Versatility of the Medial Sural Artery Perforator Flap: Experience with 200 Consecutive Cases

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Introduction

The medial sural artery perforator (MSAP) flap was first described in 2001.[1,2] Having constant anatomy, long pedicle, and pliable soft tissue, the flap was shown to be a good alternative option for soft tissue reconstruction.[3,4] The aim of this study was to report our experience with this flap for reconstruction throughout the body, highlighting its potentially increasing role as a workhorse flap for multipurpose reconstruction.

Patients and methods

Between March 2006 and July 2014, the MSAP flap was used for reconstruction in 200 cases. The flap was transplanted as free (n=189) and pedicled (n=11). The sites of reconstruction included head and neck (n=129), upper extremity (n=47), and lower extremity (n=24). Patients' charts were reviewed retrospectively. Indications, flap design, flap survival, and complications were analyzed. We further compared survival rate and complications between the three different reconstruction sites.

Results

In head and neck group, flap survival rate was 95.3%. There were fifteen re-explorations (venous congestion: 10, arterial occlusion: 4, both: 1) with 6 total failures due to unsalvageable congestion. The donor site was closed primarily in 85.3% of the cases. In upper extremity group, flap survival rate was 95.7%. There were five re-explorations (venous congestion: 2, arterial occlusion: 2, both: 1) with 2 total failures. The donor site was closed primarily in 76.6% of the cases. In lower extremity group, flap survival rate was 100% in free MSAP subgroup compared with 90.9% in pedicled MSAP subgroup. There was one re-exploration due to venous congestion salvaged successfully in free MSAP subgroup. Partial necrosis occurred in 2 pedicled MSAP flaps and managed by debridement and skin grafting. The donor site was closed primarily in 45.8% of the lower extremity cases. Versatile designs of the flaps included chimeric flaps with the gastrocnemius muscle (n=11) and split flaps (n=2). The plantaris tendon was transferred with the flap in 20 cases for composite reconstruction.

Conclusion

The MSAP flap is an alternative workhorse flap for reconstruction of the head/neck and extremities. The flap can be harvested as free or pedicled. Multiple tissue components can be included with the flap for multipurpose reconstruction. A small to medium size flap should be harvested to ensure primary closure at the donor site, maximizing cosmesis and decreasing morbidity.

References

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