

Orthopedics Update

**Perthes disease
treated by
triple pelvic osteotomy**

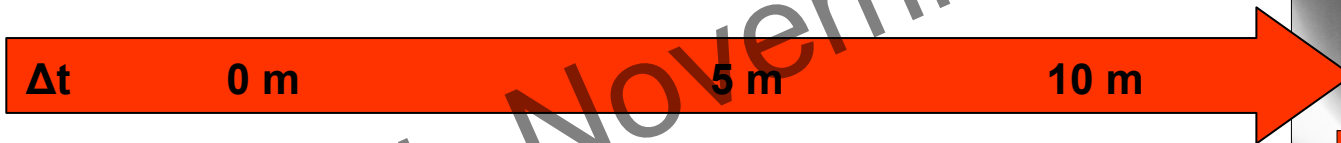
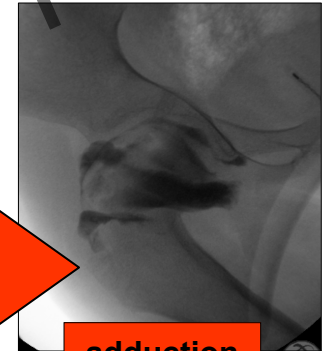
« Die Kinderrheuma »
24. November 2011

Stefan Dierauer

Surgery in Perthes disease

„THE solution ?“

- boy, 6 10/12 years at onset of disease



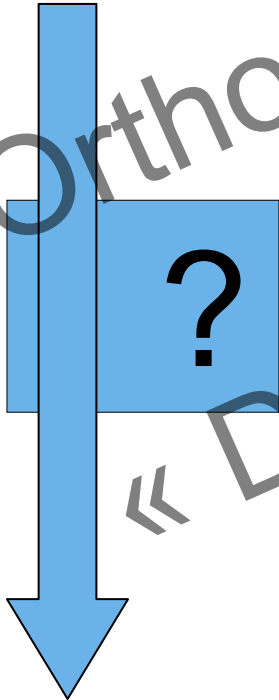
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Surgery in Perthes disease

„THE solution ?“

- triple pelvic osteotomy



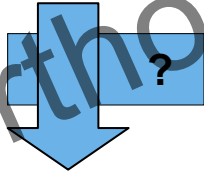
- femoral valgisation osteotomy



Pelvic surgery in Perthes disease

literature

- „Advanced containment methods for Legg-Calvé-Perthes disease: results of triple pelvic osteotomy“



- in early stage of disease
- or
- modern method to provide containment

Wenger DR et al.; J Pediatr Orthop 2010



Pelvic surgery in Perthes disease development

■ Salter osteotomy

- provides only modest additional coverage
- risk of impingement of the enlarged head

Rab GT; J Pediatr Orthop 2005

↑ better combined with

- femoral varisation osteotomy

↓ therefore

■ Triple pelvic osteotomy

- allows more complete coverage of the enlarged head
- less risk of impingement

various



Triple pelvic osteotomy

„indication“

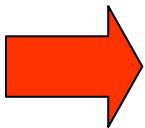
- in case of lateralisation of the femoral head
- also possible in mild or moderate hinge abduction



hip arthrography



- irrespective of Herring classification
- age 6 years or more

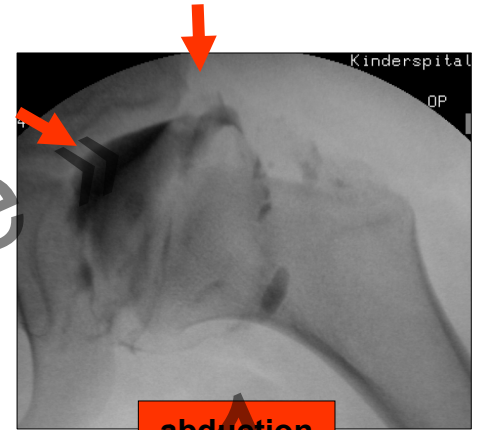


NOT in a stiff hip!



Triple pelvic osteotomy

hip arthrography



abduction

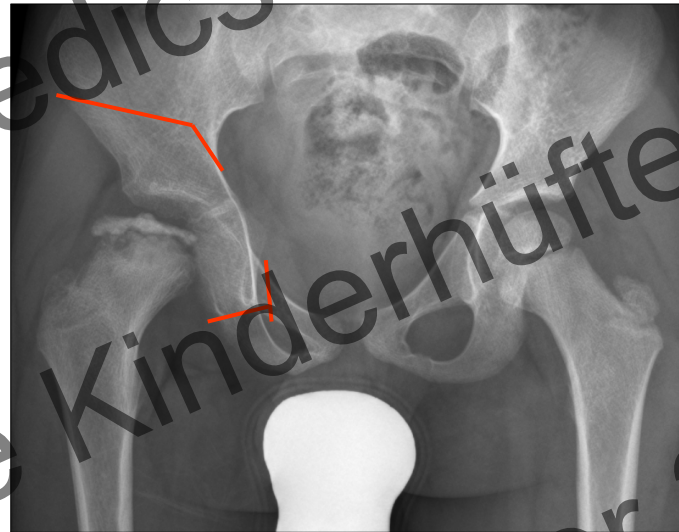


adduction



Triple pelvic osteotomy

technique



- all osteotomies made relatively close to the acetabulum allowing free acetabular rotation
- to reach more stability bended cut of iliac bone



Triple pelvic osteotomy

technique

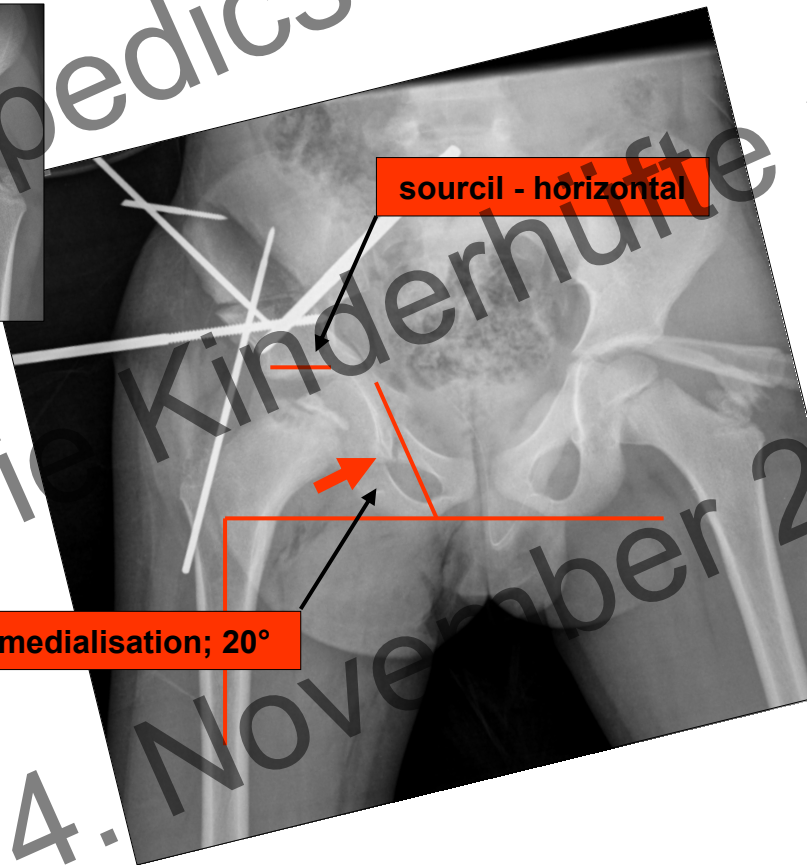
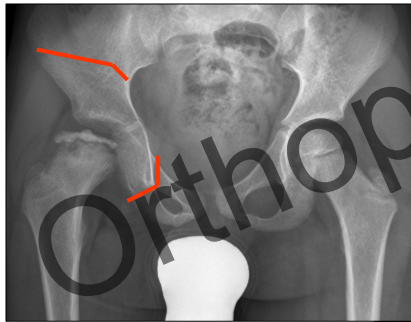


- to not create acetabular retroversion marking by Kirschner pin and Schanz screw before performing iliac cut



Triple pelvic osteotomy

technique – doing the correction



Triple pelvic osteotomy

technique



- to obtain maximal interfragmentary stability fixation by placing screws from cranial and also caudal



Triple pelvic osteotomy

intraoperativ problems

- incomplet osteotomy of ischiac bone creating hinging respectively lateralisation of the acetabular fragment
 - aim to medialise the acetabular fragment
- creating acetabular retroversion
 - don't forget marking pin/screw
 - check internal rotation before and after correction
 - image intensifier views/x-ray ?
- under- or overcoverage
 - carefully assess image intensifier views looking to the deardrop figure (20° angle) and sourcil (horizontal)



Triple pelvic osteotomy

complications

■ Risk of...

- injury of sciatic nerv
- femoroacetabular impingement due to acetabular retroversion or hypercontainment



„..., advanced containemt has a risk-benefit ratio.“

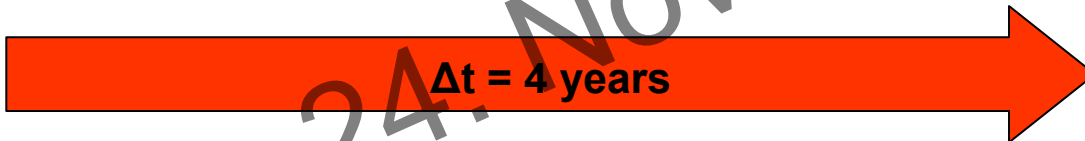
„The few patients who are over-contained can be dealt with using newer surgical methods (acetabular rim trim) to correct impingement.“

Wenger DR et al.; J Pediatr Orthop 2010



Triple pelvic osteotomy

results

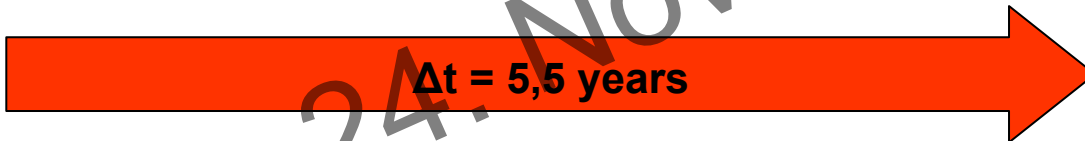
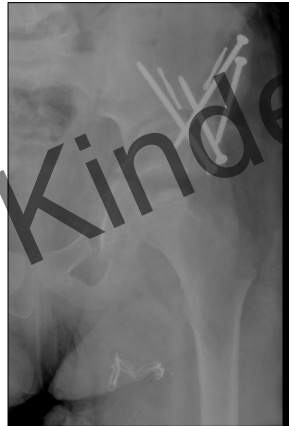


$\Delta t = 4$ years



Triple pelvic osteotomy

results



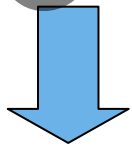
$\Delta t = 5,5$ years



Triple pelvic osteotomy

results

- 40 hips in 39 patients
 - mean age at surgery 8,3 years
 - 30% Waldenström I, 55% II, 15% III
 - 52% Herring B, 48% C
 - mean follow-up 64 months



- „...provides excellent containment...“
- no poor results in Herring B patients of all ages and Herring C patients with onset less than 8 years
- in 4 patients additional surgery (usually femoral valgus osteotomy)

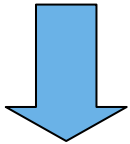
Wenger DR et al.; J Pediatr Orthop 2010



Triple pelvic osteotomy

results

- inform the parents about...
 - risk of impingement due to necessary over-containment in moderate hinge abduction or coxa magna
 - development of coxa magna and short femoral neck due to disturbed growth within the Perthes disease itself



possible reoperation

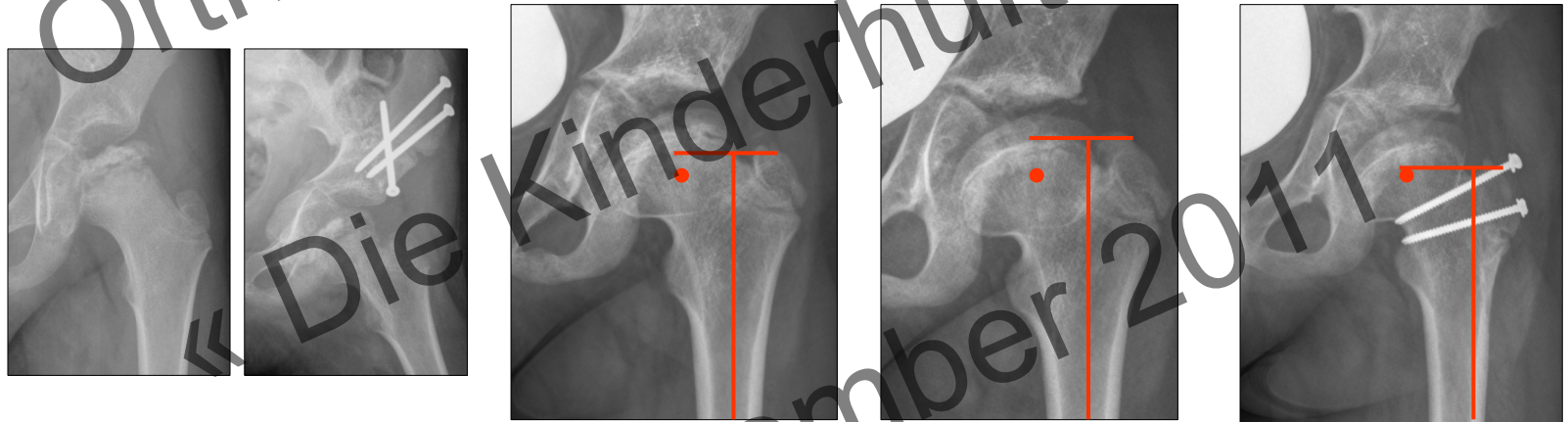
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Triple pelvic osteotomy

limping because of short femoral neck...

- relative lengthening of femoral neck



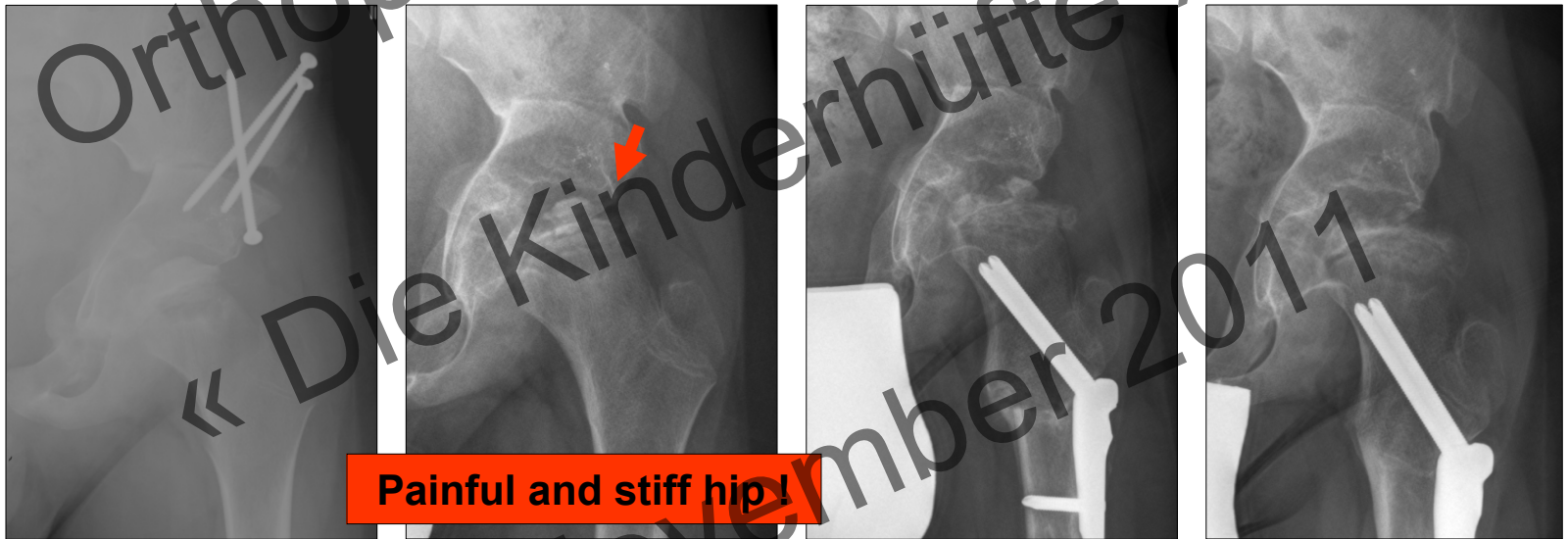
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Triple pelvic osteotomy

poor result with extrusion...

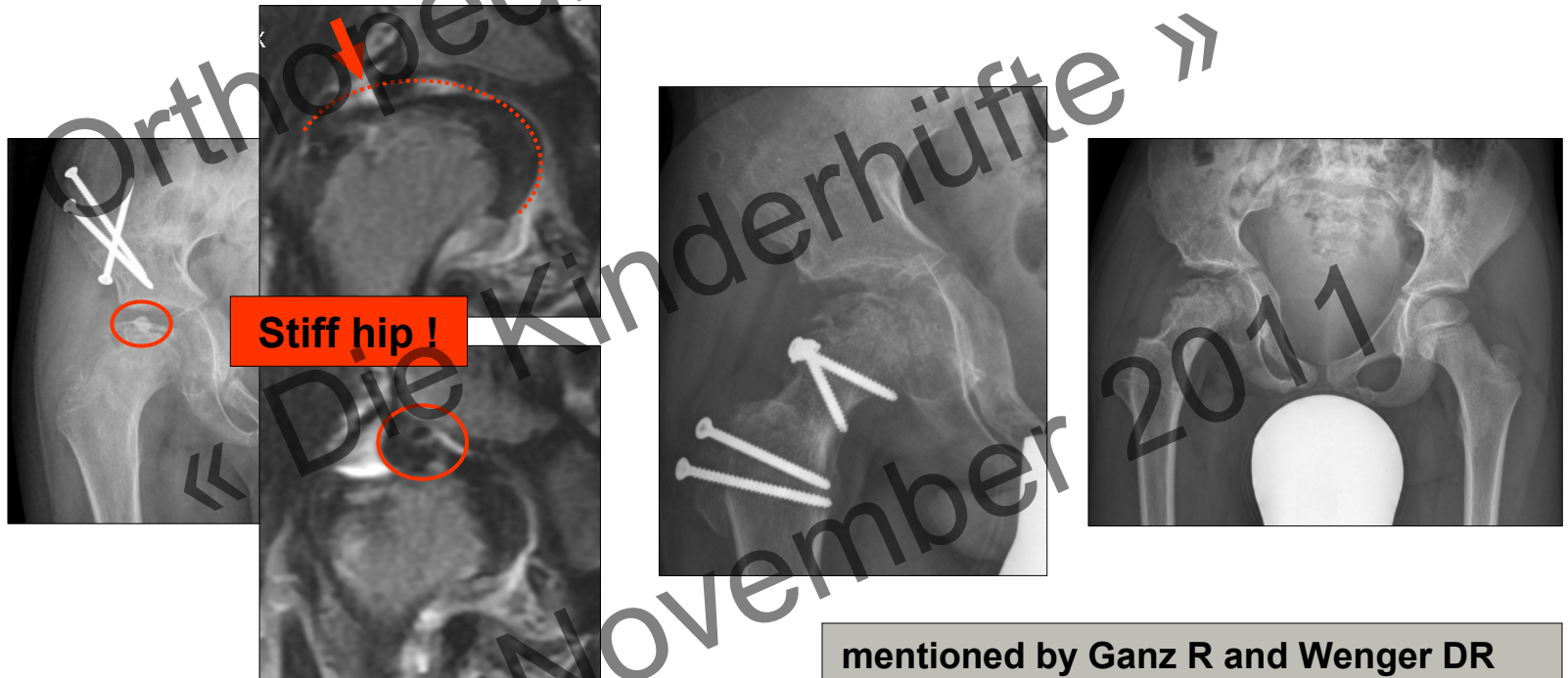
- femoral valgisation osteotomy



Triple pelvic osteotomy

poor result with extrusion...

- femoral head/neck recontouring



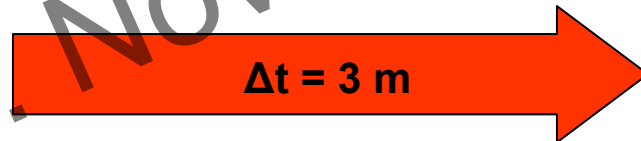
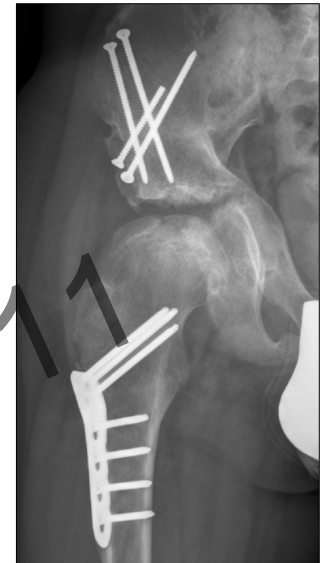
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Triple pelvic osteotomy

also ...

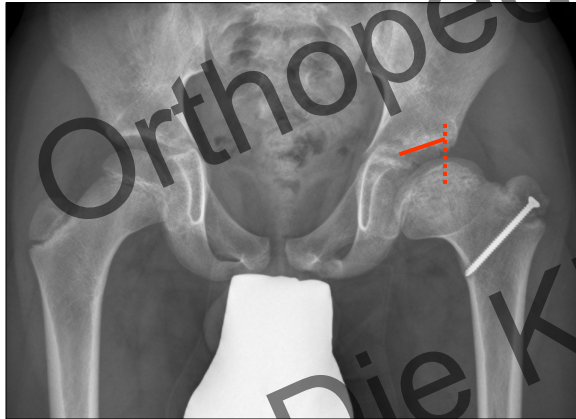
- secondary to femoral valgisation osteotomy



Triple pelvic osteotomy

also ...

- in case of coxa magna „after“ Perthes disease



At = 2 years



Summary

- triple pelvic osteotomy...
 - is an effective method for treatment of Perthes disease
 - can produce a surprisingly spherical head
 - is also „applicable“ in patients over 8 years with Herring C involvement
- doing the surgery...
 - over-containment has to be risked in moderate hinge abduction
- in case of poor result with extrusion
 - femoral valgisation osteotomy or head-neck reconturing has to be considered

Wenger DR et al.; J Pediatr Orthop 2010



Summary

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Triple pelvic osteotomy in Perthes disease – THE „right way“ ?



24 November 2017
Thank you for your attention !

