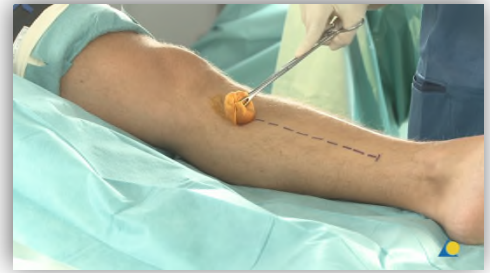


Skin preparation for osteosynthesis of a closed tibia fracture



Critical points

1. The patient develops allergic reactions.

Action:

- Read information on patient allergies (and ask the patient, if possible) before skin preparation.

2. The skin preparation causes complications such as burns, etc.

Action:

- Avoid pooling of the disinfection liquid (in skin folds, under the patient, around and under the tourniquet, near and under the electrodes).

Note

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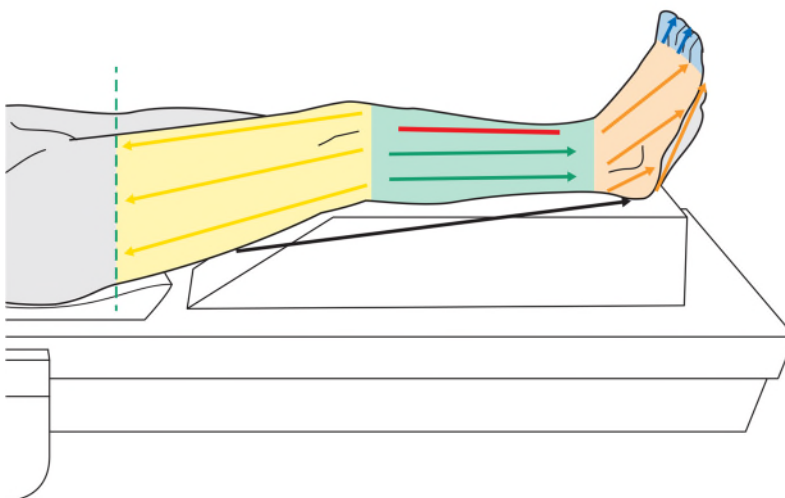
Allergies of the patient are checked before skin preparation.

For closed fractures the "from-in-to-out" technique is followed.

3. The skin preparation is not performed correctly and might cause an infection.

Action:






- Follow the correct prepping process, using an aseptic technique (from clean to dirt; for closed fractures this is the "from-in-to-out" technique).



Incision area ————

Disinfection boundary point - - - - -

Fig 1 Disinfection Procedure:

1. Away from incision 
2. From incision to proximal 
3. Anterior side of the foot (excluding toes) and plantar 
4. Toes and space between digits 
5. Dorsal side of the leg: from proximal to distal, finishing with plantar 

Procedure

This is a suggested procedure. Please follow the guidelines and instructions of your hospital.

Good understanding and optimal collaboration of all team members is crucial during patient preparation, e.g. skin prepping, and will lead to an optimal outcome.

1. Prepare the following materials:
 - Stainless steel cup
 - Antimicrobial agent
 - Sterile sponges (minimum 8)
 - Sponge holding forceps
 - Sterile towel (to hold the foot) (two)
 - Sterile gloves (for runner and resident)
 - Hand disinfectant

Note

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The entire skin preparation is repeated three times.

Each sponge is used for one procedure.

Do not touch skin that has already been prepped with the sponge after reaching the boundaries.

2. Ask patient (if possible), whether they have any allergies (also refer to "Sign in"-procedure of the Surgical Safety Checklist).
3. Install anesthetic frame.
4. Prepare extremity that will be disinfected. Expose only the area that will be prepped to ensure privacy and warmth of the patient.
5. Inspect skin (for cleanness and injuries). Remove nail polish, jewelry, and piercings of the patient.
 - Centers for Disease Control and Prevention (CDC) recommends bathing or showering the patient with an antiseptic agent the night before surgery.
 - Clean the visible dirt with water and soap before the disinfection process starts.
6. If required, install the tourniquet and electrode for monopolar diathermy.
7. Place a paper towel under the extremity to absorb excess of disinfection liquids.
8. Disinfect skin:
 - Prep the skin in circular or linear movements starting at the incision area towards the periphery. The principle of "clean-to-dirt" is respected. Mechanical friction is important.
 - The area to be prepped for a closed fracture of the tibia includes the entire extremity (anterior and posterior) up to the middle of the femur including foot and toes.
 - First the anterior side is disinfected following the in-to-out technique.
 1. Foot and toes are last.
 2. Once the boundaries have been reached, the sponge is discarded. The sponge is never brought back over the clean area. This is repeated three times.
 - Second the posterior side is disinfected from proximal to distal (including heel).
 1. The resident holds the leg up. This is done with sterile gloves and by wrapping a sterile towel around the toes. The extremity is pulled up. The operating table is lowered (or a step is used).
 2. Also here once the boundaries have been reached, the sponge is discarded. This is repeated three times.
 - Check that "not disinfected islands" are absent.
 - Contaminated areas such as stomas and draining wounds are done last.
 - The resident receives another small sterile drape which he uses to support the leg by holding the heel.

Guidelines for recommended practice

1. **Check that the skin is clean.** A preoperative bath or shower is recommended.
2. Pooling of liquids is avoided by **protecting the surrounding areas** with absorbent sheets.
3. Only **approved agents** which have immediate, cumulative, and persistent action are used. **Correct use**, recommended by the manufacturer is strongly advised:
 - Friction and pressure increase the effect against resident and transient micro-organisms.
 - The antimicrobial agent is air-dried.
4. The **disinfection procedure** is performed:
 - With sterile supplies and gloves
 - Moving from the incision area to the periphery in case of aseptic procedure
 - Without touching non-sterile areas such as table, sheets, etc.

Once the boundaries of the prepping area are reached, the sponge must be discarded, as it cannot be brought back over the clean area. Repeat this procedure two more times.

5. **Contaminated areas require special attention** and should be prepped last.
 - The inside-out technique is carried out for closed fractures.
 - The outside-in technique is carried out for open fractures, wounds, and other contaminated areas.
6. Remove all absorbent sheets without contaminating the disinfected area.

Reference(s)

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