7th Advanced Course on Knee Surgery - 2018:

"TKR in bone mal-union of the knee"

Presenter: Anders Troelsen, MD, ph.d., dr.med., Professor

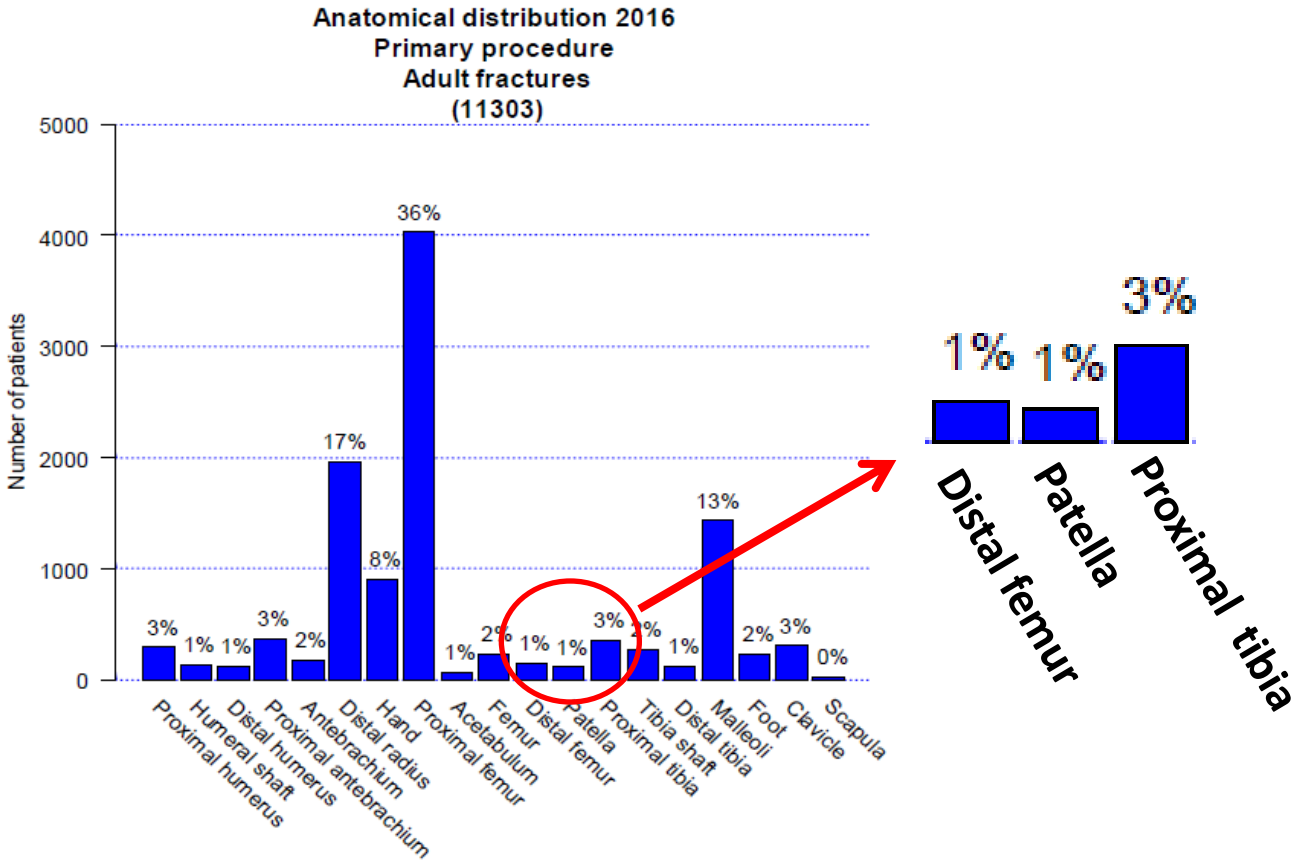
FACULTY OF HEALTH AND MEDICAL SCIENCES
UNIVERSITY OF COPENHAGEN

Clinical Orthopaedic Research
University Hospital Hvidovre, Copenhagen

Fractures of the knee – The “easy” intraarticular case

Anders Troelsen, MD, PhD, DMSc, Professor, Copenhagen University Hospital Hvidovre, Denmark - a_troelsen@hotmail.com

Fractures of the knee – prevalence?



Danish Fracture Database, Annual Report, 2016

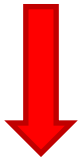
Anders Troelsen, MD, PhD, DMSc, Professor, Copenhagen University Hospital Hvidovre, Denmark - a_troelsen@hotmail.com

Development of PTOA

- Articular joint incongruity
- Damage to soft-tissues and bone
- Joint instability

PTOA

(after tibial plateau Fracture)



App. 20-45 %

(Highest in meniscal and ligament injury)

Softness et al., WJO, 2017

Anders Troelsen, MD, PhD, DMSc, Professor, Copenhagen University Hospital Hvidovre, Denmark - a_troelsen@hotmail.com

The need for TKR?

- ***Danish Knee Arthroplasty Registry***
  Annual report 2016: n=8.154

- Indication for TKR - after fracture in:
  Proximal Tib.: 1,2 %
  Patella: 0,2 %
  Distal femur: 0,2 %

TKR in PTOA

(8.426 operated Tibial Plateau Fracture)

7,3 % at 10 years

(5,3 times the risk of the general pop. – matched group of 33.698)

Wasserstein et al., JBJS Am., 2014

Anders Troelsen, MD, PhD, DMSc, Professor, Copenhagen University Hospital Hvidovre, Denmark - a_troelsen@hotmail.com

TKR in PTOA – Issues? - Function

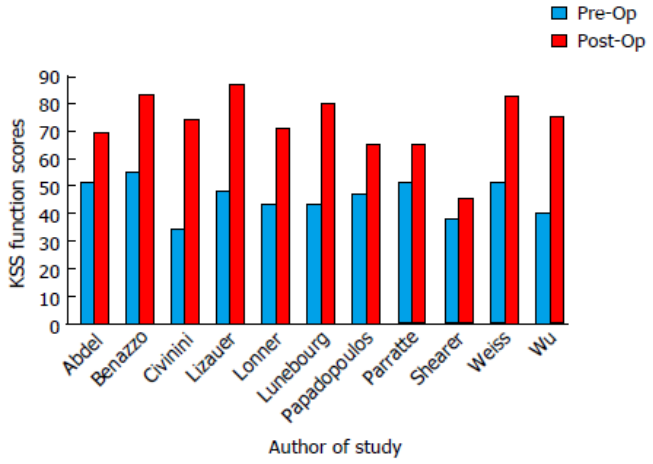
Submit a Manuscript: http://www.wjgnet.com/esps/
Help Desk: http://www.wjgnet.com/esps/helpdesk.aspx
DOI: 10.5312/wjo.v7.i9.584

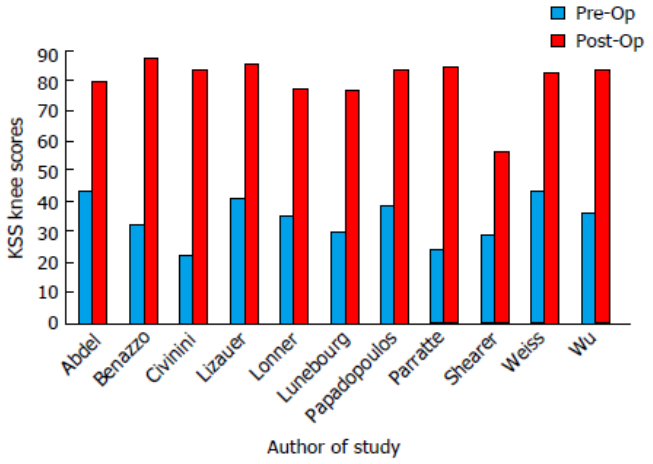
World J Orthop 2016 September 18; 7(9): 584-591
ISSN 2218-5836 (online)

SYSTEMATIC REVIEWS

Total knee arthroplasty for treatment of post-traumatic arthritis: Systematic review

Hesham Saleh, Stephen Yu, Jonathan Vigdorchik, Ran Schwarzkopf





TKR in PTOA – Issues? - Function

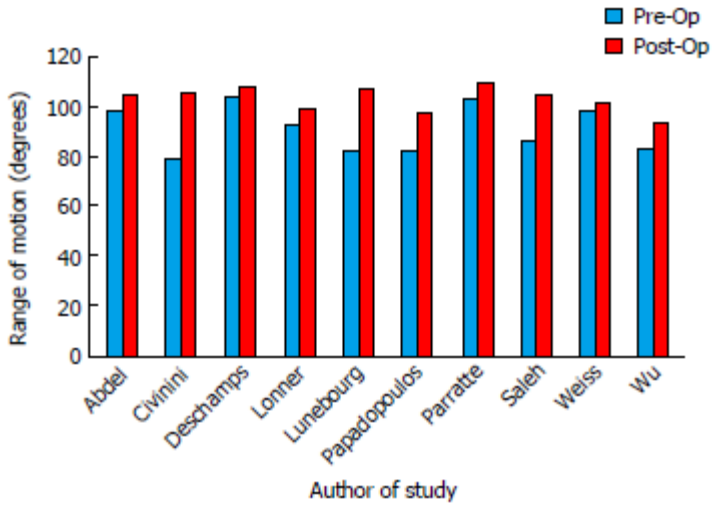
Submit a Manuscript: http://www.wjgnet.com/esps/
Help Desk: http://www.wjgnet.com/esps/helpdesk.aspx
DOI: 10.5312/wjo.v7.i9.584

World J Orthop 2016 September 18; 7(9): 584-591
ISSN 2218-5836 (online)

SYSTEMATIC REVIEWS

Total knee arthroplasty for treatment of post-traumatic arthritis: Systematic review

Hesham Saleh, Stephen Yu, Jonathan Vigdorchik, Ran Schwarzkopf



TKR in PTOA – Issues? - Complications

CORH
Clinical Orthopaedic Research Hvidovre
Copenhagen University Hospital

Submit a Manuscript: http://www.wjgnet.com/esps/
Help Desk: http://www.wjgnet.com/esps/helpdesk.aspx
DOI: 10.5312/wjo.v7.i9.584

World J Orthop 2016 September 18; 7(9): 584-591
ISSN 2218-5836 (online)

SYSTEMATIC REVIEWS

Total knee arthroplasty for treatment of post-traumatic arthritis: Systematic review

Complication rate: 14 % - 67 % !!

Table 2 Summary of complications observed with total knee arthroplasty for patients with post-traumatic arthritis

Ref.	Total	S Infxn	D Infxn	STIFF	MUA	ROT	WC	O/P	INST	AL	REVR
Abdel *et al*[14]	34	3	5	10	[1]	[1]	5	8	3	6	18
Bala *et al*[9]	54	15	[1]	[1]	2	1	5	0	[1]	[1]	5
Benazzo *et al*[24]	21	[1]	2	5	[1]	[1]	[1]	[1]	[1]	2	7
Civinini *et al*[25]	32	4	4	8	[1]	4	4	[1]	[1]	4	[1]
Deschamps *et al*[23]	18	[1]	1	[1]	[1]	1	1	[1]	[1]	3	13
Lizaur-Utrilla *et al*[11]	14	3	[1]	[1]	3	3	3	[1]	[1]	3	3
Lonner *et al*[17]	57	[1]	10	[1]	[1]	3	6	[1]	[1]	[1]	[1]
Lunebourg *et al*[8]	21	[1]	6	6	[1]	[1]	[1]	[1]	[1]	3	9
Massin *et al*[13]	28	5	5	[1]	[1]	8	[1]	[1]	[1]	3	5
Papadopoulous *et al*[22]	19	[1]	6	[1]	[1]	2	4	[1]	2	[1]	13
Parratte *et al*[19]	26	3	3	8	[1]	4	[1]	[1]	1	[1]	[1]
Saleh *et al*[6]	67	[1]	15	[1]	20	[1]	[1]	7	7	[1]	[1]
Scott *et al*[16]	35	13	3	9	[1]	6	[1]	[1]	0	[1]	[1]
Shearer *et al*[10]	21	[1]	4	[1]	[1]	[1]	[1]	[1]	6	2	[1]
Weiss *et al*[12]	26	3	3	10	8	8	5	[1]	2	2	8
Wu *et al*[26]	47	13	[1]	[1]	27	13	[1]	[1]	7	[1]	[1]

All values are in percents. [1]Denotes the literature did not make mention of this complication, presumably because there were no such cases observed. S Infxn: Superficial infections; D Infxn: Deep infections; STIFF: Stiffness; MUA: Manipulation under anesthesia; ROT: Rupture of tendons; WC: Wound complications; O/P: Osteolysis/polywear; INST: Instability; AL: Aseptic loosening; REVR: Revision rate.

Anders Troelsen, MD, PhD, DMSc, Professor, Copenhagen University Hospital Hvidovre, Denmark - a_troelsen@hotmail.com

TKR in PTOA – Issues? - Revisions

Submit a Manuscript: http://www.wjgnet.com/esps/
Help Desk: http://www.wjgnet.com/esps/helpdesk.aspx
DOI: 10.5312/wjo.v7.i9.584

World J Orthop 2016 September 18; 7(9): 584-591
ISSN 2218-5836 (online)

SYSTEMATIC REVIEWS

Total knee arthroplasty for treatment of post-traumatic arthritis: Systematic review

Revision rate: 3 % - 18 % !!

Table 2 Summary of complications observed with total knee arthroplasty for patients with post-traumatic arthritis

Ref.	Total	S Infxn	D Infxn	STIFF	MUA	ROT	WC	O/P	INST	AL	REVR
Abdel *et al*[14]	34	3	5	10	[1]	[1]	5	8	3	6	18
Bala *et al*[9]	54	15	[1]	[1]	2	1	5	0	[1]	[1]	5
Benazzo *et al*[24]	21	[1]	2	5	[1]	[1]	[1]	[1]	[1]	2	7
Civinini *et al*[25]	32	4	4	8	[1]	4	4	[1]	[1]	4	[1]
Deschamps *et al*[23]	18	[1]	1	[1]	[1]	1	1	[1]	[1]	3	13
Lizaur-Utrilla *et al*[11]	14	3	[1]	[1]	3	3	3	[1]	[1]	3	3
Lonner *et al*[17]	57	[1]	10	[1]	[1]	3	6	[1]	[1]	[1]	[1]
Lunebourg *et al*[8]	21	[1]	6	6	[1]	[1]	[1]	[1]	[1]	3	9
Massin *et al*[13]	28	5	5	[1]	[1]	8	[1]	[1]	[1]	3	5
Papadopoulous *et al*[22]	19	[1]	6	[1]	[1]	2	4	[1]	2	[1]	13
Parratte *et al*[19]	26	3	3	8	[1]	4	[1]	[1]	1	[1]	[1]
Saleh *et al*[6]	67	[1]	15	[1]	20	[1]	[1]	7	7	[1]	[1]
Scott *et al*[16]	35	13	3	9	[1]	6	[1]	[1]	0	[1]	[1]
Shearer *et al*[10]	21	[1]	4	[1]	[1]	[1]	[1]	[1]	6	2	[1]
Weiss *et al*[12]	26	3	3	10	8	8	5	[1]	2	2	8
Wu *et al*[26]	47	13	[1]	[1]	27	13	[1]	[1]	7	[1]	[1]

All values are in percents. [1]Denotes the literature did not make mention of this complication, presumably because there were no such cases observed. S Infxn: Superficial infections; D Infxn: Deep infections; STIFF: Stiffness; MUA: Manipulation under anesthesia; ROT: Rupture of tendons; WC: Wound complications; O/P: Osteolysis/polywear; INST: Instability; AL: Aseptic loosening; REVR: Revision rate.

Anders Troelsen, MD, PhD, DMSc, Professor, Copenhagen University Hospital Hvidovre, Denmark - a_troelsen@hotmail.com

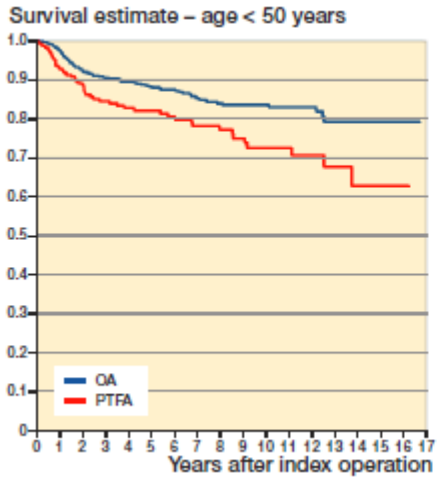
TKR in PTOA – Issues? Revisions

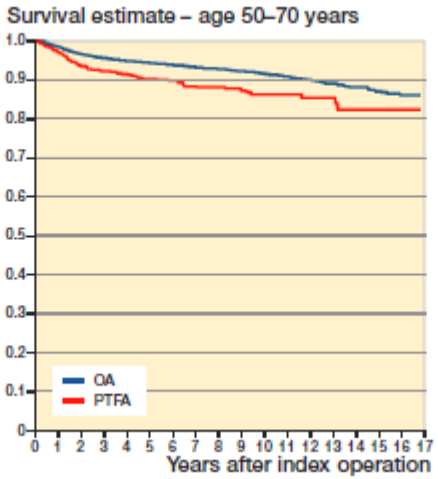
Acta Orthopaedica 2017; 88 (3): 263–268

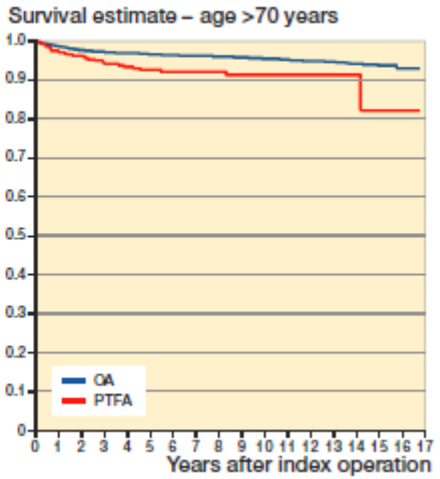
Increased risk of early and medium-term revision after post-fracture total knee arthroplasty

Results from the Danish Knee Arthroplasty Register

Anders EL-GALALY [1], Steffen HALDRUP [2], Alma Becic PEDERSEN [3], Andreas KAPPEL [1], Michael Ulrich JENSEN [1], and Poul Torben NIELSEN [1]







Anders Troelsen, MD, PhD, DMSc, Professor, Copenhagen University Hospital Hvidovre, Denmark - a_troelsen@hotmail.com

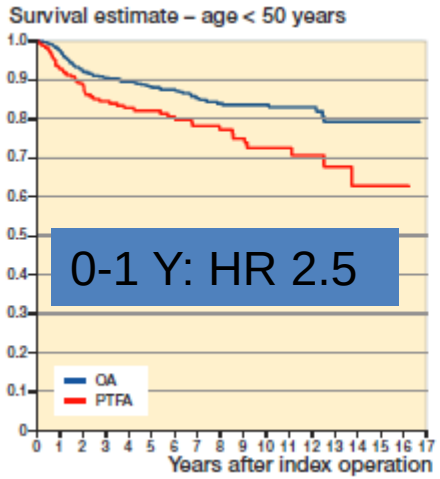
TKR in PTOA – Issues? Revisions

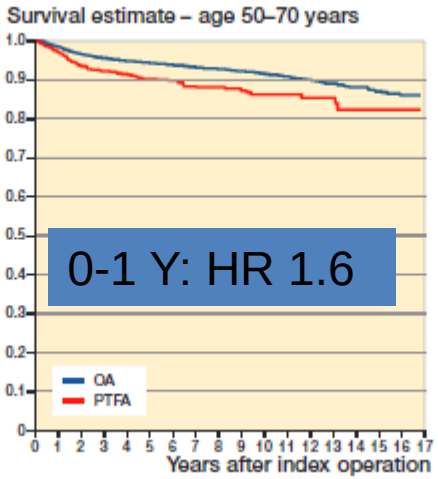
Acta Orthopaedica 2017; 88 (3): 263–268

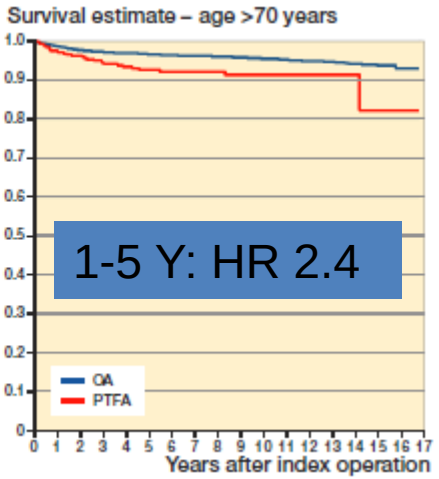
Increased risk of early and medium-term revision after post-fracture total knee arthroplasty

Results from the Danish Knee Arthroplasty Register

Anders EL-GALALY [1], Steffen HALDRUP [2], Alma Becic PEDERSEN [3], Andreas KAPPEL [1], Michael Ulrich JENSEN [1], and Poul Torben NIELSEN [1]







TKR in PTOA – Issues? Revisions

Acta Orthopaedica 2017; 88 (3): 263–268

Increased risk of early and medium-term revision after post-fracture total knee arthroplasty

Results from the Danish Knee Arthroplasty Register

Anders EL-GALALY [1], Steffen HALDRUP [2], Alma Becic PEDERSEN [3], Andreas KAPPEL [1], Michael Ulrich JENSEN [1], and Poul Torben NIELSEN [1]

- Indications for revision: 3-fold increase in incidence proportions for PTOA:
  - Infection (3.2 % vs 1.4 %)
  - Instability (3.5 % vs 1.1 %)
  - Aseptic loosening (3.2 % vs 1.0 %)

TKR in PTOA – Preventing Infection

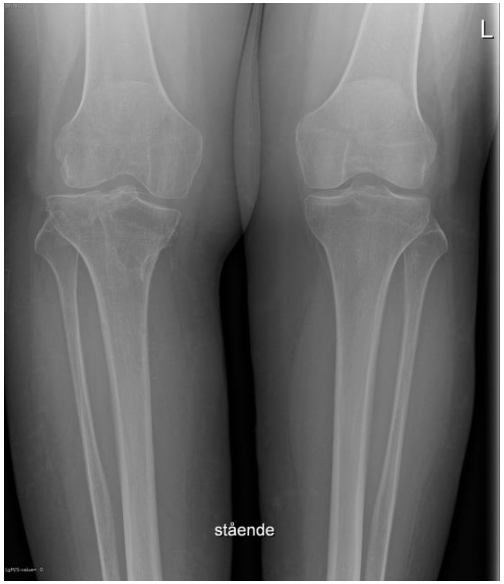
- Is the knee infected ?
  - Low grade periimplant infection?
- Plan the skin incision:
  - Use a previous incision if at all possible
  - Keep distance to other previous incisions
  - Avoid acute angles with previous, transversing incisions
  - Involve a plastic surgeon as requirred
  - Think about the potential next surgery
- Hardware removal:
  - 2-stage removal and TKA (if large incisions are need, infection is unsolved)
  - 1-stage removal and TKA (minimal incisions are requirred)

Anders Troelsen, MD, PhD, DMSc, Professor, Copenhagen University Hospital Hvidovre, Denmark - a_troelsen@hotmail.com

TKR in PTOA – Avoiding Instability

- Assessing alignment
  - Basic imaging
  - Standing, long leg x-ray

- Assess the need for more implant constraint
  - Are ligaments compromised by the fracture?
  - Inbalance created by joint surface colapse?

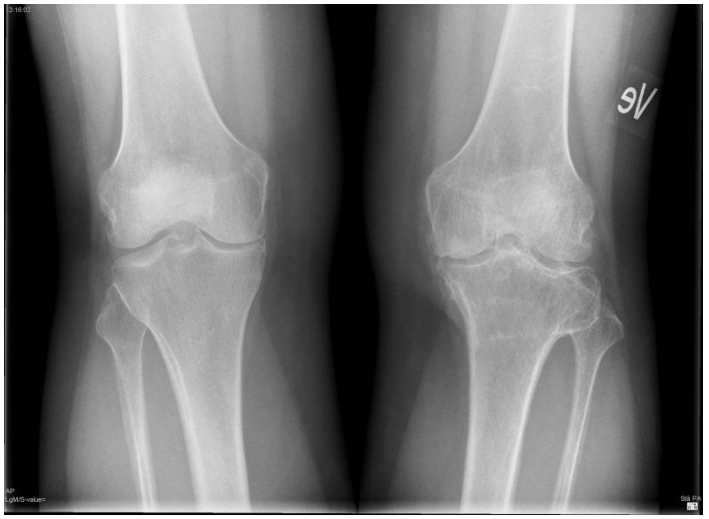


Anders Troelsen, MD, PhD, DMSc, Professor, Copenhagen University Hospital Hvidovre, Denmark - a_troelsen@hotmail.com

TKR in PTOA – Avoiding Aseptic Loosening

- Assessment of need for augmentation
  - After fracture colapse
  - Poor bone quality / osteonecrosis
  - Supplemental stems?

- Cementing Technique has to be optimal
  - Sclerotic bone?
  - Bone defects?
  - Often limited exposure due to stiffness

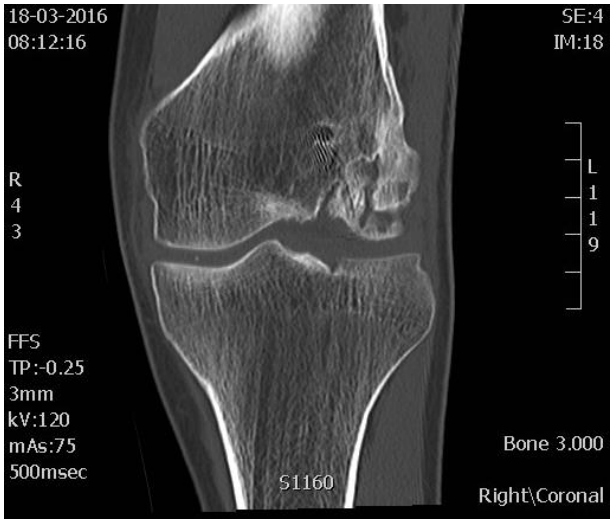


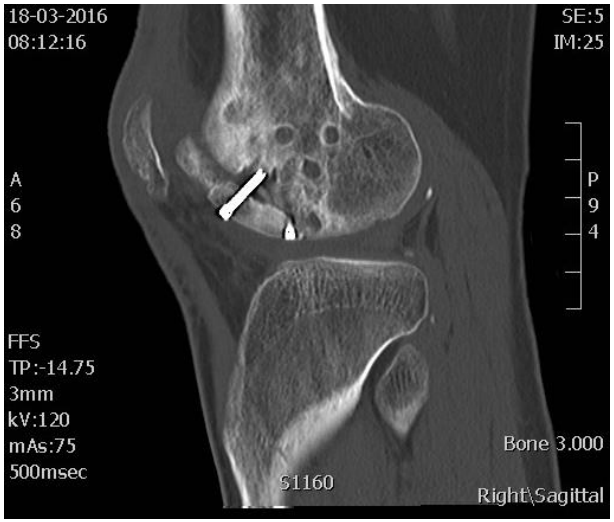
Anders Troelsen, MD, PhD, DMSc, Professor, Copenhagen University Hospital Hvidovre, Denmark - a_troelsen@hotmail.com

TKR in PTOA – case: distal femoral frx.

Anders Troelsen, MD, PhD, DMSc, Professor, Copenhagen University Hospital Hvidovre, Denmark - a_troelsen@hotmail.com

TKR in PTOA - case: distal femoral frx





Anders Troelsen, MD, PhD, DMSc, Professor, Copenhagen University Hospital Hvidovre, Denmark - a_troelsen@hotmail.com

Conclusion

- *TKR in PTOA has inferior outcome*
- *Revisions/ complications occur early:*
  - *infection, instability and aseptic loosening*
- With careful planning and execution revisions may be prevented

Anders Troelsen, MD, PhD, DMSc, Professor, Copenhagen University Hospital Hvidovre, Denmark - a_troelsen@hotmail.com