Soft tissue deficits or non-healing wounds are a common and challenging problem faced by the lower extremity reconstructive surgeon. These cases often end in proximal amputation, especially in those with comorbidities, compromised angiosomes, or following significant trauma. This atlas therefore is to be used as a comprehensive resource for basic lower extremity flaps for soft tissue defects to assist in limb salvage.

**Statement of Purpose**

The purpose of this atlas is to serve as a guide for surgeons to understand and treat soft tissue lower extremity defects and complications. It includes basic orthopedic reconstructive principles and patient work-ups, thus allowing the need to rely on basic knowledge of the anatomy of the lower extremity for the practitioner. Flaps are shown for medial, lateral, and anterior compartments of the lower leg as well as the foot.

**Methodology**

This atlas provides a guide for surgeons to understand and treat soft tissue lower extremity defects and complications. It includes basic orthopedic reconstructive principles and patient work-ups, thus allowing the need to rely on basic knowledge of the anatomy of the lower extremity for the practitioner. Flaps are shown for medial, lateral, and anterior compartments of the lower leg as well as the foot.

**Introduction and Preoperative Planning**

The first step in preparation for any flap is proper preoperative planning. Anatomic landmarks should be utilized to map out major neurovascular structures. Incision planning for the proximal half of the lower leg is critical as many of the perforating vessels can be further confirmed with the use of Doppler ultrasound and/or angiography if necessary.

A typical map of such structures in the lower extremity is shown in the figure above. Figure 1a shows the major landmarks that should be drawn on prior to incision of the anterior and medial borders of the leg.

**Section I: Medial Approach to the Superficial and Deep Compartment of the Lower Leg**

- **Tibial Exposure**
- **Medial Gastrocnemius Flap**
- **Proximal superficial medial perforator flap**

**Section II: Approach to the Lateral and Anterior Compartment of the Lower Leg**

- **Peroneus Brevis Flap**
- **Peroneus Brevis Fasciocutaneous Flap**
- **Common Peroneal Nerve Exposure**
- **Proximal Lateral Gastrocnemius Flap**
- **Medial Planter Artery Cutaneous Adipofascia Flap**
- **Abductor Hallucis Muscle Flap**
- **Flexor Digitorum Brevis Flap**

**Section III: Medial Arch Approach to the Foot**

- **Medial Planter Artery Cutaneous Adipofascia Flap**
- **Abductor Hallucis Muscle Flap**
- **Flexor Digitorum Brevis Flap**

**Analysis & Discussion**

The purpose of this atlas is to serve as a guide for surgeons to understand and treat soft tissue lower extremity defects. Flaps in this atlas can be used to cover almost all areas of the lower extremity from the toes distally to the thigh.

**References**
