

Supplementary Appendix

This appendix has been provided by the authors to give readers additional information about their work.

Supplement to: Bosse MJ, MacKenzie EJ, Kellam JF, et al. An Analysis of Outcomes of Reconstruction or Amputation after Leg-Threatening Injuries. *N Engl J Med* 2002;347:1924-31.

SUPPLEMENTARY APPENDIX 1. CLASSIFICATION OF STUDY INJURIES.

I. Bony injury

A. Type of tibia fracture*

None.

Simple (type A) — a single circumferential disruption of the diaphysis.

Wedge (type B) — one or more intermediate fragments in which, after reduction of the fracture, there is contact between the main fragments.

Complex (type C) — a fracture with one or more intermediate fragments in which, after reduction of the fracture, there is no contact between the main fragments.

B. Type of foot fracture†

None; closed fractures of any mechanism or severity or open fractures with skin lacerations, contusions, and moderate contamination.

Fractures with severe soft-tissue damage, often with major vessel or nerve injury (or both); includes fractures involving ischemia of the foot or compartment syndromes and those due to farm accidents.

C. Bone loss‡

None or simple fracture.

2 to 5 cm of bone comminution.

<2 cm of segmental bone loss.

≥2 cm of segmental bone loss.

II. Soft-tissue injury

A. Combined classification§

Grade I — skin opening ≤1 cm with no contamination; usually inside-to-outside tissue laceration; minimal muscle contusion and a simple fracture pattern.

Grade II — laceration of >1 cm with extensive soft-tissue damage and a minimal-to-moderate crushing component. The fracture patterns are simple with minimal comminution.

Grade IIIA — adequate soft-tissue coverage of a fractured bone despite extensive soft-tissue laceration or flaps or high-energy trauma irrespective of the wound size. Fractures are complex, often associated with bone loss. The wounds are moderately to severely contaminated. The wound can be closed by delayed primary closure or a split-thickness skin graft.

Grade IIIB — extensive soft-tissue injury with periosteal stripping and bone exposure. Usually associated with massive contamination. Wound coverage requires use of local- or free-tissue flaps.

Grade IIIC — open fractures associated with a major arterial injury that requires repair for limb survival.

B. Muscle¶

No injury or a laceration or avulsion involving a single compartment or single tendon.

Laceration or avulsion of ≥2 compartments or complete laceration or avulsion of 2 tendons.

C. Deep-vein injury¶¶

No injury; contusion, partial laceration, or avulsion; complete laceration or avulsion if alternate route of venous return is intact; or superficial-vein injury (type 0).

Complete laceration or avulsion or thrombosis with no alternate route of venous return (type I).

D. Skin defect||

None.

<¼ Circumference of leg.

¼–½ Circumference of leg.

>½–¾ Circumference of leg.

>¾ Circumference of leg.

E. Contamination||

None.

Single — isolated foreign body.

Multiple — more than 1 foreign body.

Massive — foreign bodies or grass fragments or both too numerous to count, with or without extensive contamination of the wounds with soil.

III. Initial assessment of pulse and plantar sensation

A. Initial pulse assessment**

None or pulse reduced or absent but perfusion normal.

Pulseless, paresthesias, and diminished capillary refill or cool, paralyzed, insensate, and numb.

B. Plantar sensation

Present.

Absent.

IV. Overall injury severity

A. Abbreviated Injury Scale scores⁹ assigned to each injury in each body region

Score of 1, minor injury.

Score of 2, moderate injury.

Score of 3, serious injury.

Score of 4, severe injury.

Score of 5, critical injury.

Score of 6, maximal, virtually unsurvivable injury.

B. Injury Severity Score††

*Fracture of the tibia was based on the classification of Müller et al.¹ and the Orthopaedic Trauma Association Committee for Coding and Classification.²

†Fracture of the foot was based on the classification of Tscherny and Oestern.³

‡The degree of bone loss was based on the Predictive Salvage Index.⁴

§The combined classification was defined on the basis of the Gustilo grade.⁵

¶The categories were defined according to the Limb Salvage Index.⁶

||The categories were defined according to the Hannover Fracture Scale.⁷

**The initial assessment was based on the Mangled Extremity Severity Score.⁸

††The Injury Severity Score is a measure of severity that summarizes the combined effect of injuries across multiple body regions.¹⁰ It is the sum of the squares of the highest Abbreviated Injury Scale score for each of the three most severely injured body regions (head or neck, face, chest, abdomen, and arms and legs including pelvic girdle and major skin areas).

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