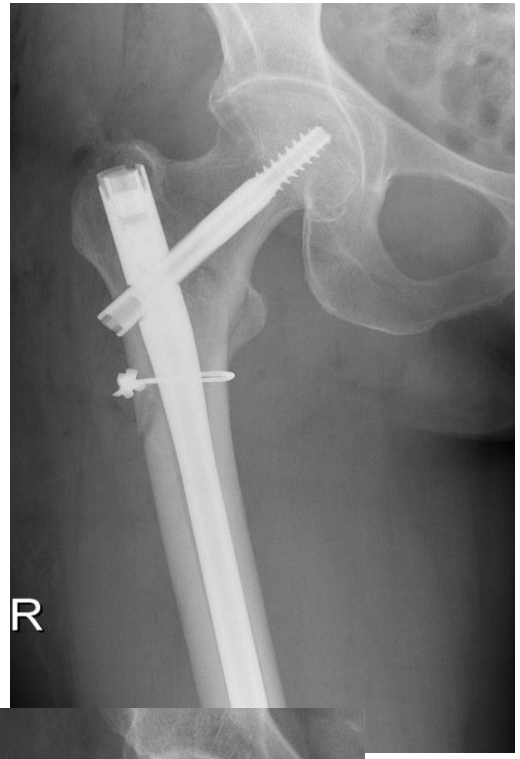
Pertrokantære

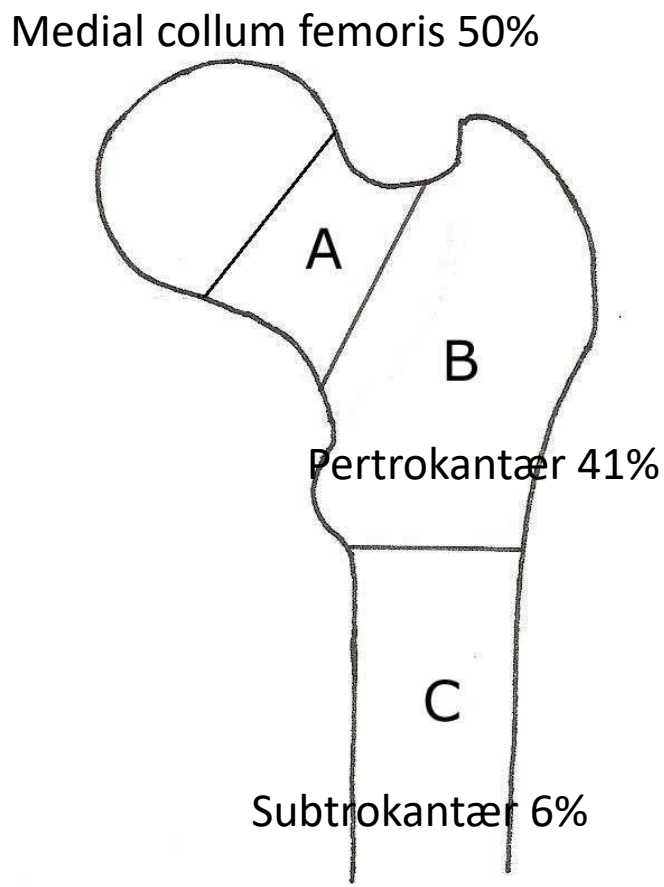
Frakturtyper og behandling

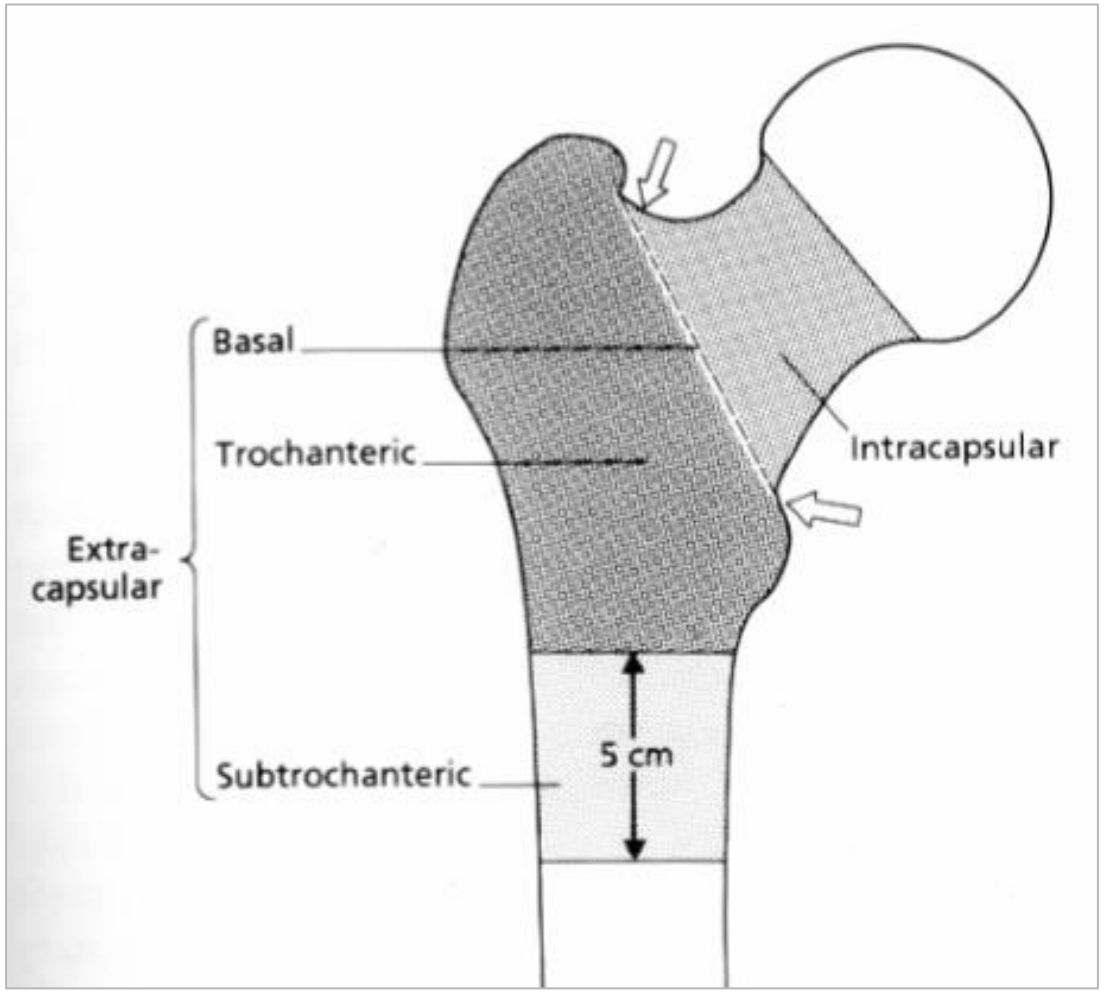
LBI



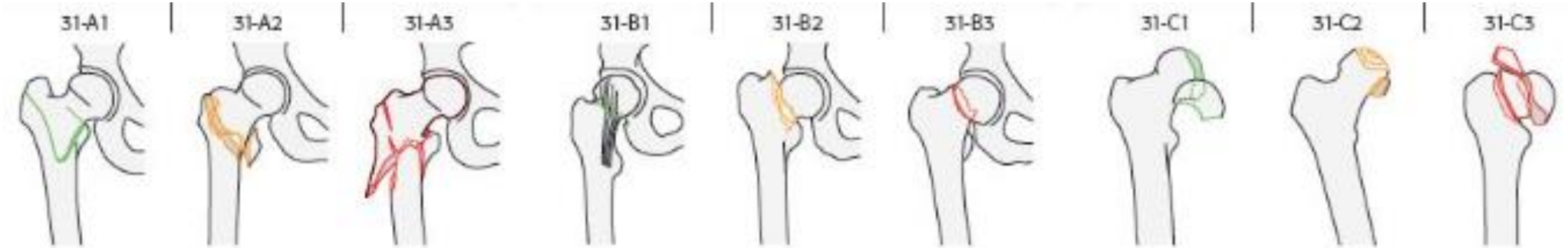
Baggrund

- 8000 hoftefrakturer årligt (Nymark, 2006)
- 1-årsmortalitet konstant ~30%
- Re-operationsrate op til **10-30%** (HFN refprog 08)




Basal
Trochanteric
Extra-
capsular
Subtrochanteric
5 cm
Intracapsular

Klassifikation

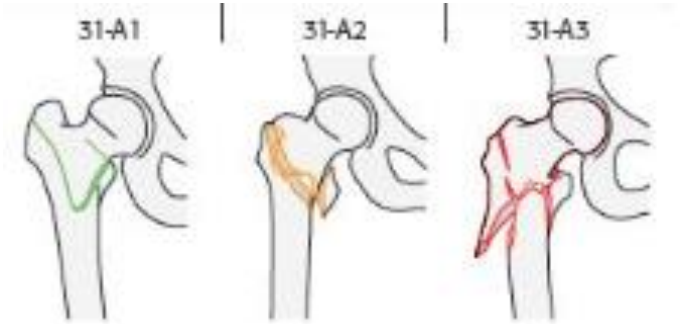


31-A extraarticular fracture, trochanteric area
31-A1 pertrochanteric simple
31-A2 pertrochanteric multifragmentary
31-A3 intertrochanteric

31-B extraarticular fracture, neck
31-B1 subcapital, with slight displacement
31-B2 transcervical
31-B3 subcapital, displaced, nonimpacted

31-C articular fracture, head
31-C1 split (Pipkin)
31-C2 with depression
31-C3 with neck fracture

Subklassifikation



31-A extraarticular fracture, trochanteric area
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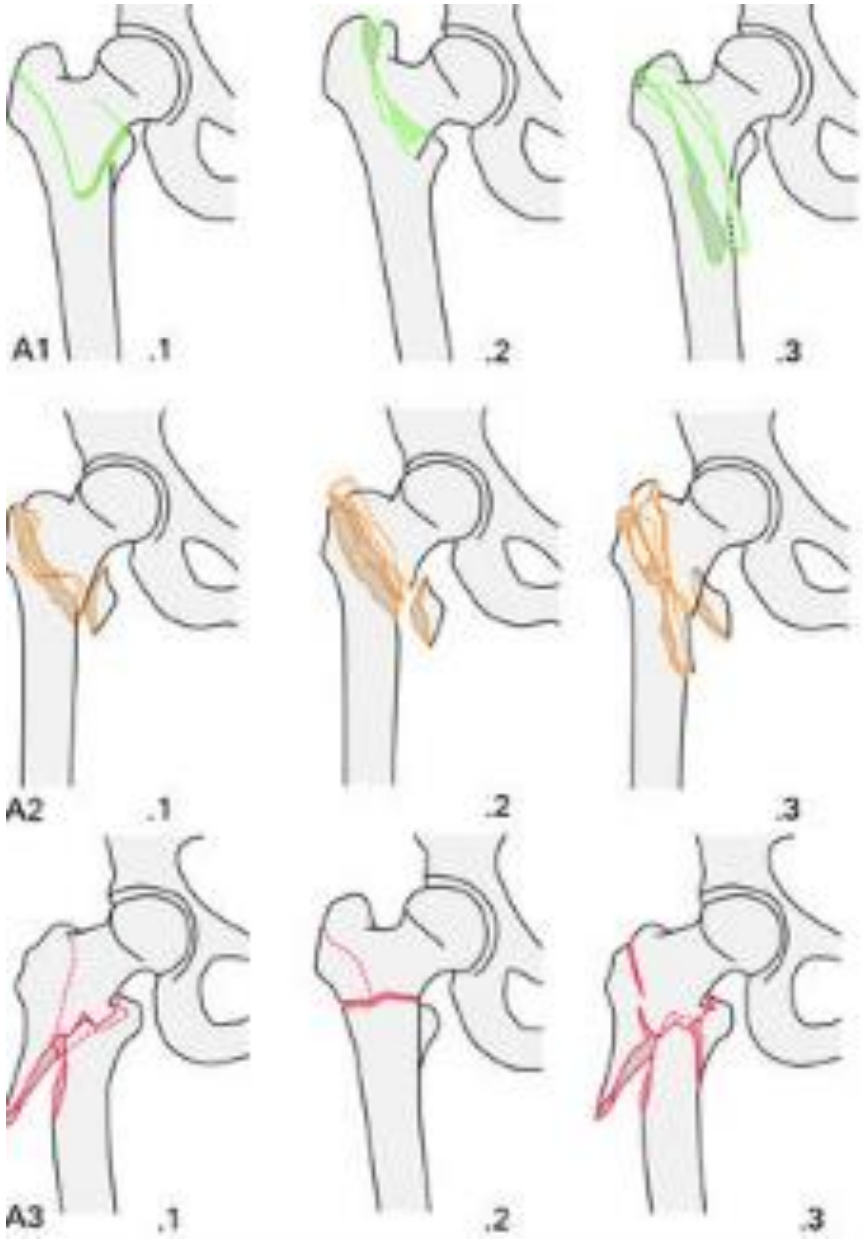
31-A2 pertrochanteric multifragmentary
31-A3 intertrochanteric



Diagnostik

- Fald mod hoften > 65 årig = radiologi
- Unge med pertrokantær fraktur = højenergi?

- Bækken + hofte i 2 plan oftest rigeligt
- CT/MR på indikation
- Smertebehandling
- Klargøring til operation

Mange (historiske) implantater

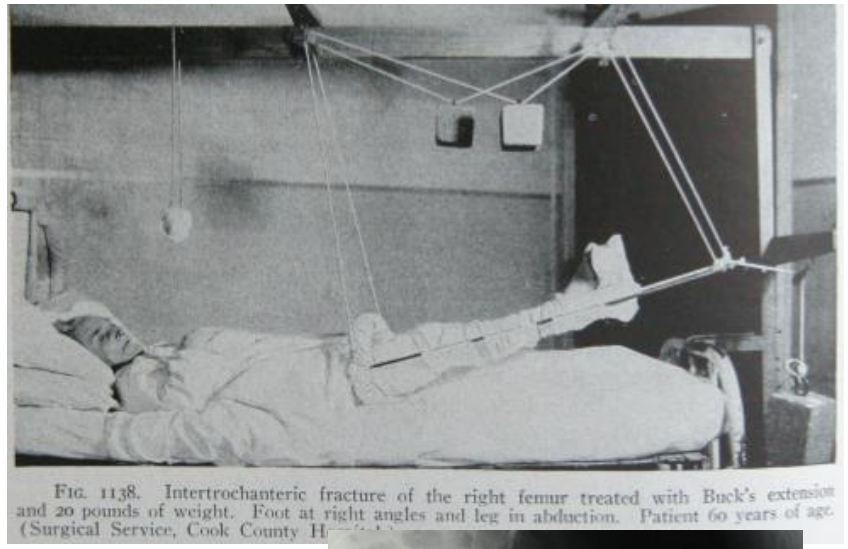
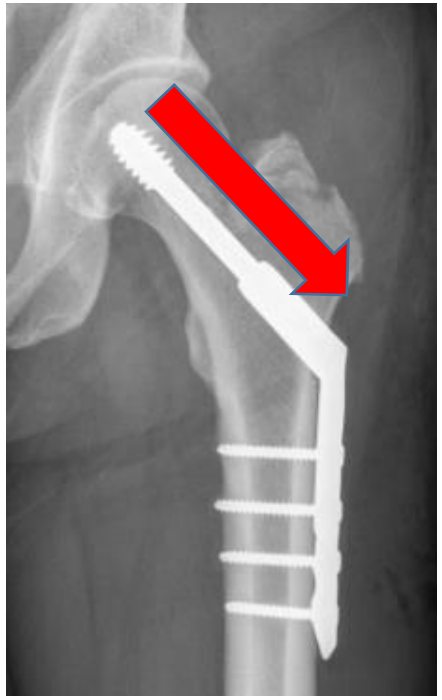


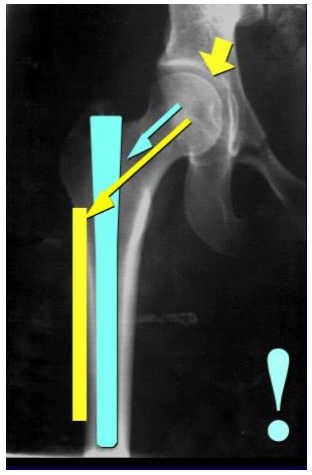
FIG. 1138. Intertrochanteric fracture of the right femur treated with Buck's extension and 20 pounds of weight. Foot at right angles and leg in abduction. Patient 60 years of age. (Surgical Service, Cook County H

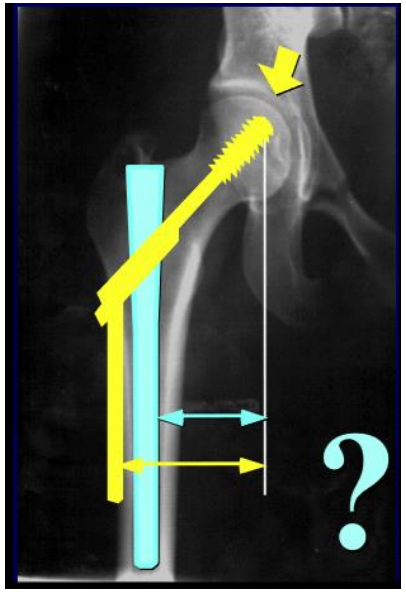
Implantater anno 2019

Biomekanik

- For glideskrue og (trokantært) marvsøm gælder:
  - Styret sammensintring
  - Uden perforation af caput
- Intramedullær vs extramedullær:
  - Bedre biomekanik ved søm??
  - Søm bremser medial drift







Faktorer af betydning

- Knoglekvalitet
- Frakturtype
- Stabilitet
- Valg af implantat
- Reposition af fraktur
- Placering af glideskrue
- Operatør/supervision

Faktorer af betydning

- Knoglekvalitet
- Frakturtype
- Stabilitet

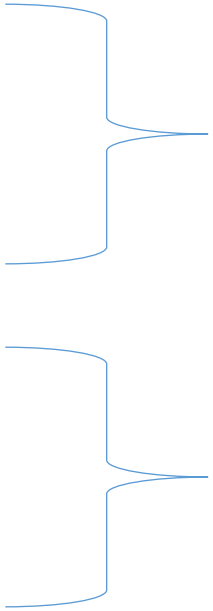
Givne konditioner

- Valg af implantat
- Reposition af fraktur
- Placering af glideskrue

Modificerbare konditioner

Faktorer af betydning

- Knoglekvalitet
- Frakturtype
- **Stabilitet**
- Valg af implantat
- Reposition af fraktur
- Placering af glideskrue

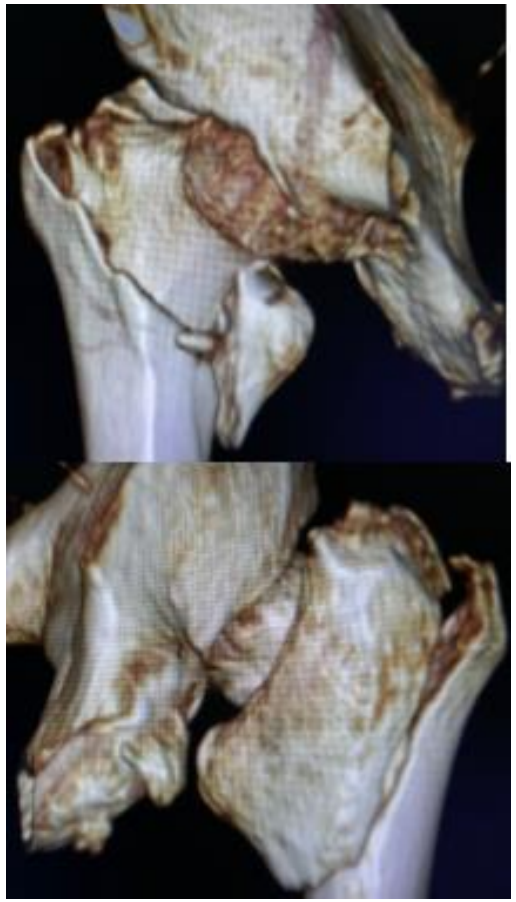


Givne konditioner

Modificerbare konditioner

Instabilitet

- (større) medial/posteromedial/minor fragment
- Ingen/minimal lateral væg
- 31A3 frakturerne
- Udbredelse til subtrokantære område



Faktorer af betydning

- Knoglekvalitet
- Frakturtype
- Stabilitet
- **Valg af implantat**
- Reposition af fraktur
- Placering af glideskrue

Givne konditioner

Modificerbare konditioner

Valg af implantat

Cochrane 10

Gamma and other cephalocondylic intramedullary nails versus extramedullary implants for extracapsular hip fractures in adults (Review)

With its lower complication rate in comparison with intramedullary nails, and absence of functional outcome data to the contrary, the SHS appears superior for trochanteric fractures. Further studies are required to confirm whether more recently developed designs of intramedullary nail avoid the complications of previous nails. Intramedullary nails may have advantages over fixed angle plates for subtrochanteric and some unstable trochanteric fractures, but further studies are required.

Cochrane 14

Intramedullary nails for extracapsular hip fractures in adults (Review)

The limited evidence from the randomised trials undertaken to date is insufficient to determine whether there are important differences in outcome between different designs of intramedullary nails used in treating extracapsular hip fractures. Given the evidence of superiority of the sliding hip screw compared with intramedullary nails for extracapsular hip fractures, further studies comparing different designs of intramedullary nails are not a priority. Any new design should be evaluated in a randomised comparison with the sliding hip screw.

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Insufficient evidence

SHS er "Gold standard"

Skal alle så bare have en DHS??

- Nej
- Cochrane er ikke bedre end de inkluderede studier.

- Er DHS det rigtige implantat til ALLE pertrokantære??
- Nej

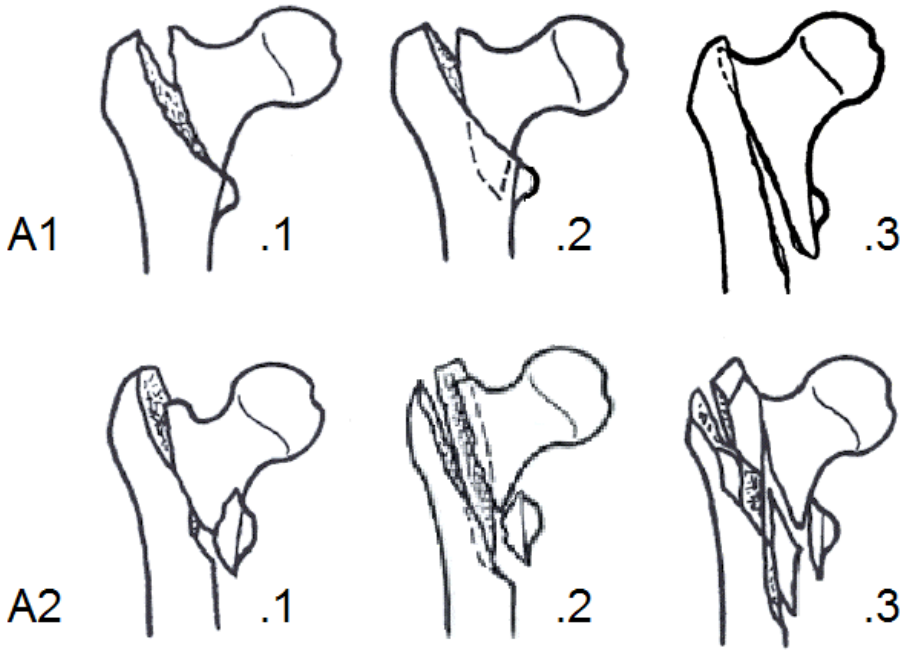
Lateral væg

Integrity of the Lateral Femoral Wall in Intertrochanteric Hip Fractures: An Important Predictor of a Reoperation

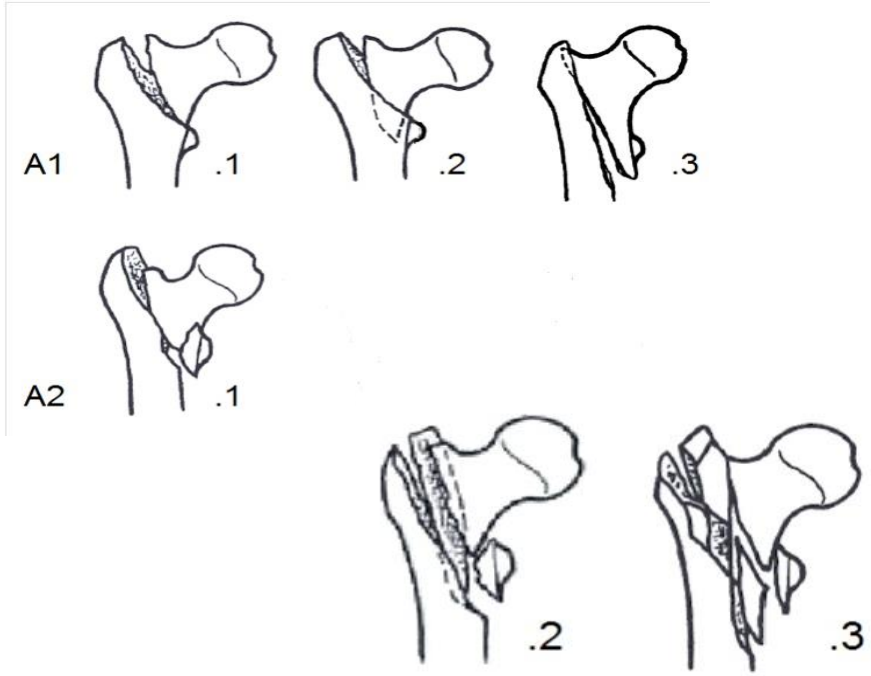
By Henrik Palm, MD, Steffen Jacobsen, MD, Stig Sonne-Holm, MD, DMSc, and Peter Gebuhr, MD, on behalf of the Hip Fracture Study Group

JBJS (am) 07

- 214 ptt A1 + A2.
- Alle OP med DHS
- Lateral væg intakt præ- vs. post-OP



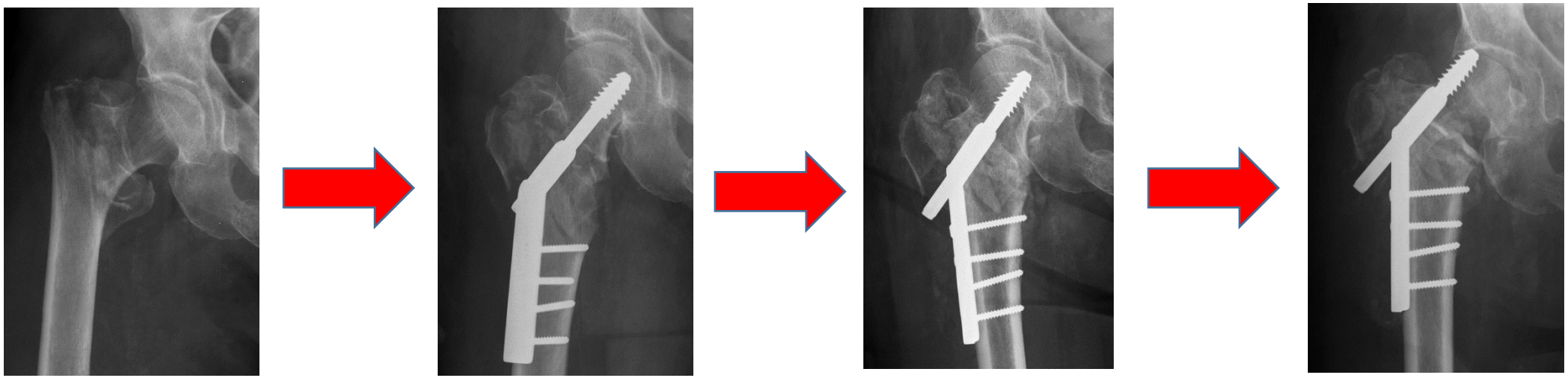
Lateral væg



- Iatrogen peroperativ fraktur: 3%

- Iatrogen peroperativ fraktur: 31%

- 22 % risiko for omdannelse af A1/A2 fraktur til A3



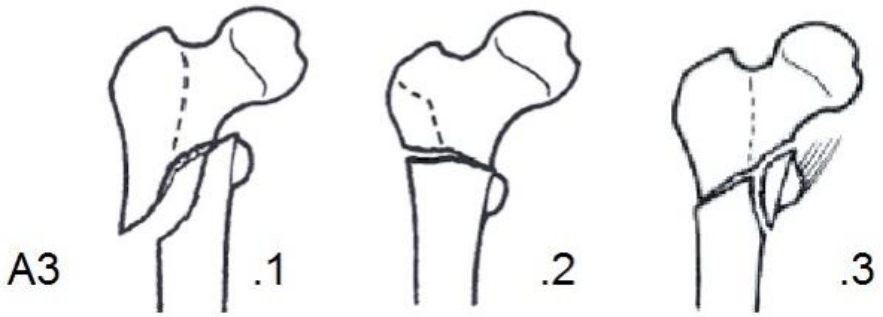
Hvad med A3?

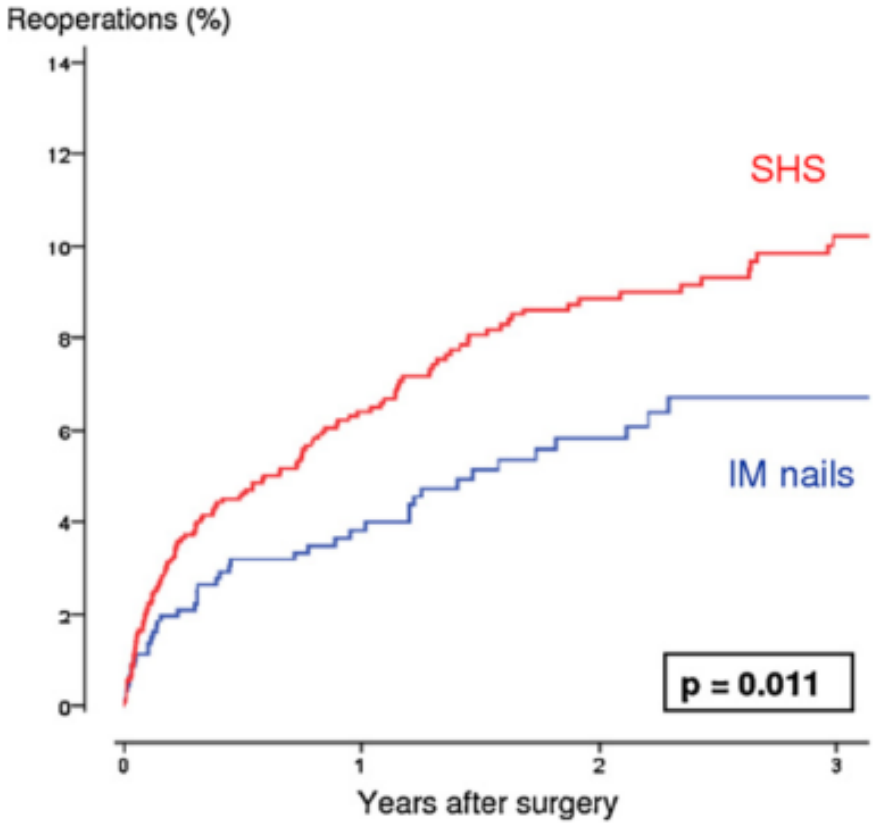
Sliding hip screw versus IM nail in reverse oblique trochanteric and subtrochanteric fractures. A study of 2716 patients in the Norwegian Hip Fracture Register

Kjell Matre[a,*], Leif Ivar Havelin[a,b], Jan-Erik Gjertsen[a], Tarjei Vinje[a], Birgitte Espehaug[a,c], Jonas Meling Fevang[a]

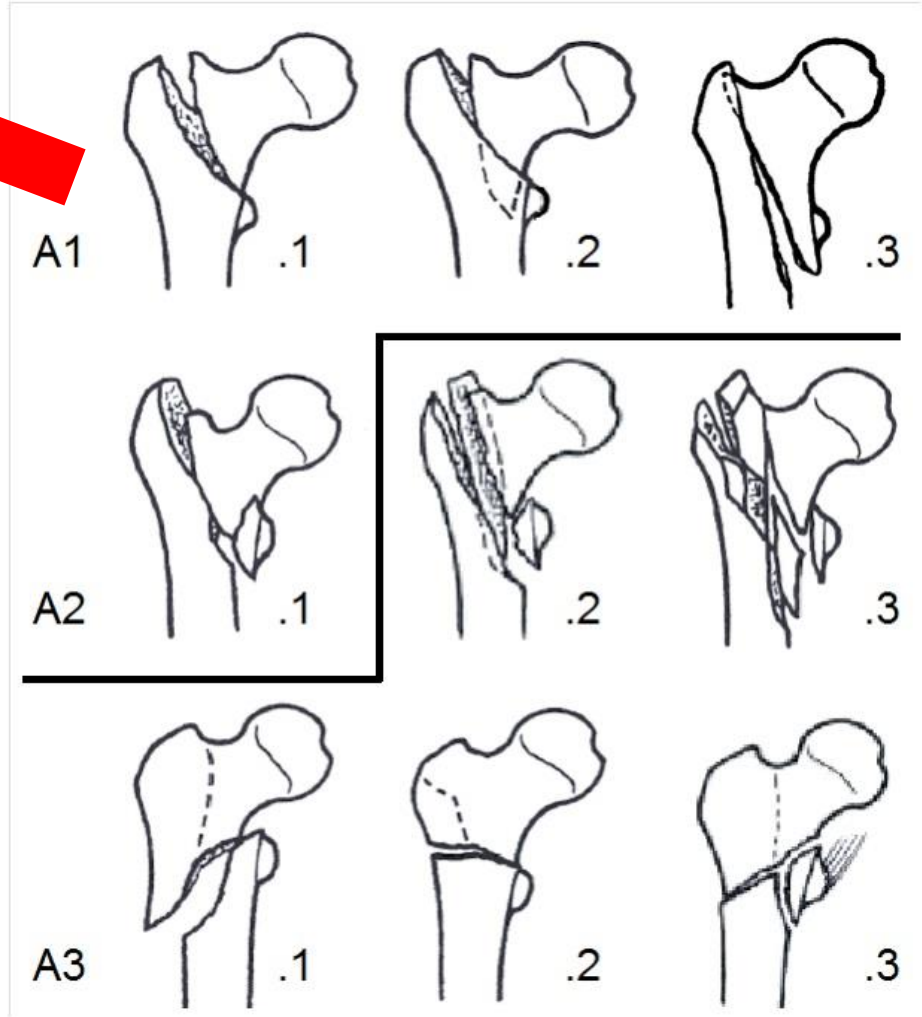
Injury 12

- IMN vs SHS A3 frx
  - SHS + TSP 63%
  - Langt IMN 74%
- Sign færre smerter 1 år post op ved IMN





Valg af implantat



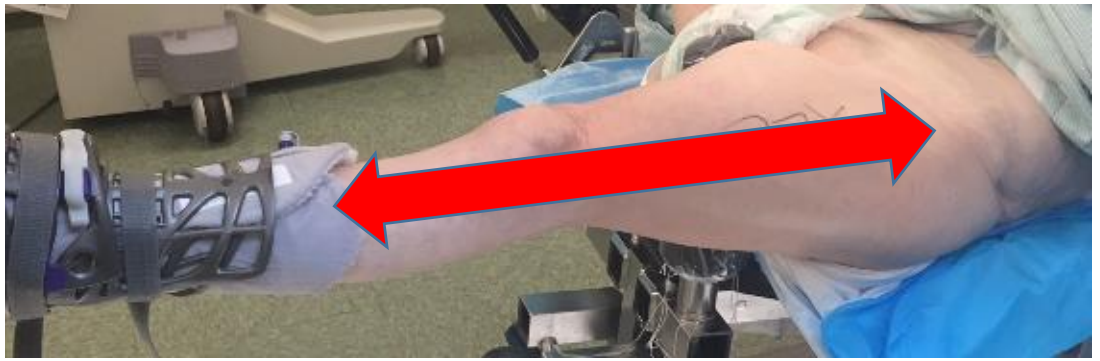
Faktorer af betydning

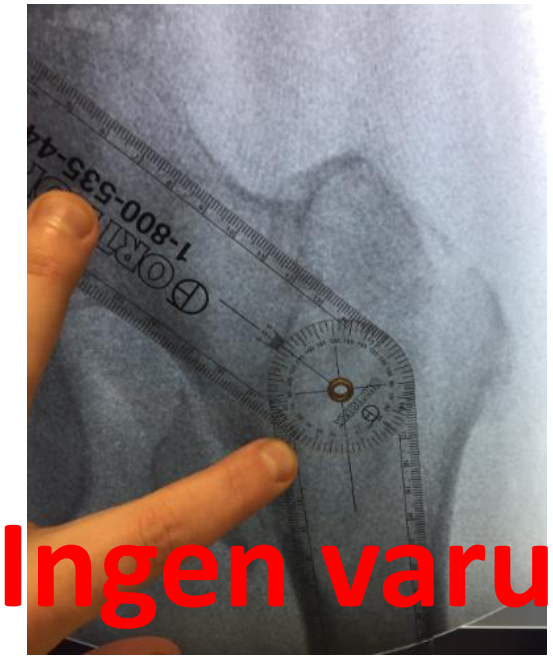
- Knoglekvalitet
- Frakturtype
- Stabilitet
- Valg af implantat
- **Reposition af fraktur**
- Placering af glideskrue

Givne konditioner

Modificerbare konditioner

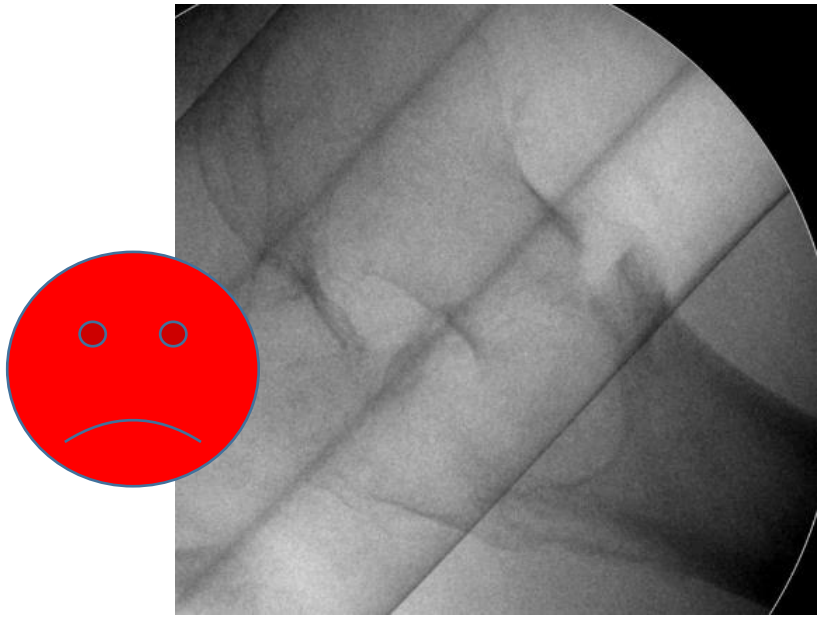
Reponering – AP plan

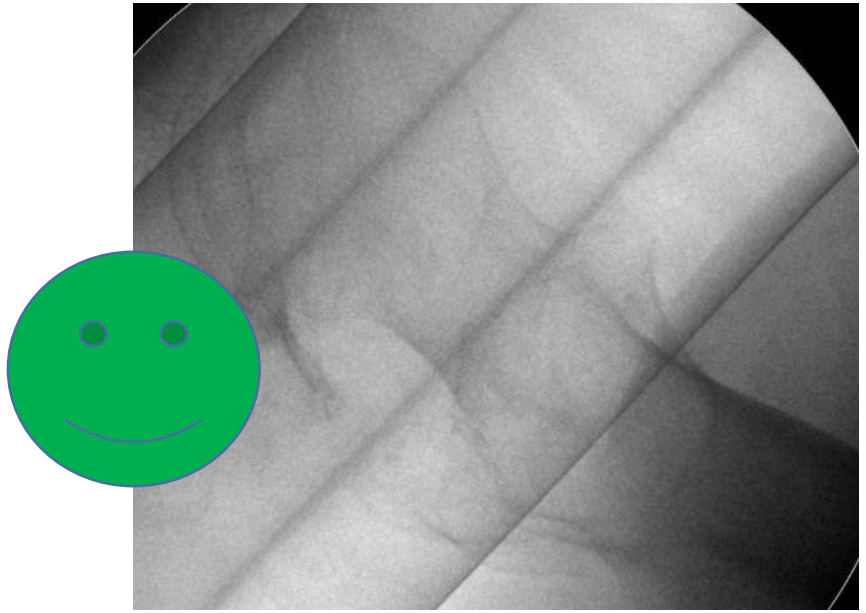




Ingen varus

Reponering - sideplan





Faktorer af betydning

- Knoglekvalitet
- Frakturtype
- Stabilitet
- Valg af implantat
- Reposition af fraktur
- **Placering af glideskrue**

Givne konditioner

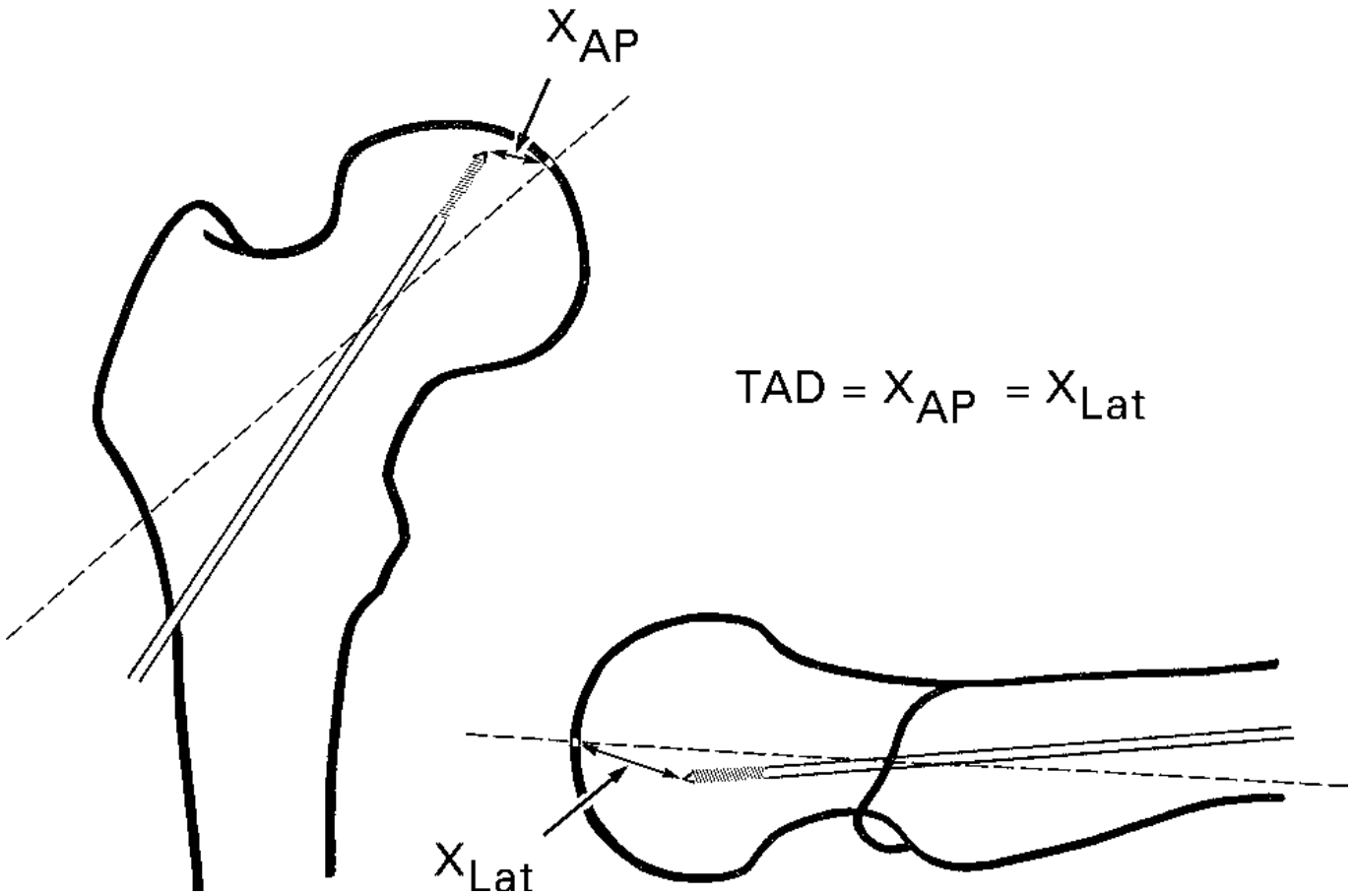
Modificerbare konditioner

Placering af glideskrue

The Value of the Tip-Apex Distance in Predicting Failure of Fixation of Peritrochanteric Fractures of the Hip*

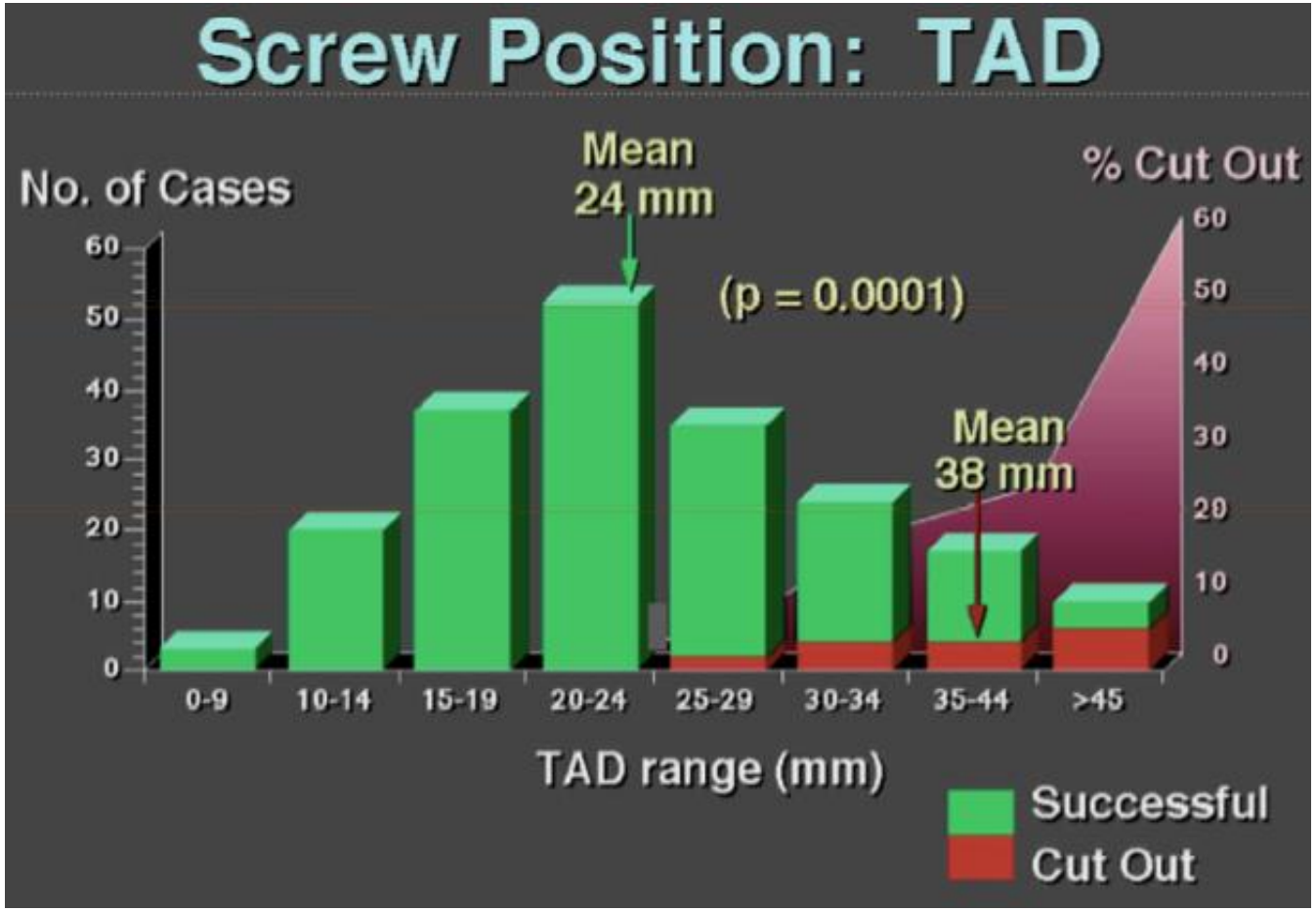
BY MICHAEL R. BAUMGAERTNER, M.D.†, STEPHEN L. CURTIN, M.D.†, DIETER M. LINDSKOG, B.A.†, AND JOHN M. KEGGI, M.D.‡, NEW HAVEN, CONNECTICUT

JBJS (Am), 95

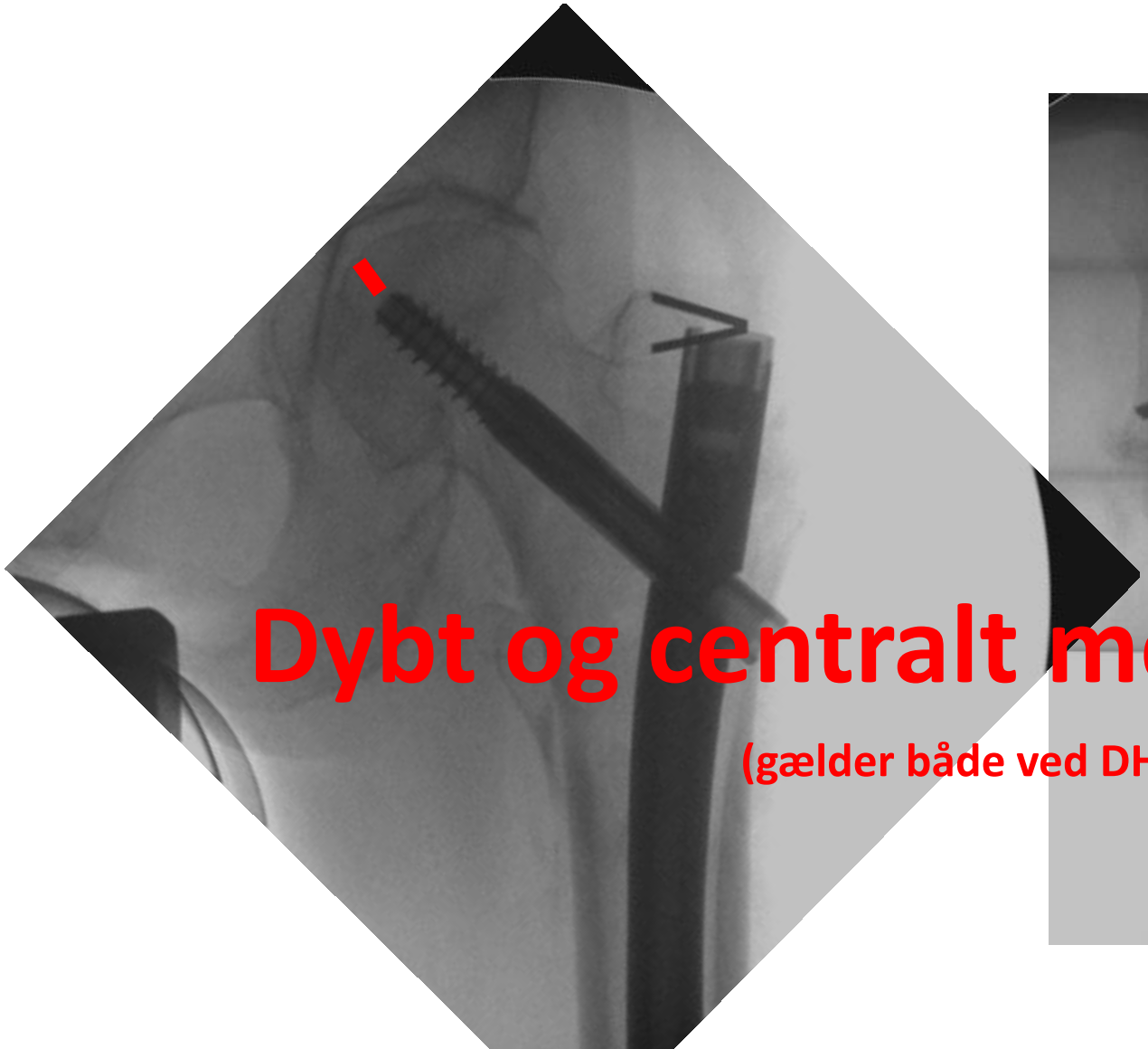


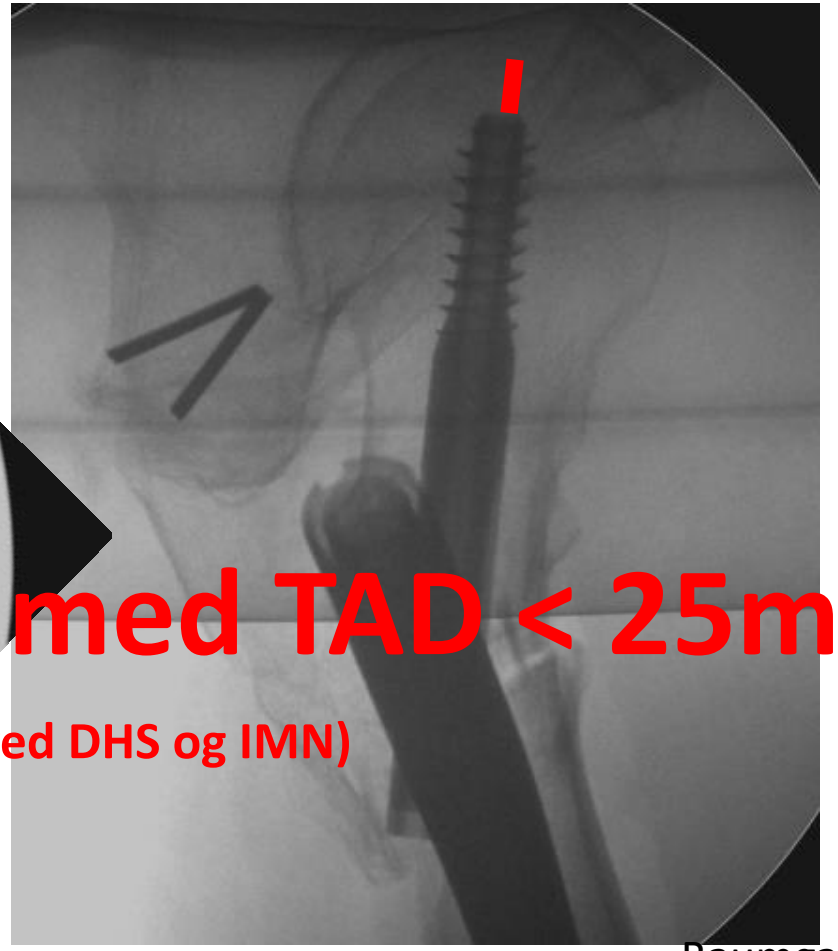
$$TAD = X_{AP} = X_{Lat}$$

Placering af glideskrue



Placering af glideskrue





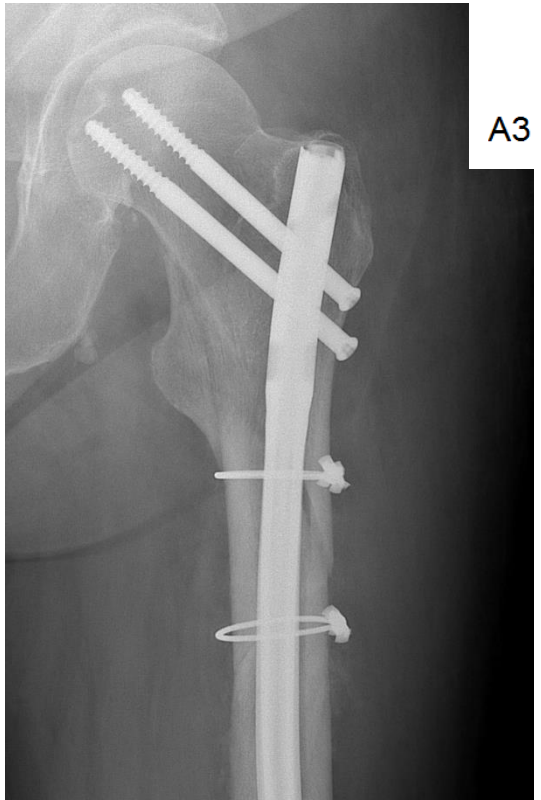
Dybt og centralt med TAD < 25mm

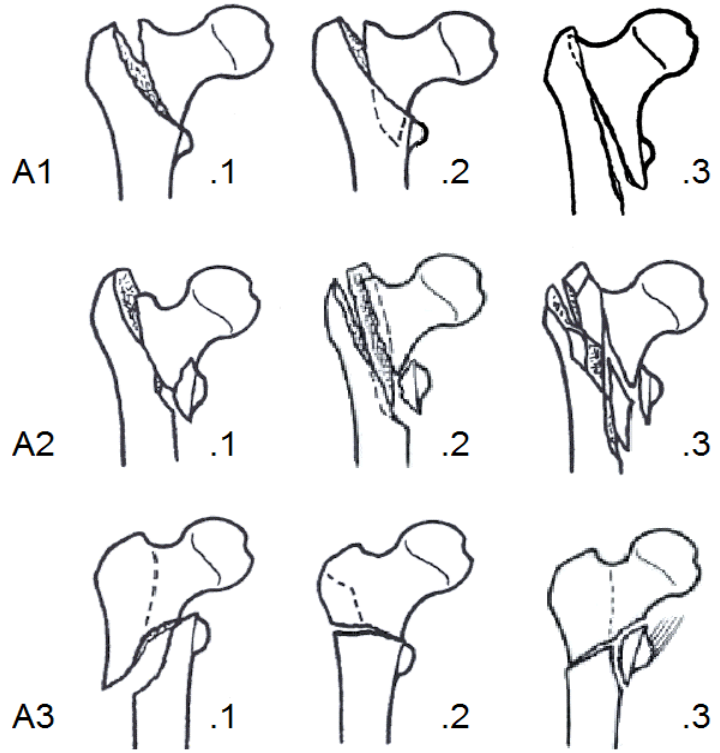
(gælder både ved DHS og IMN)

Baumgaertner, JBJS (Am), 95
Bruijn, JBJS (Am), 12

Summasummarum

- Læs frakturen
- Søm til de ustabile frakturer
- DHS til de stabile frakturer
- Reponer frakturen – ingen varus!!
- TAD < 25 mm

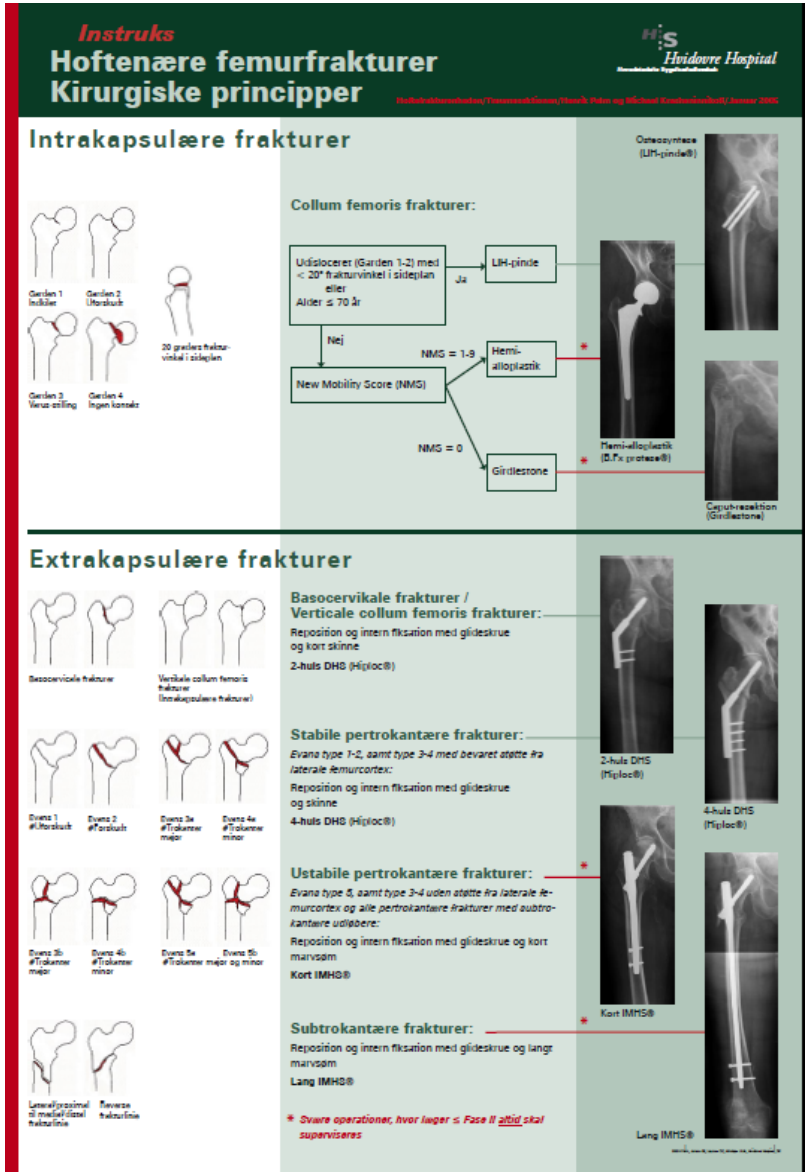




Algoritme/flowchart kirurgi

- Behandler efter bedste (foreliggende) evidens
- Og:
  - Opfinder ikke de dybe tallerken hvergang
  - Undgår fikse ideer
  - Letter indlæringen hos YL
  - Skiller de ”nemme” fra de ”svære” operationer

- Hvad med reoperationerne??



Re-operation – alle hoftefraktur

• DOS referenceprogram:	10-30%	(2008)
• Hvidovre algoritme:	18% -> 12%	(2012)
• Validering (AAS):	12% -> 8%	(2014)
• DFDB:	3.3%	(feb 2019)

A new algorithm for hip fracture surgery

Reoperation rate reduced from 18% to 12% in 2,000 consecutive patients followed for 1 year

Henrik Palm[1], Michael Krasheninnikoff[1], Kim Holck[1], Tom Lemser[1], Nicolai Bang Foss[2], Steffen Jacobsen[1], Henrik Kehlet[3], and Peter Gebuhr[1]

Acta 12

Implementing, Adapting, and Validating an Evidence-Based Algorithm for Hip Fracture Surgery

Ilija Ban, MD, Henrik Palm, MD,† Lasse Birkelund, MD,* Jacob Eschen, MD,* Søren Kring, MD,* Michael Brix, MD,*‡ and Anders Troelsen, MD, PhD, DMSc*†*

JOT 14

Re-operation - pertrokantære

- DOS referenceprogram: 10-30% (2008)
- Hvidovre algoritme: 13% -> 7% (2012)
- Validering (AAS): 9% -> 5% (2014)
- DFDB: 3.1% (feb 2019)

A new algorithm for hip fracture surgery

Reoperation rate reduced from 18% to 12% in 2,000 consecutive patients followed for 1 year

Henrik Palm[1], Michael Krasheninnikoff[1], Kim Holck[1], Tom Lemser[1], Nicolai Bang Foss[2], Steffen Jacobsen[1], Henrik Kehlet[3], and Peter Gebuhr[1]

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JOT 14

Et par tips/tricks

THE JOURNAL OF BONE & JOINT SURGERY · JBJS.ORG
VOLUME 91-A · NUMBER 3 · MARCH 2009

AAOS
AMERICAN ACADEMY OF ORTHOPAEDIC SURGEONS

Intertrochanteric Fractures: Ten Tips to Improve Results

By George J. Haidukewych, MD

An Instructional Course Lecture, American Academy of Orthopaedic Surgeons

ELSEVIER

Contents lists available at ScienceDirect

Injury

journal homepage: www.elsevier.com/locate/injury

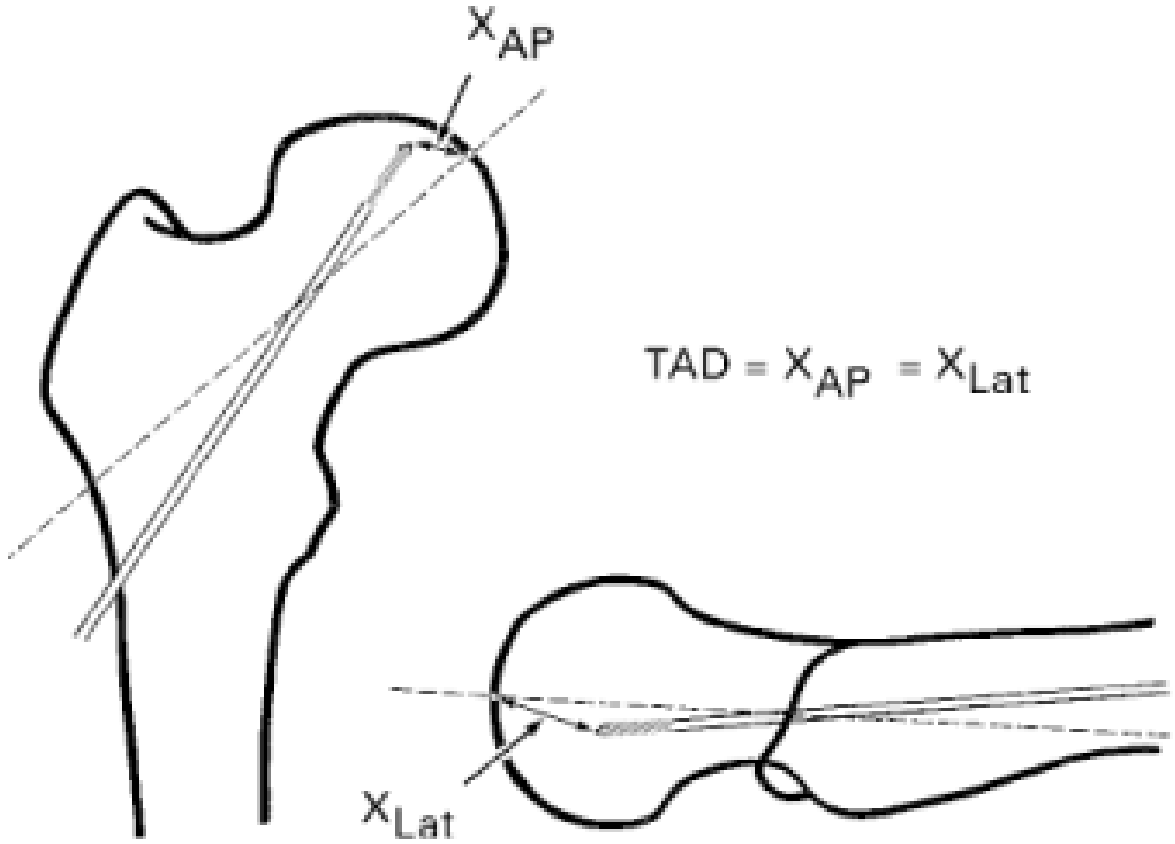
Common complications in hip fracture surgery: Tips/tricks and solutions to avoid them

Theodoros H. Tosounidis [a,b], Raul Castillo [a], Nikolaos K. Kanakaris [a], Peter V. Giannoudis [a,b,*]

[a] Academic Department of Trauma & Orthopaedic Surgery, University of Leeds, Clarendon Wing, Floor A, Great George Street, Leeds General Infirmary, LS1 3EX Leeds, UK
[b] NIHR Leeds Biomedical Research Unit, Chapel Allerton Hospital, Leeds, West Yorkshire, Leeds LS7 4SA, UK

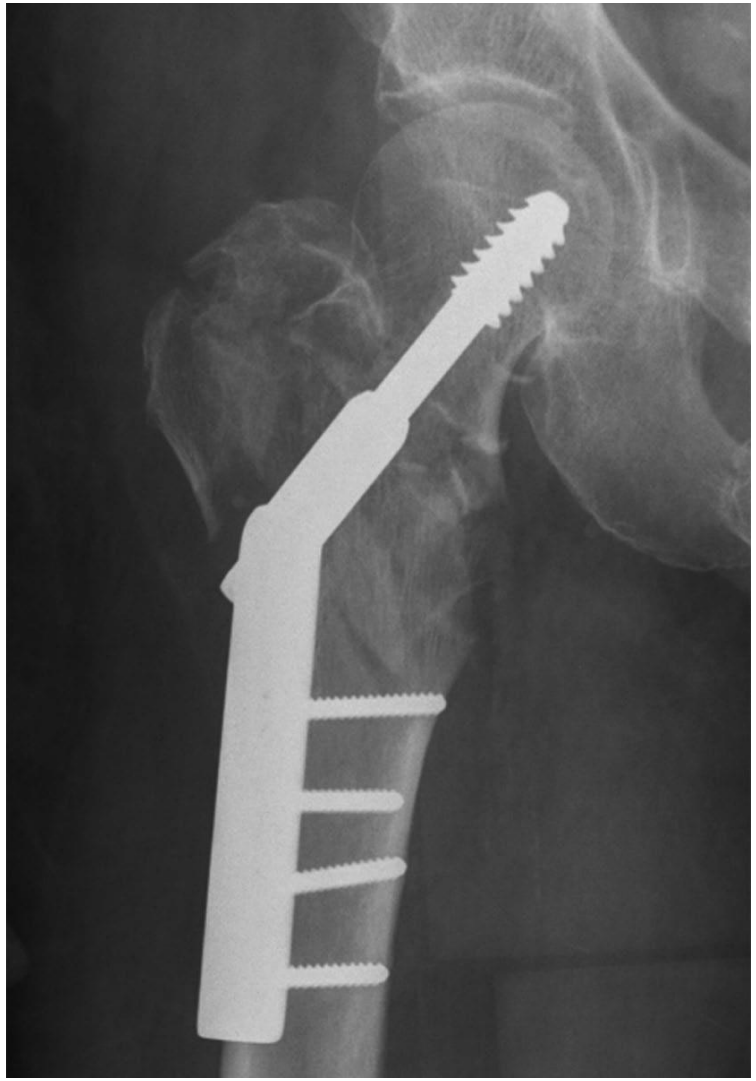
#1

- TAD < 25 mm



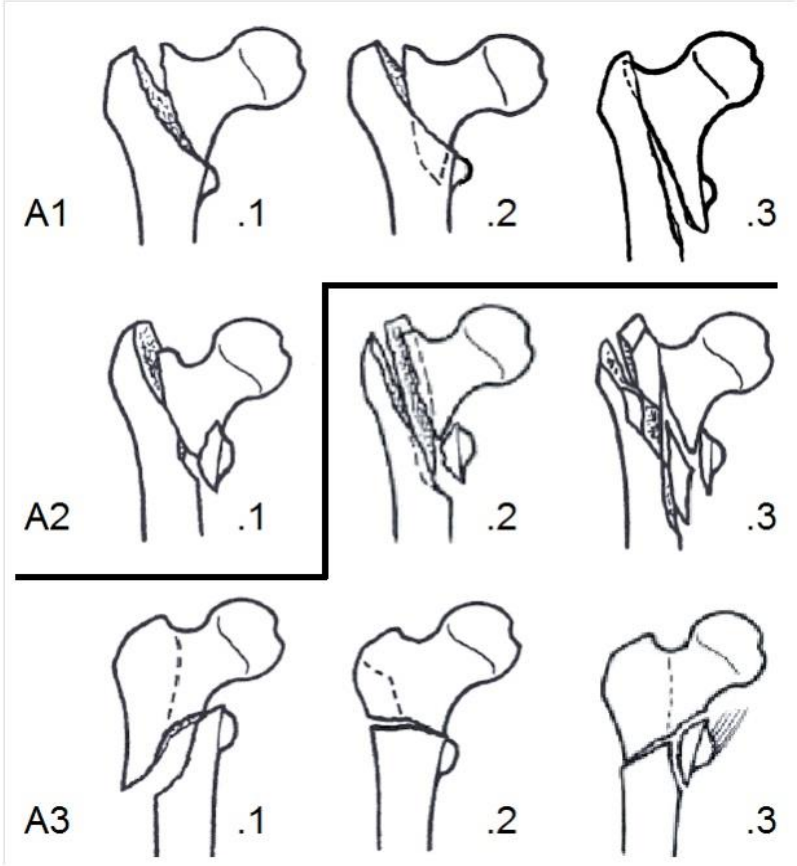
#2

- Ingen lateral væg, ingen glideskrue



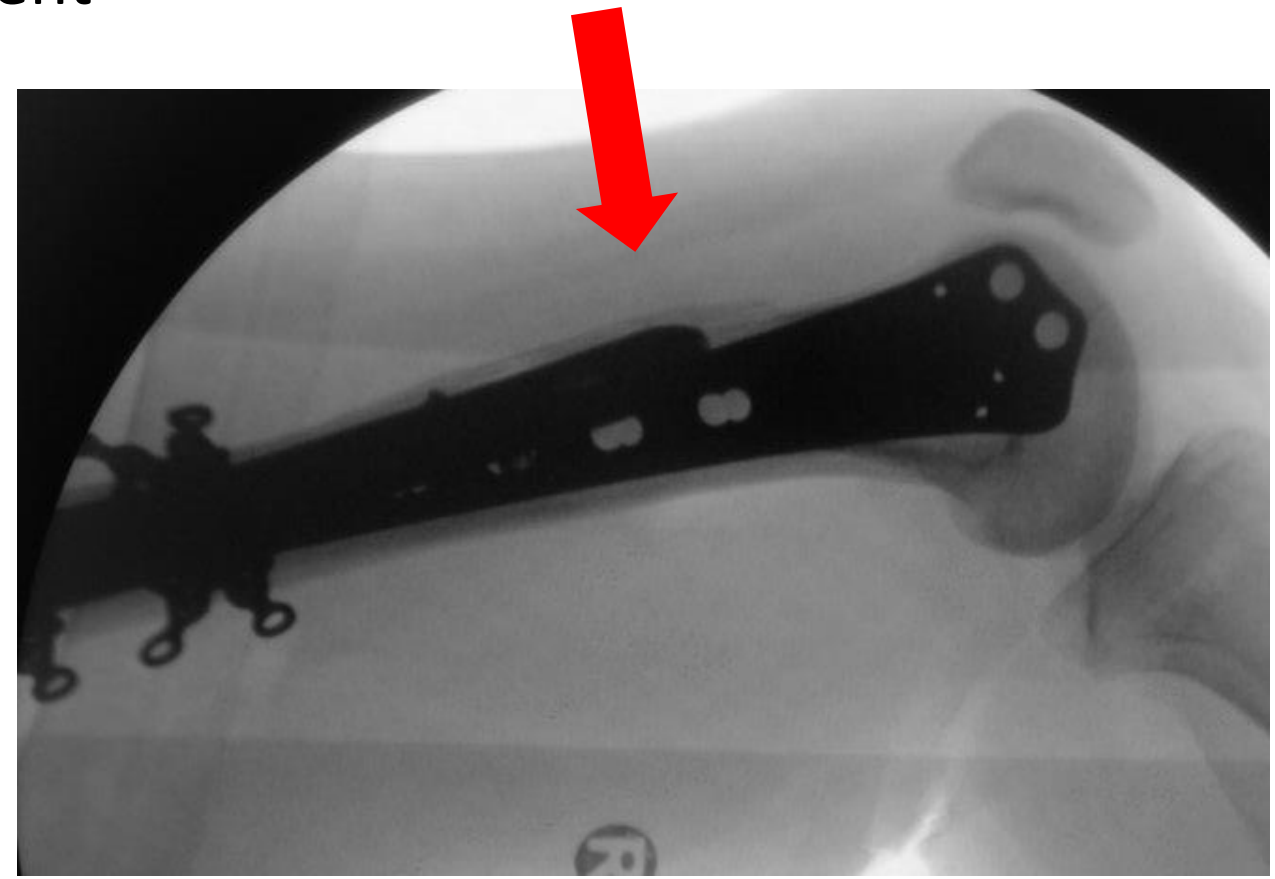
#3

- Kend forskel på stabile vs ustabile frakturer



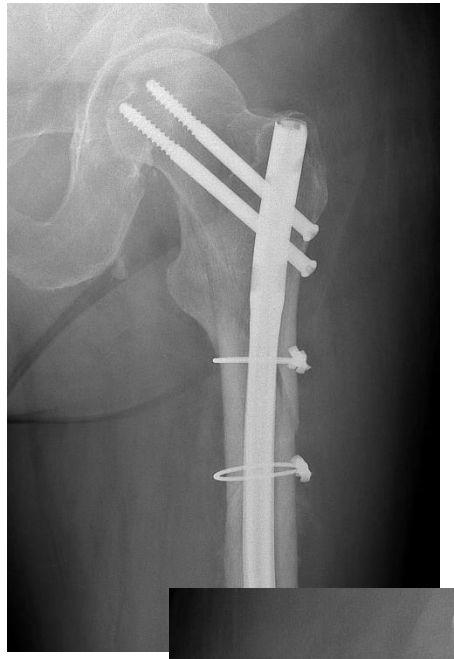
#4

- Pas på anterior impingement



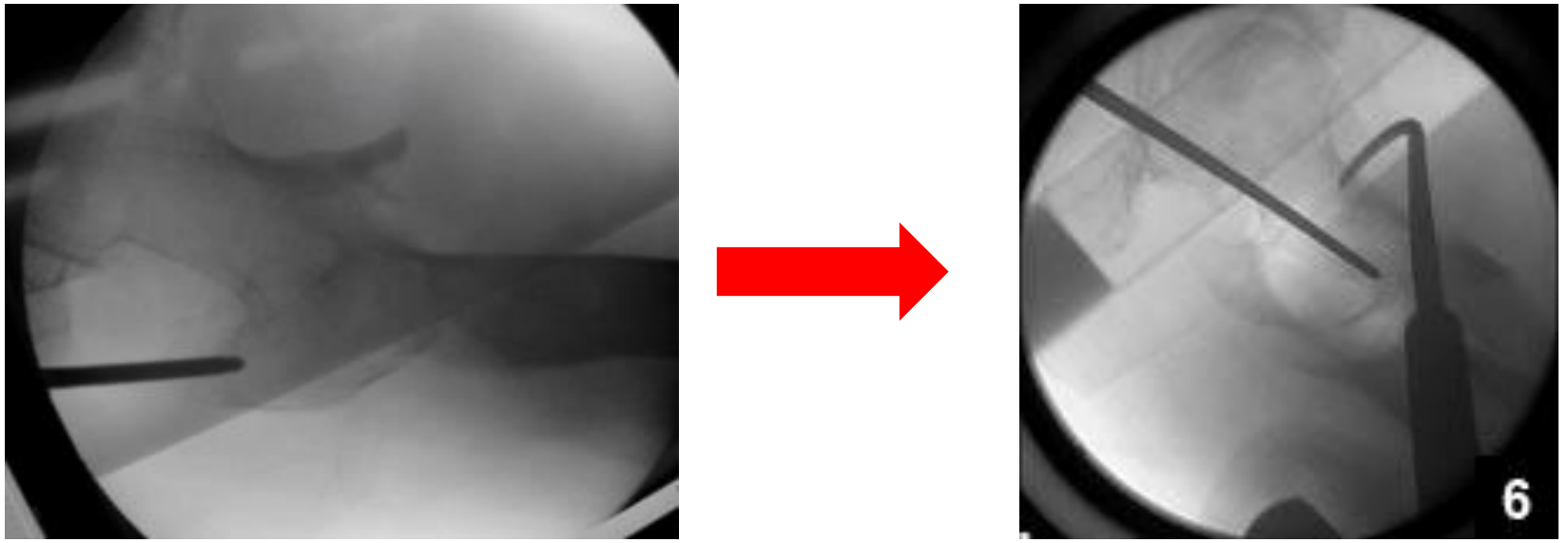
#5

- Kend entrypoint og flyt en anelse medialt

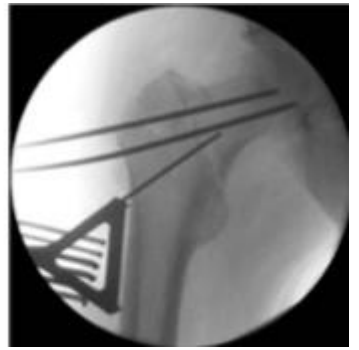


#6

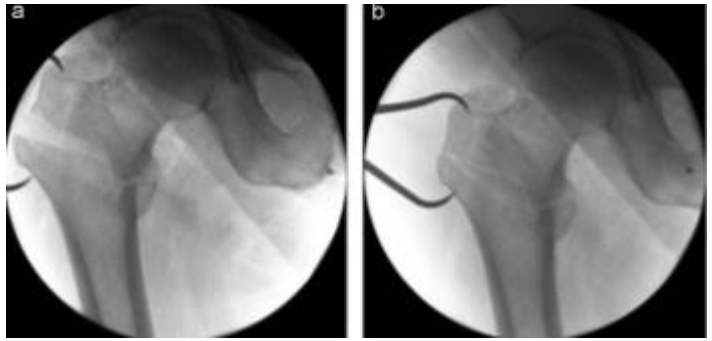
- Ream ikke på en ikke-reponeret fraktur
  (Sømmet reponerer ikke!)

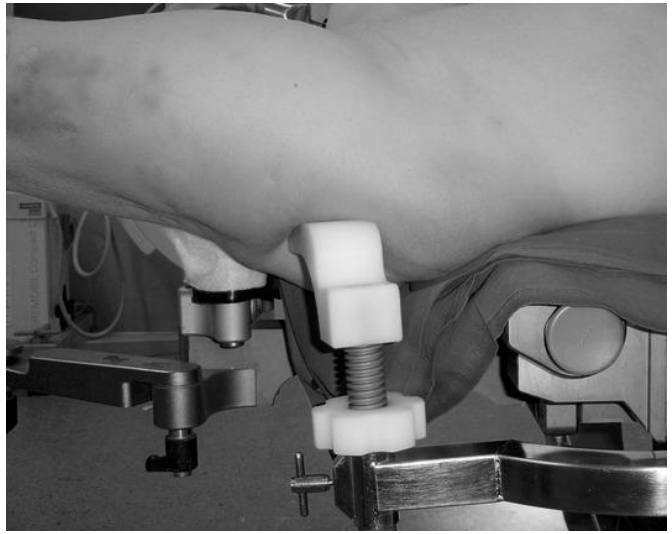


#7



- Kend dit grej





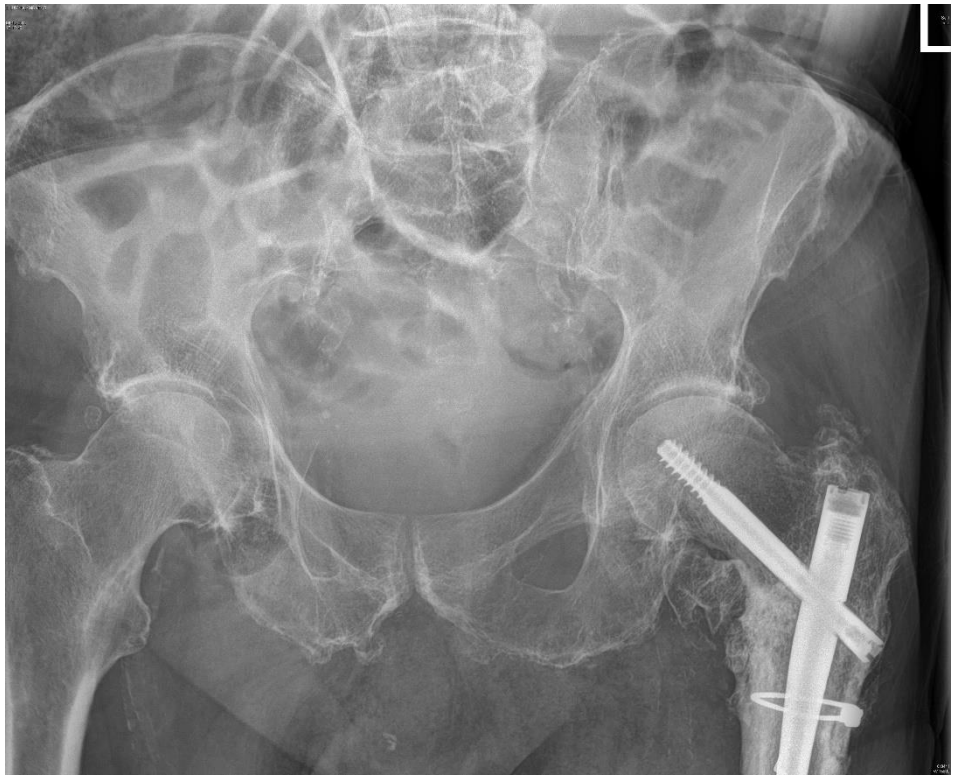
#8

- Undgå varus
  - Trokanterhøjde
  - Kontralaterale hofte

  - Trendelenburg

  ➡ Dårligt outcome

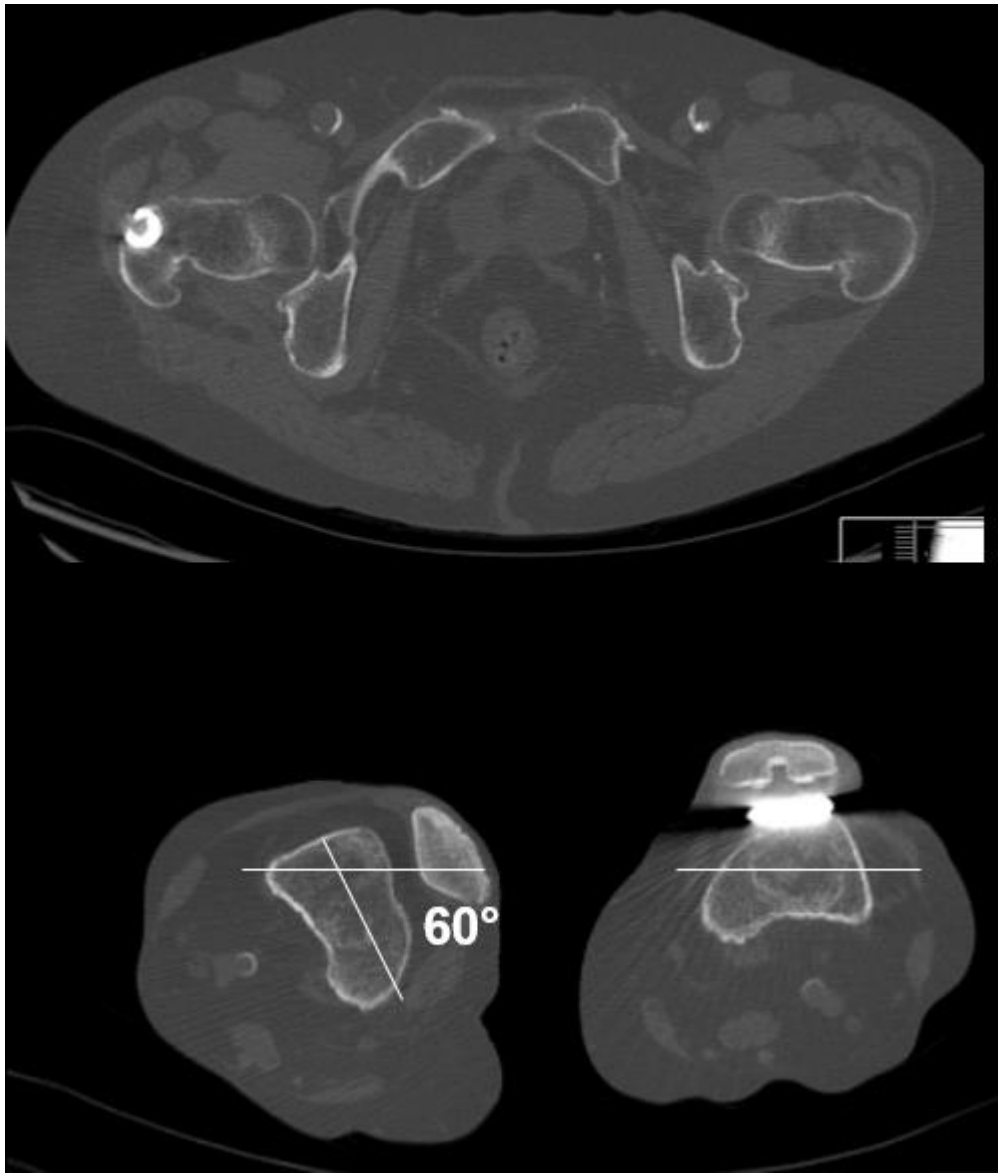
  (Og beskyt gluteus medius)



#9

- Lås sømmene distalt

  (Ved axialt og rotatorisk ustabile)



#10

- Søm ikke frakturer med diastase