The Plastic Surgeons Role on the Limb Salvage Team

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**Role of the Plastic Surgeon?**
- Provide stable soft-tissue coverage
  - Oftentimes can be challenging!
- Team effort = success
  - Vascular
  - Orthopaedics
  - Podiatry
  - Plastic Surgery
- Indications expanding

**Considerations**
- Location
  - Upper Extremity
  - Upper leg (thigh)
  - Knee
  - Lower leg
  - Ankle/foot
- Size of soft tissue defect
- Components
  - Bone, nerve, vessels
- Age and co-morbidities of patient
- Mechanism

**Limb Salvage**
- Indications for limb salvage surgery are expanding
  - Wound irrigation and debridement strategies
  - “Tissue friendly” fracture fixation techniques and instrumentation
  - Development of 2nd and 3rd generation antibiotics
  - Improvements in microsurgical technique
  - Improvements in wound management**

**General Management**
- Staged debridement’s with Orthopaedic and Vascular Surgery
  - Assess components of defect
  - Continue until wound clean
- Wound VAC used as bridge
- Amputation vs. Limb salvage vs. preservation of length
- Need inflow!
  - Primary concern
  - Angiogram essential
What we are trying to avoid

What we are trying to avoid
Soft Tissue Deficits

- Reconstructive Ladder
  - Direct closure
  - Skin Graft
  - Local Flap
  - Distant Flap

Time to Coverage

- Within 1-(2) week(s)
- Negative pressure: Allows delayed coverage?

Negative Pressure Therapy

Integra + Skin Graft
Flap Considerations

- Type of Reconstruction
  - Local vs. regional vs. distant flap
  - Muscle vs. fasciocutaneous/perforator flap
  - Muscle vs. musculocutaneous flap
Random Pattern Flap

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Forefoot V-Y advancement flaps

Charcot Foot
V-Y advancement flaps

Sural Flap: Regional Flap

Sural Flap
Microsurgical Reconstruction

Free Tissue Microvascular Transplantation (MVT)
- Myriad of Flaps Available
  - Muscle
  - Skin
  - Combination
- Complex Flaps
  - Perforator flaps
  - Venous flaps
  - Composite flaps
- Local tissues not available

Amputation: Lower Extremity

Plain films/Angiogram
Below Knee Amputation Salvage

Plain films and Angio
Now 11 years post-flap

Mid-Distal Tibia Defects
Mid-Tibia Defects

Flap vessel to perforator

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Latissimus Free Tissue Transfer

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Limb Salvage Case

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Flow Through Flap

Artery
Caudal vein
Cephalad vein
Artery


Limb Salvage Case

Forearm vein only flap

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Limb Salvage Case

Heel Reconstruction

Muscle vs. fasciocutaneous flap coverage

Gracilis Muscle

Heel Reconstruction
Foot Reconstruction

Recipient Vessels

- Based on angiogram/flow to foot
- Antegrade end-to-side
  - Limited flow to foot
  - Thigh/knee
- Perforator vessels
- Bypass graft
- Superior medial geniculate vessels
  - Knee or below knee
  - Vein loop

Post-op

Summary

- Team approach
- Use the reconstructive ladder
- Initial soft tissue management is critical
  - Recognize the complex/problem wound
  - Respect the soft tissues
  - Assess and address inflow and bone issues first
  - Thorough debridement
  - Negative pressure used as a bridge
  - Aggressive wound care