

**FC-074****The pedicled latissimus dorsi flap for soft tissue reconstruction following excision of a musculoskeletal neoplasm of the shoulder****R. Engdahl**^{1,2}, J.H. Healey³, E.A. Athanasian³, P. Cordeiro¹, J. Disa¹, N. Fabbri³¹ *Plastic and Reconstructive Service, Department of Surgery, Memorial Sloan Kettering Cancer Center, New York, NY, USA*² *Division of Plastic and Reconstructive Surgery, New York-Presbyterian Hospital, The University Hospital of Columbia and Cornell, New York, NY, USA*³ *Orthopedic Service, Department of Surgery, Memorial Sloan Kettering Cancer Center, New York, NY, USA*

Introduction: Limb salvage surgery for musculoskeletal neoplasms of the shoulder region often results in large and complex soft tissue defects associated with exposed bone and massive orthopaedic implant. While primary closure of smaller defects is occasionally possible, suboptimal soft tissue coverage of larger may lead to wound breakdown, deep infection, and soft tissue contracture even when healing occurs. This study focuses on the pedicled latissimus dorsi flap reconstruction for oncologic shoulder defects in patients treated at our Institution. We hypothesized that pedicled latissimus dorsi flap is a reliable technique for soft tissue reconstruction of the shoulder region, associated with predictable healing, successful limb salvage surgery and low complication rate.

Methods: We retrospectively reviewed 47 consecutive patients that underwent a pedicled latissimus dorsi flap for reconstruction of a shoulder soft tissue defect following excision of a musculoskeletal malignant neoplasm between 1994 and 2013. Patient population and malignancy characteristics, adjuvant therapies, and oncologic resection defects were analyzed. Flap specifics, skeletal reconstruction, healing time and complications, including flap loss, deep infection and need for further surgery, were analyzed.

Results: All underwent wide or radical en-bloc tumor excision. Adjuvant therapies included chemotherapy (32 patients), and radiation (16 patients; external beam in 14 and brachytherapy in 2). Twenty-three patients had an allograft or an alloprosthetic composite reconstruction, while a metallic prosthesis was used in 24 patients. Wound size averaged 280.1 cm² (10-1,225 cm²). All 47 patients had successful healing. There were no flap losses. Two flaps exhibited partial skin necrosis that healed with conservative management. Two developed a seroma that resolved with aspiration. Healing ultimately occurred in all patients except one whom developed deep infection and was subsequently managed by staged revision. One patient with allograft-prosthetic composite required iliac crest bone grafting for humeral nonunion. One required amputation due to local recurrence. Thirteen patients died during the study period (3 patients with unknown cause, 10 patients from tumor recurrence).

Conclusion: The pedicled latissimus dorsi flap in complex shoulder reconstruction provides well-vascularized tissue, minimizes infection risk, and maximizes limb salvage. While relatively limited anterior shoulder defects may be successfully managed by alternative methods or other flaps, eg. pectoralis major, the latissimus dorsi flap is reliable and addresses larger defects. For these reasons, the pedicled latissimus dorsi flap is our choice for reconstructing shoulder defects after tumor excision.