Freestyle Propeller Flap Closure of Traumatic Injury Defect

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INTRODUCTION: The concept of freestyle propeller flaps provides a versatile opportunity for wound closure at any part of the body with minimal donor site morbidity. As experience and familiarity with microsurgical procedures has increased interest in identifying-harvesting perforator flaps originating from known major vessels has become more common. The "freestyle" concept developed by Wei and Mardini expanded reconstructive options and concept using propeller flap (1). Technique is based on dissecting flaps in retrograde fashion toward the perforator in the vicinity of the defect (2).

MATERIALS AND METHODS: This a case of a 70 years old man who sustained traumatic dislocation of his right knee. Due to delay in diagnosis patient injury resulted in a loss of soft tissue over the medial knee. Necrotic tissues that included knee joint capsule were removed prior to reconstructive procedure. Cultures obtained during debridement excluded infectious process.

RESULTS: Ten centimeters above the knee a strong Doppler signal detected a perforator. Using medial to lateral retrograde dissection 2 perforators were identified measuring 1 mm each. A propeller flap was designed to include the medial perforator with the most proximal portion of the flap reaching distal portion of the defect. Final size of the flap was 18x8 cm with perforator located 4 cm proximal from the distal portion of the flap. The propeller flap was rotated 180 degrees on the medial perforator and inset into the defect with drain in place. Selection of the medial perforator was based on the central location with in the flap and Doppler signal quality at the end of the dissection.

This patient spent 5 days in the hospital with leg elevated and monitored for a flap loss. He was discharged home with strict bed rest for total of 2 weeks followed by gradual increase of activity over subsequent 4 weeks period. The defect healed without complications and patient returned to regular activity after 4 week course of physical therapy.

CONCLUSION: In summary, case demonstrates that freestyle perforator flap provide a viable option for knee injury reconstruction. Using freestyle perforator flap minimized donor site morbidity, provided versatile technique for reconstruction

and allowed patient to avoid discomfort of muscle flap. It is paramount to collaborate and communicate with orthopedic surgeons or trauma surgeons in planning these procedures as these perforators may be easily lost during initial exploration or debridement procedures.

REFERENCES:

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