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Amputation surgery - The Hässleholm-Kristianstad approach

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...moving beyond physical disability

Topics in this presentation

- Selection of amputation level
- Why do we succeed in lowering the amputation level?
- Why sagittal incision?
- How long should the residual limb be?
- Why rigid dressing?
- What options are there if the wound doesn't heal.....



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The patients

- Mean age 81 years
- Multiple diseases
- 95% vascular
- Almost 50% diabetes
 - Diabetic foot care clinic



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The team

- Orthopaedic surgeon
- CPO
- Physiotherapist
- Nurse
- Occupational therapist
- Social counselor



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Decision to amputate

- Patients decision
- Information about what to expect
 - Meeting fellow patients
 - Meeting CPO and physio
- Level decided by surgeon
 - TTA if walker and at all possible
 - KD if non walker
 - TFA last resort



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Philosophy

- Patients that were walking before shall walk again
- Shorter time to prosthetic fitting increases the probability of success
- Sagittal flaps helps in this
- Ultrashort TTAs are better than KD for the geriatric patients



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Long posterior or sagittal flaps?

- Burgess
 - 😊 Thick flap, sturdy
 - 😞 Often dogs ears
 - 😞 Not so good with early silicone liner
 - 😞 Prosthetic fitting slower
- Sagittal flaps
 - 😊 Uncomplicated surgery
 - 😊 Goes well with silicone liner
 - 😊 No dogs ears
 - 😊 Good for early fitting

Same healing properties in scientific studies



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About the length of the TTA stump

- Trauma or tumor patients – the longer the better
- Geriatric patients often 12-15 cm
- In cases where skin is problematic: distal part of tibia tuberosity ≈ 7 cm
- Taking out the fibula can help

How do I do?

- Tourniquet
- Draw the lines for the flaps with semi circles
- Angle 1 cm distal and 2 cm lateral to edge of tibia



- Incise straight through the skin perpendicularly
- Hemostasis, ligation of bigger veins
- Incise the fascia without dissection of subcutis



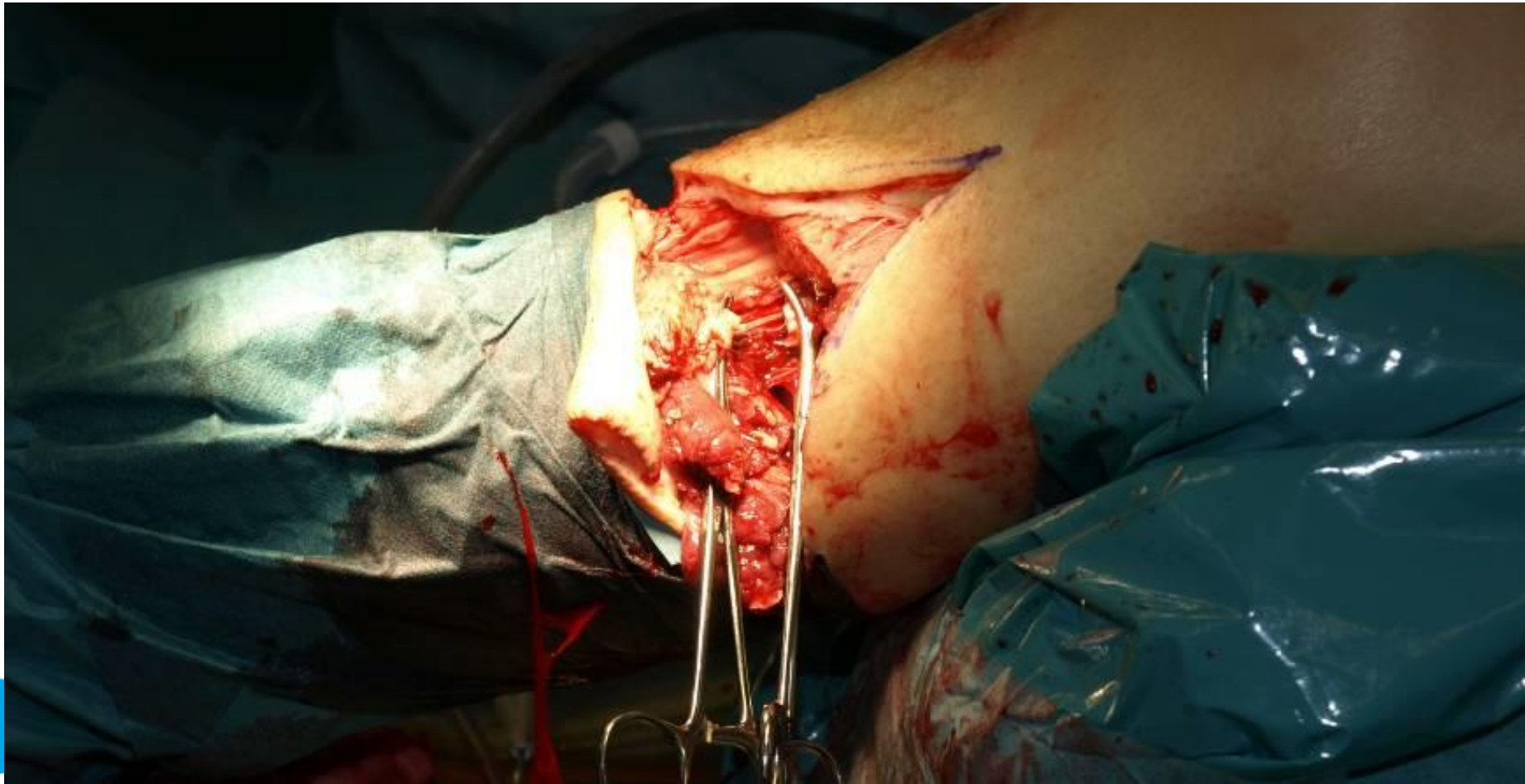
- Divide the muscles obliquely with scalpel or electrocautery





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- Large vessels ligature or suture ligature
- Smaller vessels electrocautery



- Pull down and divide the nerves for them to retract

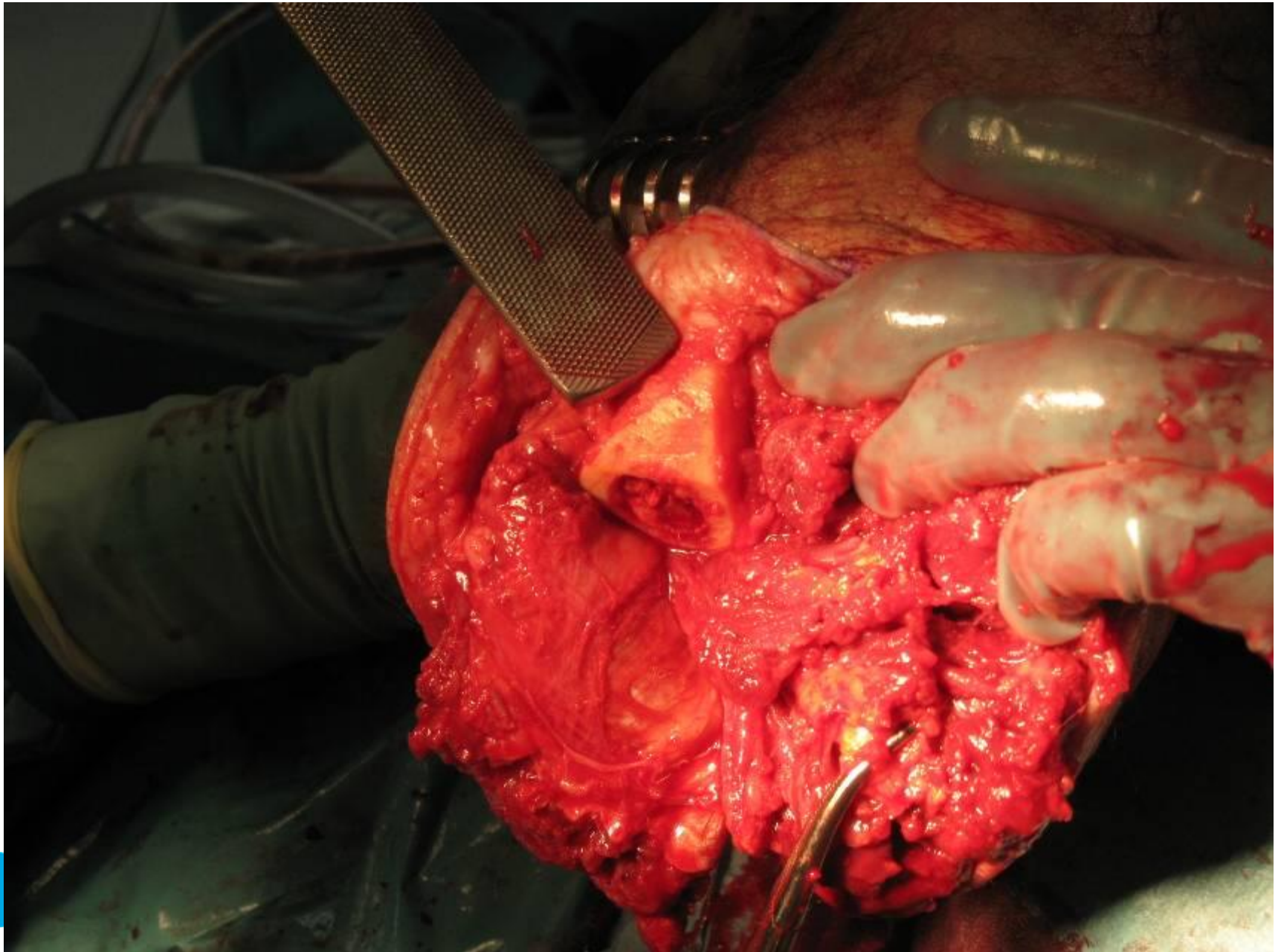


About sawing

- Cut tibia at the planned level (perpendicular, anterior third 45° upward)
- Fibula is cut $\sim 45^\circ$ in lateral direction, 1 cm shorter than tibia
- Cutting tibia 5 cm lower first is an option to get better access
- Always oscillating saw
- Make all edges smooth

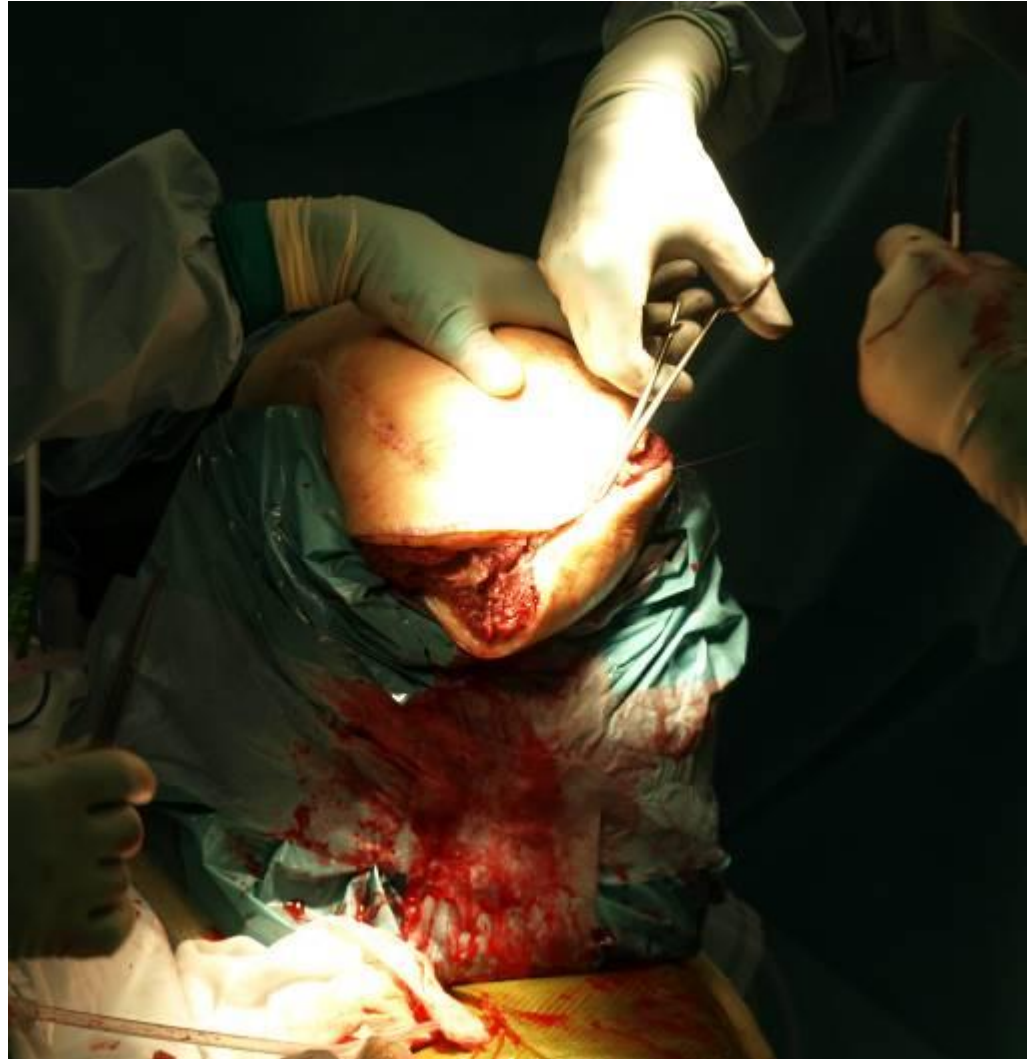






Closing

- Rinse thoroughly
- Put in a drain if needed
- Adapt fascia to fascia (myoplasty)
- Start in the middle



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- Single stitches, 3-0 or 4-0 nylon





AND ORTHOTICS

- Absorbing dressing – alginate or polyurethane



Sagittal flaps or long posterior flap?



Both give good results in the long run!



Dressing / TT level

- Soft dressing (any kind....)
- Semi rigid dressing (enhanced dressing e.g. with zinc..)
- Removable rigid dressing (Wu et al 1979...)
- Rigid dressing (cirkular plaster of Paris...)
- Vacuum rigid dressing



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Dressing / TT level

- Rigid dressing



- Future randomized trials on TTA dressing and management strategies are clearly needed to collect the evidence needed to best guide clinicians with the decision...

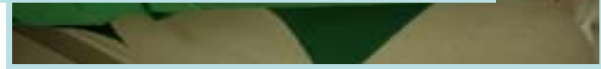
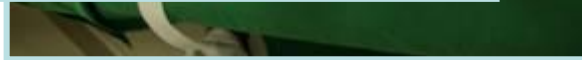
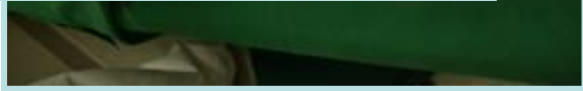
Rigid dressing

- To counteract edema
- To counteract contracture
- To protect against bumps
- Plaster of Paris or vacuum dressing



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Vacuum rigid dressing



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In the OR



In the OR



Take home message:

- Work together
 - You don't solve this problem alone.
 - Neither does the rest of your team (i.e. Physio or the CPO)
 - Together you can make a lot of difference for the outcome of an amputation
- There is now prosthetic solution that can compensate for badly preformed surgery!