

UPDATE FEMOROACETABULÄRES IMPINGEMENT

Dr. med. Fabian Kalberer
Orthopädie und Traumatologie des
Bewegungsapparates, FMH
Gelenkzentrum Winterthur

Switzerland
fabian.kalberer@gzw.ch



INTERESSENSKONFLIKT

CONSULTANT DER FIRMA MEDACTA INTERNATIONAL

HÜFTSCHMERZ

INTERPRETATION, ABKLÄRUNGS-SCHRITTE

THERAPIE

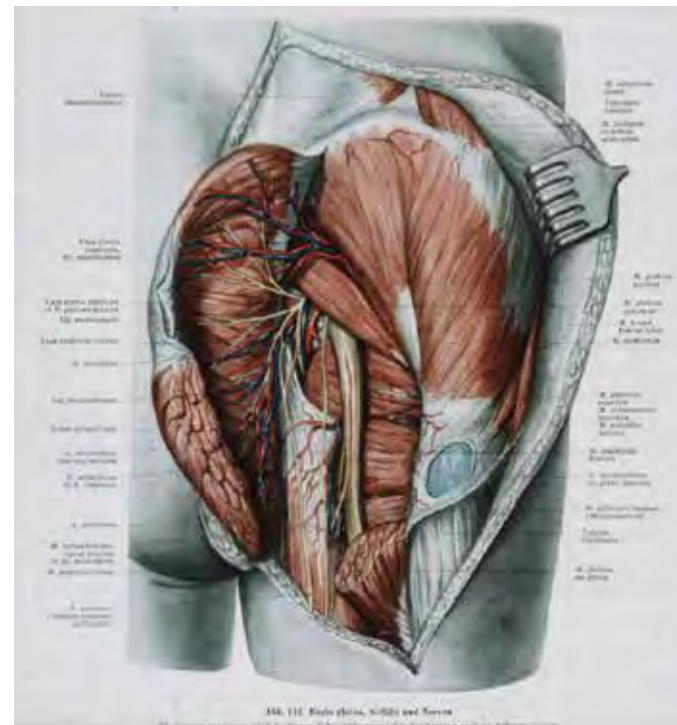
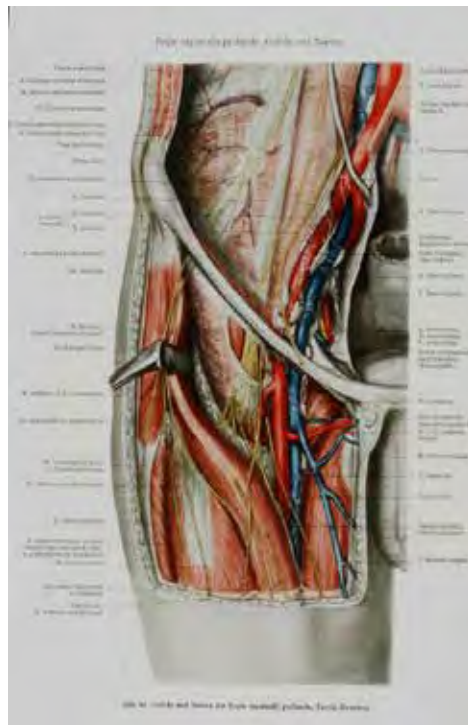


DIE HÜFTE AUS SICHT DES PATIENTEN



ZIEL DER KLINISCHEN UNTERSUCHUNG

Zuordnung von Schmerz oder Behinderung einer anatomischen Struktur



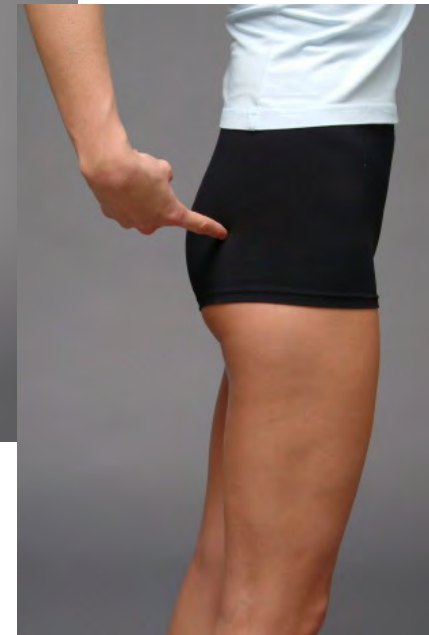
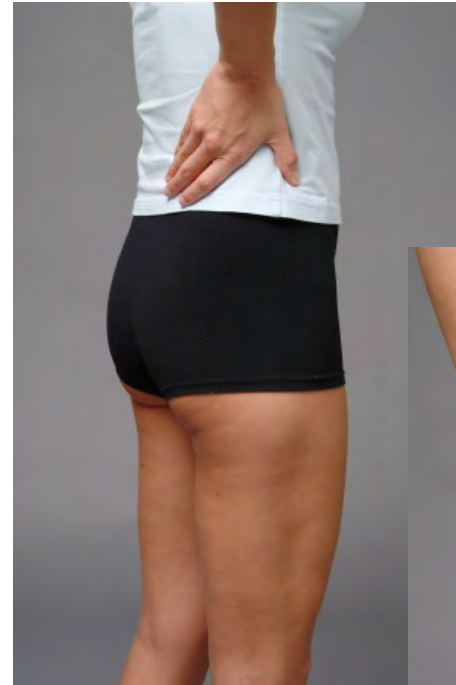
ZIEL DER KLINISCHEN UNTERSUCHUNG

Die Schmerzen und Behinderung beim Patienten Reproduzieren



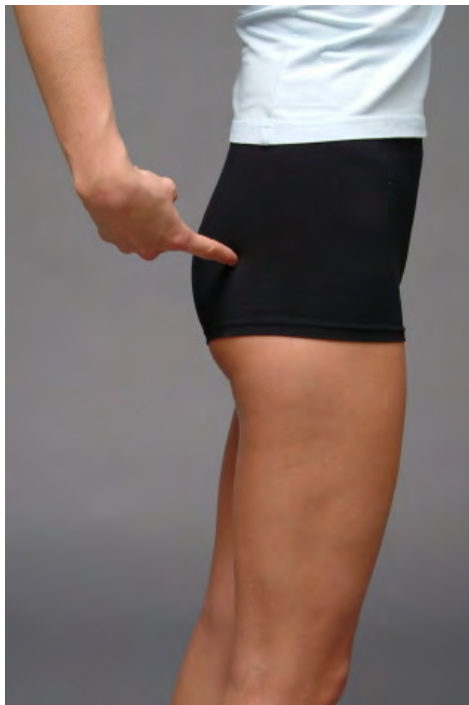
SCHMERZ: LUMBAL UND GESÄSS

- Fazettengelenksarthrose
- Spondylolisthese
- Spinalkanalstenose
- ISG Pathologie
- **Posteriores femoroacetabuläres Impingement**
- andere



POSTERIORES FEMOROACETABULÄRES IMPINGEMENT

Nachtschmerz
Kurzschrittiges Gangbild



Schmerzhaft Impingement

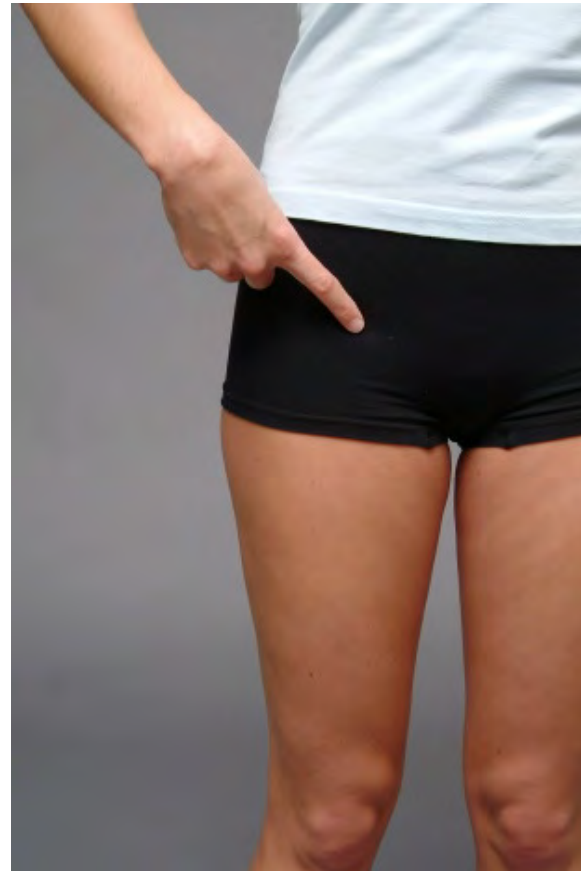
**Schenkelhals gegen
Acetabulum Hinterwand**

MEDIALER LEISTENSCHMERZ

- Iliopsoas tendinitis
- Schnappende Hüfte
- Fraktur Os pubis
- Inguinal-/ Femoralhernie

- Adduktoren Zerrung

- Symphyse
- andere



ILIOPSOAS TEST

**Schmerzhaft beim aktiven
Anheben des gestreckten
Beines in AR**

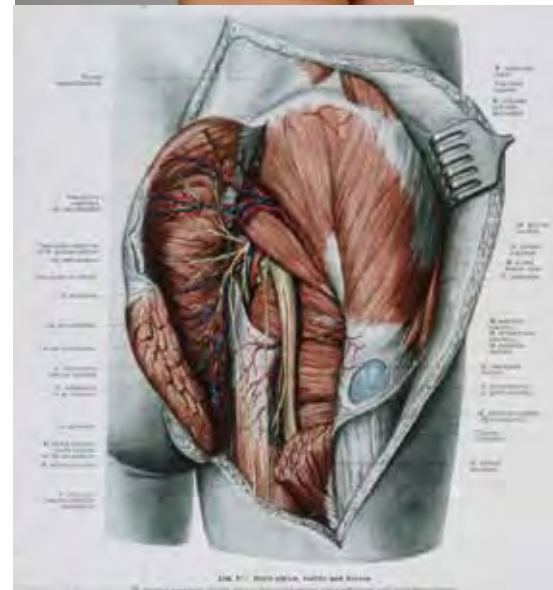
**Schnappen beim aktiven
Anheben des gestreckten
Beines, AR und Abduktion**



LATERALER SCHMERZ ÜBER TROCHANTER

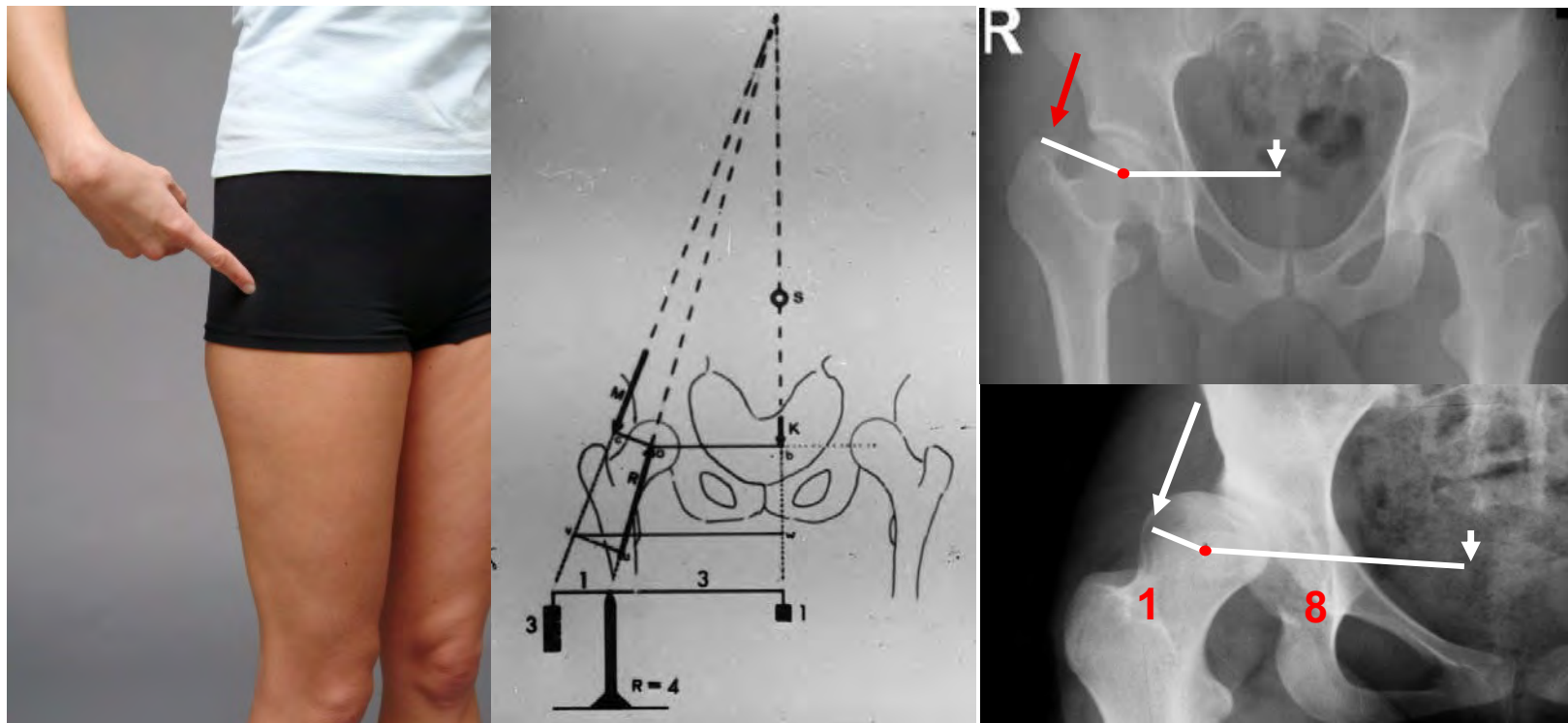
- Bursitis trochanterica
- Tendinitis der Hüftabduktoren
- Schnappende Hüfte

- Radikulärer Schmerz
- Spinalkanalstenose

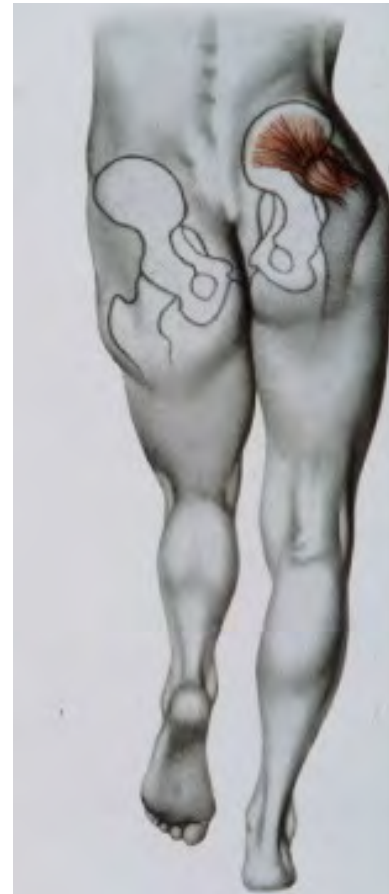


BURSITIS TROCH./ GLUTEUS TENDINITIS

Veränderte Mechanik des Hüftgelenkes



TRENDELENBURG ZEICHEN/HINKEN



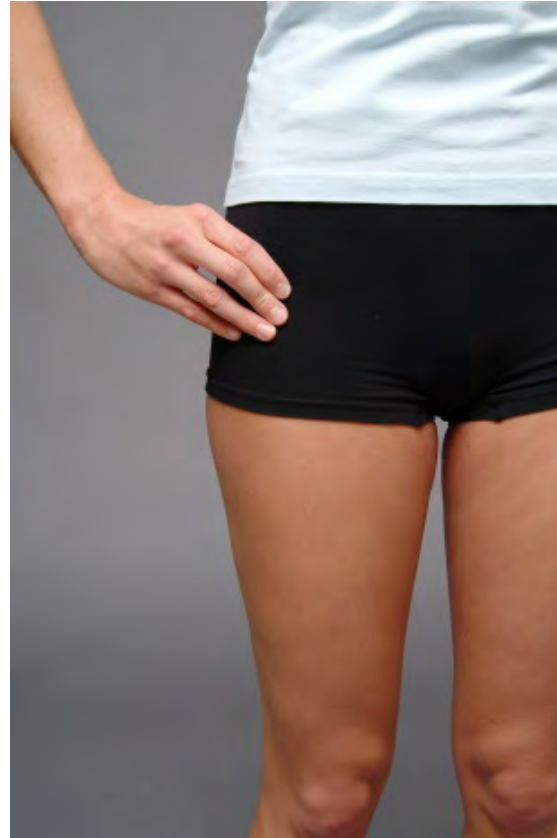
SCHNAPPENDE HÜFTE



LATERALER LEISTENSCHMERZ

Intraartikulärer Schmerz

- femoroacetabuläres Impingement (FAI)
- acetabuläre Dysplasie
- avasculäre Nekrose
- Arthritis
- Schenkelhalsfraktur
- andere

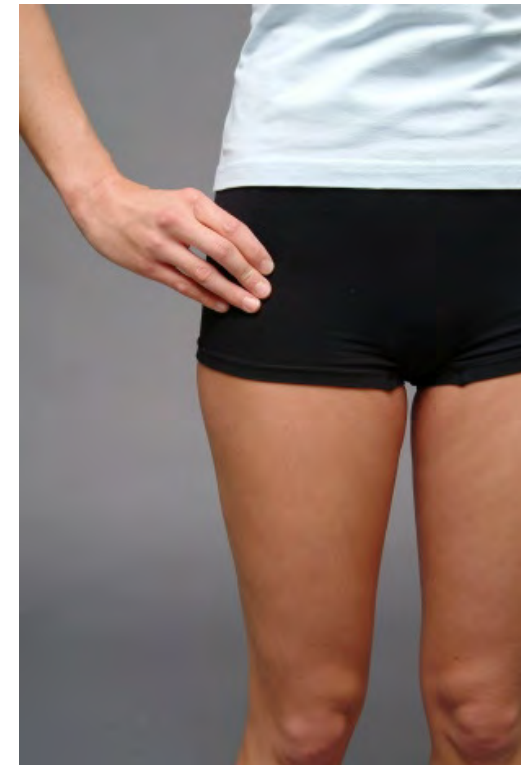


ANDERE URSACHEN FÜR LEISTENSZ

- radikulärer Schmerz L1, L2
- Inguinal- / Femoralhernie
- entrapment Syndrome: N. iliohypogastricus,
N. ilioinguinalis, N. cut.fem.lat.
- Ovarialzyste
- Arteriosklerose
- abdominales Aneurysma
- chronische Prostatitis

REPRODUKTION DES ARTIKULÄREN SZ

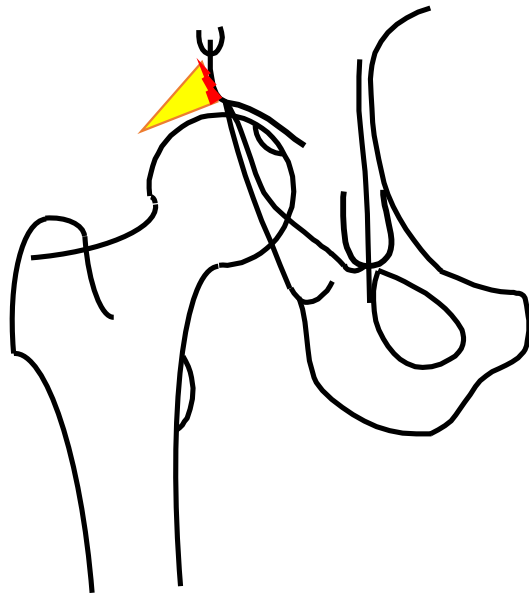
Flexion
Adduction
Innenrotation



Lateraler Leistenschmerz (positiver Impingement Test)

APPREHENSION-TEST

- Apprehension during abrupt external rotation of the fully extended hip



KLINIK: FAI VERSUS DYSPLASIE

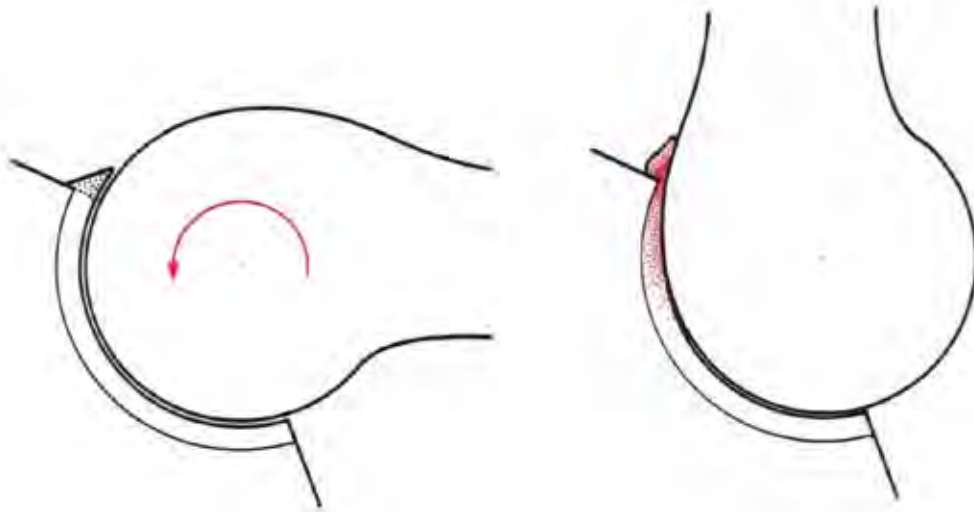
FAI:

- Schmerz bei Hüftflexion
- Rezidivierende Adduktoren
“Zerrungen”
- Verminderte ROM

DYSPLASIE:

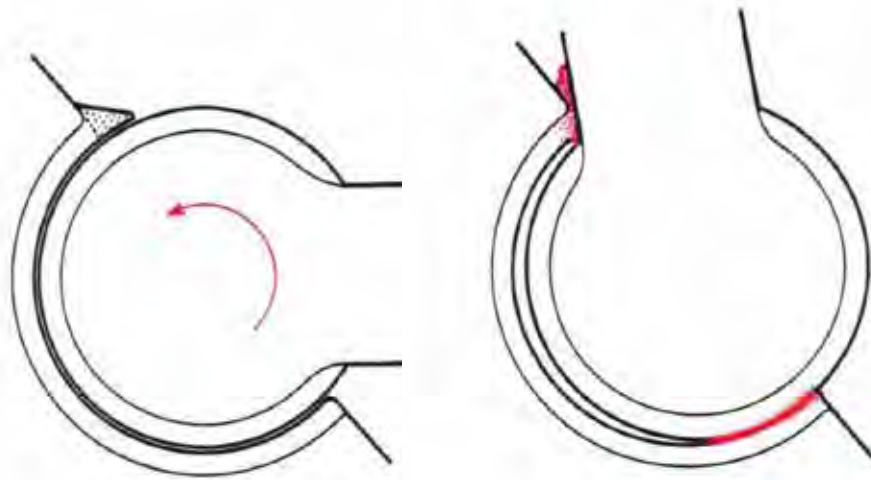
- Schmerzen nach längerem Stehen
oder Gehen
- Rezidivierende gluteus medius
tendinitis
- Vermehrte ROM

FEMOROACETABULÄRES IMPINGEMENT CAM-TYP



Ganz R, JBJS 83-B(8) 1119-1124, 2001

FEMOROACETABULÄRES IMPINGEMENT PINZER-TYP



Ganz R, JBJS 83-B(8) 1119-1124, 2001

ÜBERNUTZUNG



WESHALB KOMMT DER PATIENT BEI FAI?

- **Leistenschmerzen**
in Flexionsstellung der Hüfte
bei Rotationsbewegungen
- **Wiederholte „Leisten-Zerrungen“**
- **Eingeschränkte Beweglichkeit**



IMPINGEMENT TEST

Zuordnung von Schmerz und Einschränkung des Patienten
einer anatomischen Struktur

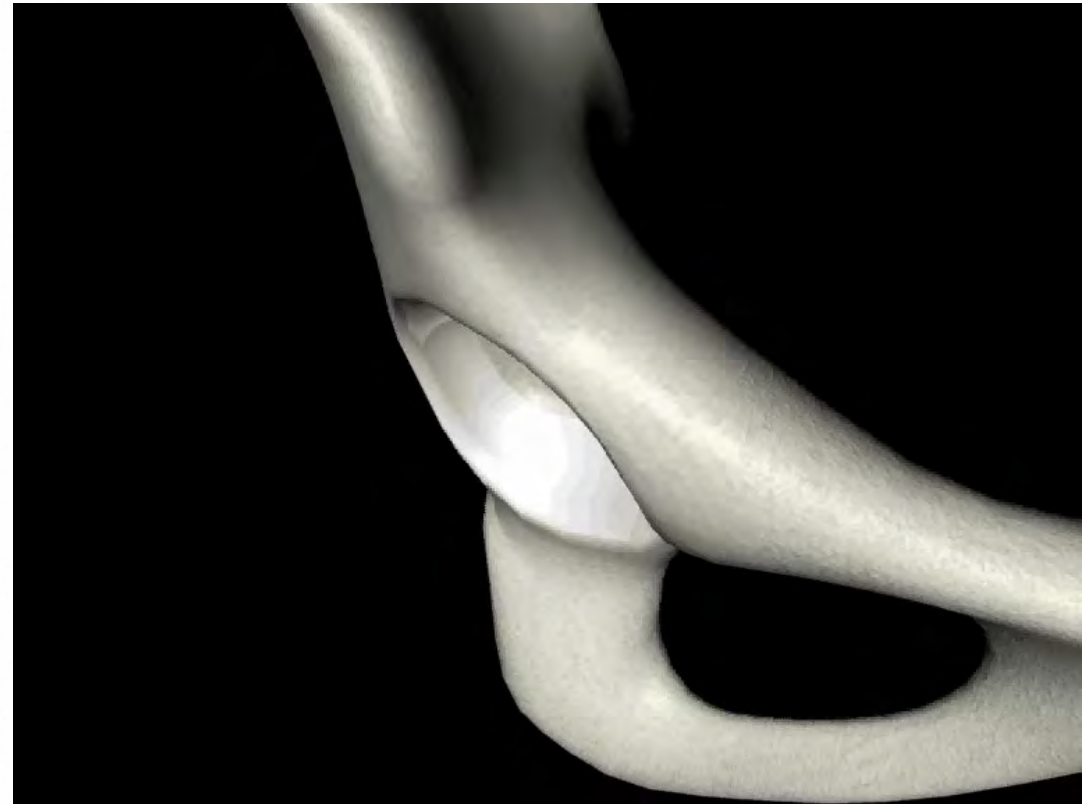


IMPINGEMENT TEST

**schmerzhafte
Anschlagen des**

**Kopf/Schenkelhals-
Übergangs am
Pfannenrand**

**innerhalb eines
physiologischen
Bewegungsumfanges**



ZIEL DER BILDGEBUNG

1. morphologische Ursache FAI / Dysplasie

Femur: Kopf/Schenkelhals Off-Set

Retrotorsion

Coxa vara / valga

Acetabulum

Dysplasie

Retroversion

Coxa profunda

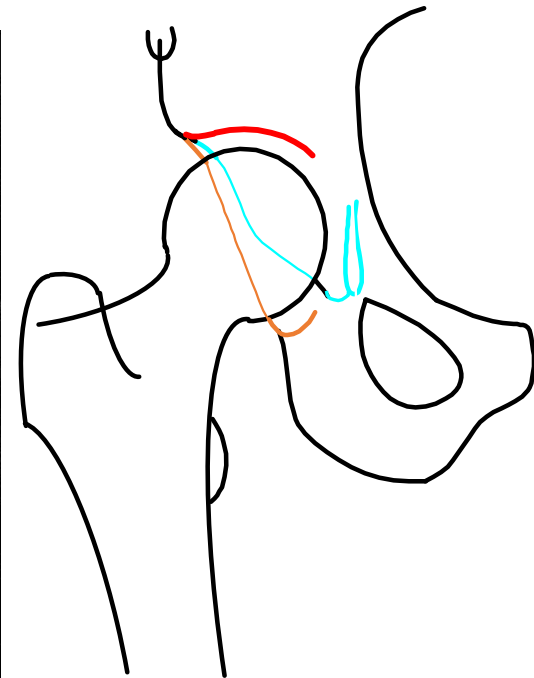
2. Folgen des FAI / Dysplasie

3. Ausmass des Knorpelschadens

RX: BECKEN AP AUFNAHME



RX: BECKEN AP AUFNAHME



ACETABULÄRE DYSPLASIE

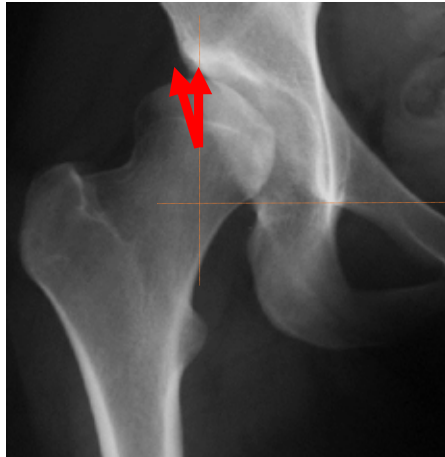


Zentrum - Eck

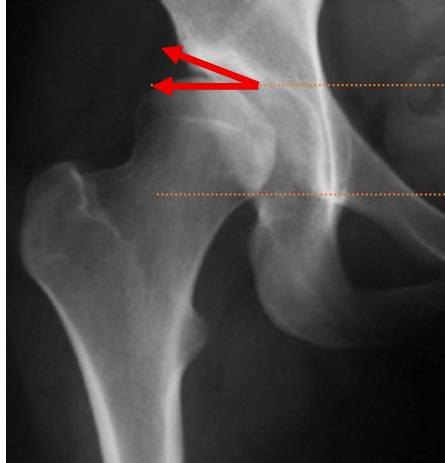
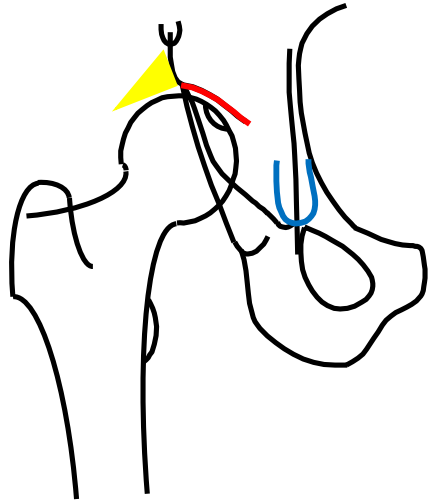
Winkel

Acetabular index

ACETABULÄRE DYSPLASIE

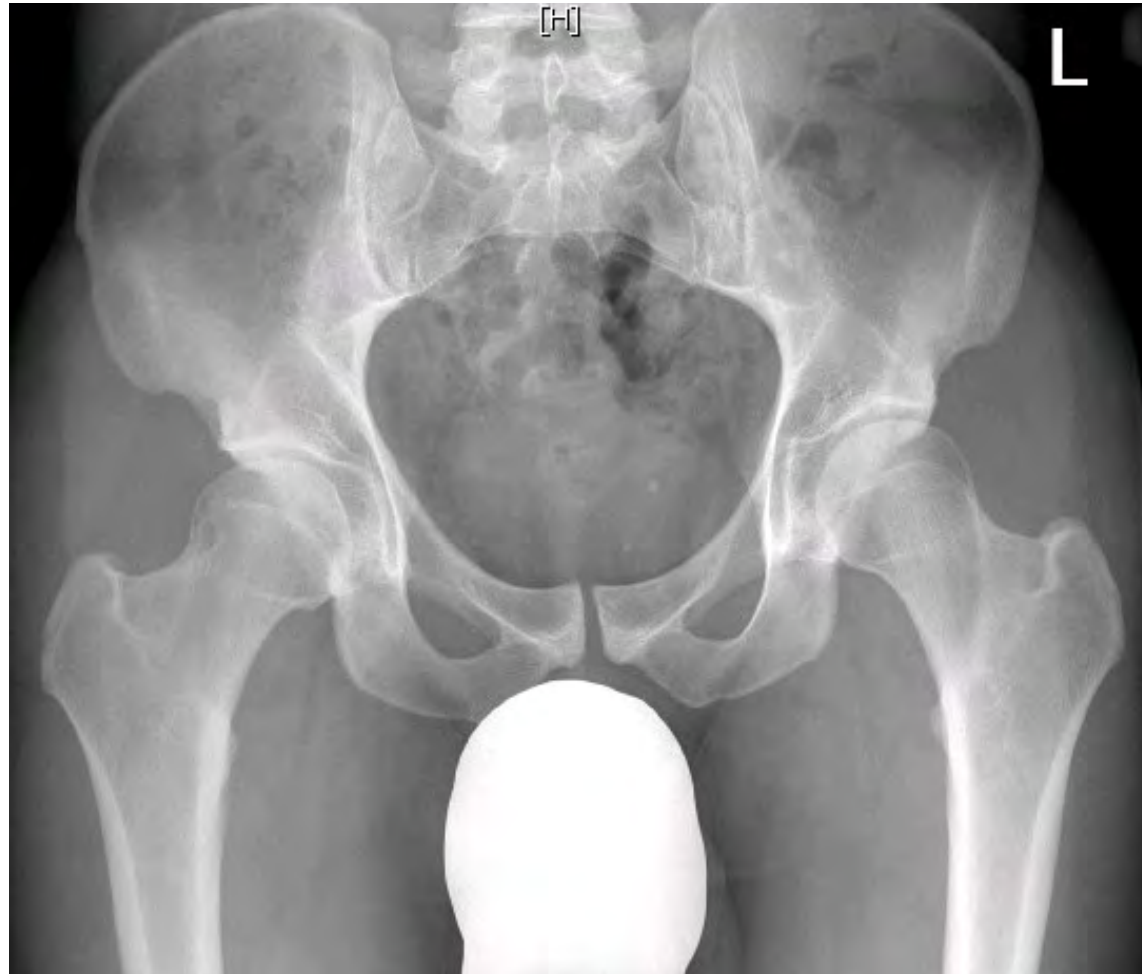


Zentrum Eck - Winkel



acetabular index

ACETABULÄRE VERSION



ACETABULÄRE RETROVERSION



Neg. Cross- Over Sign

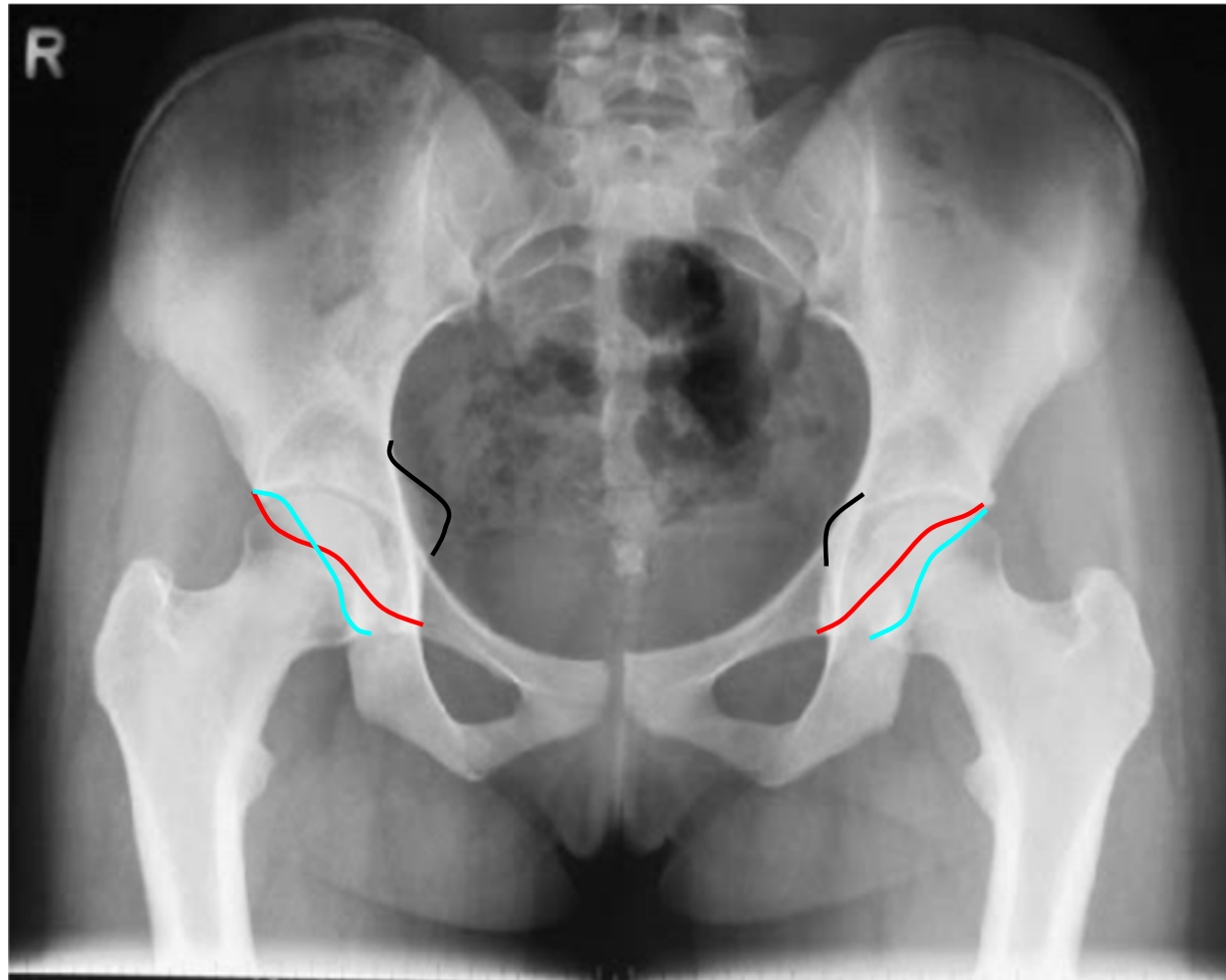


Pos. Cross- Over Sign

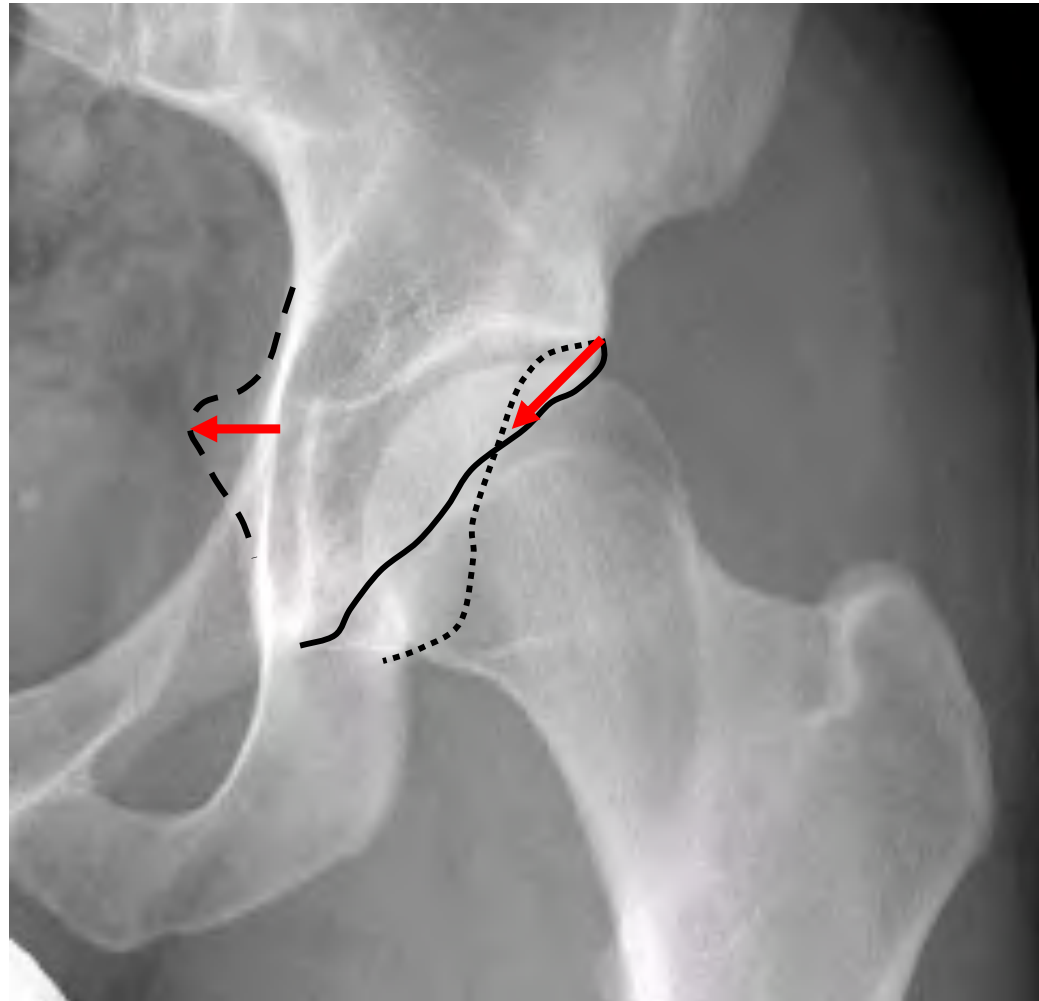
Reynolds D et al., JBJS Br 81: 281-288, 1999

Jamali et al., JOR B06-269, 2007

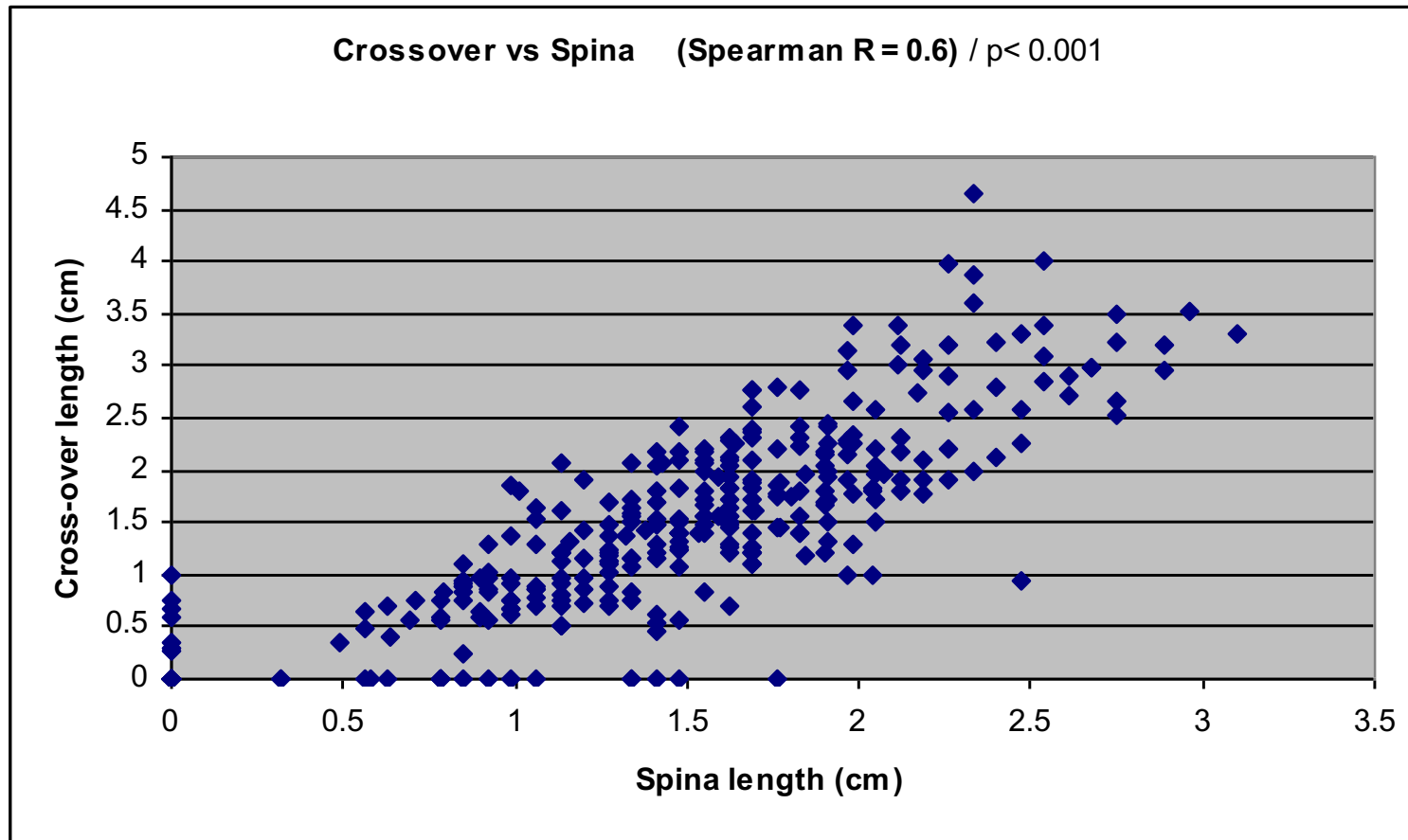
ACETABULÄRE RETROVERSION SPINAZEICHEN



SPINA SIGN: METHODE: N = 298

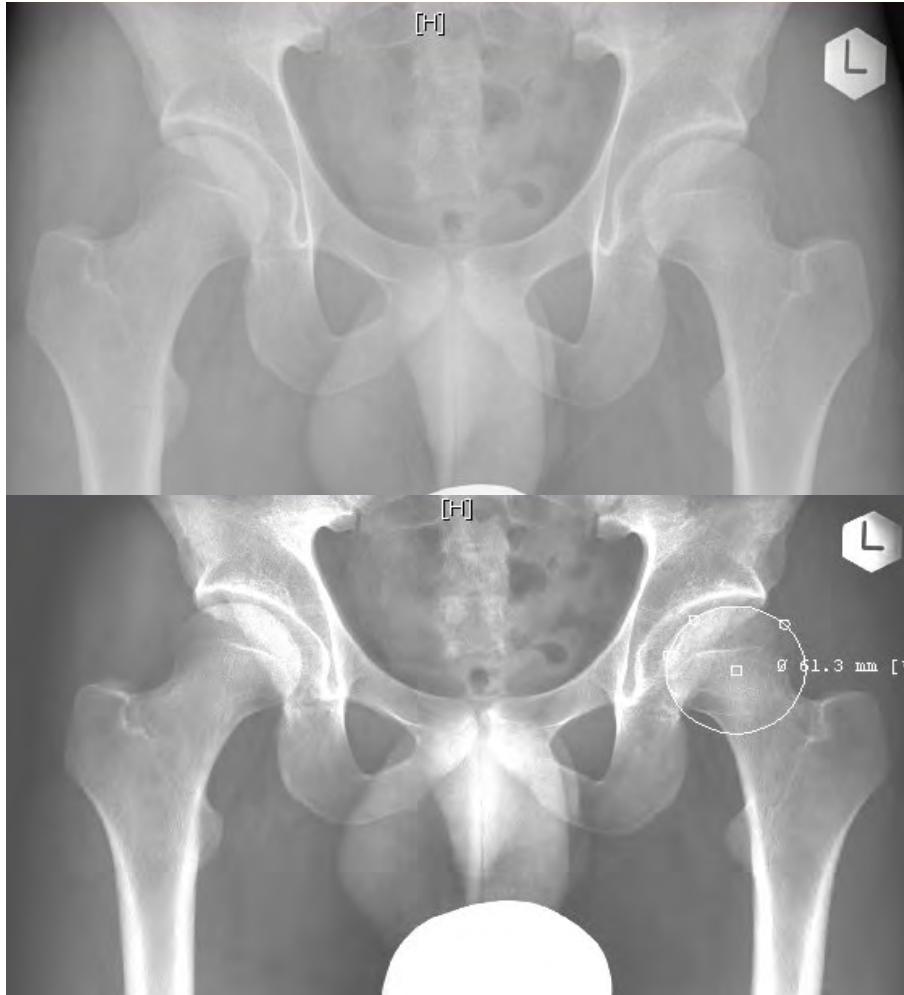


SPINA SIGN: RESULTS N = 298

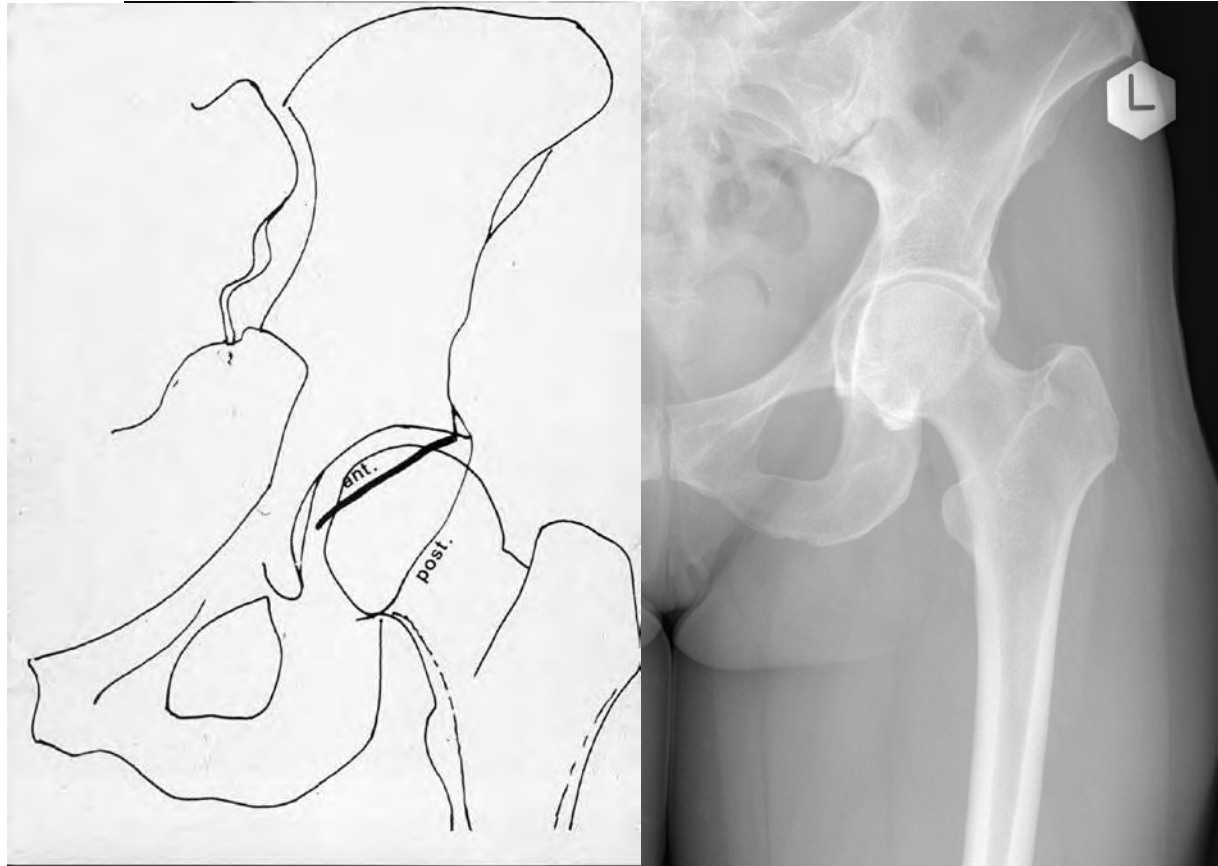


Kalberer et al., Clin Orthop Relat Res. 2008 Mar;466(3):677-83. Epub
2008 Feb 10

ACETABULÄRE RETROVERSION



ACETABULÄRE PROTRUSION



Reynolds D et al., JBJS Br 81: 281-288, 1999

ACETABULÄRE PROTRUSION



FEMORAL: OFF-SET STÖRUNG

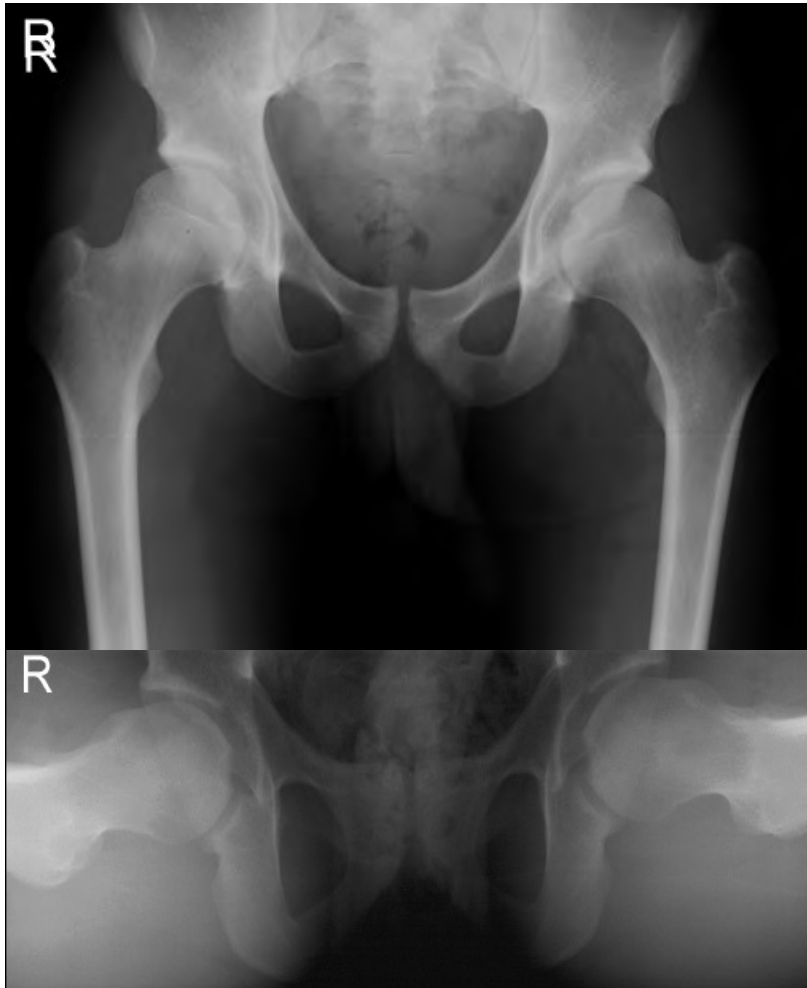
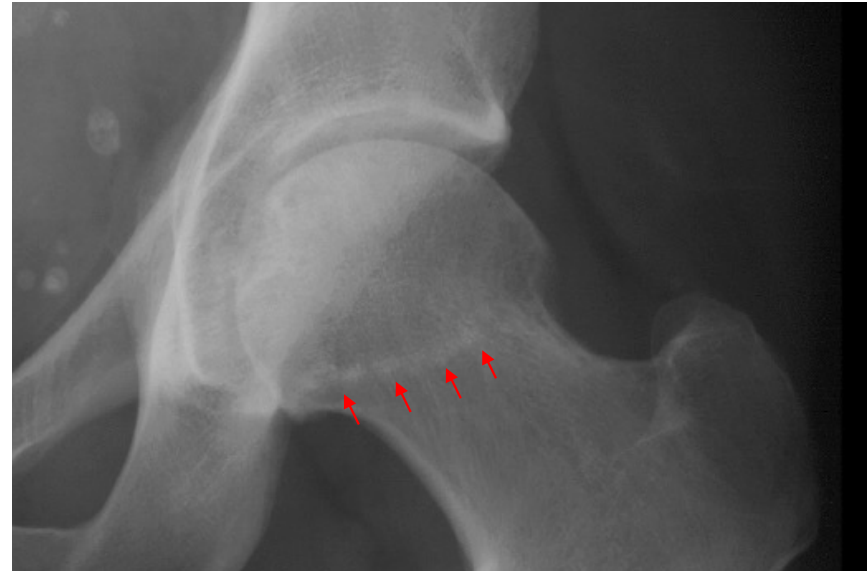
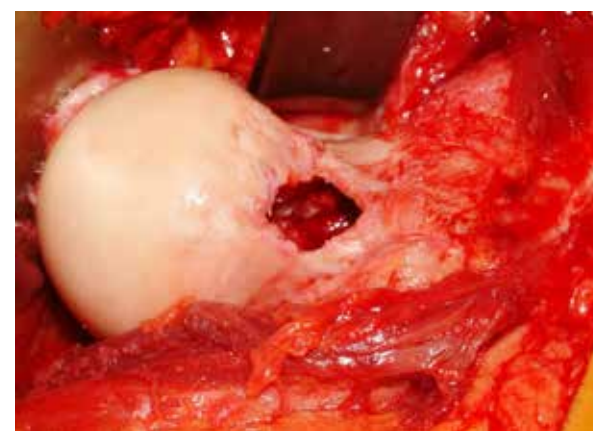


Fig. 14-9. Pistol-grip deformity.

SEKUNDÄRE FOLGEN VOM FAI



SEKUNDÄRE FOLGEN VOM FAI



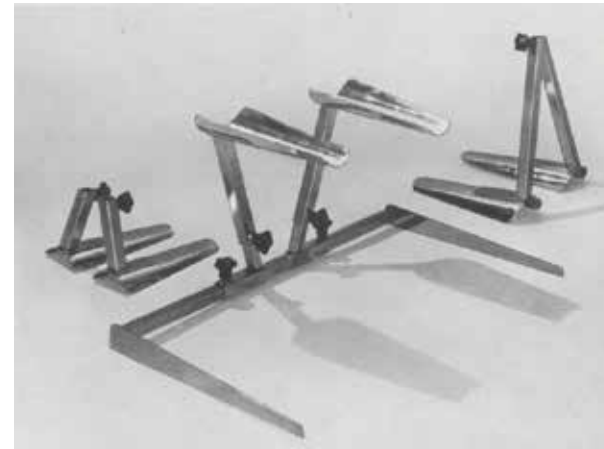
RX: BECKEN AP

1. morphological cause of FAI / dysplasia
 - femur: head-neck offset
 - retrotorsion
 - coxa vara / valga ✓
 - acetabulum
 - dysplasia ✓
 - retroversion ✓
 - coxa profunda ✓
2. sequels of FAI / dysplasia ✓
3. extent of cartilage damage

AXIALE RX AUFNAHME



DUNN / RIPPSTEIN / MÜLLER- AUFNAHME



KONVENTIONELLES RÖNTGEN

1. morphological cause of FAI / dysplasia

femur:	head-neck offset	✓
	retrotorsion	✓
	coxa vara	✓
acetabulum	dysplasia	✓
	retroversion	✓
	coxa profunda	✓

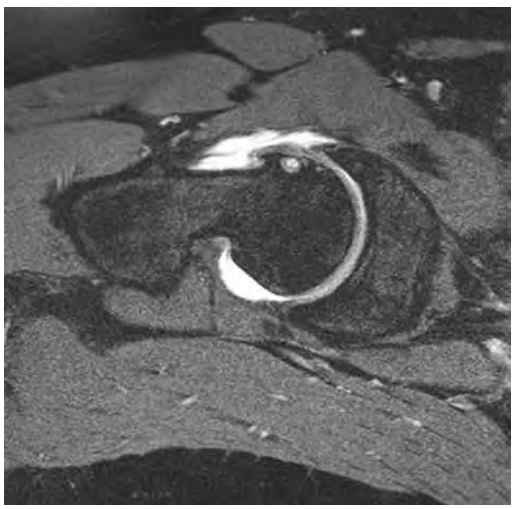
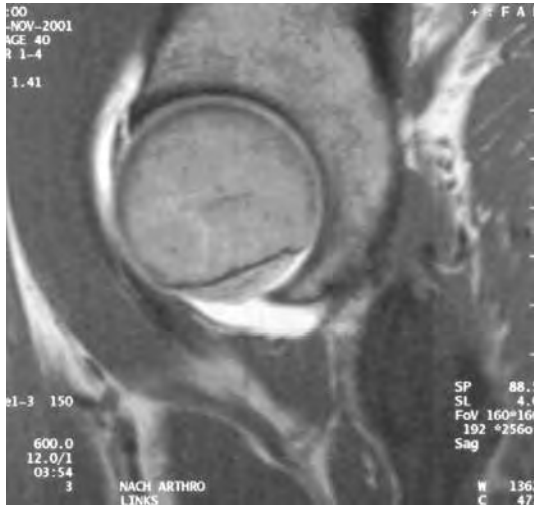
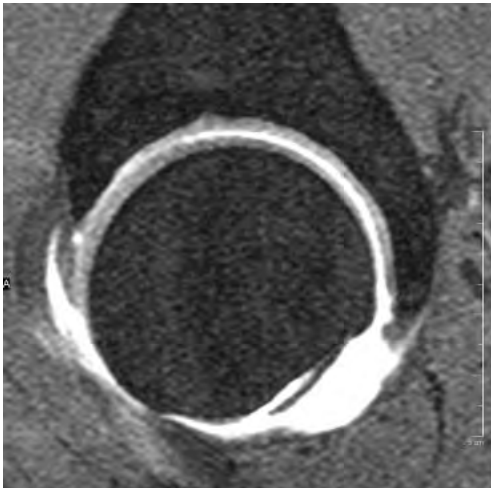
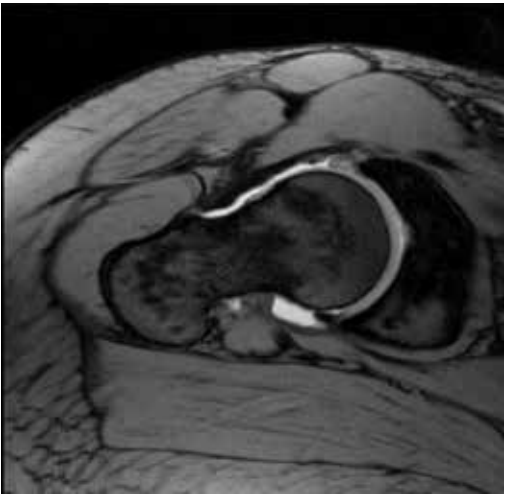
2. sequels of FAI / dysplasia ✓

3. extent of cartilage damage

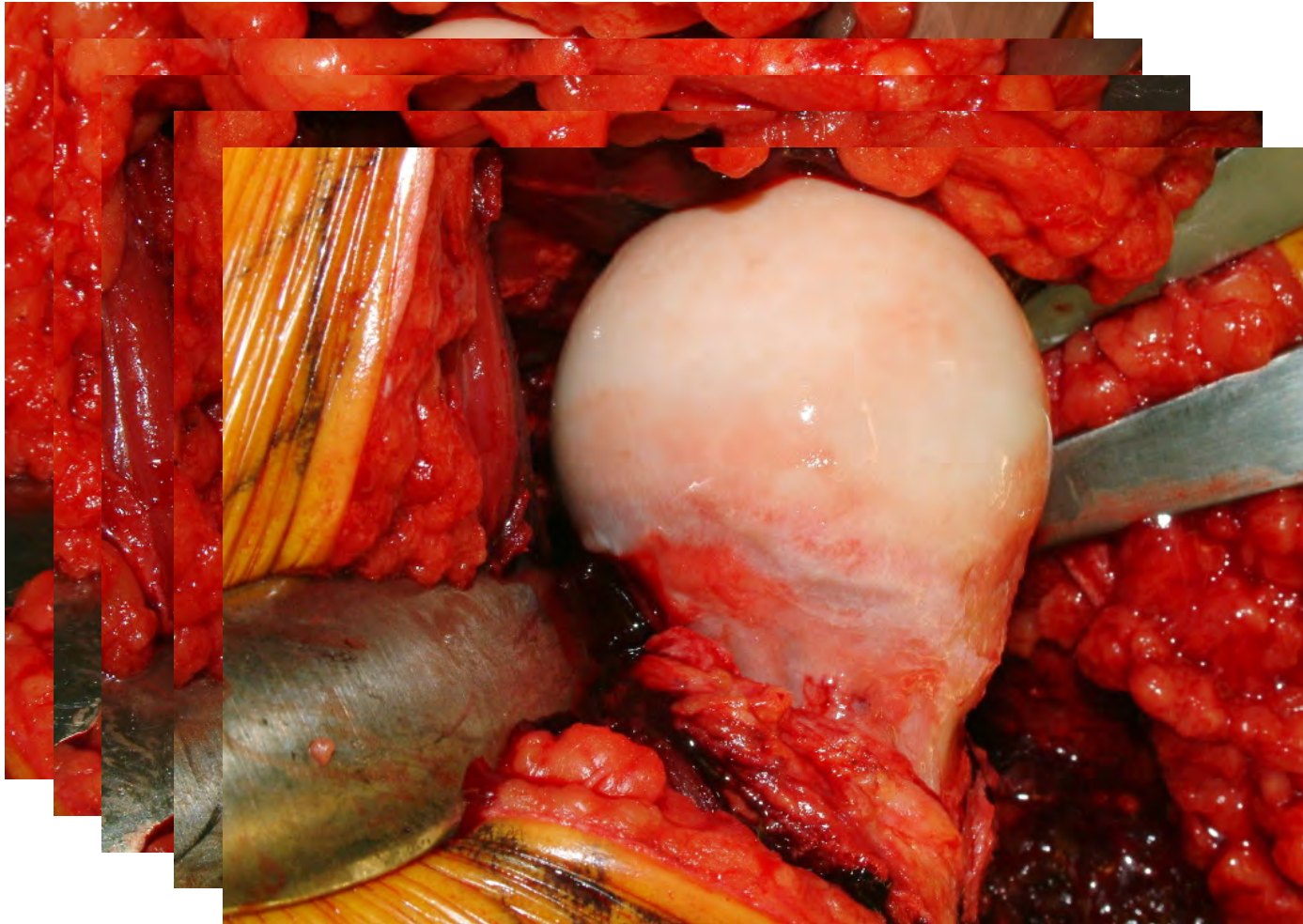
GEMISCHTES FEMOROACETABULÄRES IMPINGEMENT



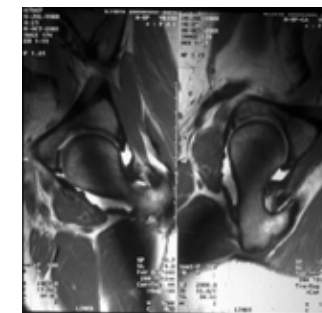
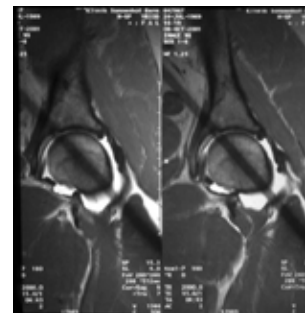
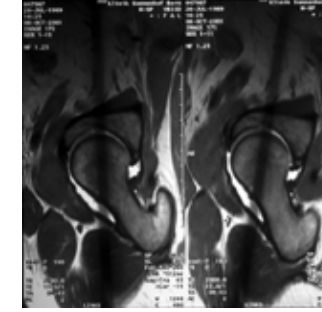
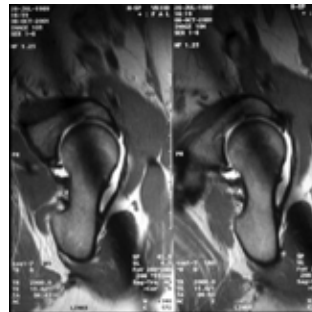
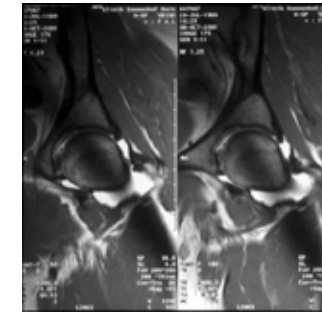
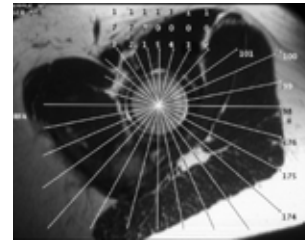
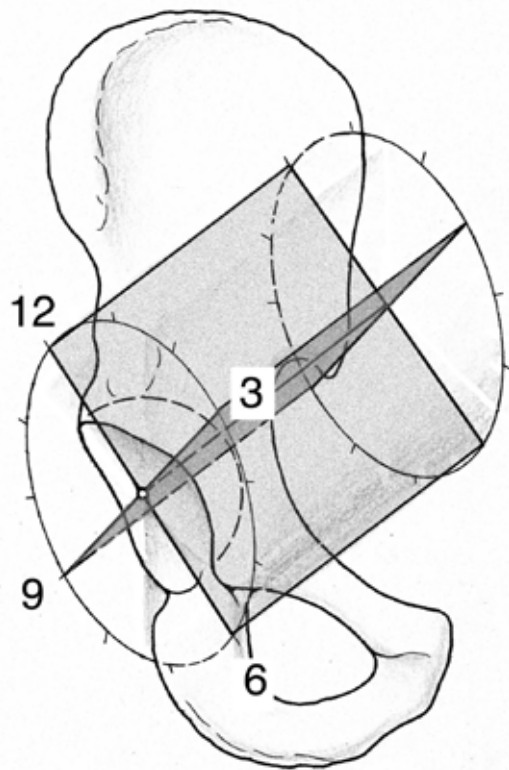
ARTHRO-MRI: WAS SIEHT MAN?



HEAD-NECK OFFSET: SEKTORIELLES PROBLEM



RADIÄRSCHNITTE IM MRI



FEMORALE TORSION IM MRI



THERAPIEOPTIONEN: FAI

Konservativ

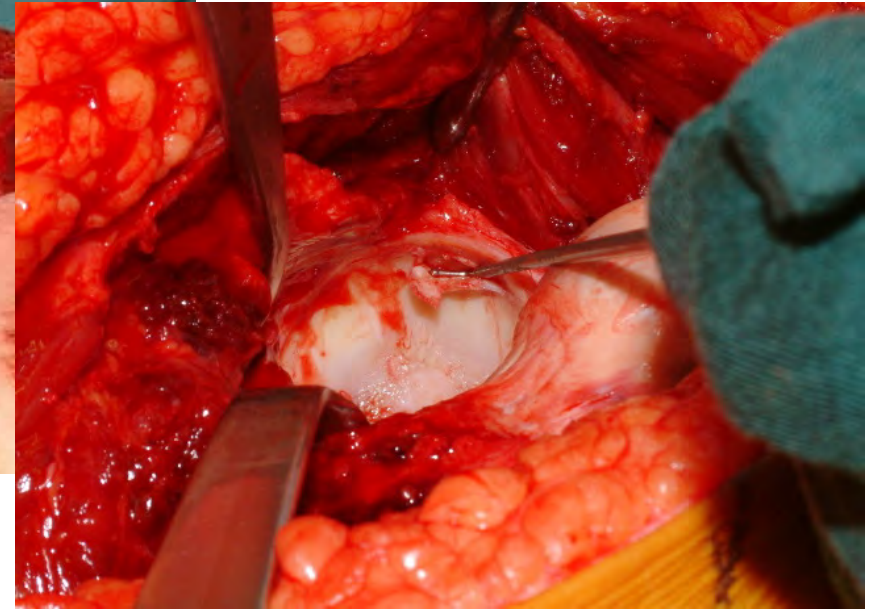
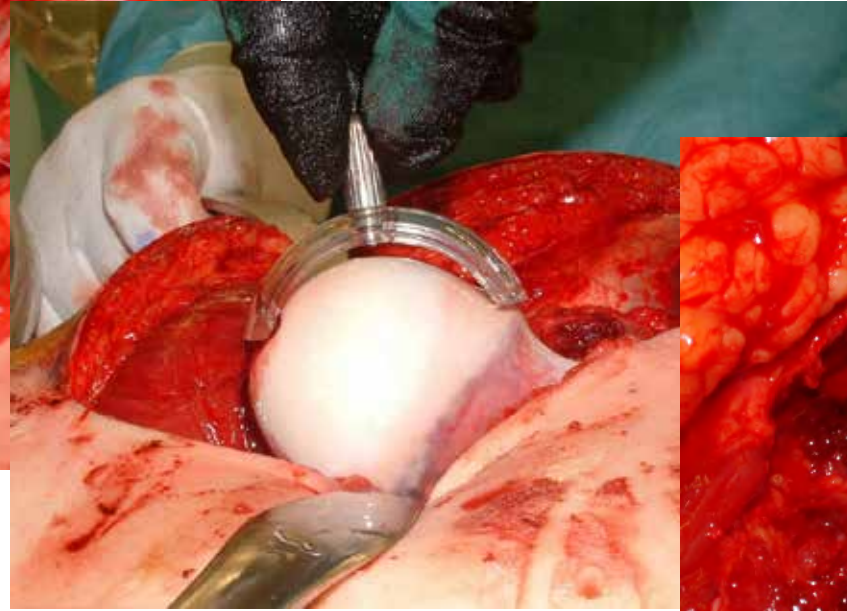
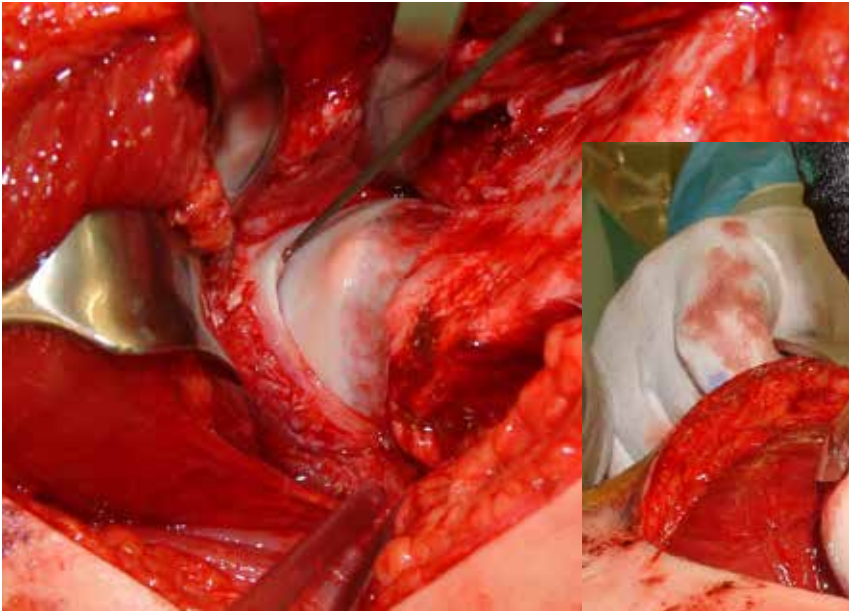
operativ



Chirurgische Hüftluxation

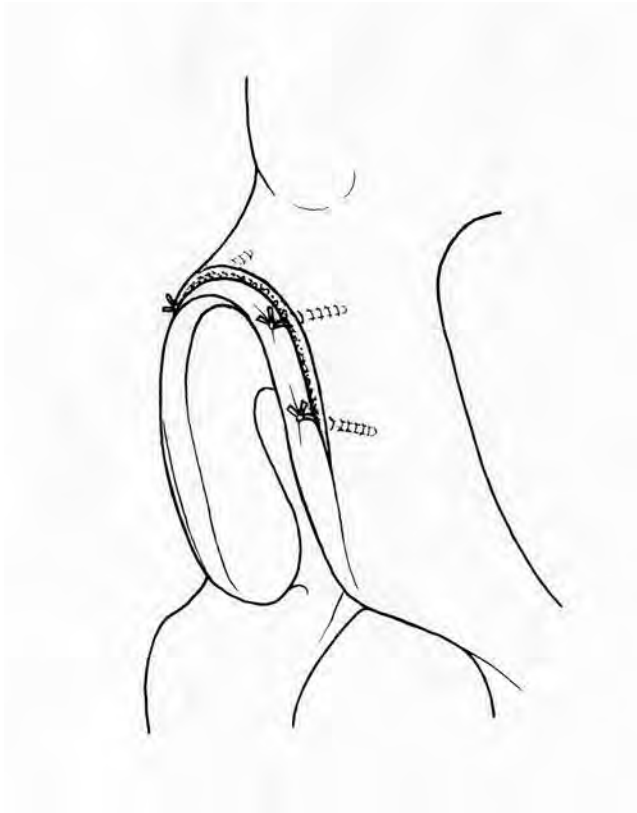
Hüftarthroskopie

CHIRURGISCHE HÜFTLUXATION

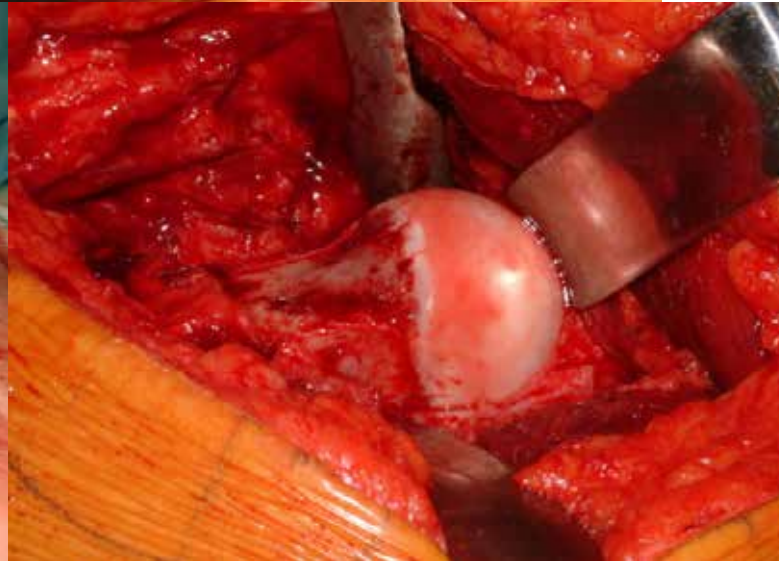
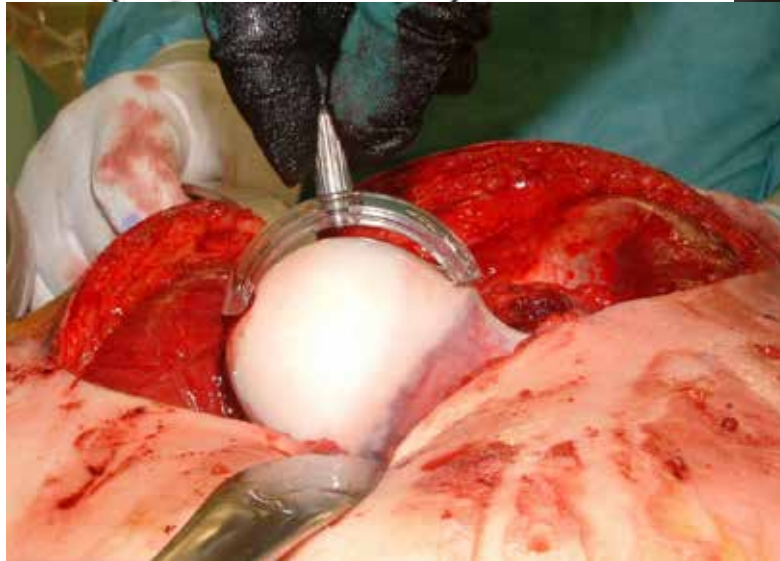
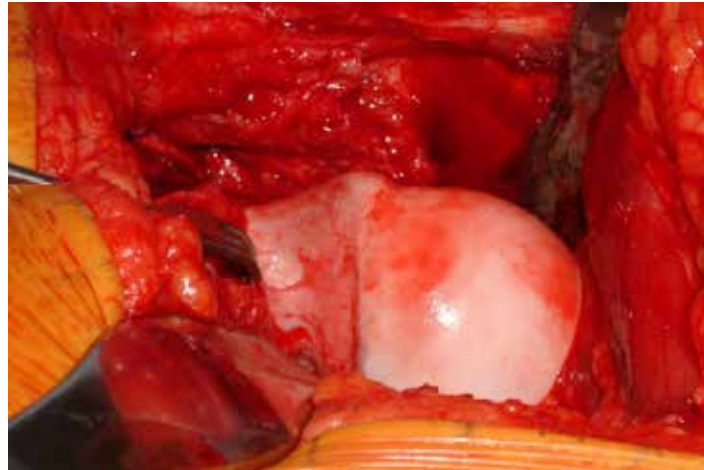
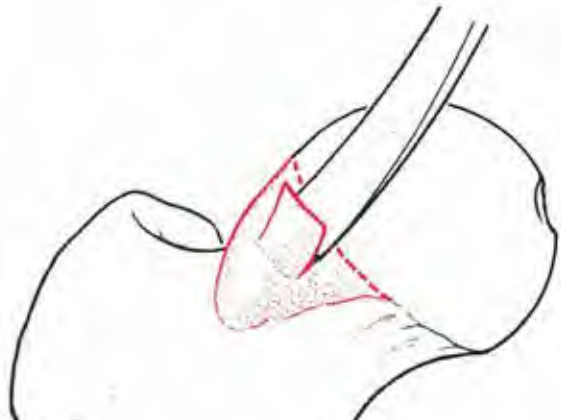


Ganz R, JBJS 83-B(8) 1119-1124, 2001

PFANNENRAND-TRIMMUNG



KOPF – SCHENKELHALS - OFFSET

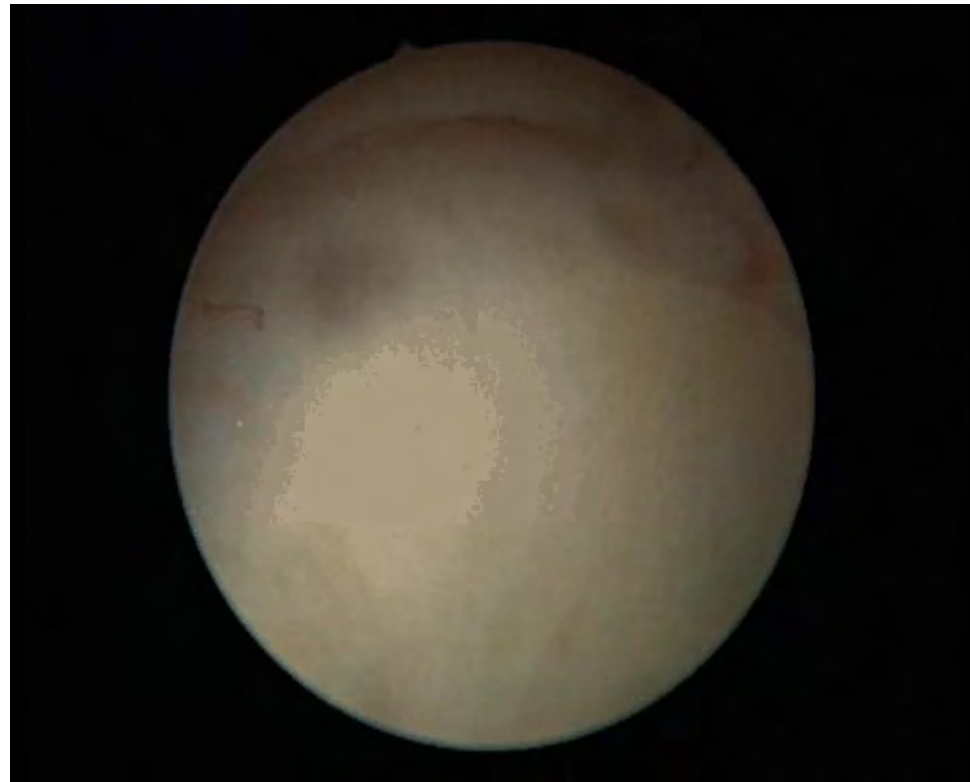


HIP ARTHROSCOPY: MY SETTING

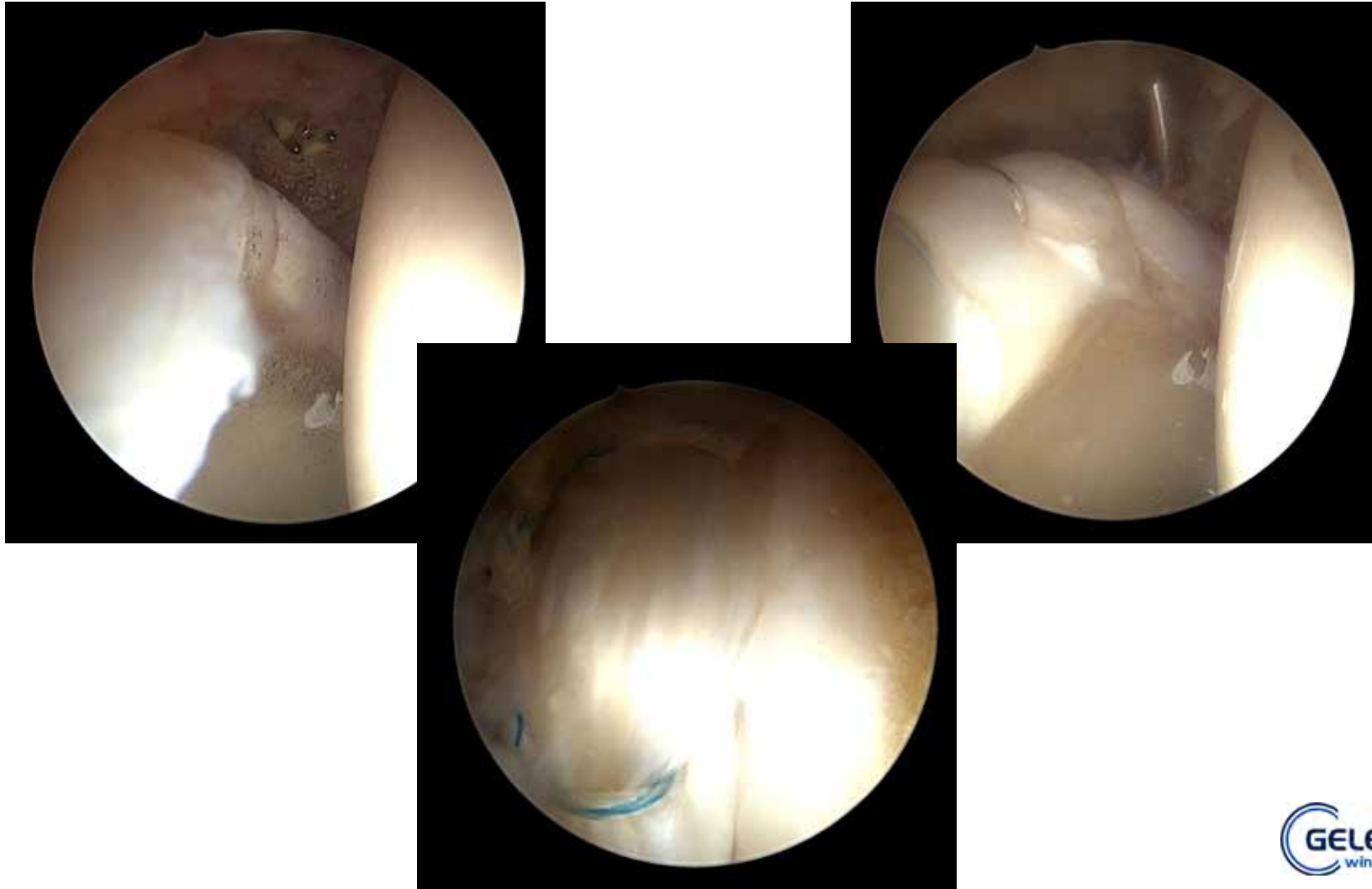


Byrd, Arthroscopy 1995, 11: 418

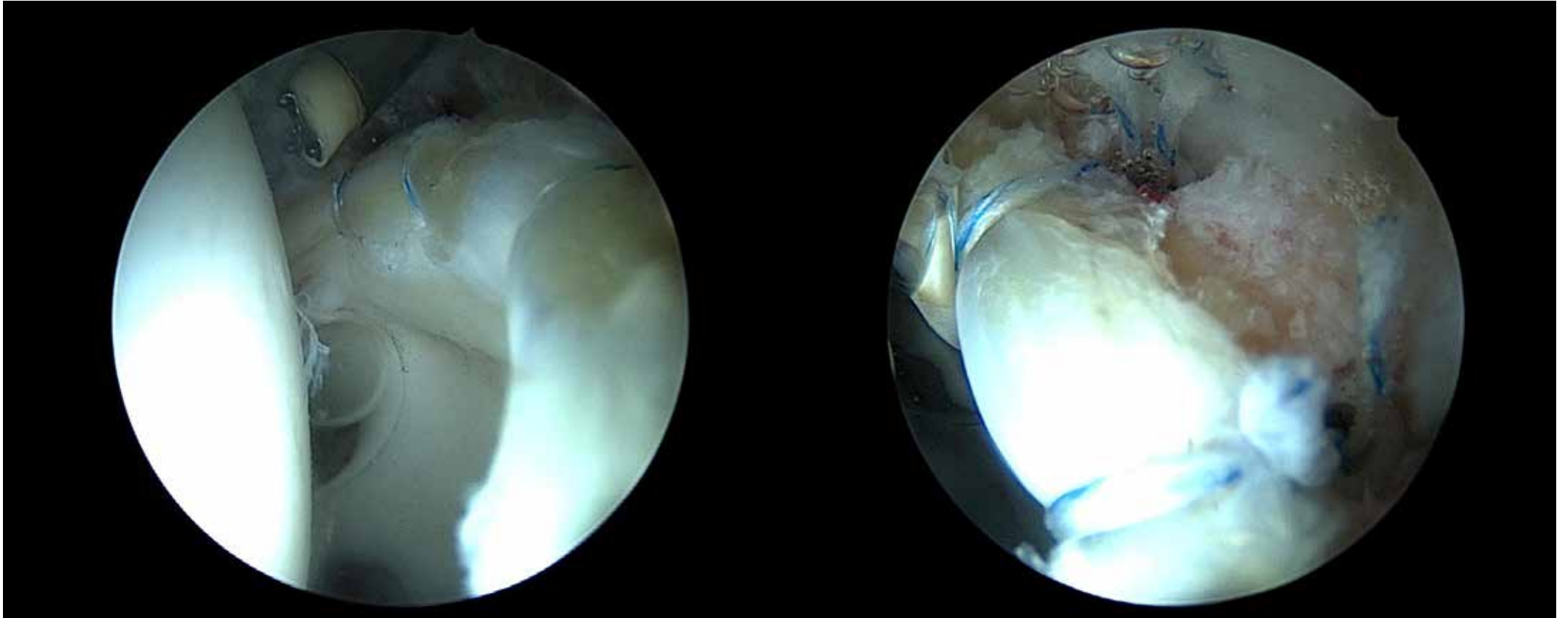
HAS: ZENTRAL



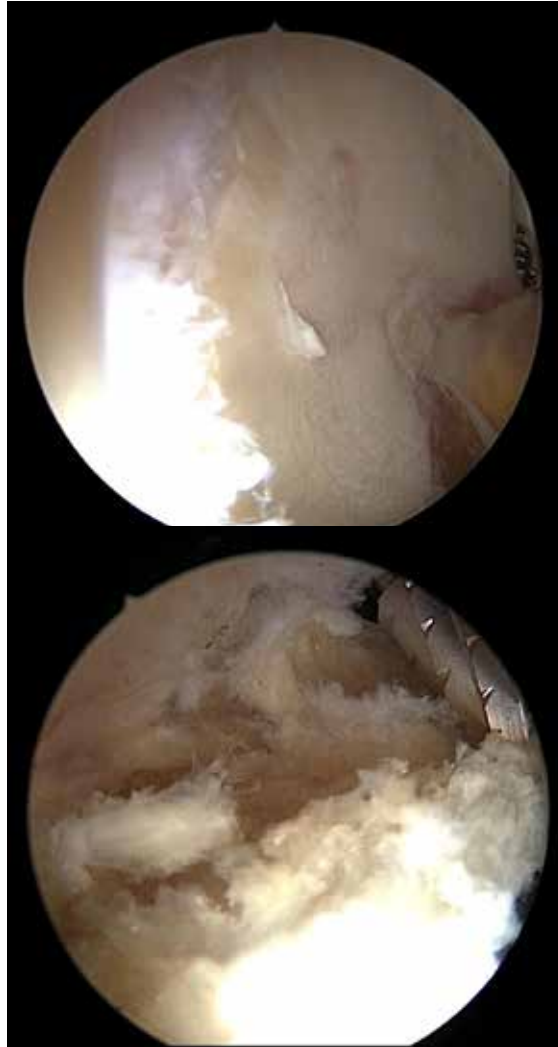
HAS: ZENTRAL / LABRUM REFIXATION



HAS: ZENTRAL / LABRUM REFIXATION



HAS: REFIXATION LABRUM



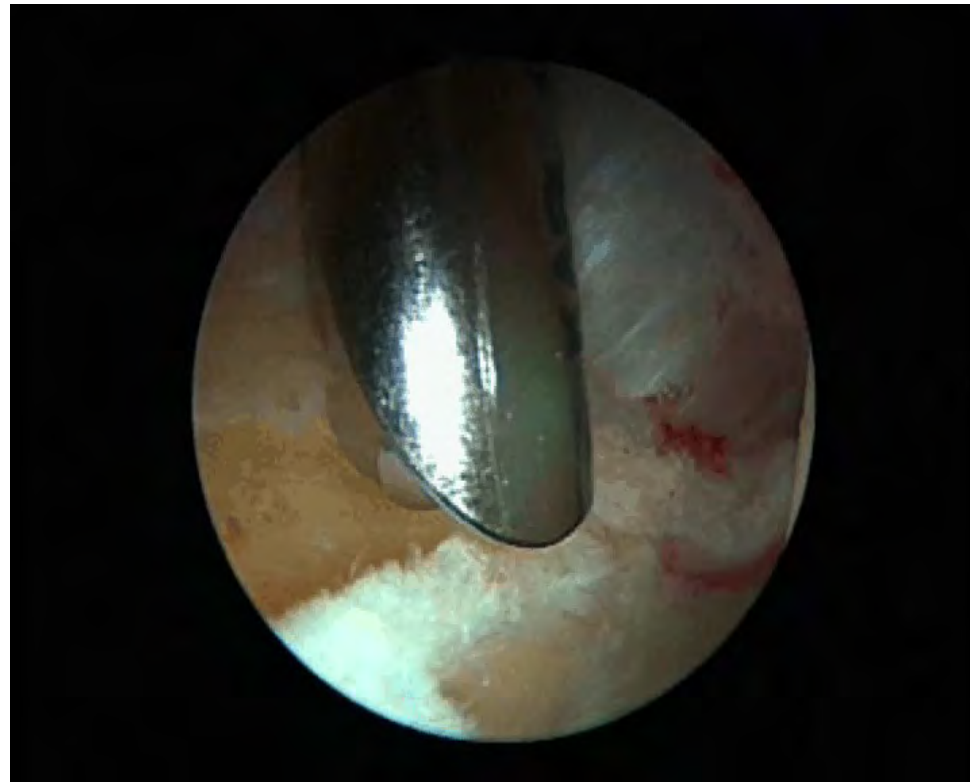
HAS: REFIXATION LABRUM



HAS: ZENTRAL / LABRUM RESEKTION



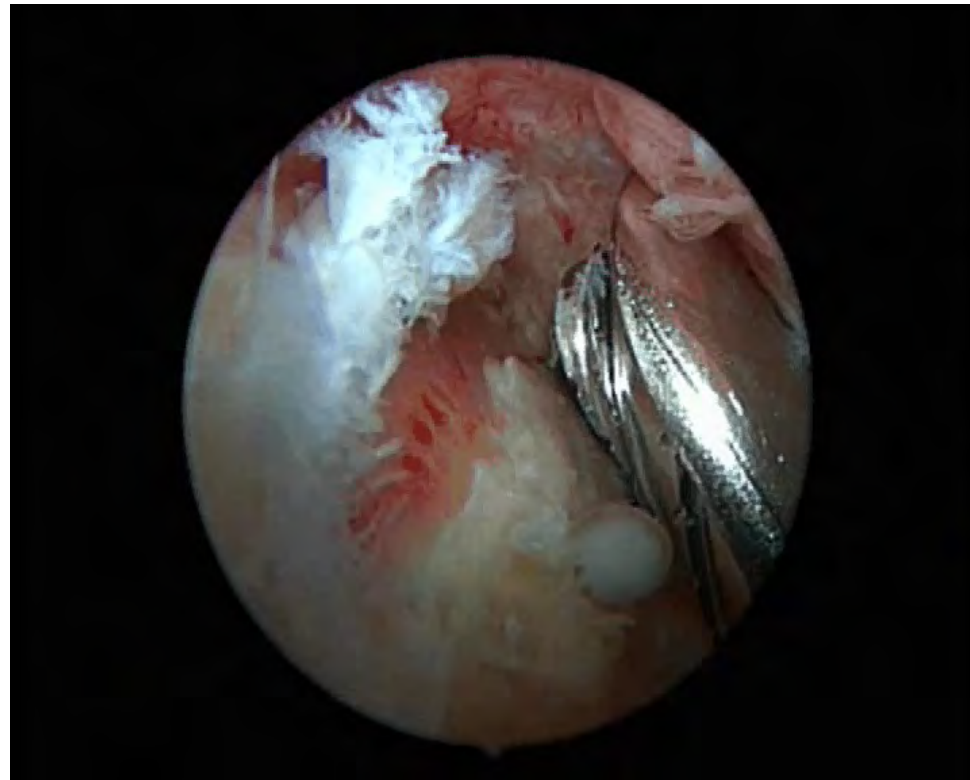
HAS: KOPF-HALS-ÜBERGANG



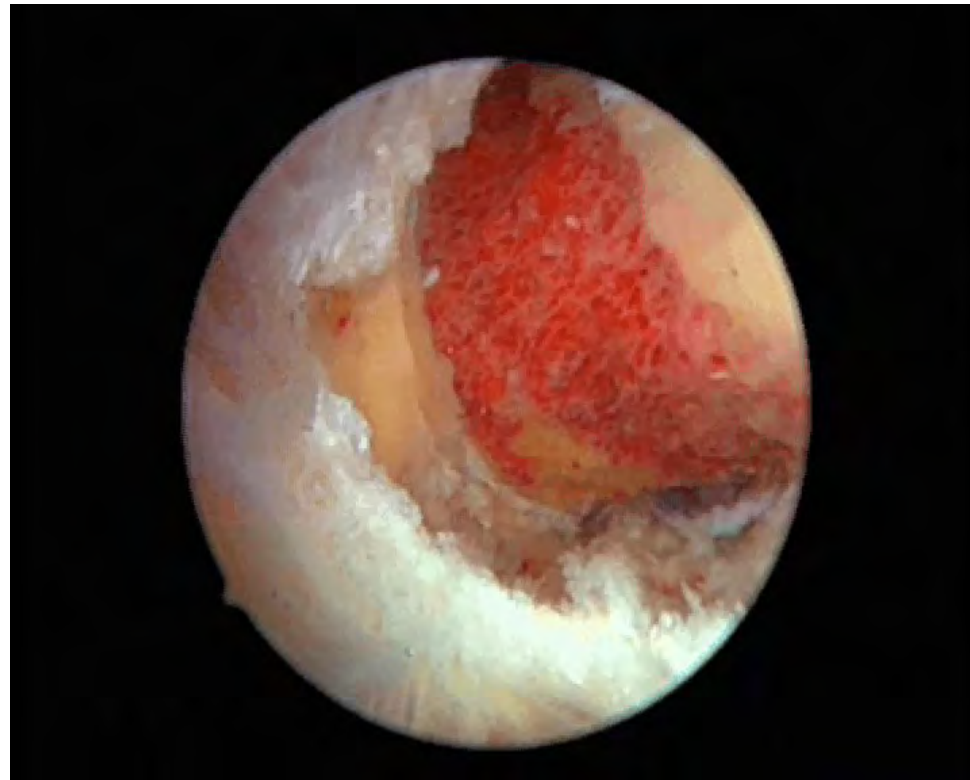
HAS: KOPF-HALS-ÜBERGANG



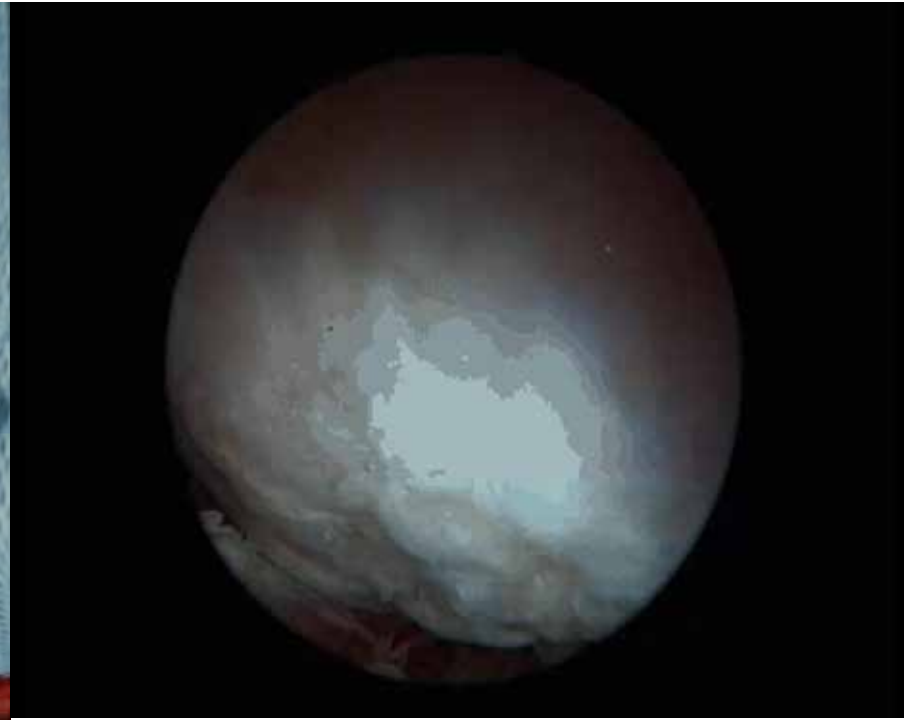
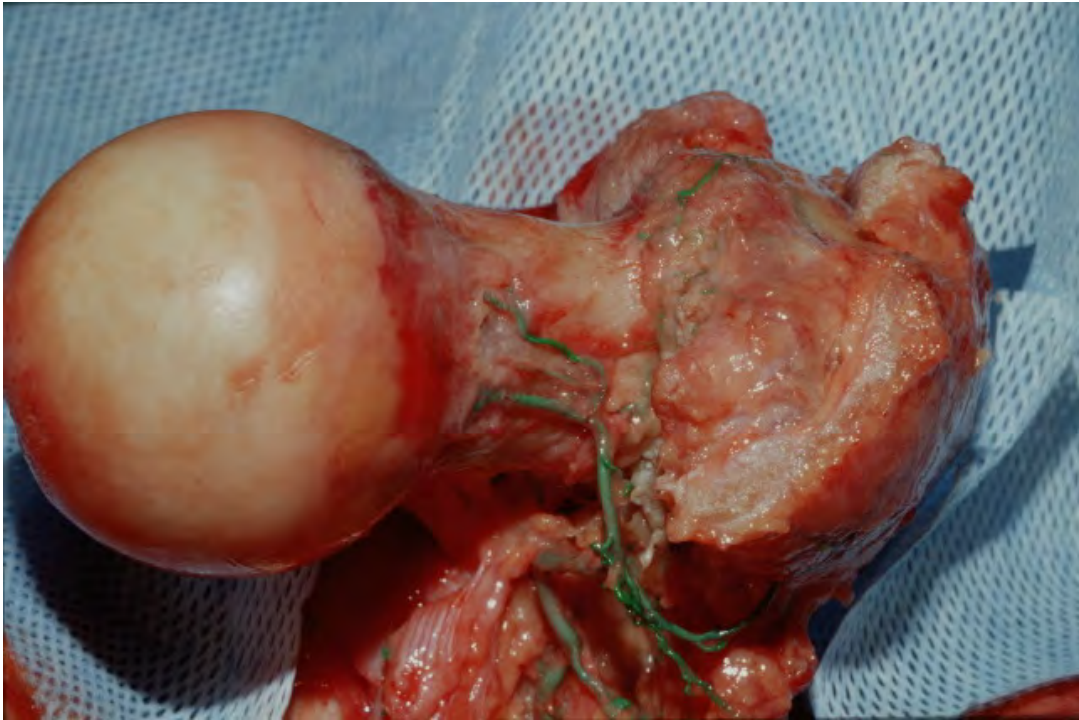
HAS: TAILLIERUNG



HAS: PRÜFUNG ROM



POSTEROSUPERIORES RETINAKULUM



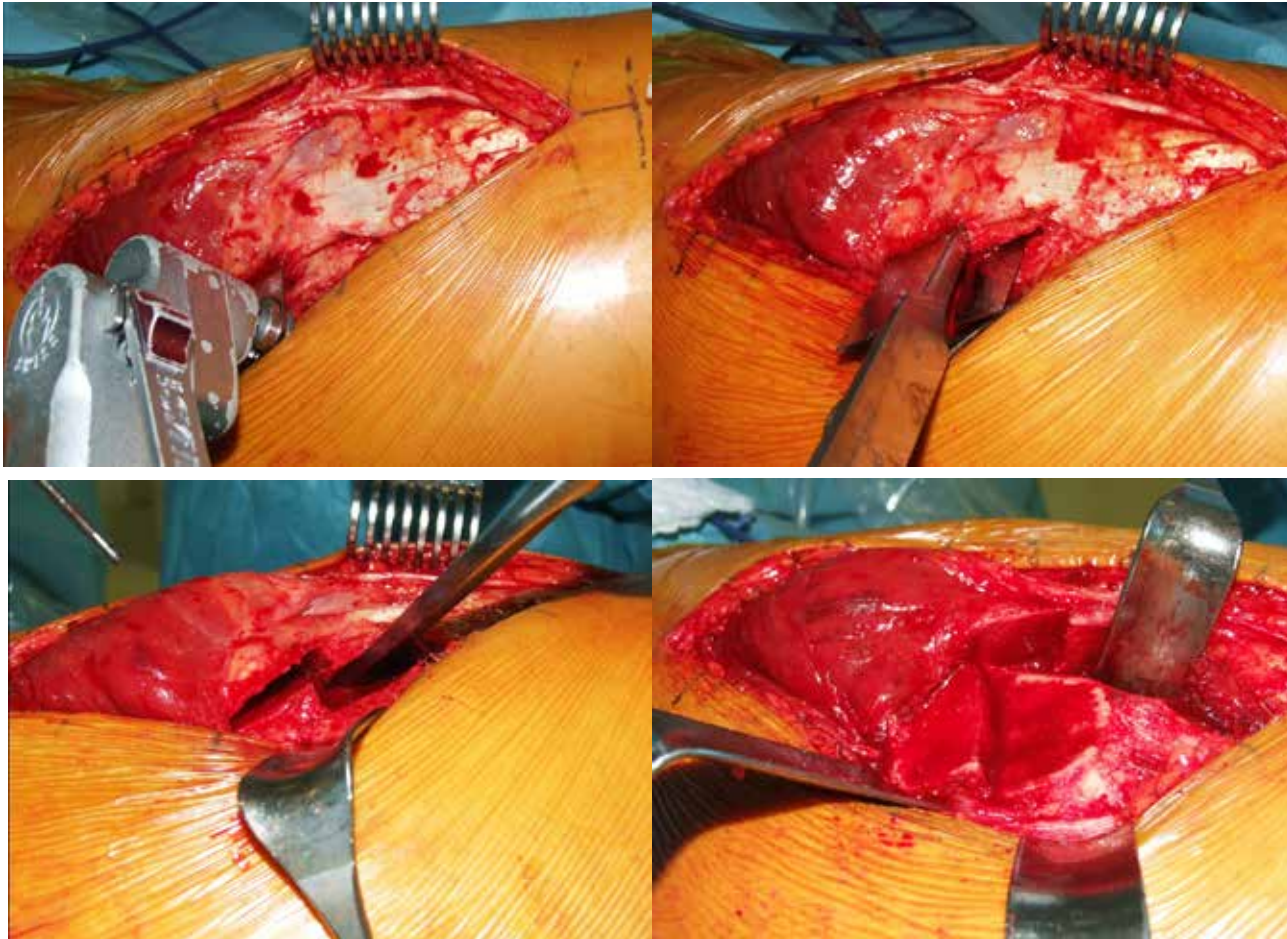
HÜFTARTHROSKOPIE



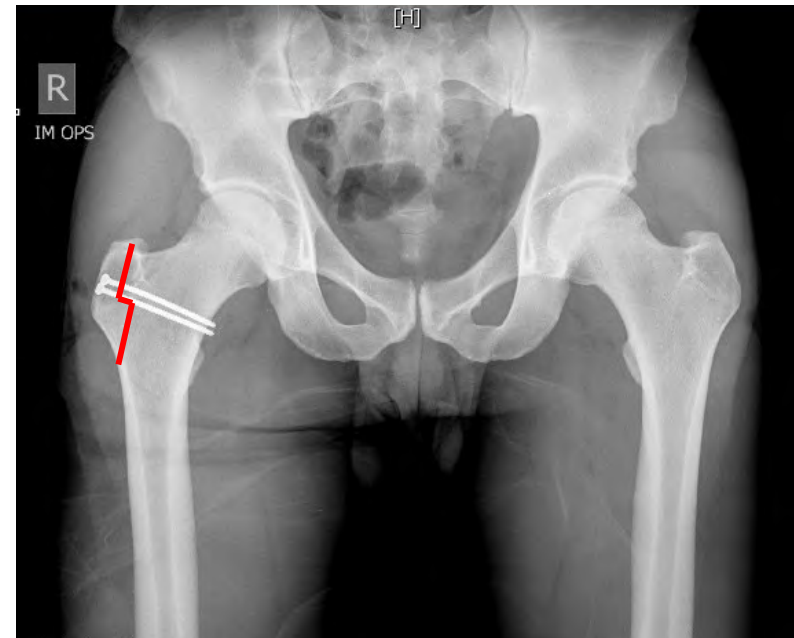
CHIRURGISCHE HÜFTLUXATION



TROCHANTERIC REFIXATION



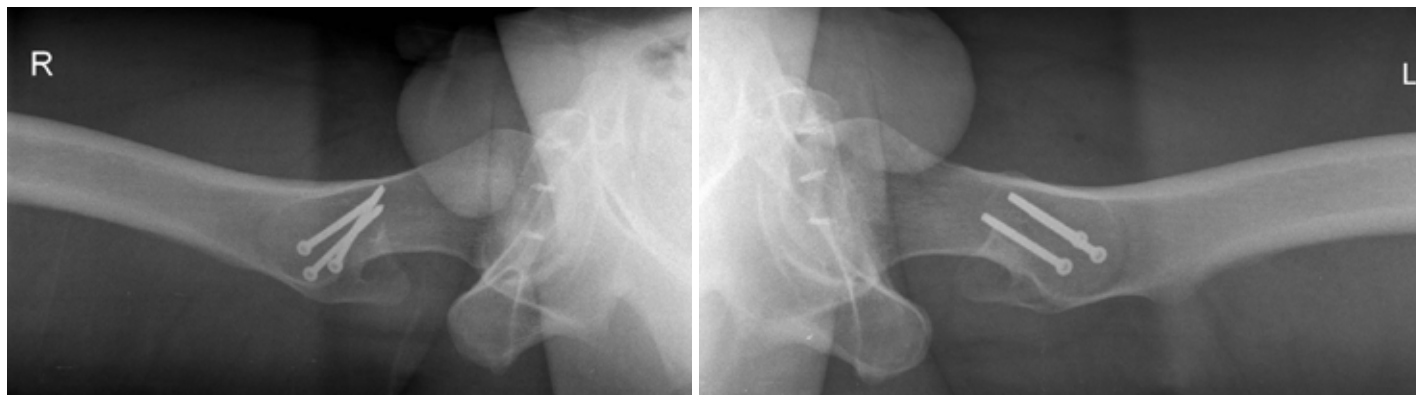
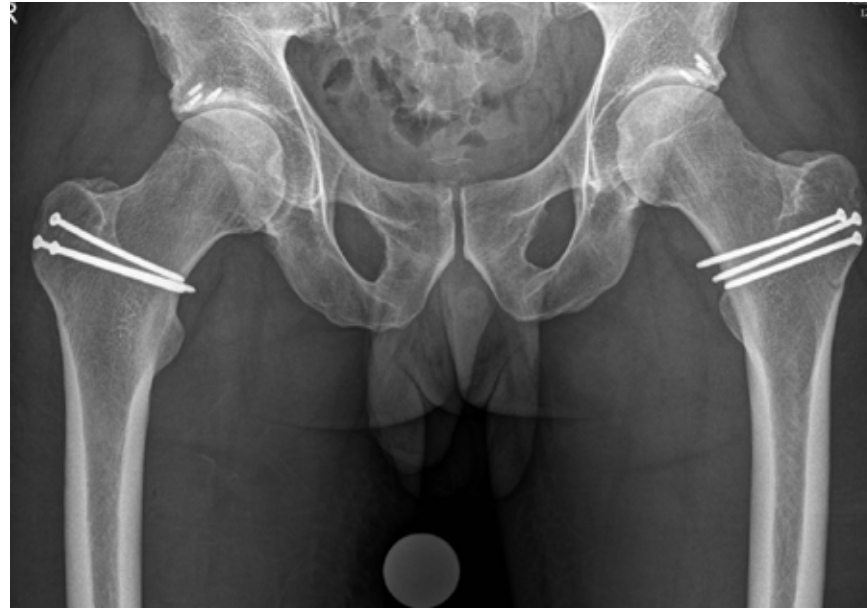
TROCHANTERIC REFIXATION



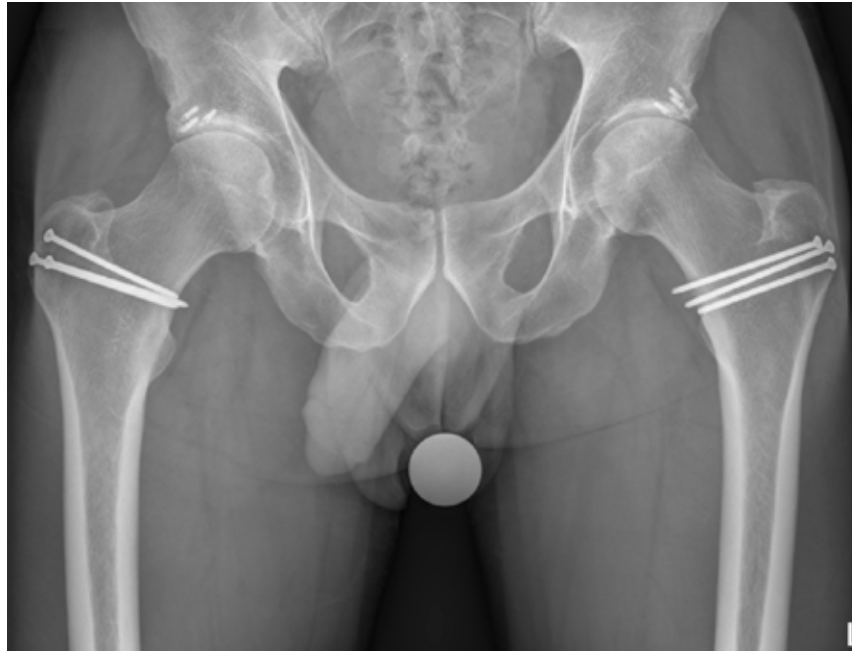
BILATERAL FAI: PRE OP



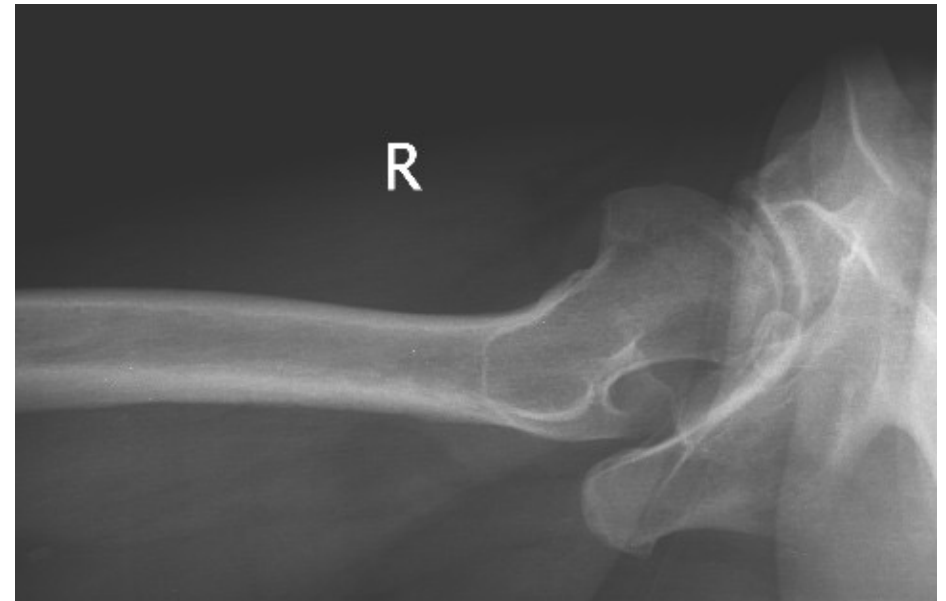
BILATERAL FAI: POST OP



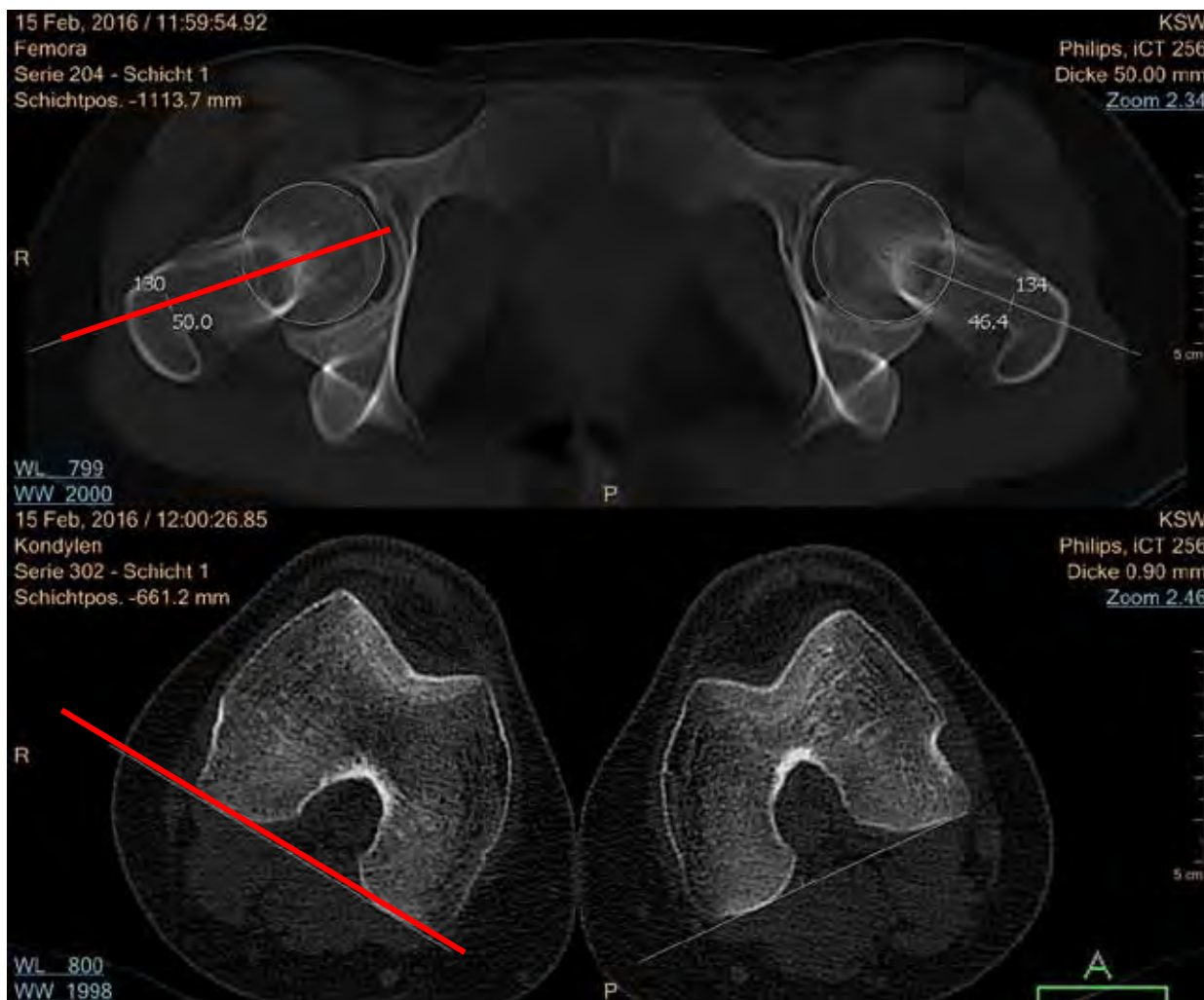
BILATERAL FAI: 1Y POST OP



COMPLEX DEFORMITY



EXCESSIVE FEMORAL ANTETORSION



COMPLEX DEFORMITY



COMPLEX DEFORMITY



HERZLICHEN DANK

Dr. Fabian Kalberer

**Orthopädie und Traumatologie des
Bewegungsapparates, FMH**

fabian.kalberer@gzw.ch



