

Komplikace po osteosyntéze trimalleolárních zlomenin

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Klinika úrazové chirurgie LF MU a FN Brno – Bohunice

***X. mezinárodní kongres úrazové chirurgie a soudního lékařství
Polytrauma a komplikace v chirurgické péči
3.-4. září 2020, Mikulov, hotel Galant***





Úrazy
nepřehlédnutelné



Úrazy zdánlivě jednoduché – Dg?



Komplikace – kdy?

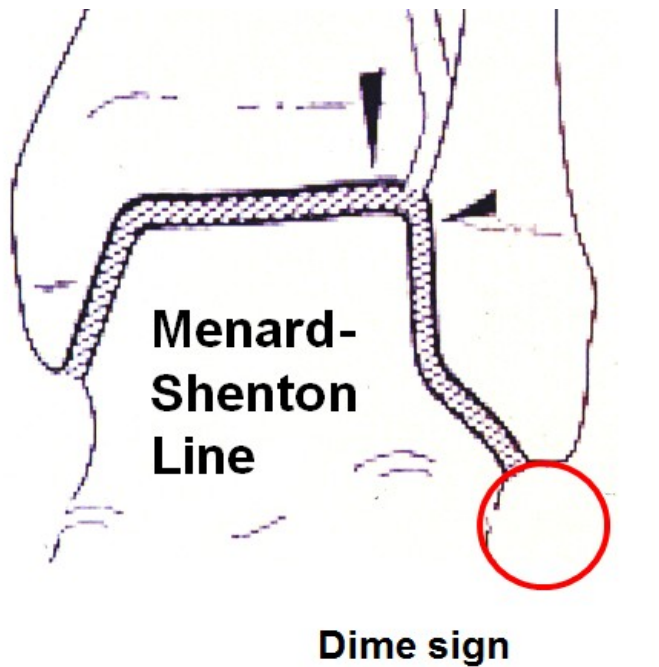





- **Předoperační dg** – RTG...CT
- **Předoperační plánování** – přístup, timing
- **Výkon** – PL, PM, laterální přístup, pořadí
- **Pooperační péče** – RHB, fyzioth, zátěž, RTG, pooperační, peroperační CT

4-etapová možnost vzniku komplikací

Hodnocení RTG –indikace výkonu

Weberova kritéria hodnocení polohy fibuly:



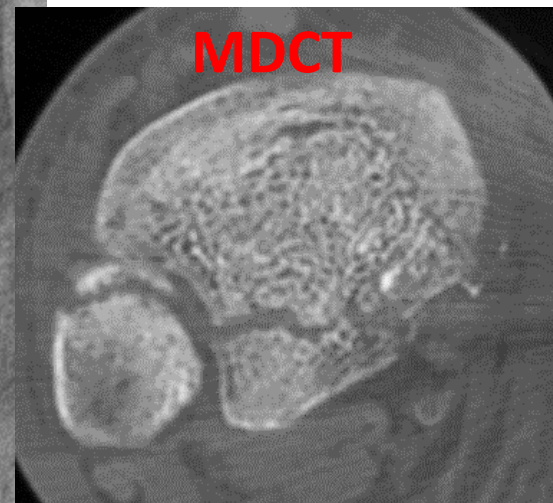
- TCS – total clear space (espace claire) 
- TFO - total fibular overlapping 
- MCS – medial clear space 
- Srovnání s druhou stranou!



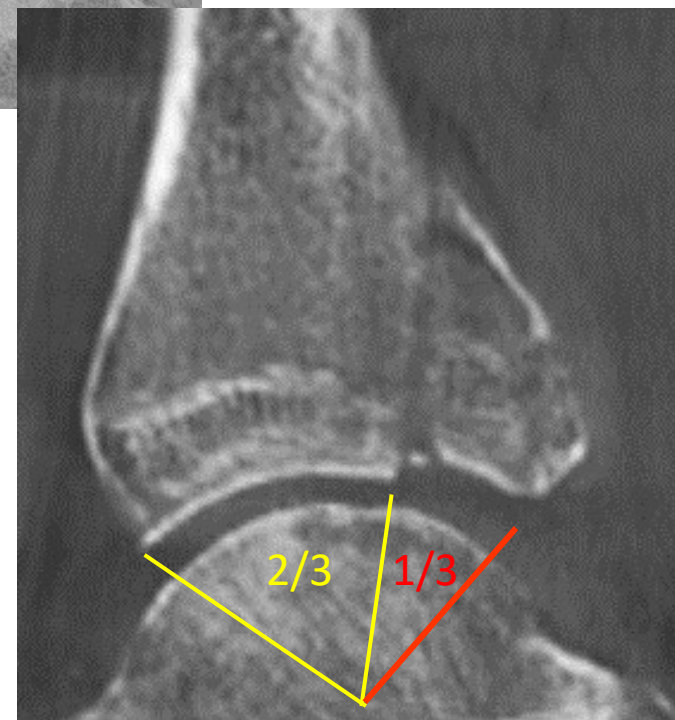
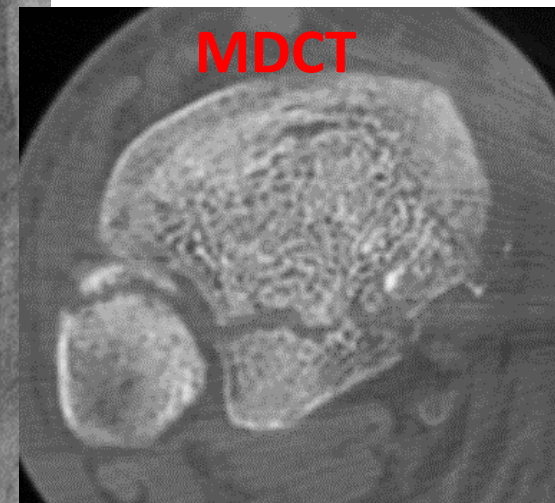
Zadní hrana pilonu?



Zadní hrana pilonu?

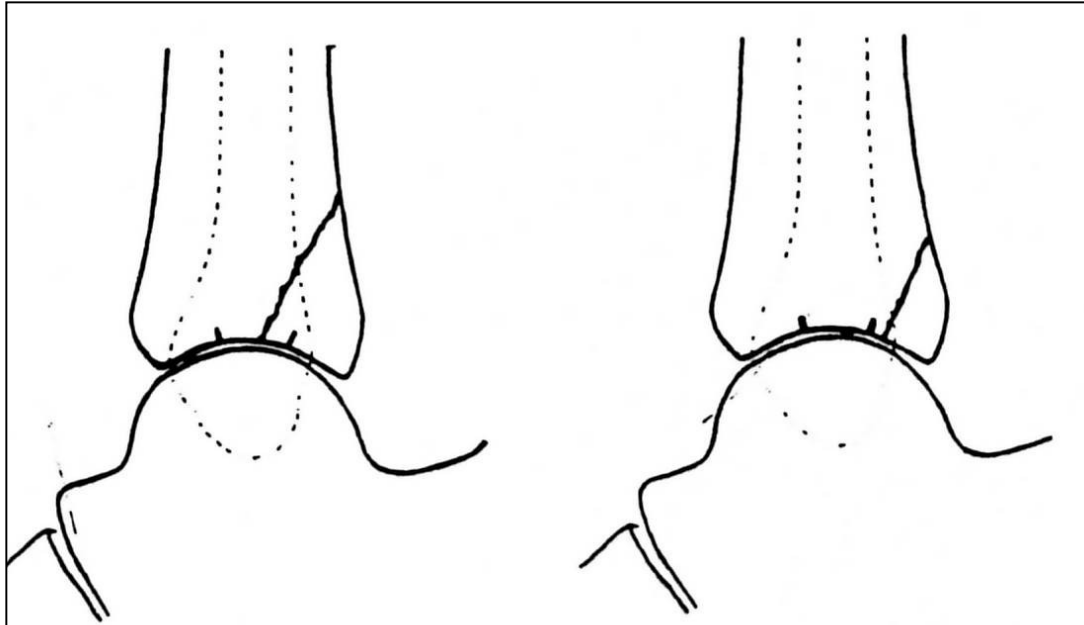


Zadní hrana pilonu?



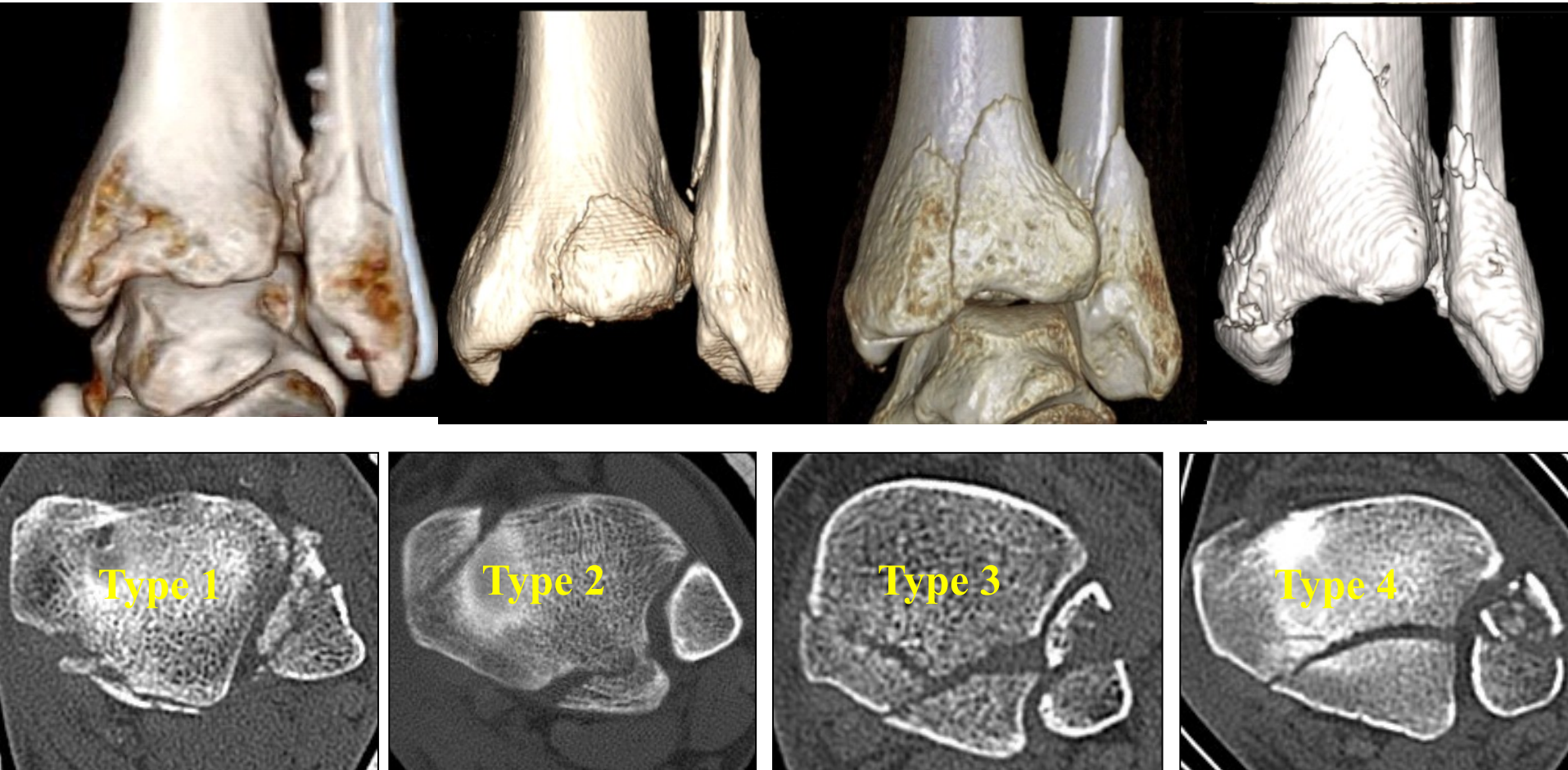
The “Posterior Malleolus Dogma”

8 Patients with **> 1/3 joint involvement**, 5 fixed with good result, 3 **not** fixed with poor result



Nelson & Jensen (1940) Surg Gynec Obst

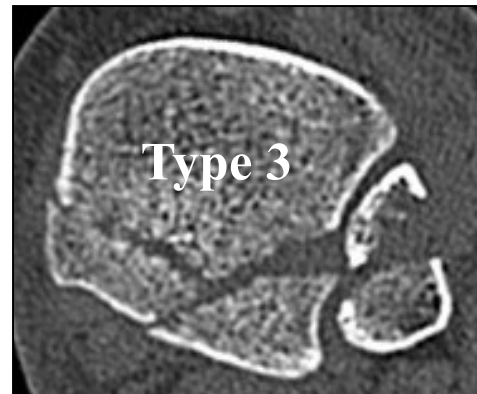
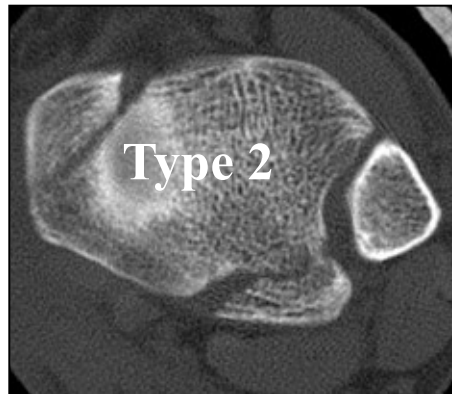
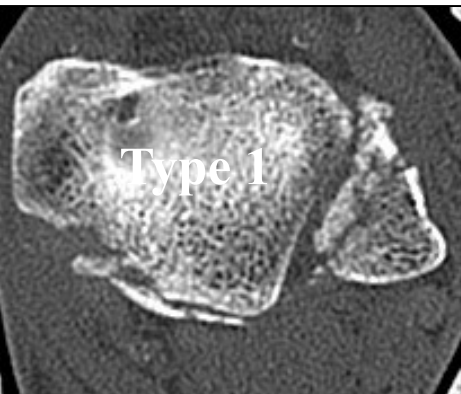
Size and shape of the posteromedial fragment („third malleolus“)



Treatment tailored to the 3D geometry and incisura involvement

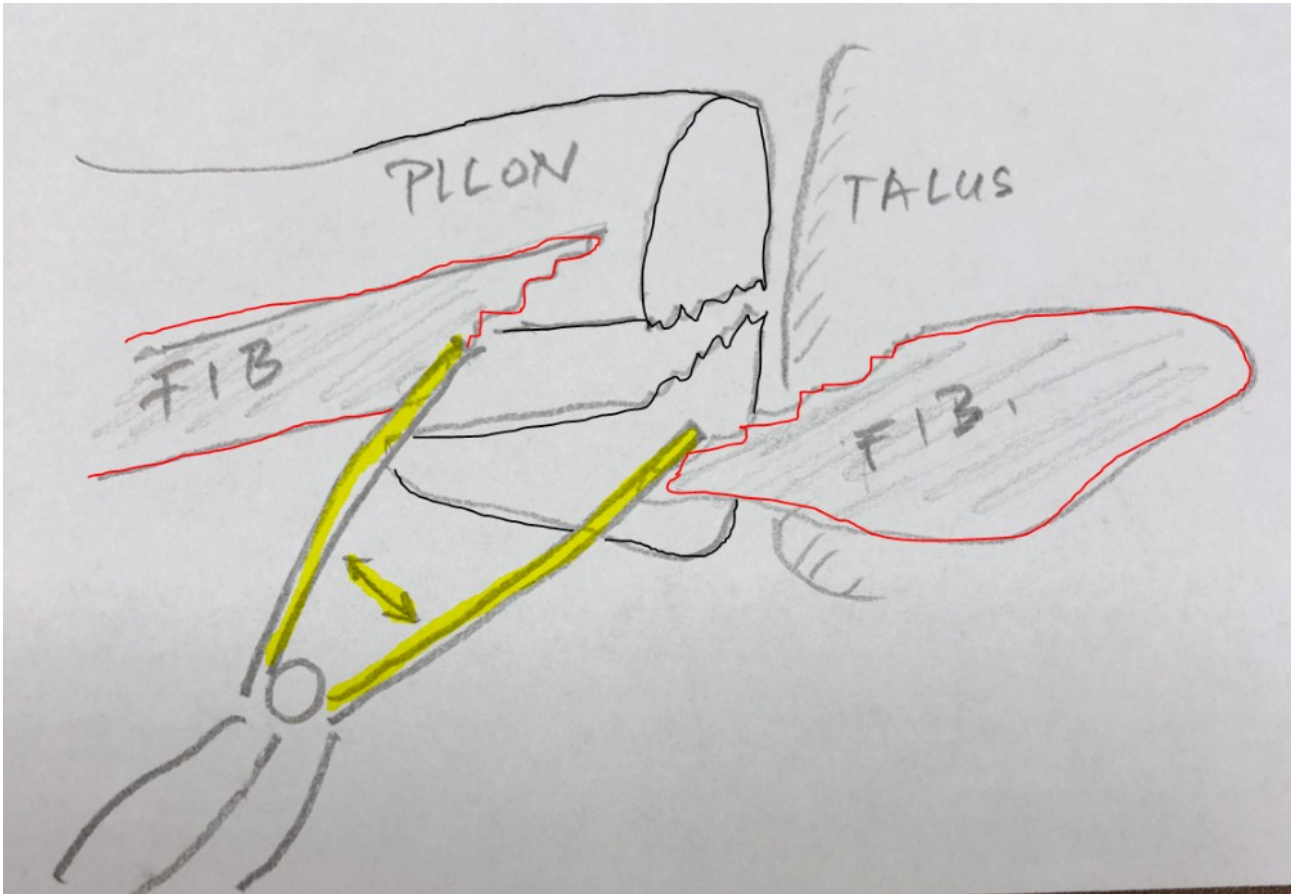
Bartoníček et al. Classification

- Type 1 – extraincisural **non-operative**
- Type 2 – posterolateral triangular **(non-) operative**
- Type 3 – posterior two-part **operative**
- Type 4 – large triangular **operative**



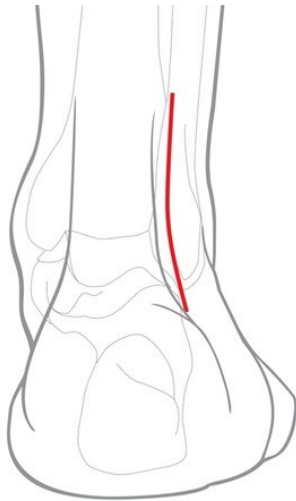
Repozice zadní hrany

- Repozice zadní hrany - **Weberův trik**

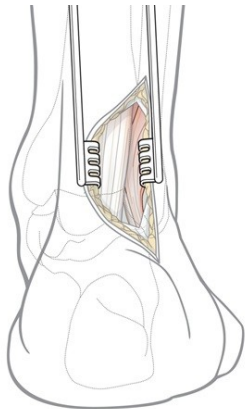


Repozice zadní hrany

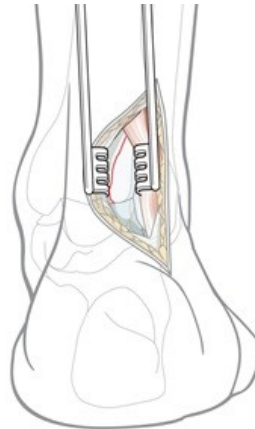
Posterolaterální,
posteromediální přístup



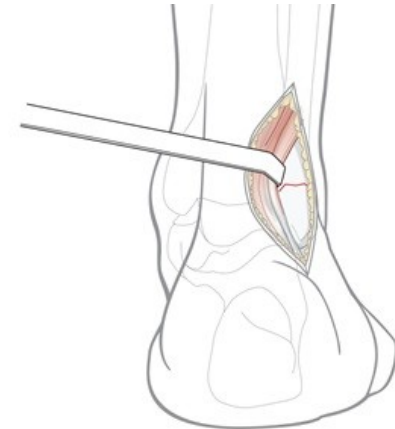
AO



AO



AO



AO

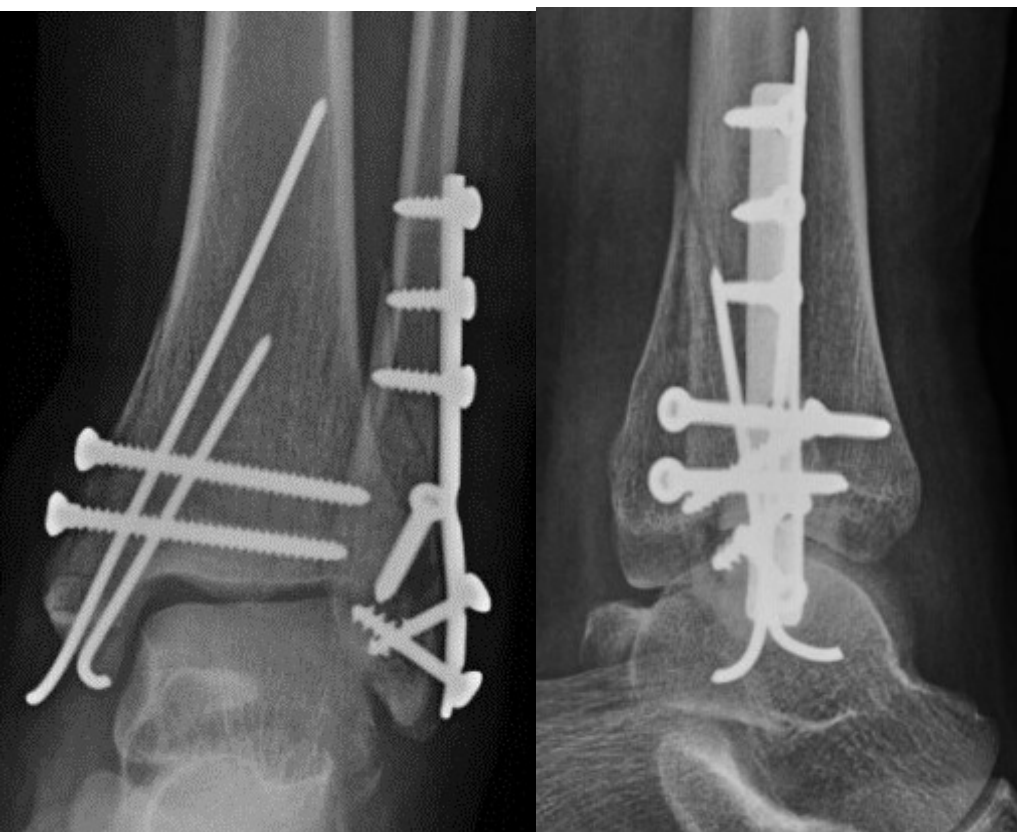
Běžná trimalleolární zlomenina, Ž, 1978



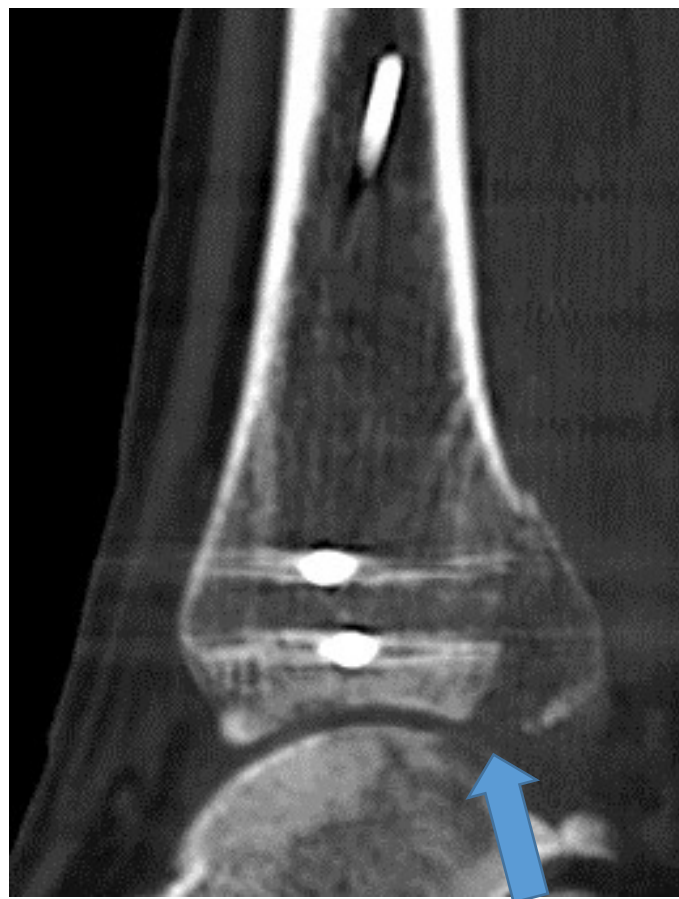
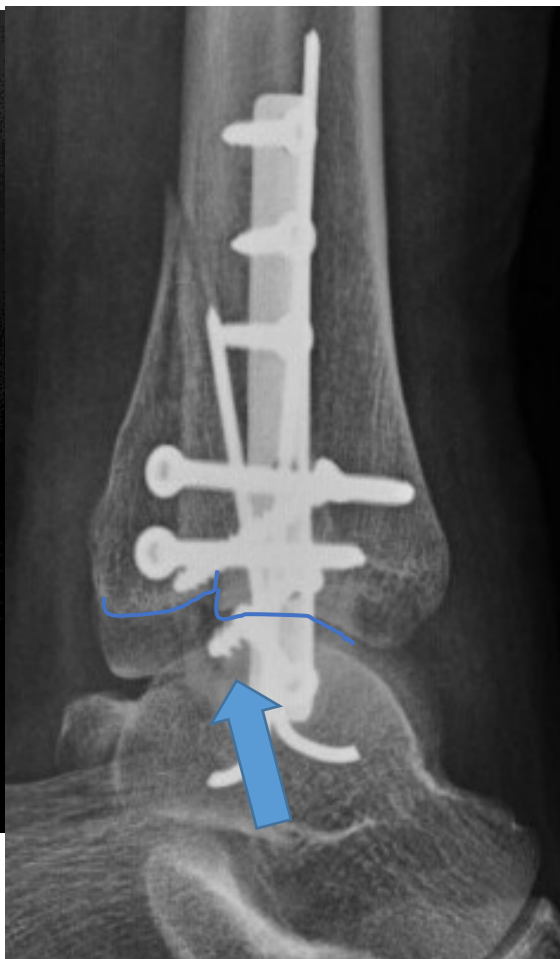
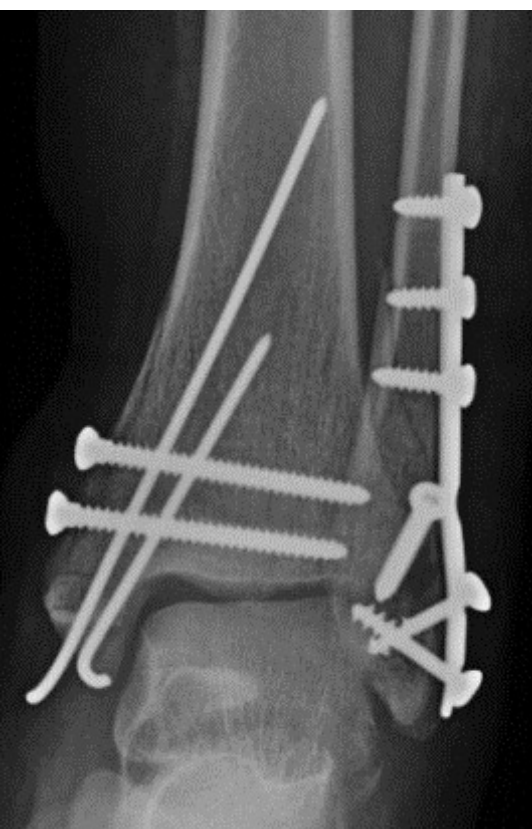
Běžná trimalleolární zlomenina, Ž, *1978



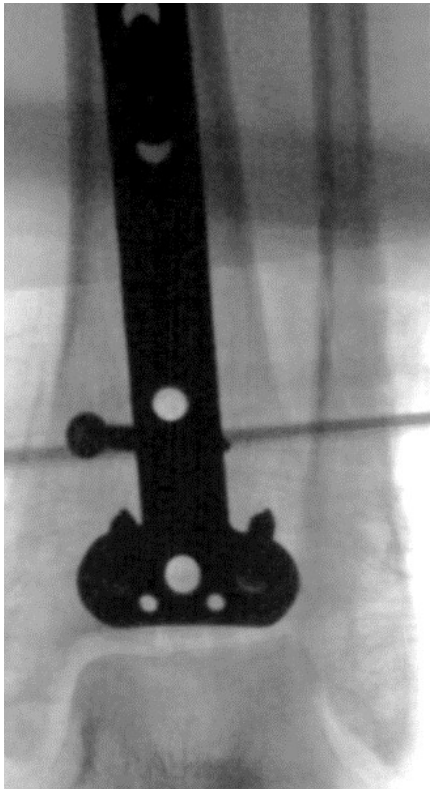
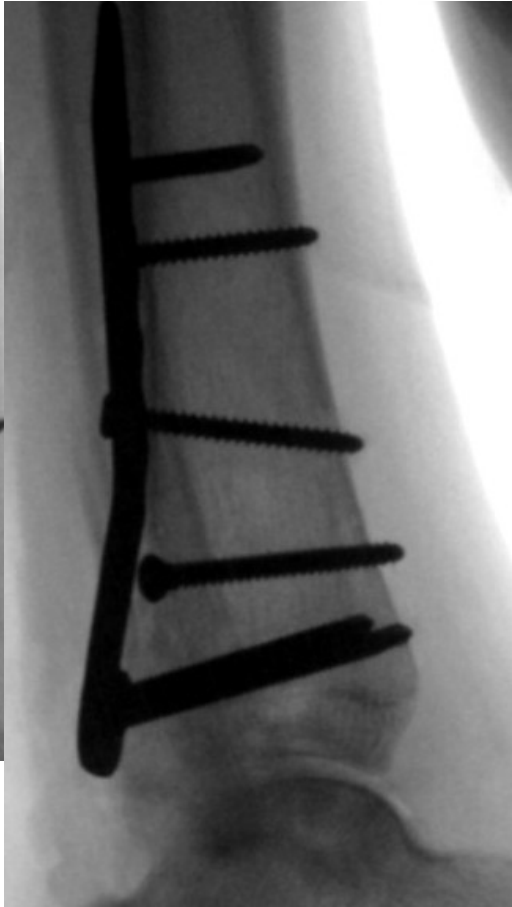
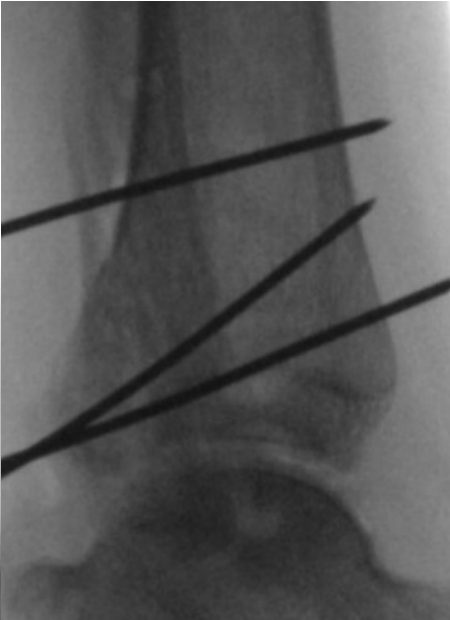
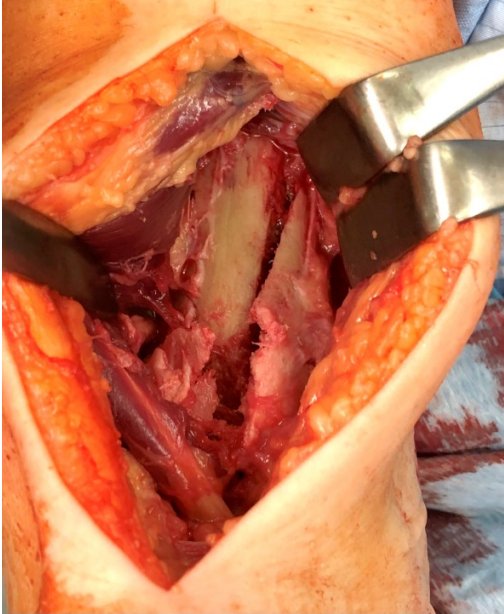
RTG, CT po 4 a 6 týdnech



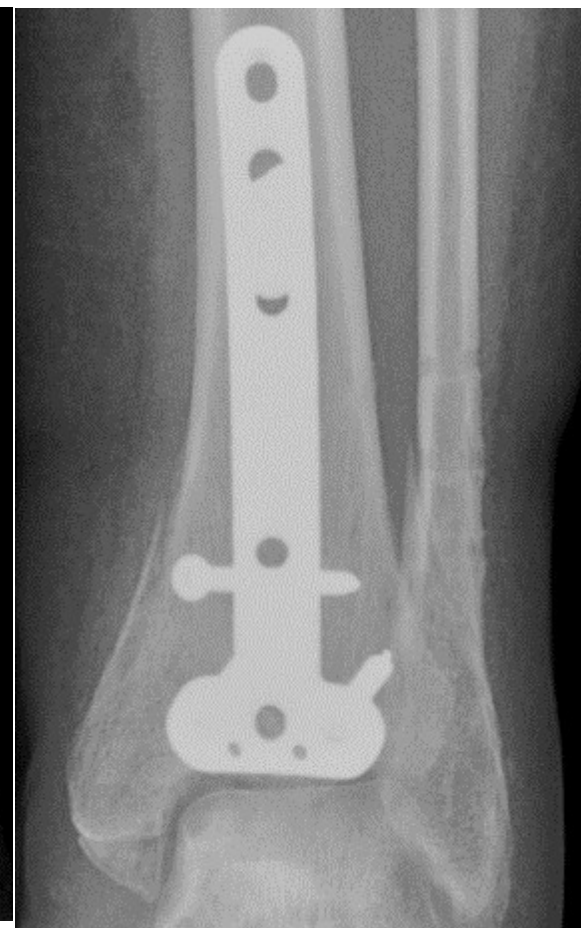
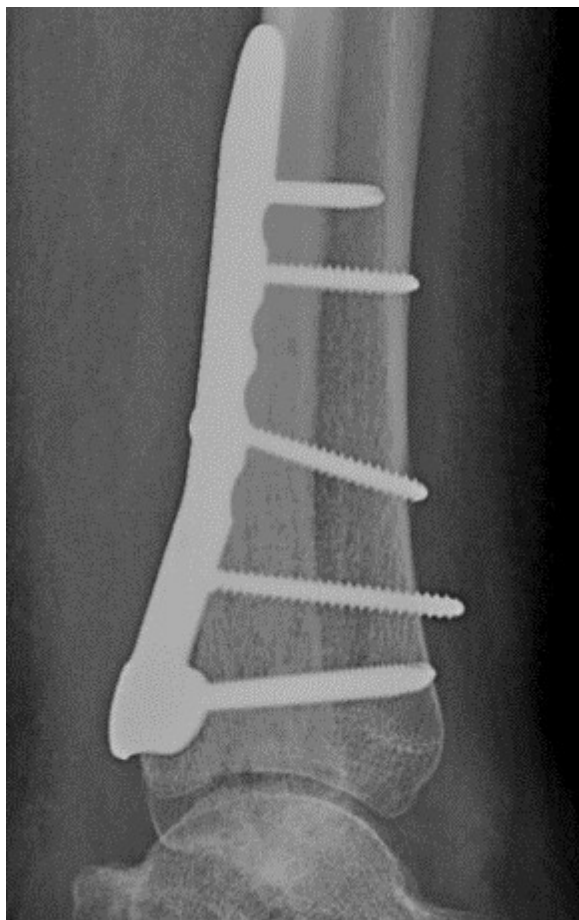
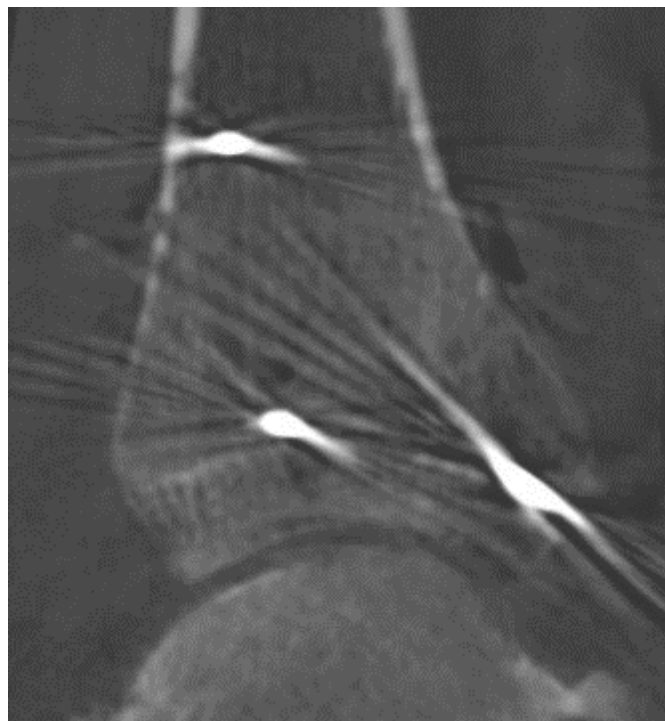
RTG, CT po 4 a 6 týdnech



Po 8 týdnech reoperace, PL přístup, osteotomie

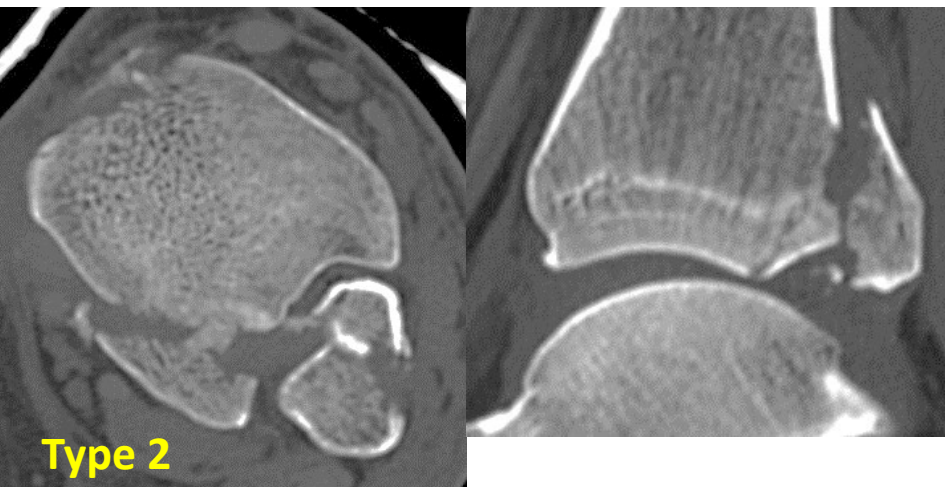


CT 3D peroperačně na sále



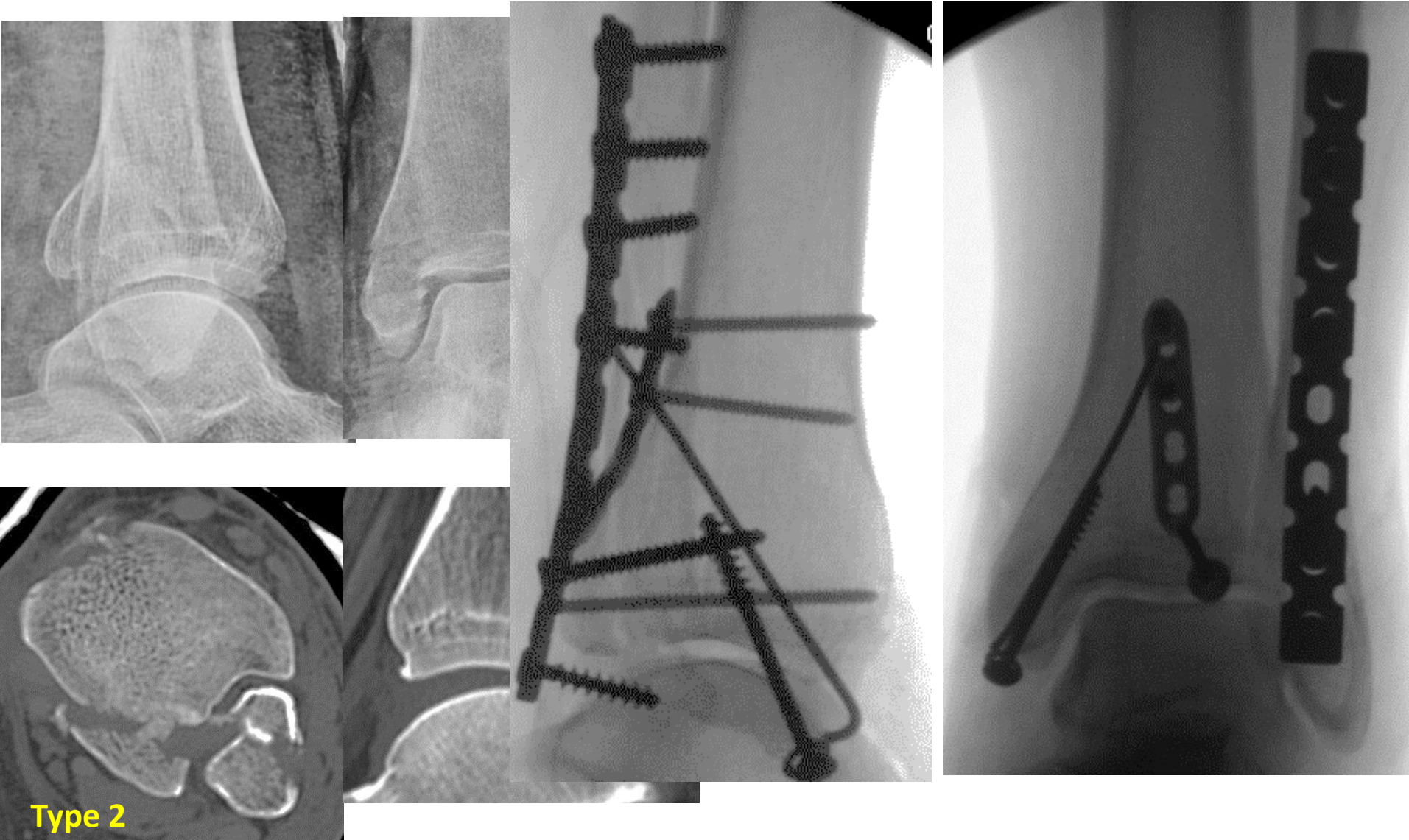
Po 6 měsících

Posterolaterální přístup, M, *1957

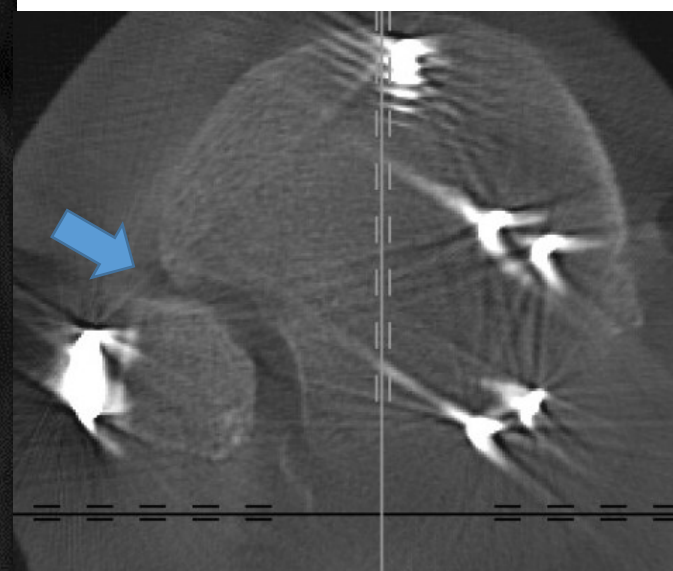
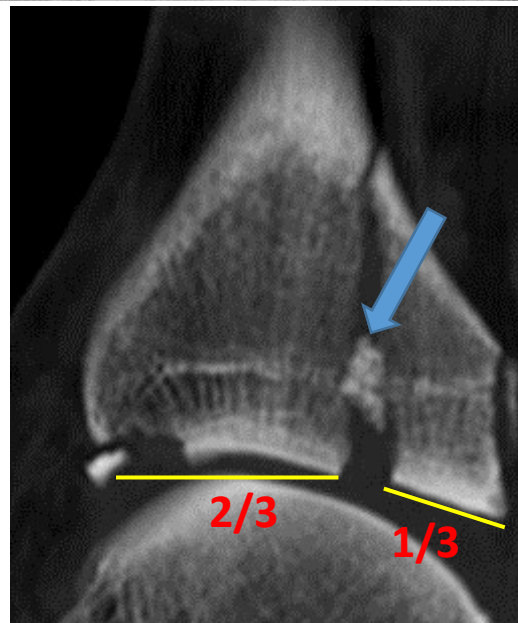
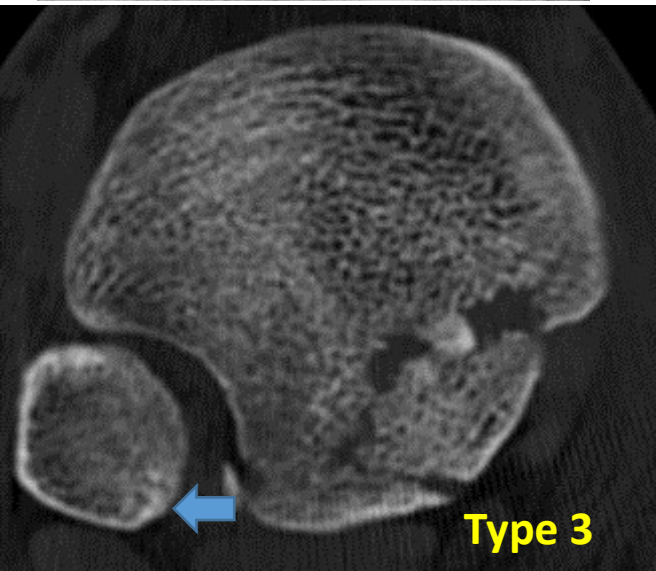
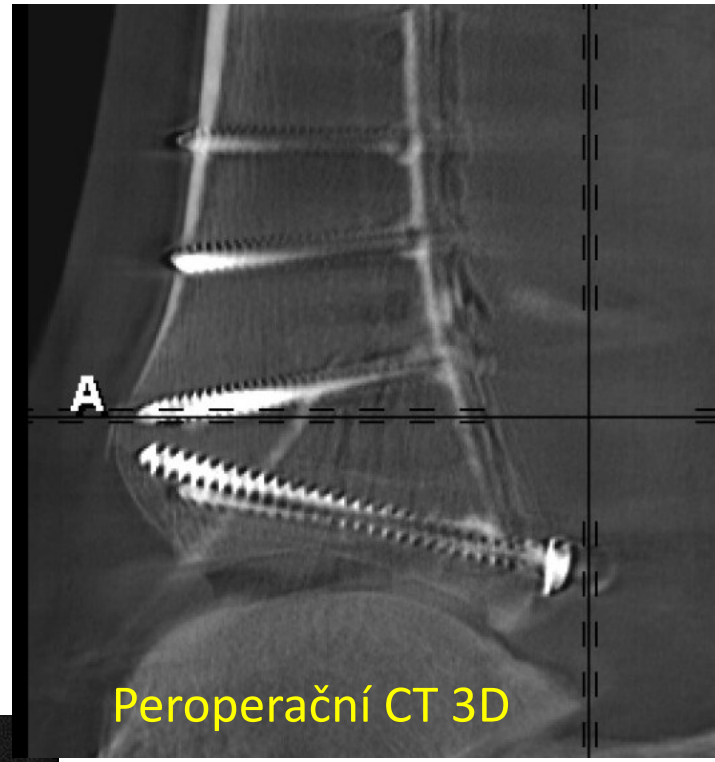


Type 2

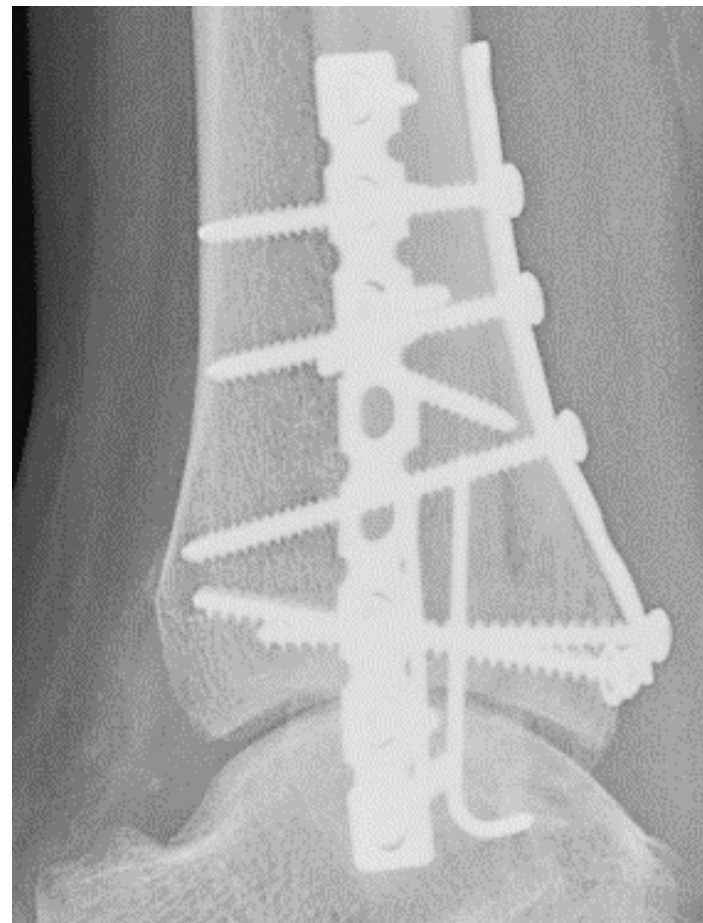
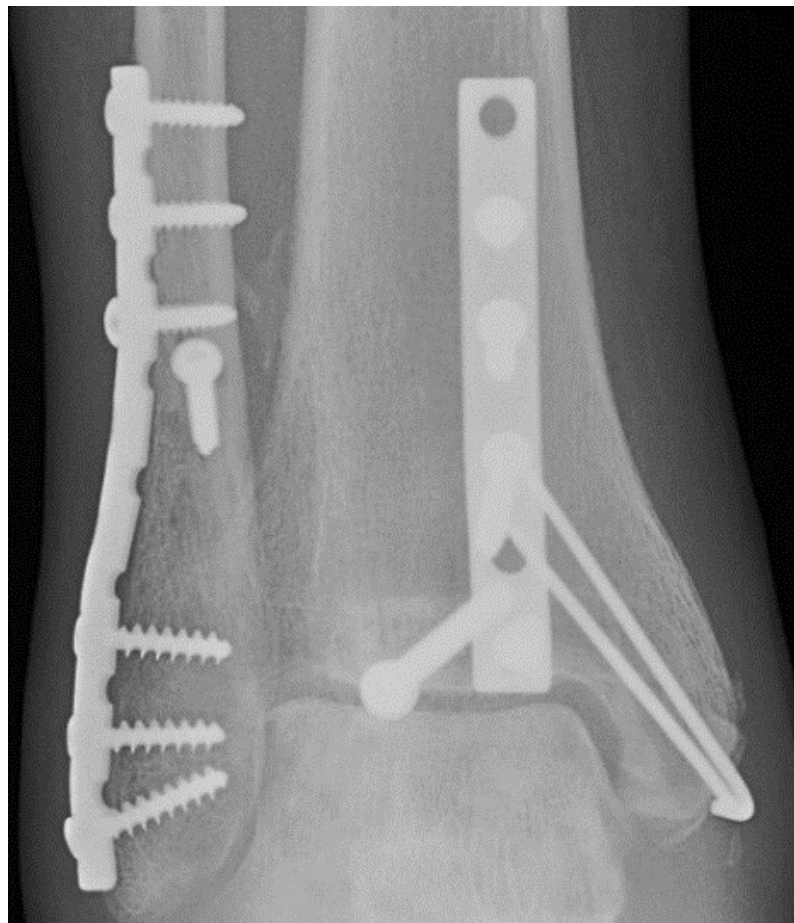
Posterolaterální přístup, M, *1957



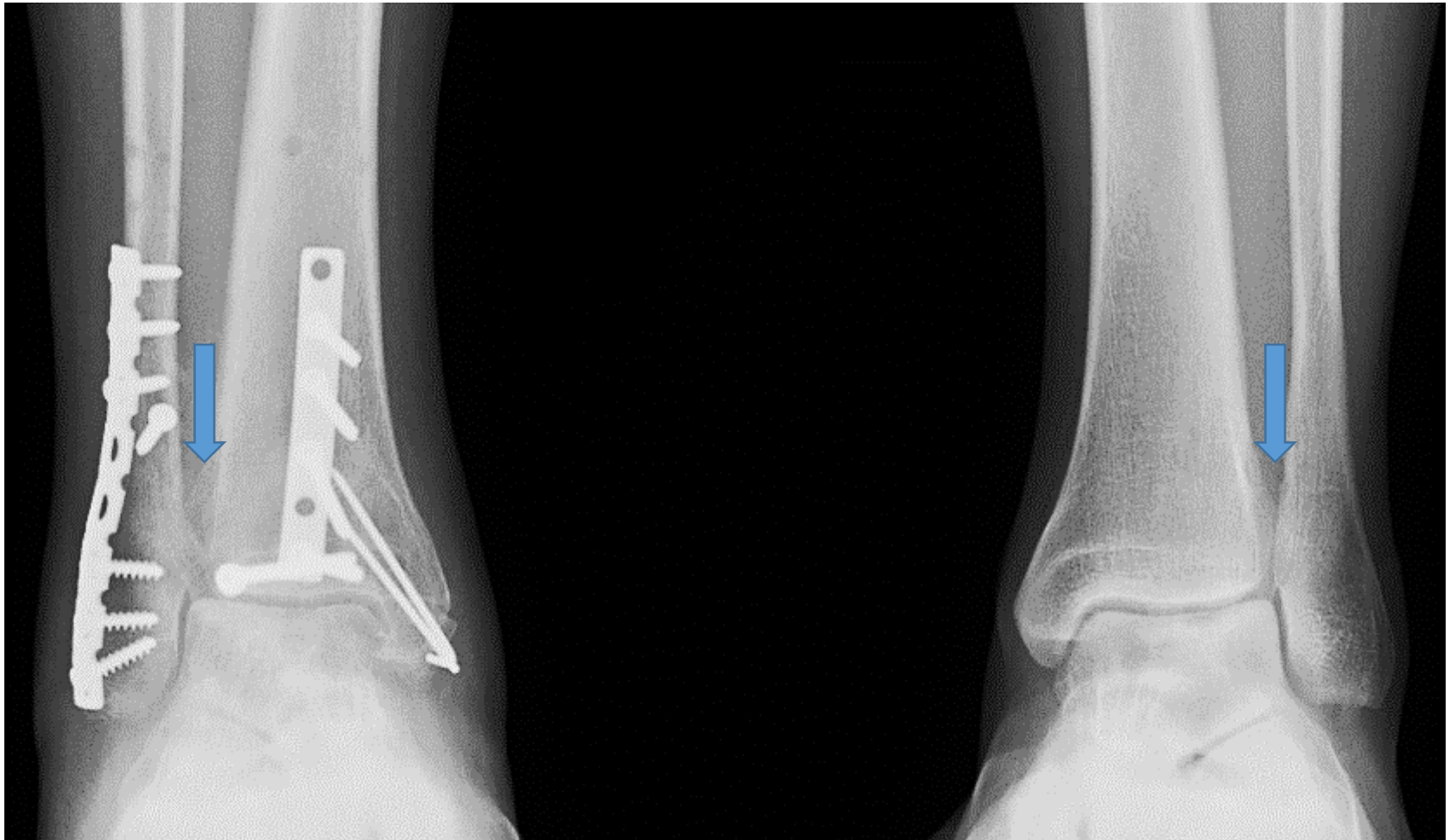
Posterolaterální přístup, M, *1981



3M od operace



RTG v zátěži – AP, stoj, vnitřní rotace chodidel 20° -
- *stabilita syndesmosy*



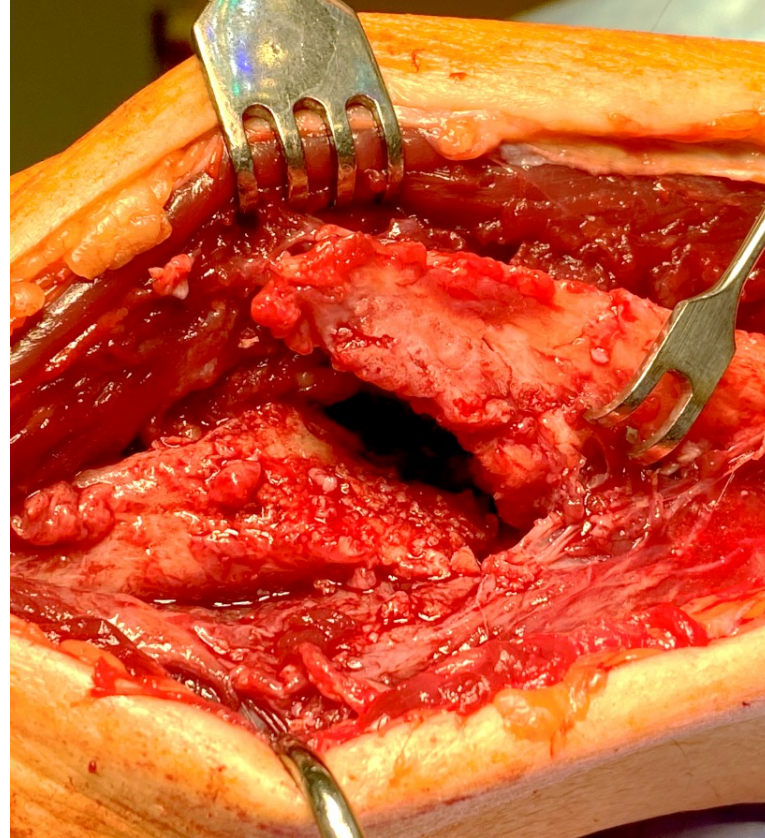
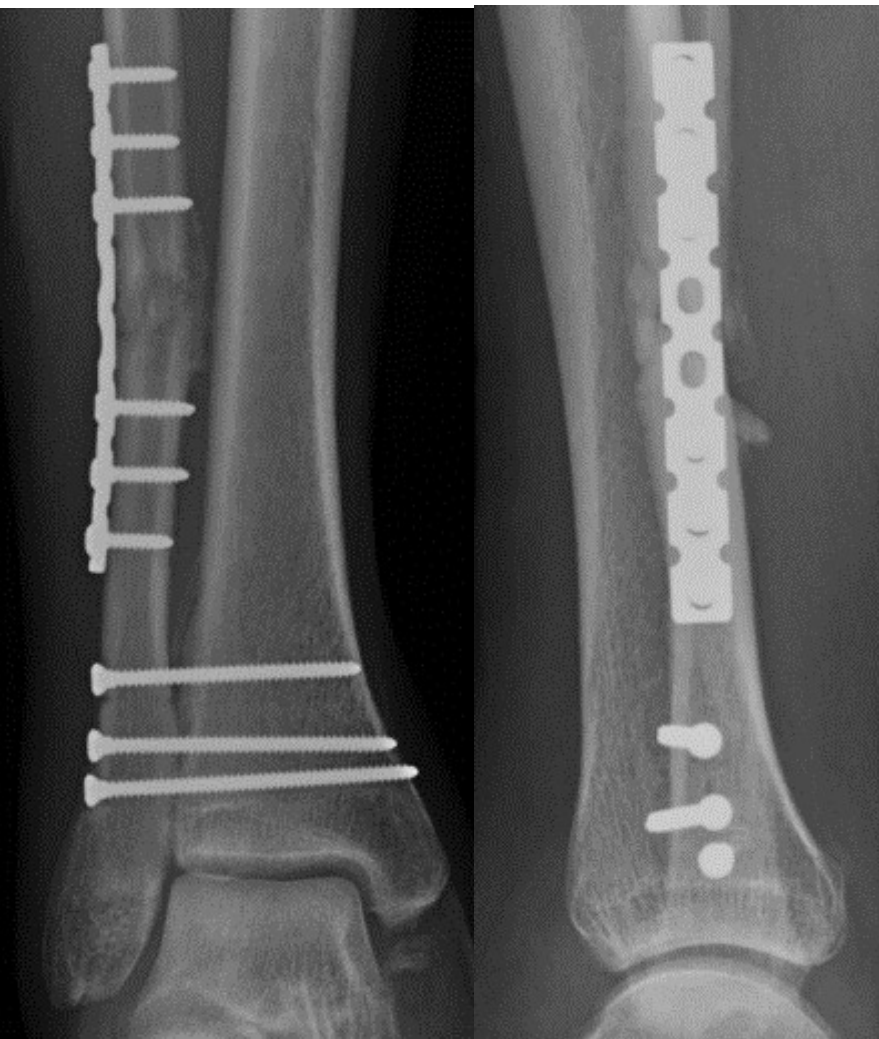
Muž *1959

8/12 - zlomenina fibuly, sádra – extra muros

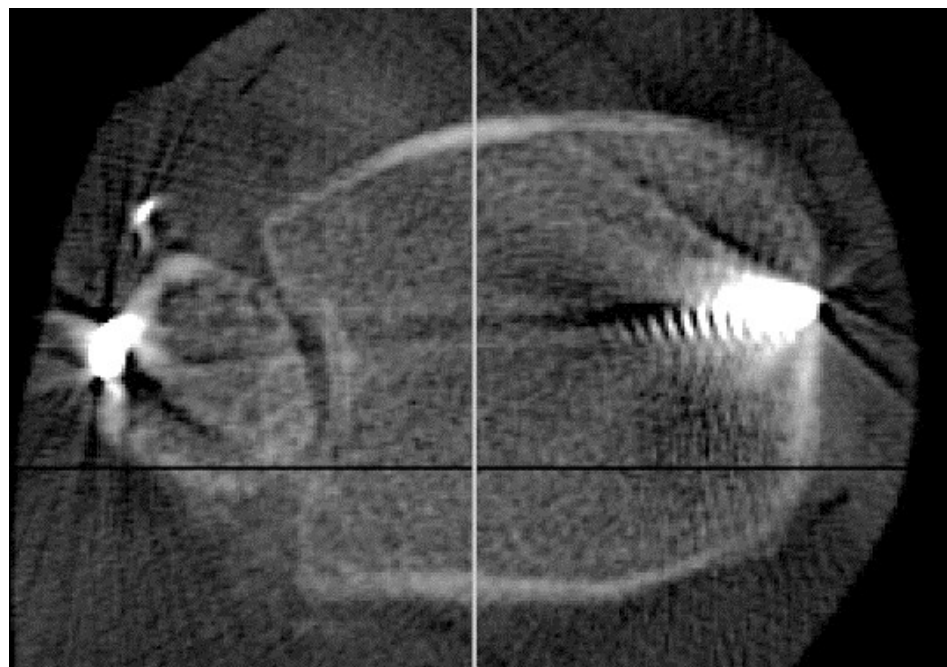
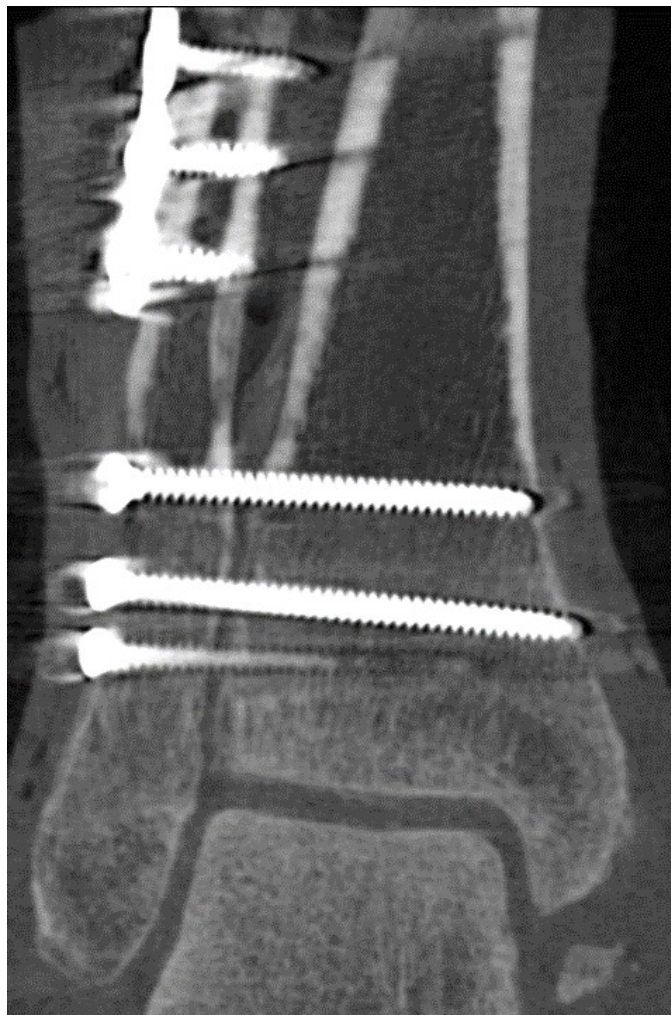
11/19 – pro potíže dg – RTG,CT indikace reOS pro malpozici a pseudoartrózu fibuly, rupt. syndesmosy, asymetrii ATC



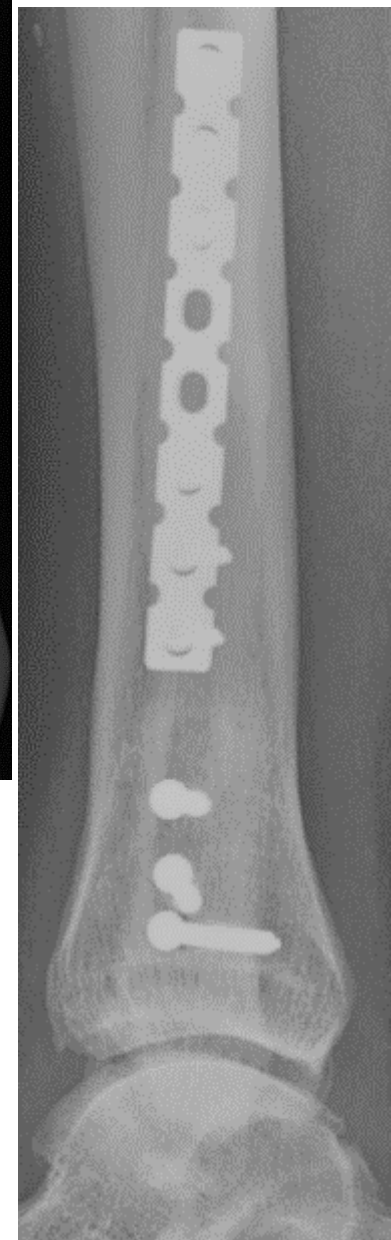
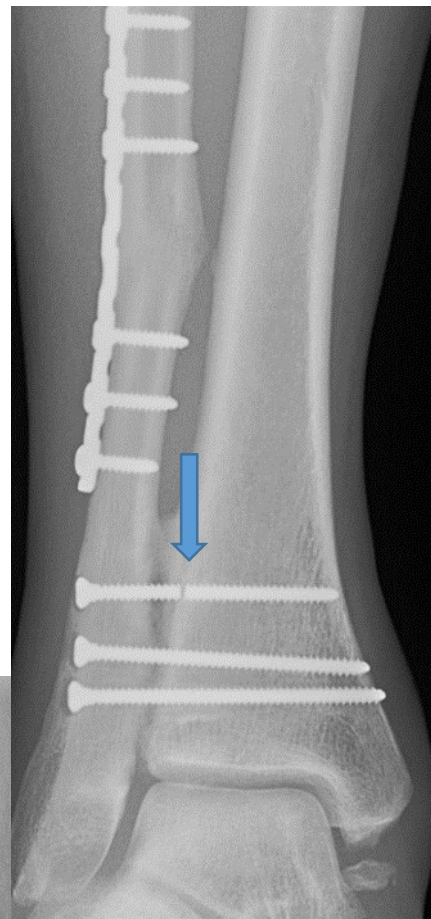
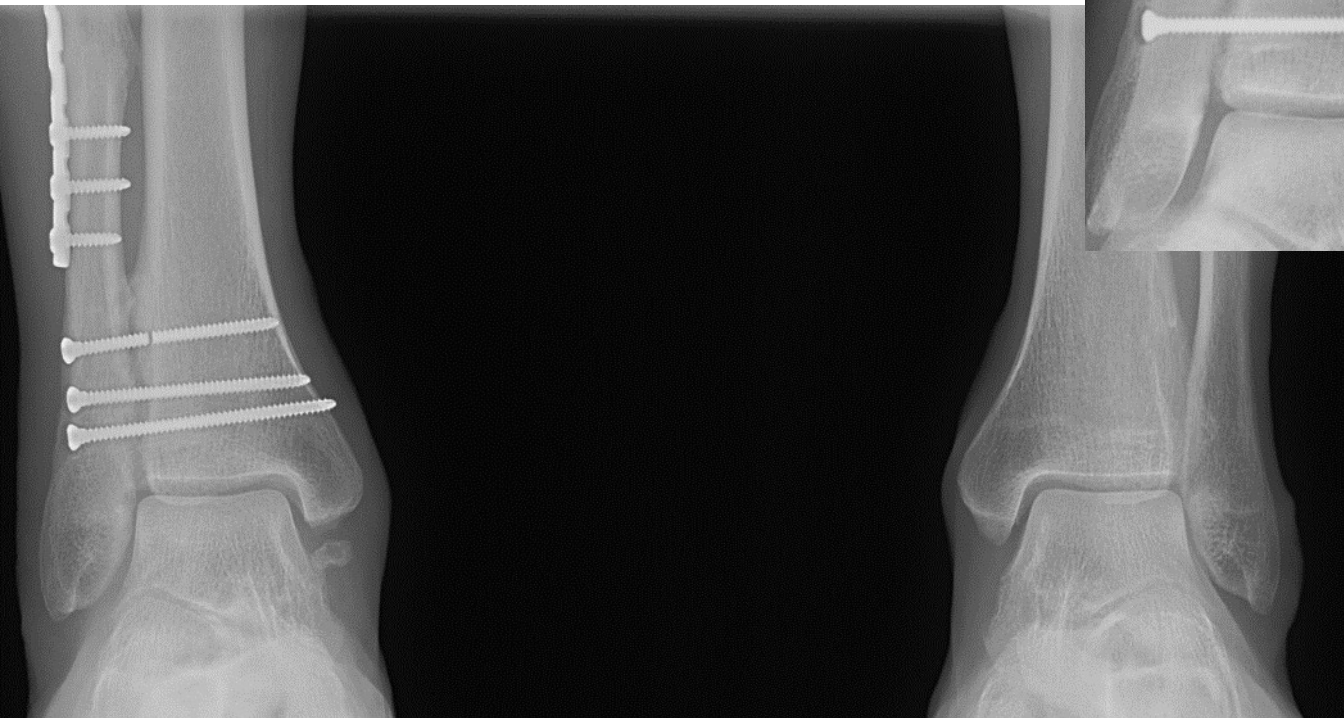
- 12/19 – 3M od úrazu
- resekce pakloubu
- prolongace a repozice fibuly v incisurě, OS.
- deltový vaz pevný



Peroperační CT 3D

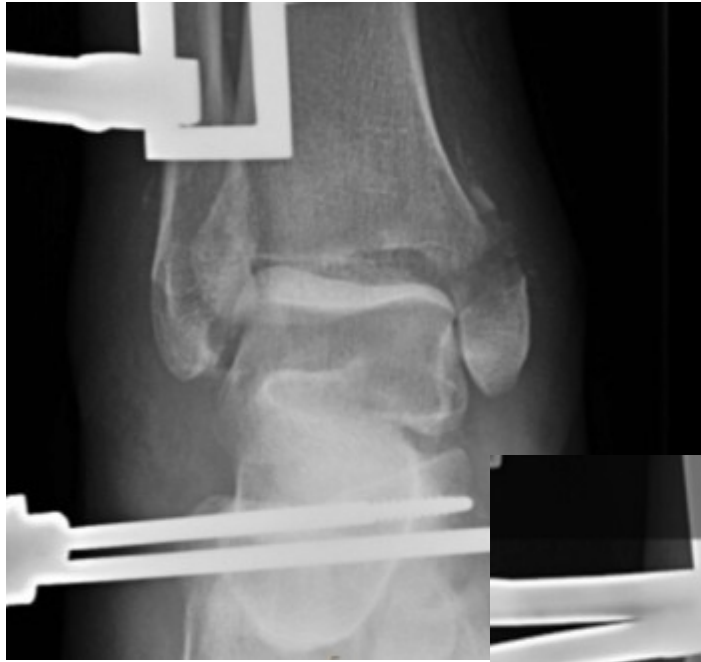


- 6M po reoperaci, bez potíží
- RTG v zátěži – symetrie
- spontánní dynamizace
- šrouby ponechány

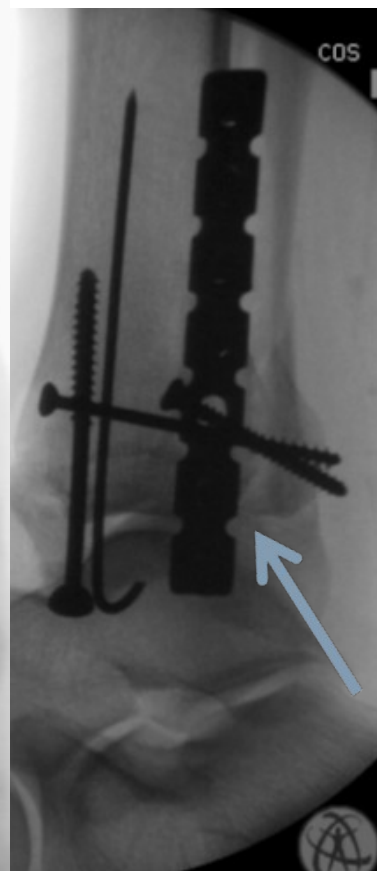
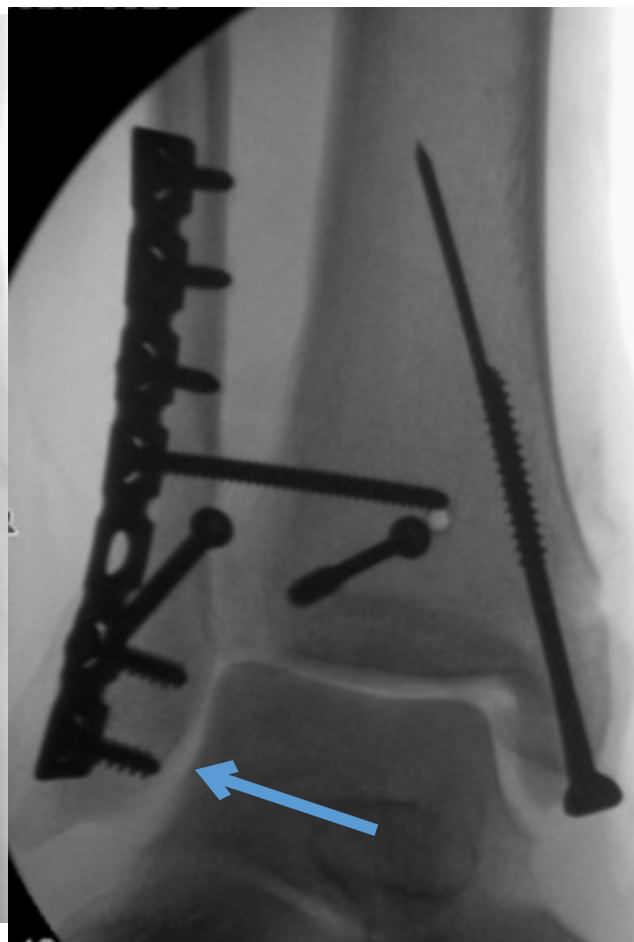
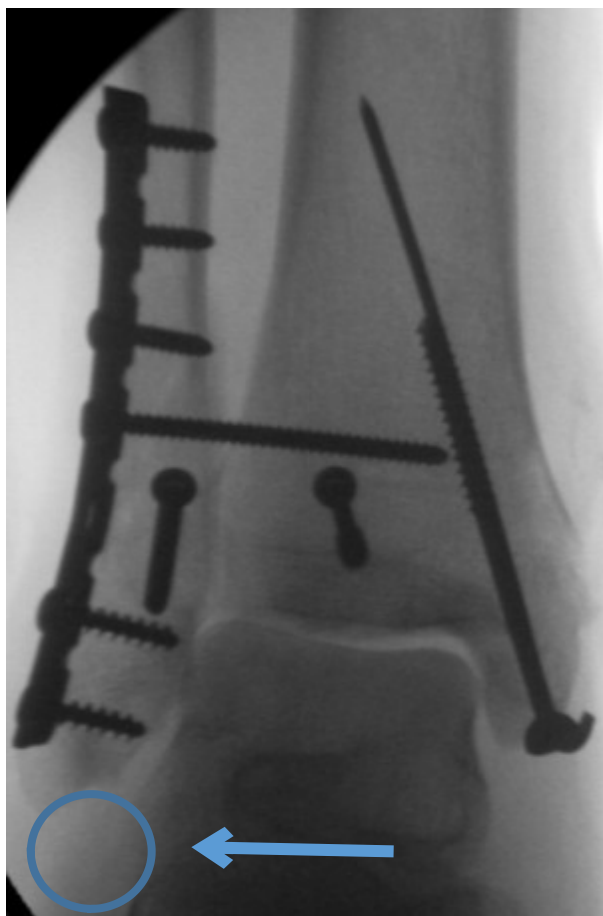




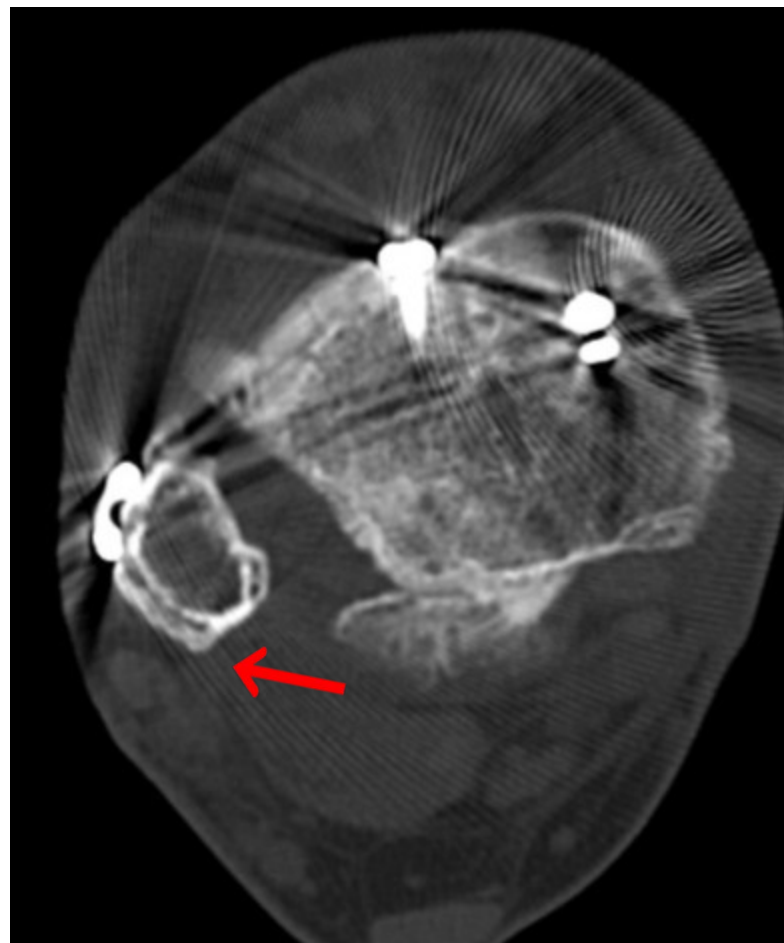
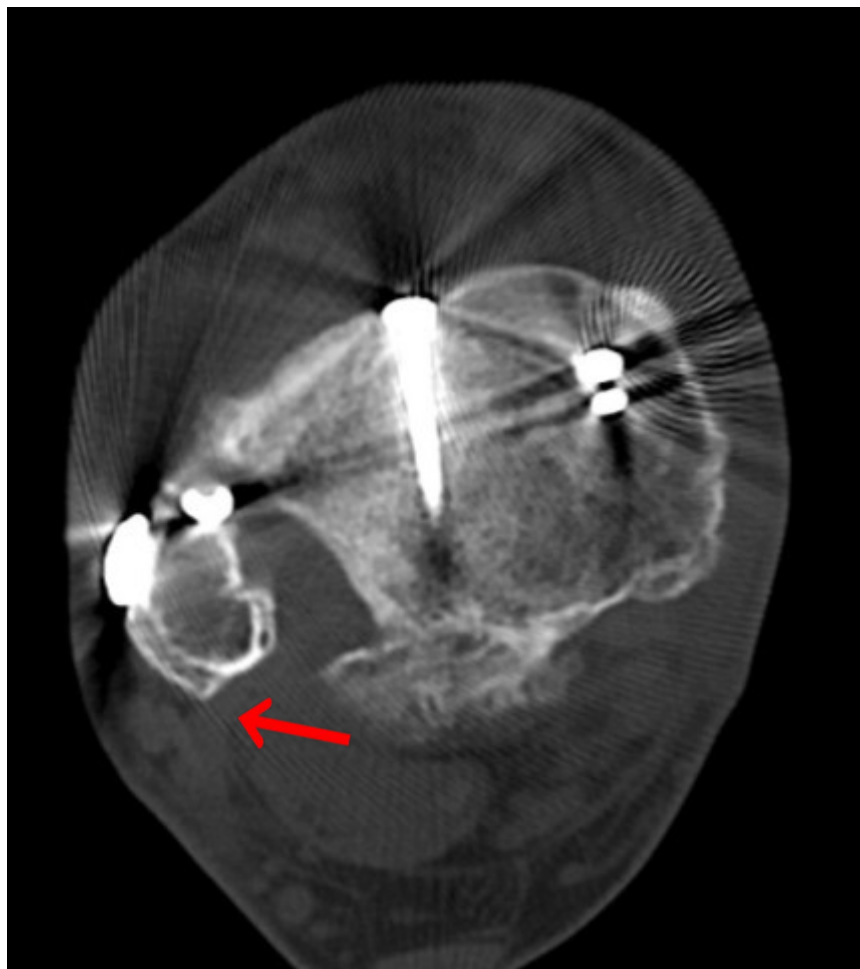
Muž, *1979, luxační trimall. fr. hlezna, OS 9/15



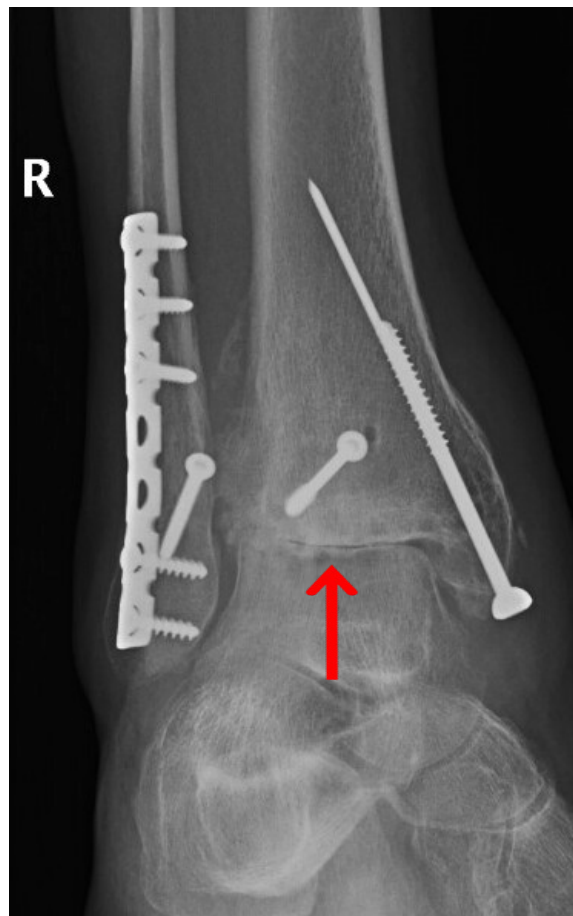
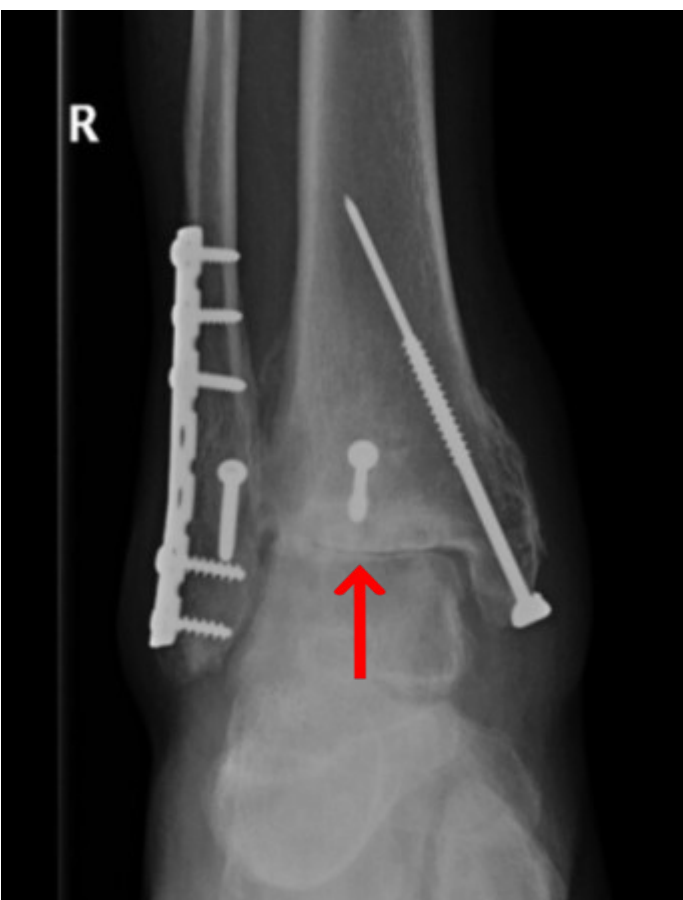
Důvod artrodézy (v.s.)



CT s odstupem – asymetrie fibuly v incisurě

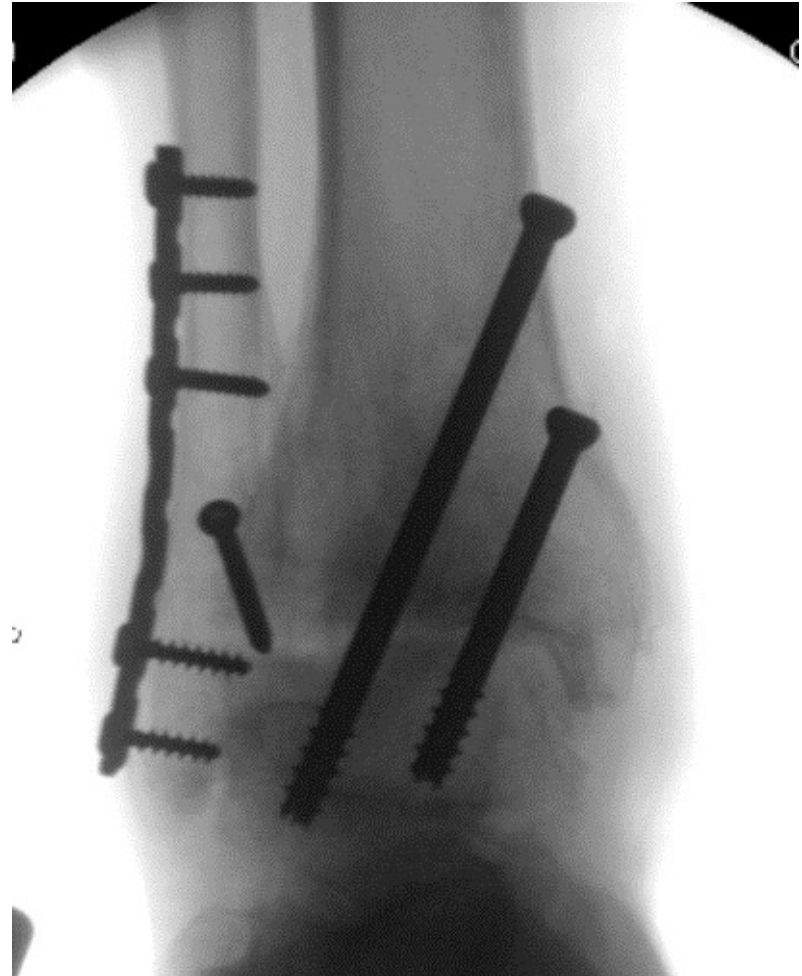
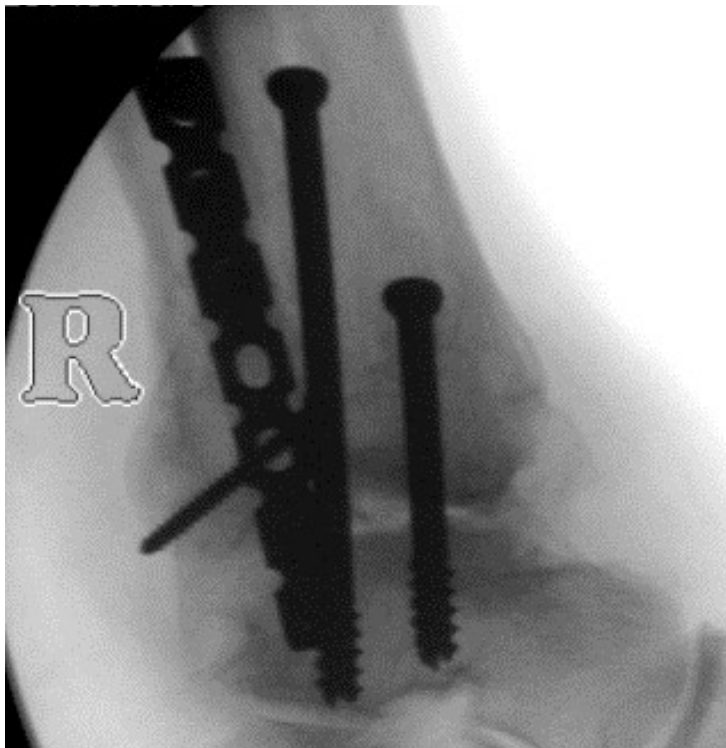


Postupně artróza IV. st. 9/16 – 12M od úrazu



Peroperační RTG- 4/17- ASK asistovaná artrodéza hlezna

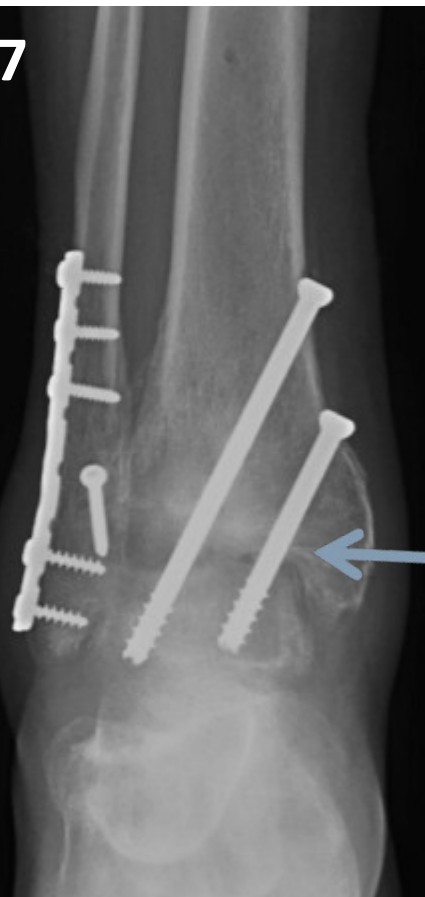
- Miniinvazivně
- Bez spongioplastiky
- Bez osteotomie fibuly



Po 3-4 M prohojeno

5/17

R

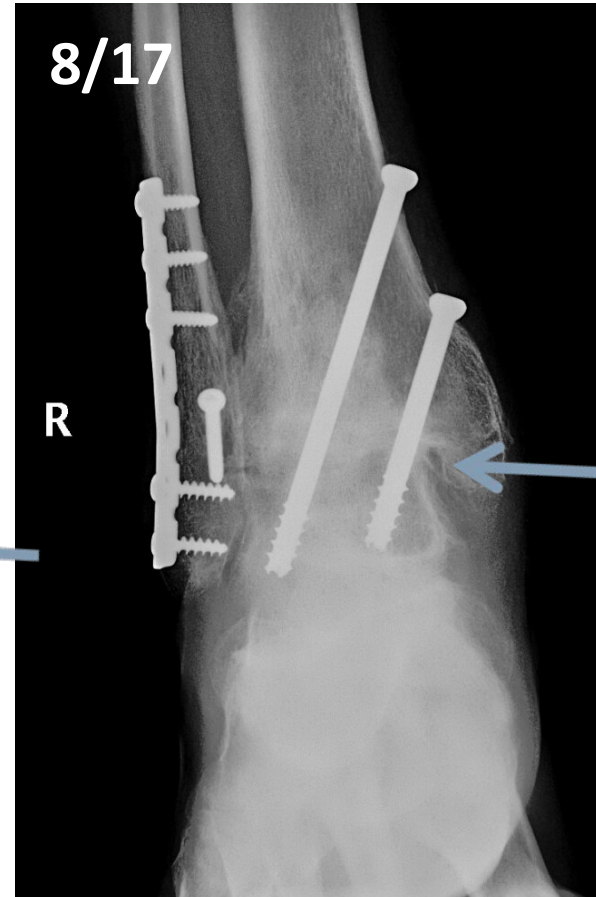


7/17

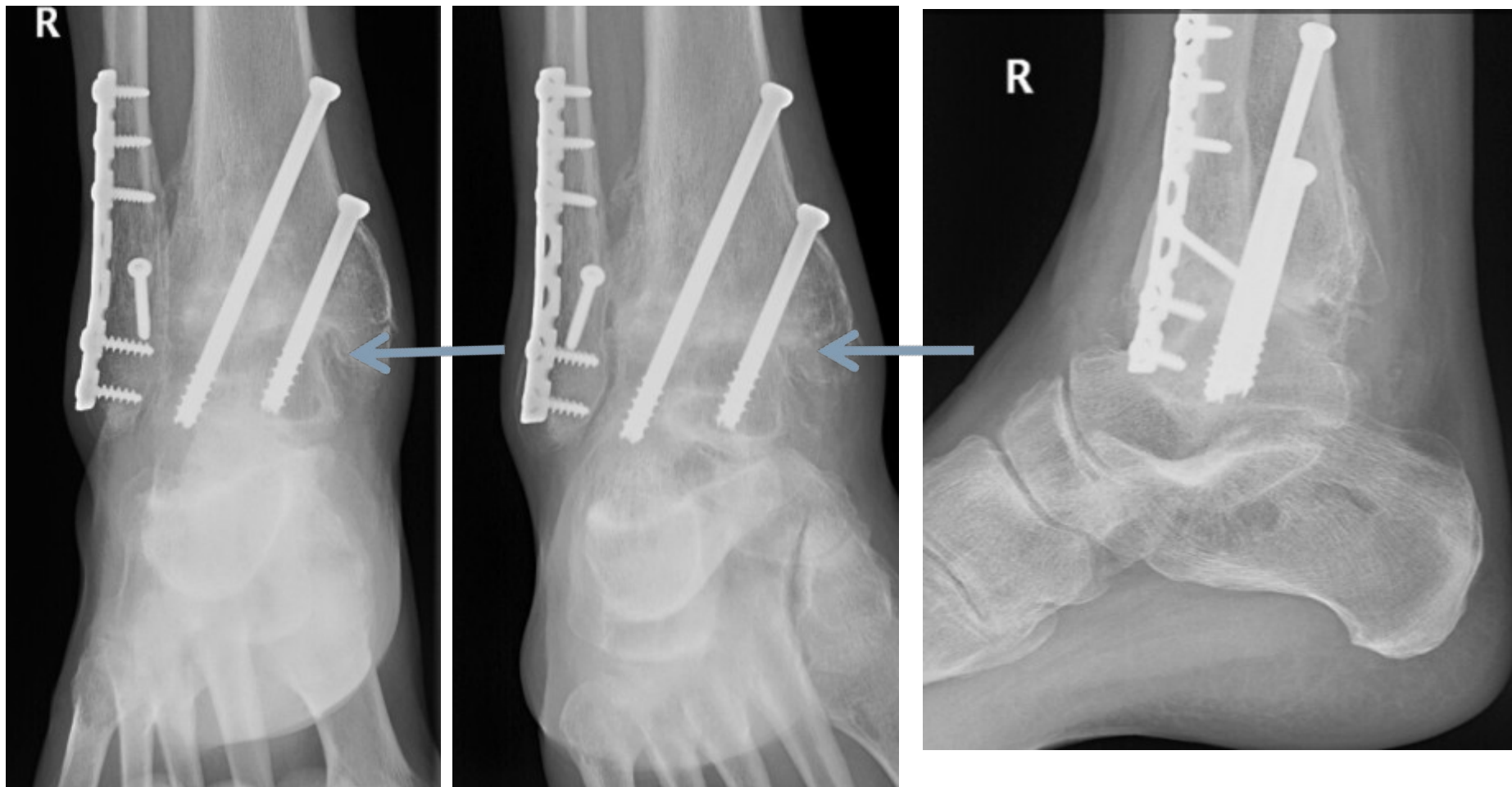


8/17

R



Konsolidováno – 12/17



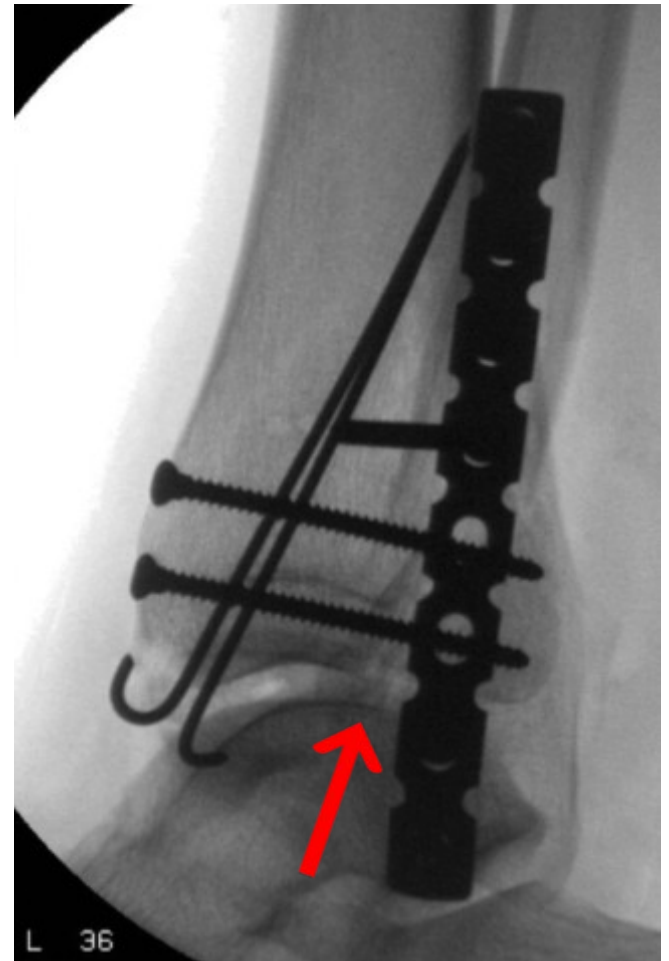
Rozcvičeno...



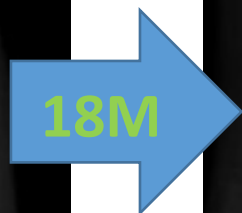
Muž, *1969, trimall. fr. hlezna, OS



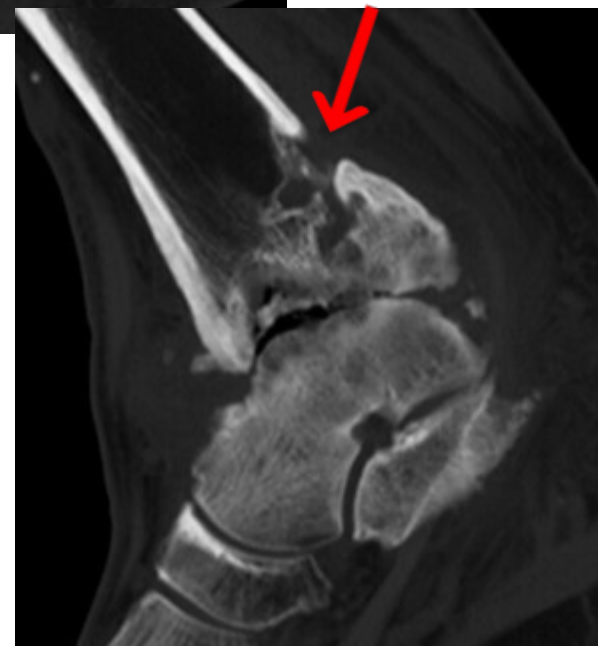
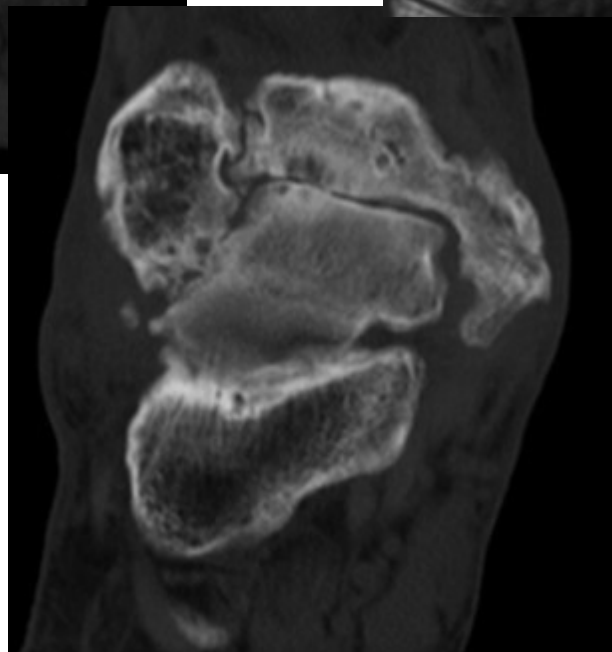
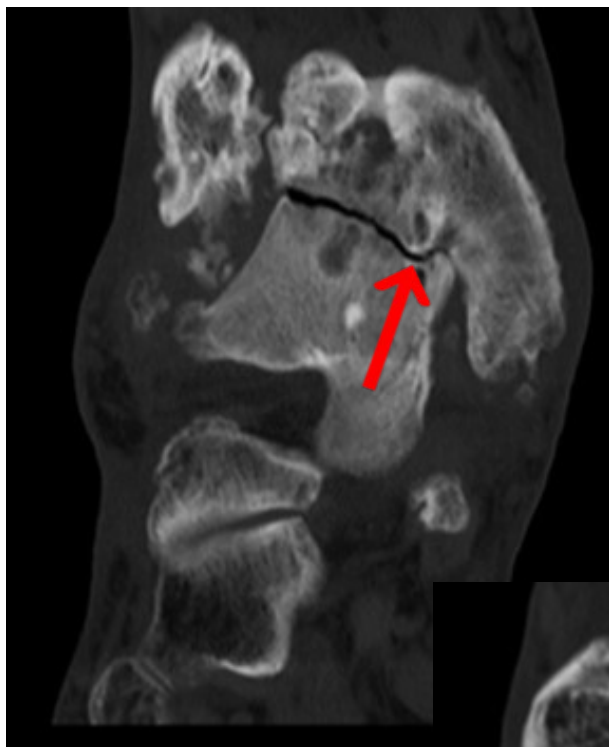
Muž, *1969, trimall. fr. hlezna, OS 8/11



Kolaps středního pilíře



CT projekce – těžká artróza – IV. st., 6/14 (3R)



10/14 – ASK artrodéza



Respekt

- **Předoperační CT** → volba přístupu, **pooperační CT** → kontrola výkonu
- Pořadí ošetření „kotníků“

Zadní → Laterální → Mediální → Přední

- Vždy reponovat **Chaput** a **zadní hranu** dle kritérií – časná artróza z přetížení
- Hook test vždy - korektní zavedení tri-kvadrkortikálních **suprasyndesmálních šroubů** (2-3 šrouby)
 - 1-4cm nad štěrbinu
 - Komprese repozičními kleštěmi v incisuru v anteverzi 20-30°
 - Extrakce za 3 měsíce, spíše ponechat, RTG v zatížení

CAVE - 2-3mm rozestup v syndesmose – přetížení v ATC o 50% !!!

*Kotníky v korektním postavení odlehčí zatížení kladky talu –
- efekt koňského sedla*

- **Schodek** v ATC max **1 mm** → časná artróza
- Když reoperovat, tak za jedné hospitalizace



DĚKUJI ZA VAŠI POZORNOST

