

**NAME OF MEETING: International Trauma Care Forum**

**DATE: Thursday, October 18**

**TIME: 9:16 -9:24 am**

**Title of Talk:** Osteoporotic Bone: When and How to Use Augmentation (8 minutes)

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Implant failure in fixing proximal femur fractures is often reported in osteoporotic bone. Aside wrong screw placement the reduced ability to anchor the implant in poor bone is given as reason. Especially the osteoporotic bone is sensitive to pull out of screws or loosening. Anchoring of implants can be improved by increasing the surface of the tip. Therefore, augmentation by injection of cement through the far end of the implant is a valuable option.

Cement augmentation of implants is based on the application of special formula adapted PMMA cements. The adaption is made for better viscosity (injection), longer time to handle the cement outside the patient and for reduced temperature while hardening (below 56° Celsius).

Usually augmentation is an add on to standard proximal femur nailing. The decision for augmentation (depending on the used device) can be made preoperatively (analysis of bone quality) or intraoperatively.

Before injecting the cement , a leakage control has to be done using standard contrast agent in order to exclude extravasation of the cement into the adjacent joint.

Studies on augmentation showed, that the additional use of cement in a standardized way seems to be safe in treatment of pertrochanteric fractures as it did not lead to additional related complications.

Augmentation did not result in a significant improvement in patients' walking ability 3 to 14 days after surgery compared to patients with a non-augmented nail.

Proximal femur nail augmentation furthermore might have the potential to prevent reoperations related to implant failures by strengthening the osteosynthesis construct.

Lit.: Cement augmentation of the Proximal Femoral Nail Antirotation (PFNA) – A multicentre randomized controlled trial , Christian Kammerlander, Einar S. Hem, Tim Klopfer, Florian Gebhard, An Sermon, Michael Dietrich, Olaf Bach, Yoram Weil, Reto Babst, Michael Blauth. Injury, Int. J. Care Injured 49 (2018) 1436–1444