructions for different disorders, syndromes, and diseases by a group of worldwide leading experts in the field.

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References

1. Groft SC, Gopal-Srivastava R, Dellon ES, et al. How to Advance Research, Education, and Training in the Study of Rare Diseases. *Gastroenterology* 2019;157:917-21.
2. Azoury SC, Grimm JC, Tuffaha SH, et al. Chest Wall Reconstruction: Evolution Over a Decade and Experience With a Novel Technique for Complex Defects. *Ann Plast Surg* 2016;76:231-7.
3. Hazel K, Weyant MJ. Chest Wall Resection and Reconstruction: Management of Complications. *Thorac Surg Clin* 2015;25:517-21.
4. Incarbone M, Pastorino U. Surgical treatment of chest wall tumors. *World J Surg* 2001;25:218-30.
5. Wang L, Yan X, Zhao J, et al. Expert consensus on resection of chest wall tumors and chest wall reconstruction. *Transl Lung Cancer Res* 2021;10:4057-83.
6. Morche J, Mathes T, Pieper D. Relationship between surgeon volume and outcomes: a systematic review of systematic reviews. *Syst Rev* 2016;5:204.



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