Perioperative preparation for an osteosynthesis of a distal femoral fracture
Group discussion

Acknowledgements
Contributors
Yarek Brudnicki, Poland
Bernadeta Kaluza, Poland

Review
Susanne Baeuerle, Switzerland
Isabel Van Rie Richards, Switzerland
How to use this discussion?

Before the course
• Go through the presentation and make it your own. Add relevant pictures e.g. of drapes, material if you wish.
• Rehearse and make sure that the content is known.
• If you are two moderators (ORP and surgeon), decide on who will take the lead for which content.
• Some slides contain slide questions (titles).
• Other slides contain questions in the notes section which can be used.
• The hidden slides can be activated and discussed if wished.
• The reference list (slide 3) contains information for further reading.

During the course
• Lead the discussion by asking questions.
• Do not give another lecture!
• Motivate all participants to come up with the content.
<table>
<thead>
<tr>
<th>Topic</th>
<th>Reference</th>
</tr>
</thead>
</table>

Learning outcomes

At the end of the discussion the participants should be able to:

• Describe the fracture briefly
• Review the 4 AO principles of fracture fixation
• List nursing preparations for fixation of a distal femoral fracture

How to use the ppt?
• Focus on the 3 learning outcomes.
• The participants
  • Describe briefly the fracture.
  • Discuss possible treatment(s). In this discussion the treatment with LCP and screws is discussed.
  • Focus on peri-operative preparations for this particular treatment.

If available, use the workshop instruments to allow hands on individual instruments and to discuss and/or try out functionality of instruments.
Case presentation

Pedestrian (86y-old woman) hit by car
Closed distal femoral fracture
Severe osteoporosis

Include (exclude) diabetes type 2 with poor skin conditions according to your public.

This slide can be printed for the participants in case you wish them to follow the case during the discussion.
Briefly review the four principles of fracture fixation (if required). The participants have learned about this in a previous lecture. Explain that the entire case including preparation, treatment and after-care is based on these four principles.
Other item(s) which can be discussed here is/are:

1. What x-rays, images are required? (Both x-ray views (lateral and AP) are needed. Both joints are checked.)
2. Which bone(s) is(are) broken?
3. Which segment is broken?
4. Which fracture type is this?
5. Is this an open fracture? (An open fracture is suspected when the bone sticks out, black bubbles are present (which indicates air) and/or dirt is visible (e.g. metal).)
Describe the fracture

Bone: Femur
Segment: Distal
Fracture type: Extra-articular
Describe type of articular fracture

- Extraarticular
- Partial articular
- Complete articular

This slide can be included if wished.
How would you reduce the fracture?
How would you stabilize the fracture?

Other items which can be discussed here are:

1. What type of reduction will be performed? (direct or indirect, open or closed)
2. What are the principles of stabilization? (absolute or relative stability)
3. How could the fracture be fixed?
4. What healing is expected? (direct or indirect bone healing, primary or secondary bone healing)
For this distal femoral, extra articular fracture...

...a recommended treatment is plating with a condylar LCP and locking head screws.

This suggested treatment (see slide) will be discussed further in this discussion.

Another item which can be discussed here is:

1. What is the plate function of the suggested technique? Compression or splinting? (This locking compression plate functions as a splint/internal fixator (LCP+LHS))
Discuss the nursing preparations related to this case.
In the next slides the following will be discussed in more detail:

1. Planning (including positioning, preparing of equipment etc. and draping)
2. Instrument- and implant check (including WHO-checklist)
3. Procedure (including approach and technique)

We use «P.I.P.» to facilitate the three steps (PIP of Planning, Instruments and Procedure).
Nursing preparations
Pre-, intra and post operative process

1. Planning
2. Instrument- and implant check
3. Procedure

Starting with the planning process....
What do you need to prepare?

Instruments
Implants
Equipment

…what do you need to prepare?

Please discuss with your participants the following items. The participants should come up with items for each bullet point. The following slides are some illustrations of what should be prepared. You are free to include more slides with pictures if deemed required.
This slide shows only one set of instruments. The following hidden slides with instruments can be used if wished.

If available, use the workshop instruments to allow hands on individual instruments and to discuss and/or try out functionality of instruments.

1. Discuss material and equipment necessary for this type of intervention (Image intensifier, etc…).
2. Discuss which specific plates could be used.
3. Discuss which screws could be used (repeat lag screw procedure).
4. Discuss specific instruments for fracture fixation with LCP+LHS. Note: Not all instruments are on this picture!
5. Discuss use and intra-operative care and maintenance of specific instruments.
6. Ask the participants if the torque limiting screwdriver is also used for implant removal. Why not? (This is not required. The torque limited screwdriver is too expensive for this purpose.)
Instruments for distal femoral locking compression plate with locking head screws.
Use this slide only if wished.
Instruments for distal femoral locking compression plate with locking head screws.

Use this slide only if wished.
Reduction (distraction) tools
Implants

Plate head

Plate shaft

AO
Implants for distal femoral locking compression plate with locking head screws.

Use this slide only if wished.
How would you position the patient?

Reference: https://www2.aofoundation.org/wps/portal/surgery
How would you position the patient?

Other items which can be discussed here are:

1. Which possibilities for positioning exist?
2. Discuss safe positioning for the patient (accessories, OR-table, etc…).
3. Discuss tips and tricks.
4. Which complications might occur?
5. How can these complications be prevented?
What about these possibilities?

Reference: https://www2.aofoundation.org/wps/portal/surgery
How would you drape for this case?
Nursing preparations
Pre-, intra and post operative process

1. Planning
   • Preparing (Equipment, instruments and implants)
   • Positioning
   • Draping

2. Instrument- and implant check

3. Procedure

Questions which can be asked are:

1. What is the final check before skin incision? (refer to Surgical Safety Checklist, see next slides)
2. Who does this systemically?
3. What is exactly checked? (availability of instruments and implants or more)

Ask those participants who perform systematically a safety check:
1. If they use a checklist adapted to their hospital?
2. If they use a general type of list (see WHO-checklist, AOTrauma checklist)?
Discuss the WHO checklist if wished.
Also AOTrauma has created a time-out checklist as example. Note that the time-out is only 1 part of the surgical safety checklist.
Nursing preparations
Pre-, intra and post operative process

1. **Planning**
   - Positioning
   - Preparing (Equipment, instruments and implants)
   - Draping

2. **Instrument- and implant check**
   - WHO-checklist/AOTrauma-checklist

3. **Procedure**
   - Approach
   - Technique

Discuss the procedure step-by-step starting with the approach.
What approach could be done?

Other items which can be discussed here are:

1. Discuss the open, closed and/or minimally invasive approach.
2. What is the impact regarding the soft tissues?
What approach could be done?

Note: Drawing and picture are not from same case as x-rays!
What are the steps of procedure?

Participants come up with the steps of procedure. The next slide is a reminder and help which can be used once the participants have given their input.
What are the steps of procedure?

1. Reduce the fracture
2. Drill the thread hole
3. Measure the screw length
4. Insert the screw
What kind of mobilization after surgery is aimed for?

Other items which can be discussed here are:

1. Discuss the mobilization after surgery. (Movements of injured limb, weight bearing, …)
2. What are available community resources in your country to help mobilize the patient so that they get back home quicker?
3. How does the diabetes influence the healing process?
Let a participant make a summary on hand of the four AO principles of fracture fixation. Relate/Refer to the case discussed!

1. Type of reduction (direct or indirect, open or closed)
2. Principles of stabilization and fixation (absolute or relative stability) with healing expected
3. Impact of soft tissue (approach)
4. Expected mobilization after surgery (limb, patient as a whole, weight bearing)
Conclusion

• The 86-year-old lady with a distal extraarticular femoral fracture is treated with a locking compression plate and locking head screws.
• Closed reduction is performed.
• Internal fixation will provide relative stability and secondary bone healing.
• The case is prepared following «P.I.P.».