

Rehabilitation in Conflict

# Amputation



## What we will cover:

- Management in Humanitarian Settings
- Common Complications
- Adapted Clinical practice
- Practical Activity

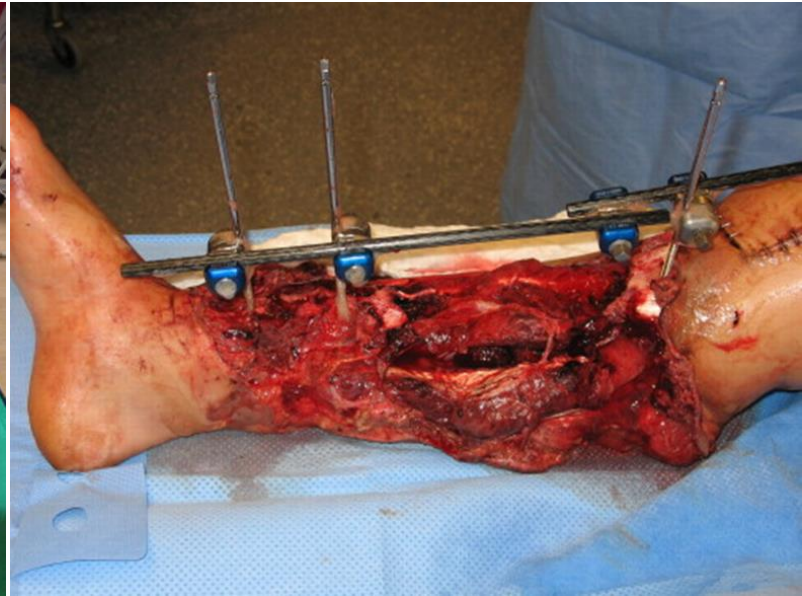
## Causes

- Blast
- Gunshot wound
- Entrapment
- Secondary infection
- Diabetes...

## Presentation

- Typically lower limb > upper limb
- Most commonly seen is transtibial
- Rarely in isolation – poly trauma
- Complications depends on mechanism – blast, entrapment etc.

# Decision to amputate



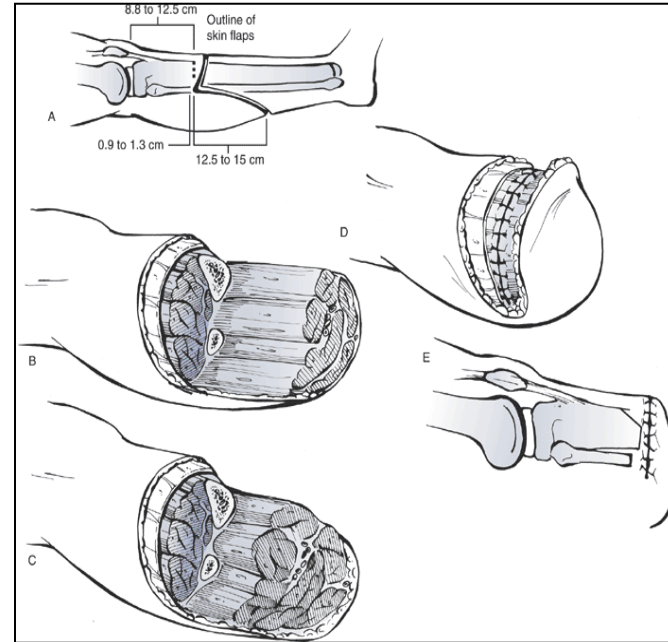
- Traumatic, primary or secondary
- Indication for primary amputation include prolonged limb ischemia or extensive nonviable tissue with potential for uncontrolled sepsis.
- Secondary amputation due to complications (recurrent infection, salvage failure) or sometimes for improved functional outcome.
- Limb Salvage Versus Amputation: Still up for debate.

- Performed at the most distal level which provides viable bone and soft tissues for later closure.
- Through joint amputation may be preferable and provide greater function
- Post operative includes use of ACE bandaging or splint or bivalved cast to prevent joint contractures and provide soft tissue support when necessary. There should be simple access for wound inspection.

# Trans tibial amputation

## Long posterior flap

- A long flap is fashioned using the gastrocnemius and then attached on the anterior aspect of the stump
- Scar across cut end of tibia
- Need to avoid “dog ears”





# Common Challenges

- **Polytrauma**
- **Multiple limb loss**
  - Don't panic
  - No different to single amp: problem solving approach
- **Stump condition**
- **Psychological and Social Factors**

# What makes a good stump?

## Things to consider

- Length
- Soft tissue
- Bone ends
- Neuromas
- Shape of stump
- Scar line
- Vascular supply
- Wound
- Proximal joint
- Pain/tenderness
- Muscle cover
- Skin condition
- Sensation

(Roehampton Stump Audit, 2013)

# To bandage?

- May be used from surgery or after removal of split/bivalve rigid dressing.
- Oedema and pain control, not really “stump shaping”.
- Depends on what normal practice is where you are!
- Commonly used in humanitarian settings

<https://www.youtube.com/watch?v=2XkGhs85fdQ&list=PLmFabOawOWJ2DeIvTESNPFNSC-HAGWcnQ&index=6>

The early rehabilitation in conflict and disasters youtube channel has a series of fantastic videos on amputation:

<https://www.youtube.com/c/EarlyRehabilitationinConflictsandDisasters>



# Common Clinical Adaptations

- Delayed decision to amputate
- Delayed Primary Closure
- Stump bandage not rigid dressing
- Beware limited pain management (and try to resolve)
- Early mobilisation and discharge from acute care

---

Complications...



# Surgical Complications in Emergency

- Occasional still guillotine surgery
- Sub-optimal amputations – too close to joint, poor soft tissue coverage
- Infection +++
- Necrosis due to poor vascular supply
- Diabetes + trauma
- Lack of follow up
- Failed attempts to Salvage



# Contractures

Contractures can develop quickly and can prevent a person from being able to use a prosthetic. They can be prevented through positioning, education and exercise. Consider for the following injuries which contractures are more likely:

Transtibial?

Tranfemoral?

Below elbow?

# Oedema

- Due to trauma and fluid/drainage imbalances following amputation
- Aggravated by decreased use, positioning etc.
- The complications that can arise from stump oedema include wound breakdown, pain, reduced mobility and difficulties with prosthetic fitting
- Management includes rigid or ACE bandaging,



R



# Heterotopic ossification

- Formation of mature lamellar bone in non-osseous tissue
- More common with blast amputation
- If the final amputation is in the zone of injury increases the likelihood

# Neuroma

- 1-12 months post amputation
- Painful point on end of stump
- Conservative management with electrical stimulation or corticosteroids
- Approx 50% require surgical resection



# Phantom limb pain

- Difference between:
  - Phantom Limb Pain vs Phantom Limb Sensation
  - Post Amputation Pain
  - Residual Limb Pain
- Identify the principle drivers of pain:
  - Look for signs and symptoms of central adaptation.
  - Assess factors which might be contributing to peripheral sensitisation.
  - Understand the role of psychological and social factors.
  - Conduct a MSK assessment of adjacent joints and movement mechanics.
- A treatment plan must involve the MDT, it should be individual and it should target the dominant drivers of pain.



# Common Clinical Adaptations

- Early mobilisation and discharge from acute care
- Sometimes crutches rather than wheelchair
- Need for education +++
- Always consider patient safety - prevent complications
- Bring in peer support from an existing amputee where possible

# Activity – in 4 groups

- You have a patient who is 1 day post operative (DPC) for a transtibial amputation secondary to a blast injury.
- The wound will be closed day 3 and the patient discharged from acute care on day 4 if medically stable.
- Develop a treatment plan for the first 4 days. Each group will present on one day.

# Day 1

- Pre-operative education if possible and work with MDT on level selection and prosthetic pathway if possible.
- Post op check in – including pain and phantom sensation.
- Positioning
- Education ++
- Work with nursing staff on dressings and oedema management plan
- Discussion with team of discharge destination, needs and follow up

## Day 2:

- Positioning, early bed exercises
- Sit out of bed if pain and blood pressure allows
- Wheelchair if appropriate – otherwise consider crutches when safe



# Day 3

- DPC today – not much input.

# Day 4:

- Confirm follow up
- Safe mobility – either wheelchair or crutches – include transfers, getting up from floor.
- Education re signs of key complications

# Finally - Prosthetics

- Identify where your service may be provided ASAP and where possible make 2 way referral.
- Consider Peer support
- Realistic expectations about who might be suited for a prosthetic and what type
- Remember even if a service does not exist, in a large disaster one may be developed.



# Small Group Activity

- Divide into 3-4 groups
- All: Patient plan:

*A 32 year old male with a unilateral transtibial amputation from 4 days ago. He has just undergone delayed primary closure. This is the first day you are seeing him.*

Write a subjective and objective assessment plan.

## Group 1: Principles of early exercise in amputation

## Group 2: Stump Bandaging

**Thank you!**  
**Any questions?**