

EXTENDED FOREQUARTER RESECTION INCLUDING THE CHEST WALL AND LUNG WITH BRACHIAL FREE FILLET FLAP COVERAGE

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Sarcoma Service,

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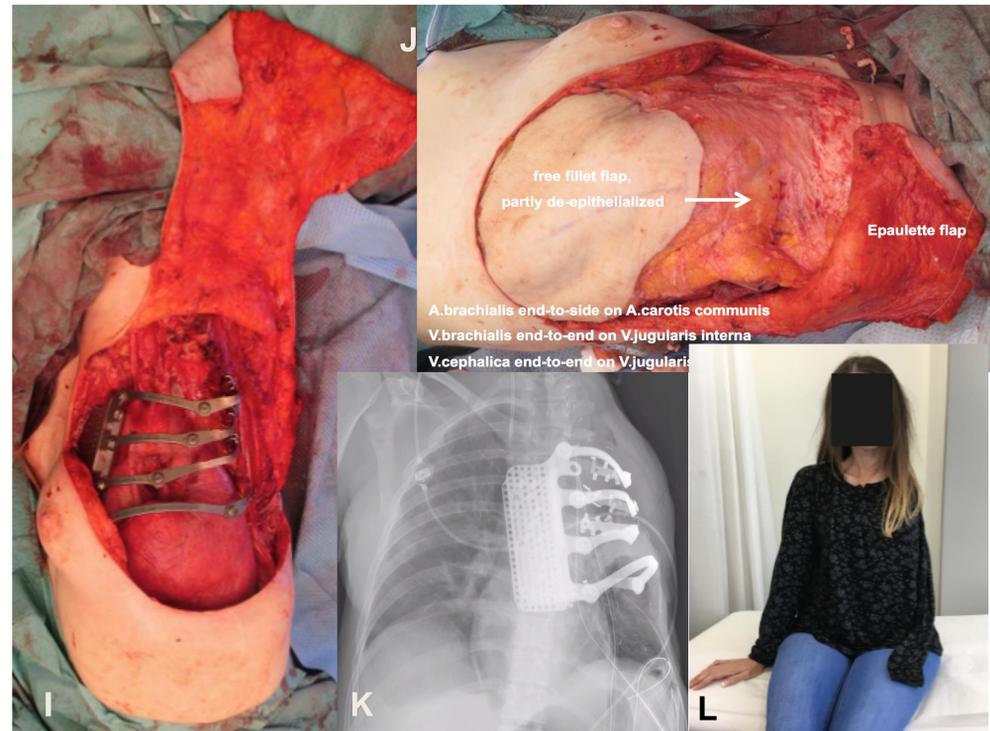
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INTRODUCTION

Forequarter amputation may be indicated when a tumor involves the axilla and shoulder joint with the accompanying neurovascular plexus. The treating sarcoma surgeon usually needs to determine whether parts of the chest wall may need to be resected in addition to achieve an adequate margin. However, if such tumor is not only outside but also within the chest and endangering the heart through compression, then the question remains how much of the chest wall can be reasonably resected.

PATIENT & METHODS

A 41 year old mother of two teenagers presented with unbearable and progressive pain in the shoulder irradiating down into the hand, and progressive dyesthesias of dig I-III. Imaging showed an intra- and extrathoracic mass of some 20cm, involving the entire plexus and shoulder joint, and was abutting the heart and aorta (A-C). Patient's history was remarkable for desmoid fibromatosis in her left shoulder, for which she underwent several surgeries, radiation therapy and systemic therapies over the preceding 13 years. A US-guided biopsy revealed a undifferentiated pleomorphic sarcoma subsequent to radiation. There were no metastases diagnosed.



RESULTS

A 3D-print of the complex anatomy with the tumor was used to plan the surgery (D). We elected to proceed with an extended forequarter amputation involving 9 complete ribs of the chest (E-J). We first prepared a large fascio-cutaneous forearm free flap based on the brachial vessels. After a well designed exposure sparing the ipsilateral mamma, an osteotomy anteriorly through the sternum, as well as posteriorly at the facet joints were performed. The lung was easily dissected from the heart and aorta with its tissues to protect the tumor, except for the internal carotid artery which was end-to-end-anastomosed after segmental resection. Reconstruction of the chest wall was carried out using 4 metal ribs, and the defect covered using the pedicled and partly de-epithelialized Epaulette-flap, as well as the free fillet flap from the forearm, anastomosing the brachial vessels onto the exiting heart vessels. Wound healing was uneventful. The patient developed progressive scoliosis, and 4 months postoperatively, one rib was removed and a spondylodesis of the thoracic spine was performed. The patient recovered well and is up the entire day while doing most of her daily duties herself. At 2.5 years postop, a wound break down over the lowest rib occurred, and a pedicled propeller perforator flap was necessary. She remains free of metastasis (K-L).

CONCLUSION

Four years postoperatively, the patient is disease and pain free, and has adapted her daily activities to have a good quality of life.

HIGHLIGHTS:

Resection of the hemi-thorax combined with forequarter amputation may represent an option to render a patient free of extensive disease.

