

Reconstruction of massive chest wall defects: our experience of 17 consecutive cases

C. S. de Schoulepnikoff¹, M. G. Guiotto¹, T. K. Krueger², M. G. Gonzales², P. G. S. di Summa¹

¹ Chirurgie plastique et reconstructive, CHUV, Lausanne

² Chirurgie thoracique, CHUV, Lausanne

Background

Complex chest wall defects represent a challenge for both thoracic and reconstructive surgeons. This study aims to highlight the potential factors influencing the outcomes of chest wall reconstruction after massive resection, using Patient Reported Outcomes (PROMs) and functional evaluations.

The flaps:

- 14 latissimus dorsi flaps
- 2 DIEPs
- 1 ALT



Patient n°16, mesenchymatous chondrosarcoma, en bloc resection with the 8th rib and part of the diaphragm, skin defect of 7 x 15 cm, reconstruction with PROLENE® mesh and latissimus dorsi flap.

Method

Retrospective analysis of a prospectively maintained database of 17 consecutive reconstructions of massive chest wall defects from 2014 to 2023.

The PROMs include the dyspnea functional limitation test 10a and the following sections of the BODY-Q: psychological distress, chest and scars aesthetic satisfaction. The range of motion and the strength of the upper extremities were quantified with an electronic dynamometer (MicroFet2®). The PROMs and the functional tests were assessed in a prospective cross-sectional fashion.

Results

Synthetic meshes were implanted in 12 patients.

The average defect size was 246cm² and most patients had 2-3 ribs and part of the sternum removed.

Preliminary results showed no correlations between the complexity of the defect and the BODY-Q results. The type of flap used did not influence the mobility and strength of the upper extremities.

Complications

- 1 total flap loss
- 1 venous congestion
- Pulmonary complications:
1 atelectasia, 2 pneumonia,
1 pneumonia + pneumothorax



Patient n°16, piece of resection

Conclusions: Neither the defect size nor the flap impacts patients' satisfaction regarding their chest wall appearance after reconstruction of a massive defect. Latissimus dorsi is the primary option in most chest defects. Free tissue transfer needs to be kept as a backup option, keeping in mind considering potential microsurgical complexity and respiratory dynamics.



Patient n°16, pre-op (left), post-op (right)