

Morgunfundur bæklunarskurðeildar

11. apríl 2019

Hera Jóhannesdóttir



Tilfelli

- 10 ára stúlka
- Hraust, í eðlilegum holdum
- Kvartar um verk í vinstri mjöðm
- Verið með einkennum í a.m.k. 4 vikur, versnandi sl. 2 vikur
- Getur gengið og hefur stigið í vinstri fót allan tímann
- Falltrauma í tengslum við snjósleða fyrir 5 vikum

Tilfelli

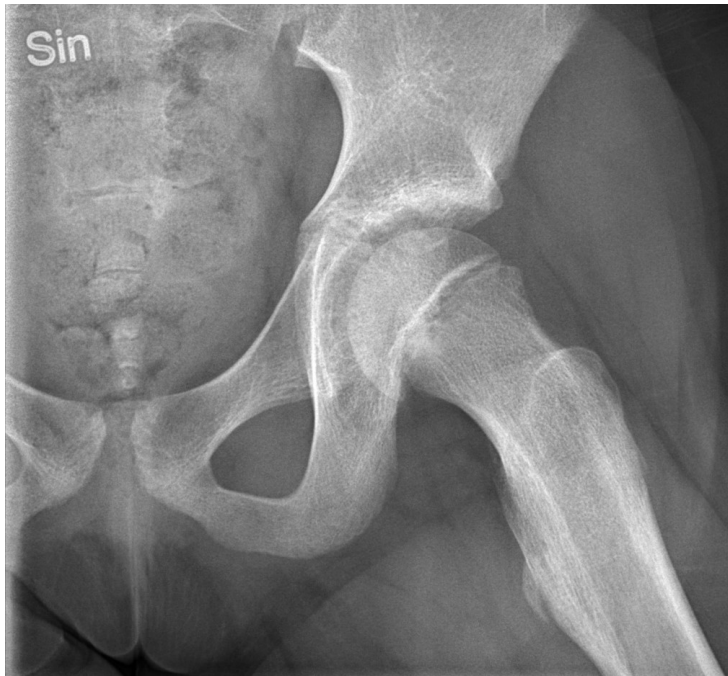
Skoðun

- Ekki meðtekin af verk, gefur góða sögu
- Er án verkja við skoðun
- Gengur án hækja
- Eðlilegir hreyfiferlar í báðum mjöðmum, verkjalaus við skoðun á mjöðmum

Tilfelli



Tilfelli



Tilfelli



Tilfelli



“Bráðaaðgerð”:
LIH nagli in situ



Kastlos í mjöðm

Slipped Capital Femoral Epiphysis (SCFE), “skiffy”

Slipped Upper Femoral Epiphysis (SUFE), “souffy”

Coxa vara adolescentium

- Metaphysan skríður fram og roterar út, epiphysan er kyrr í acetabulum
- Algengasta vandamál í mjöðmum unglinga, oft vangreint
- Tíðni: 10/100.000
- Unglingsstrákar í ofþyngd



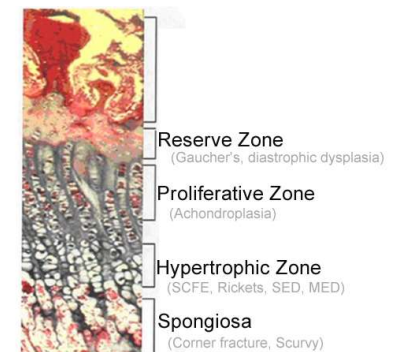
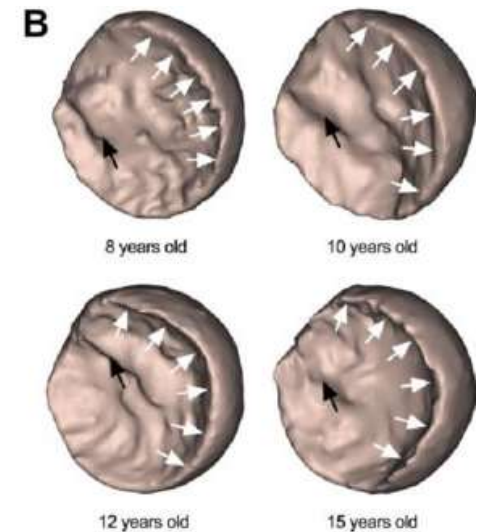
Kastlos í mjöðm

- Kk > kvk (2/1,4)
- Meðalaldur
 - kk 12-13
 - kvk 11-12
- Oftar í vinstri mjöðm, um 25% bilateral
- Áhættuþættir:
 - Offita
 - Acetabular retroversion og femoral retroversion
 - Innkirtlasjúkdómar
 - Hypothyroidismi, renal osteodystrophy, skortur á vaxtarhormóni (GH), panhypopituitarism
 - Downs syndrome
- Hvenær þarf innkirtlauppvinnslu?
 - Barn <10 ára
 - Þyngd <50%



Kastlos í mjöðm – orsakir

- Mekanískt álag á eðlilega vaxtarlínu (offita)
eða
eðlilegt álag á óeðlileg vaxtarlínu (sjúkdómur)
eða
trauma → SH1 brot
- Snúningur um epiphyseal tubercle
- Á unglingsárunum:
 - Epiphyseal tubercle minnkar, epiphyseal cupping eykst
 - Perichondreal ring þynnist og veikist
 - Vaxtarlínan er enn lóðrétt (160° við fæðingu, 125° við fullan beinproska)
- Los gegnum hypertrophic zone



Kastlos í mjöðm – flokkun

Loder classification

- **Stable** – getur stigið í, lítil hætt á osteonecrosu
- **Unstable** – getur ekki stigið í, mikil hætt á osteonecrosu

Temporal classification

- **Acute** – einkenni hafa staðið í <3 vikur
- **Chronic** – einkenni hafa staðið í >3 vikur
- **Acute on chronic** – bráð versnun á langvarandi einkennum

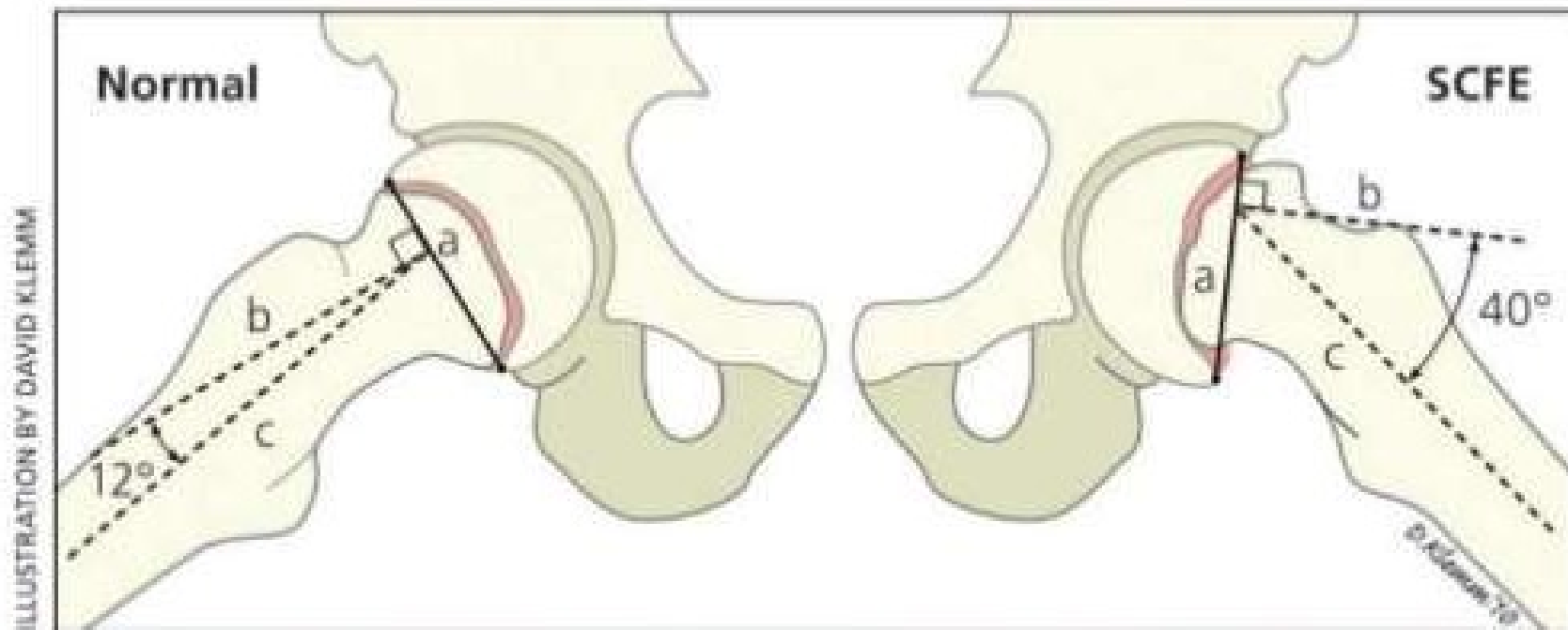
Soutwick Slip Angle Classification

- Mild <30°
- Moderate 30-50°
- Severe >50°

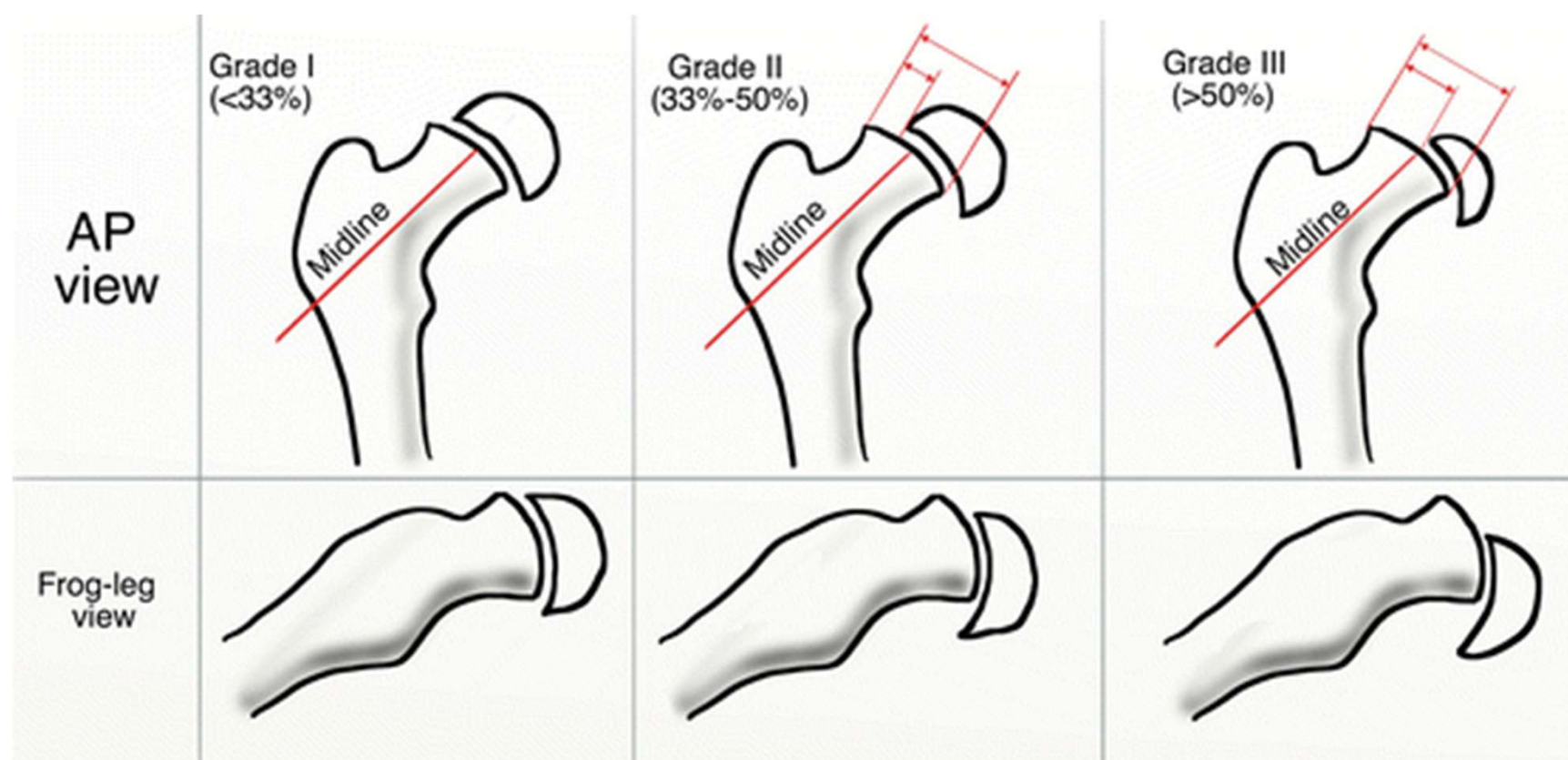
Grading system – % of slippage

- 0-33%
- 34-50%
- >50%

- Radiological classification (**Southwick**), which is based on lateral head shaft angle, places the slip into mild ($< 30^\circ$), moderate ($30-50^\circ$), and severe ($>50^\circ$).

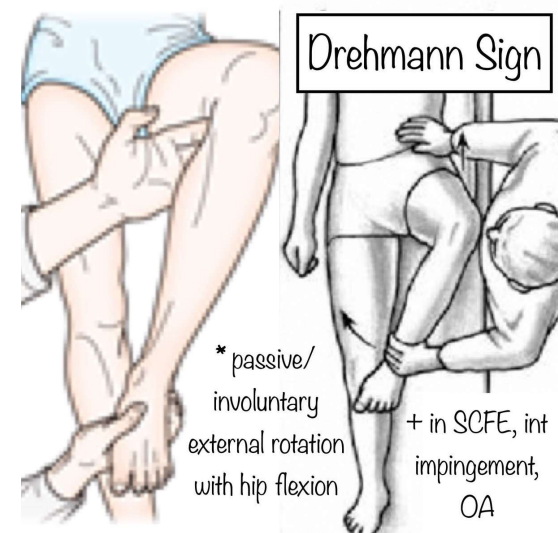


Southwick WO. Compression fixation after biplane intertrochanteric osteotomy for slipped capital femoral epiphysis. A technical improvement. *Journal of Bone and Joint Surgery, American*, 1973; 55(6):1218-1224.



Kastlos í mjöðm – einkenni og teikn við skoðun

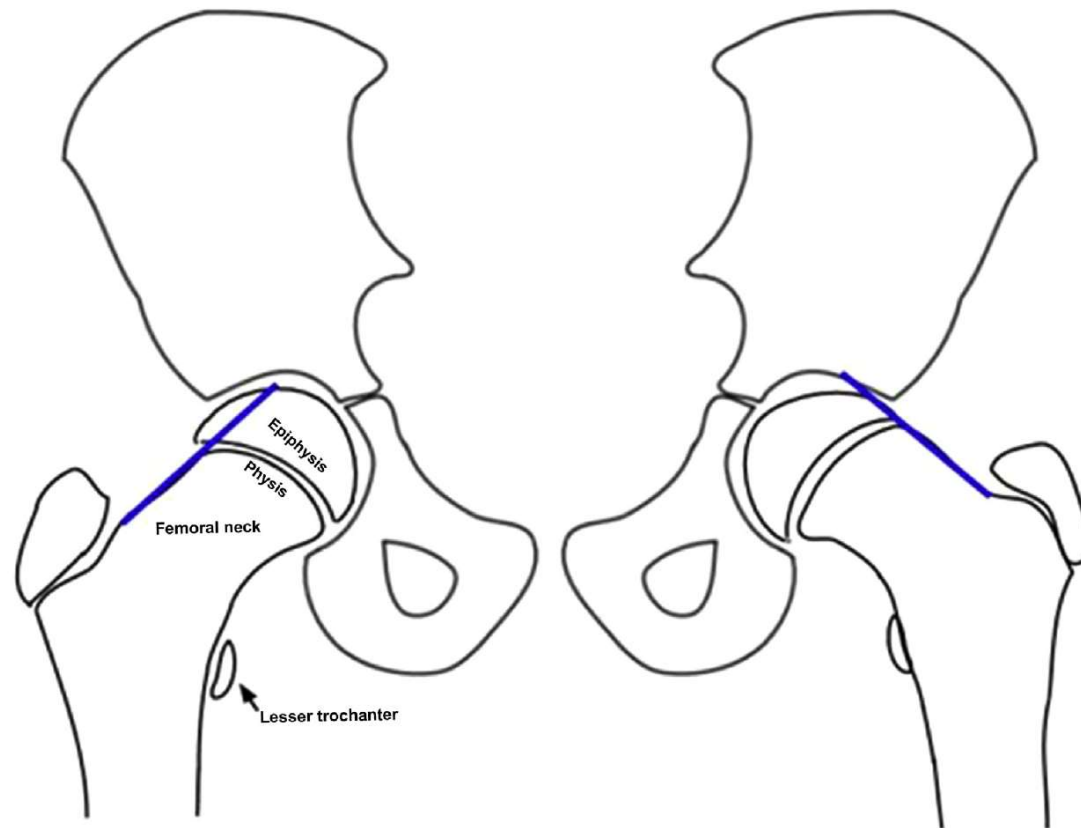
- Verkur
 - Í nára, læri eða hné
- Helti
- Útrotation á mjöðm
- Skert inrotation, abduction og flexion
- Drehmann sign: Útrotation í mjöðm við passífa flexion

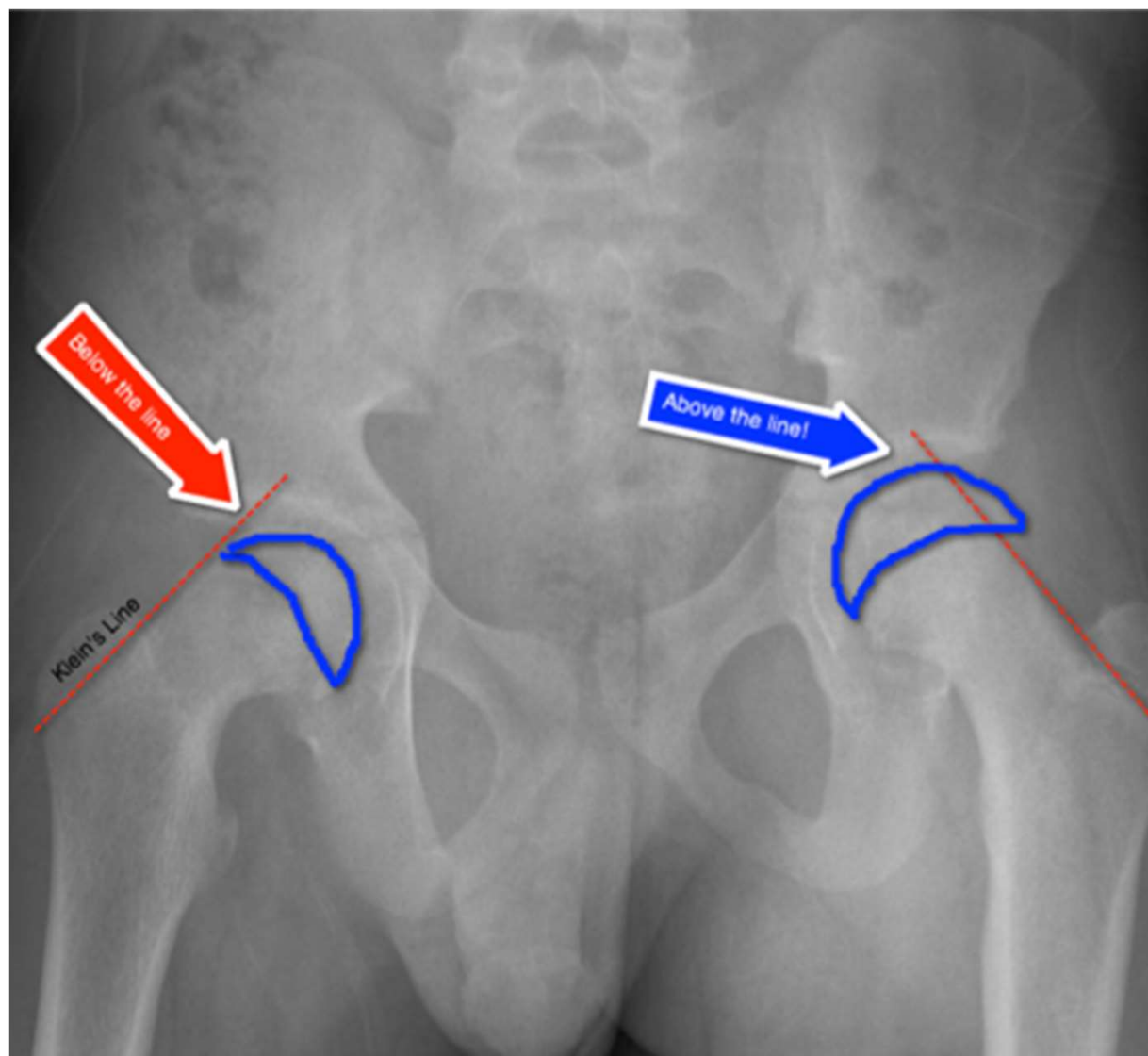


Kastlos í mjöðm – greining

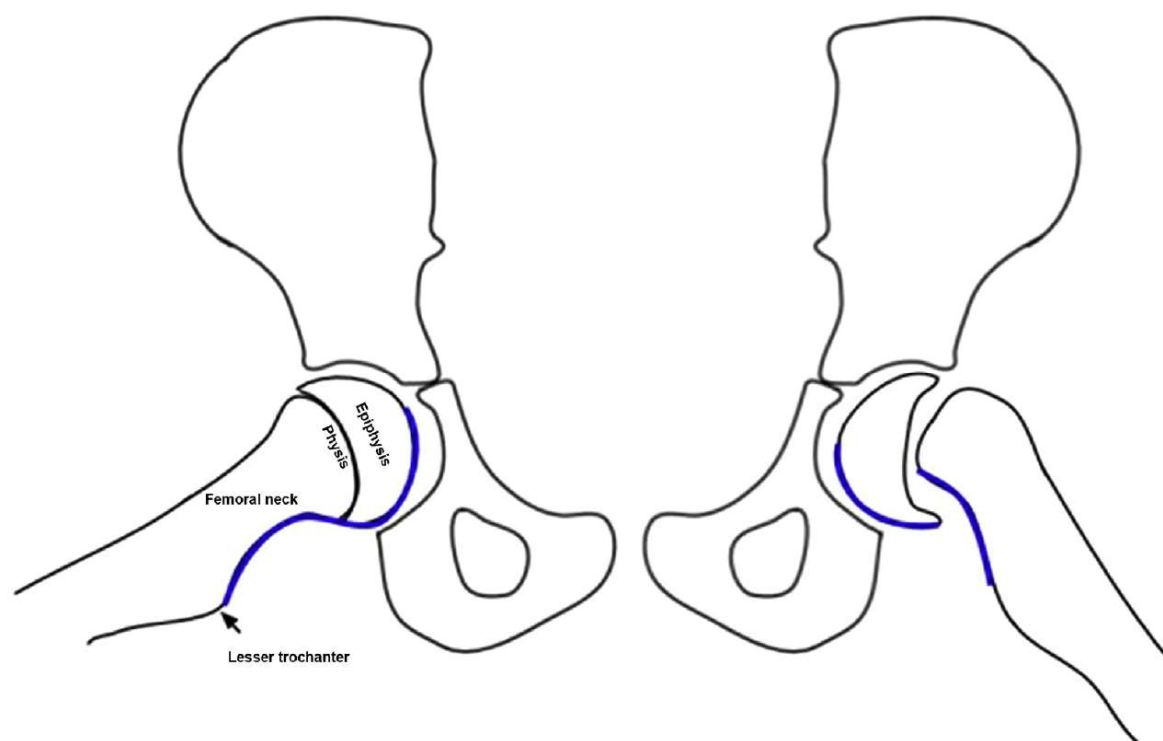
- Röntgenmynd
 - AP
 - Frog-leg lateral
 - Mynda báðar mjaðmir
- Teikn á röntgenmynd
 - Klein's line
 - Modified Klein's line
 - S-sign
 - Metaphyseal blanch sign (Steel sign)
 - Southwick head shaft angle
 - Wilson percent epiphyseal displacement

Klein's line





S-sign

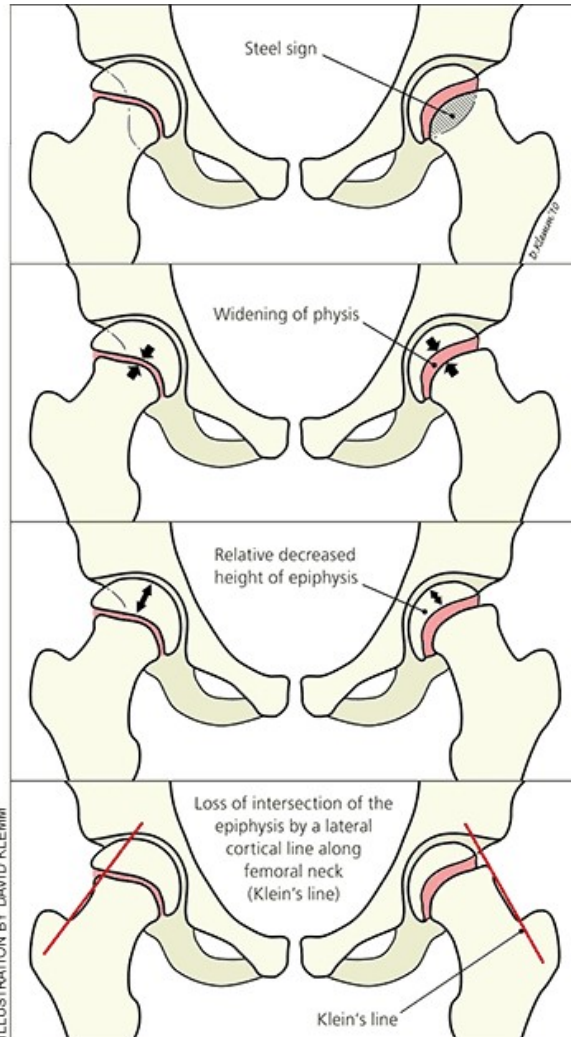


Metaphyseal blanch sign-Steel sign

- A crescent-shaped area of increased density over the metaphysis of the femoral neck

This density is produced by overlapping of femoral neck and the posteriorly displaced capital epiphysis





Kastlos í mjöðm – meðferð

“The optimal surgical treatment of severe SCFE and its late sequela remain an evolving and controversial subject.”

Slipped Capital Femoral Epiphysis



How to Evaluate with a Review and Update of Treatment

Andrew G. Georgiadis, MD^a, Ira Zaltz, MD^b

KEYWORDS

- Slipped capital femoral epiphysis • SCFE • Hip disorders, pediatric • Chondrolysis
- Dunn osteotomy • Osteonecrosis • Avascular necrosis
- Medial circumflex femoral artery

KEY POINTS

- Slipped capital femoral epiphysis (SCFE) is a common adolescent hip disorder.
- The physis is uniquely susceptible to lysis during specific periods of growth, and the risk of epiphyseal displacement is compounded by normal proximal femoral development, physical orientation, acetabular morphology, and endocrinologic factors.
- Rapid diagnosis can be made by careful clinical history, examination, and performance of anteroposterior and frog-lateral radiographs.

INTRODUCTION

Kastlos í mjöðm – fylgikvillar

- Avascular necrosis (femoral head osteonecrosis)
- Deformity
- Chondrolysis
- Femoroacetabular impingement
- Slitgigt síðar
- Krónískir verkir
- Kastlos hinum megin

Kastlos í mjöðm – meðferð

Markmið:

- Að hindra frekara skrið
- Að leiðrétta stöðuna á proximal femur

Kastlos í mjöðm – meðferð

- In situ pinning
- Closed reduction, internal fixation
- Open reduction, internal fixation
- Open reduction, physeal osteotomy
- Surgical dislocation
- Open reduction, femoral osteotomy
- Epiphysiodesis
- Osteochondroplasty
- Contralateral prophylactic fixation

“Modified Dunn”

“Imhauser”

Kastlos í mjöðm – meðferð

Evidence based treatment for unstable slipped upper femoral epiphysis: Systematic review and exploratory patient level analysis



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ARTICLE INFO

Article history:

Received 3 March 2016

Accepted 13 April 2016

Available online 30 May 2016

Keywords:

SUFE

SCFE

Slipped upper femoral epiphysis

Slipped capital epiphysis

Unstable slip

ABSTRACT

The management of slipped upper femoral epiphysis is controversial and evolving as insight into the condition develops. Loder introduced the concept of slip stability and demonstrated a strong association between poor outcome and instability. Almost half of patients with unstable slip developed femoral head osteonecrosis. This has been influential in surgeons' choice of treatments. Some surgeons have adopted a minimal intervention approach such as pinning in situ or gentle reduction and pinning whereas others advocated an urgent open reduction and stabilisation of slip using various surgical techniques. In this review we analysed the influence of various interventions, timing of surgery and severity of the slip on the outcome of unstable slip.

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Kastlos í mjöðm – meðferð

Table 4 – Pooled summary of studies of unstable slips treatments.

Interventions	Hips	FHO (%)	95% CI
Epiphysiodesis	64	6 (9%)	–5% to 19.2%
Pinning in situ	115	38 (33%)	26–40%
Closed reduction and pinning	269	71 (26%)	22–31%
Open reduction and internal fixation	84	4 (5%)	–4% to 13%
Open reduction and physeal osteotomy	59	10 (17%)	7–27%
Surgical dislocation	70	13 (18%)	9–28%
Total	661 ^a	142 (21%)	

^a 18 excluded from analysis (see [Table 3](#) for reasons).

Kastlos í mjöðm – meðferð

- Intervention og timing
→ marktækir forspárþættir fyrir FHO

Tíðni FHO

- Aðgerð innan 24 klst: 13,3%
- Eftir 24-72 klst: 40,0%
- Eftir 72 klst: 9,4%

Kastlos í mjöðm – meðferð

- Væg tilfelli:

in situ pinning

- Miðlungs til alvarleg óstabil tilfelli:

opin rétting og innri festing

→ akut, ef reynsla til staðar á stofnun

+ monitoring blood flow – minnkar AVN

SLIPPED CAPITAL FEMORAL EPIPHYSIS

DISPLACEMENT OF
THE FEMORAL HEAD DUE
TO DISRUPTION OF THE
GROWTH PLATE

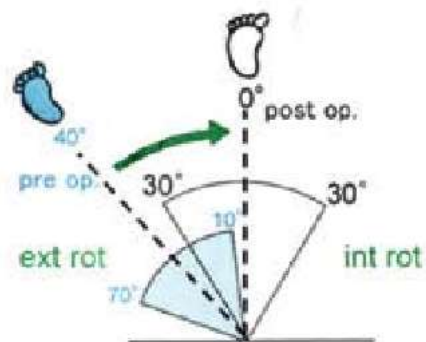
PAINFUL LIMP WITH REFERRED PAIN
TO THE THIGH OR KNEE

MOST COMMONLY
SEEN IN ADOLESCENT
OBESE MALES

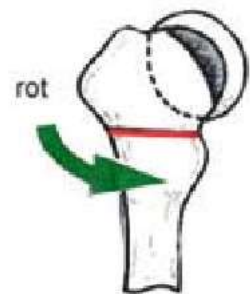
"ICE CREAM
FALLING OFF ITS CONE"
ON RADIOGRAPHS

TREATMENT:
PERCUTANEOUS
SCREW FIXATION

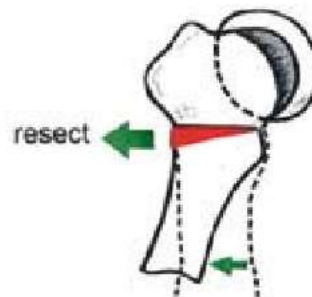
Kastlos í mjöðm – meðferð



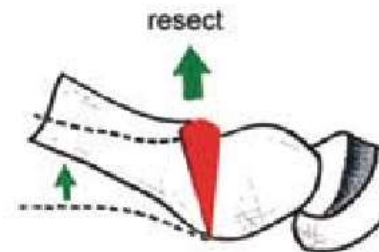
Imhaeuser's osteotomy



1. Internal rotation



2. Valgization
(20 to 30°)



3. Flexion
(Tilt minus 30°)

- Modified Dunn
- <https://online.boneandjoint.org.uk/doi/full/10.1302/1863-2548-11-170046>