Sportorthopädiekongress Albisano / Gardasee Sept 2010

Rotatorenmanschette
Arthroskopische Therapie

Tim Rose

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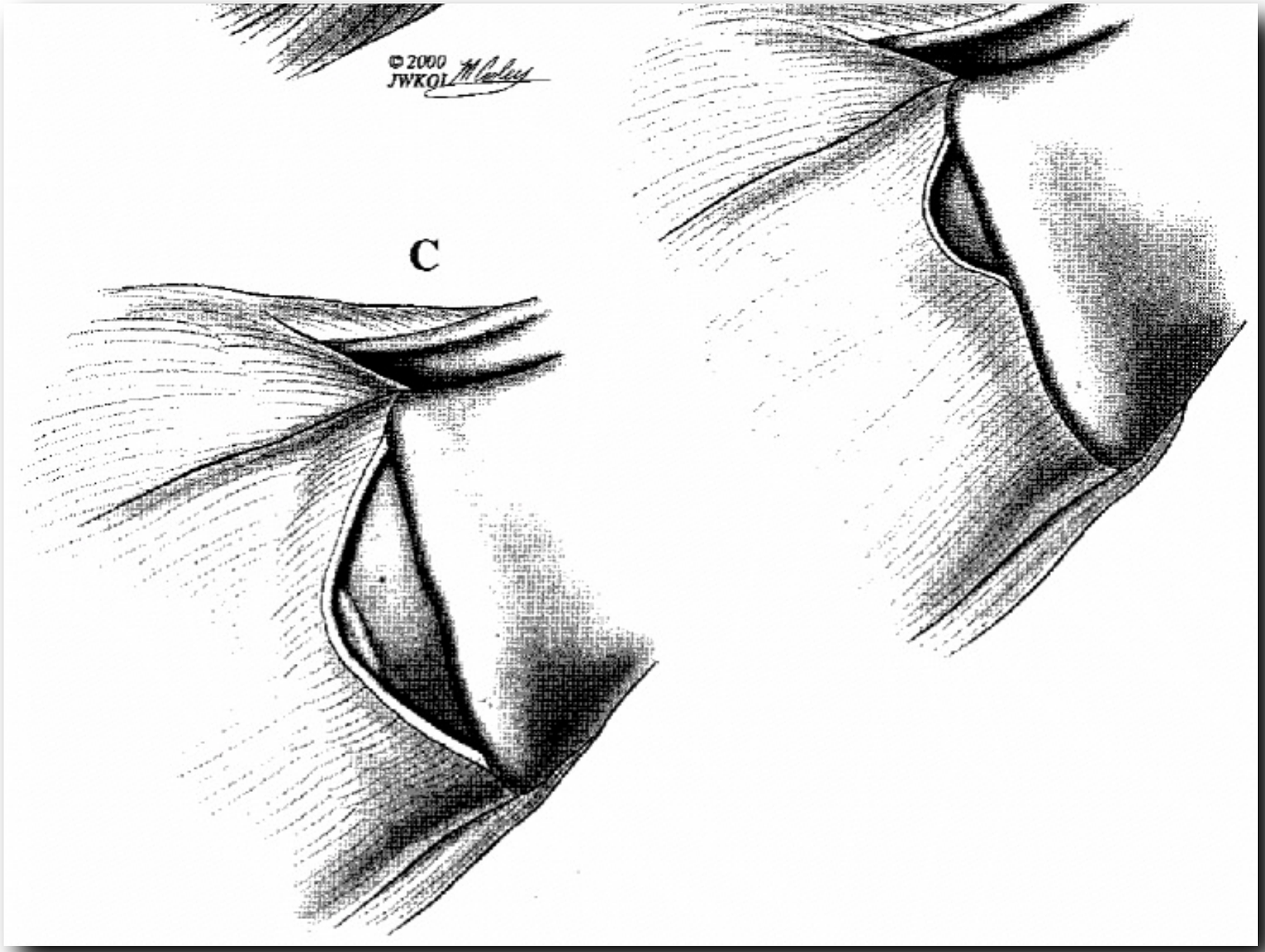
Leipzig

Größe der Läsion



aus Iannotti 2000

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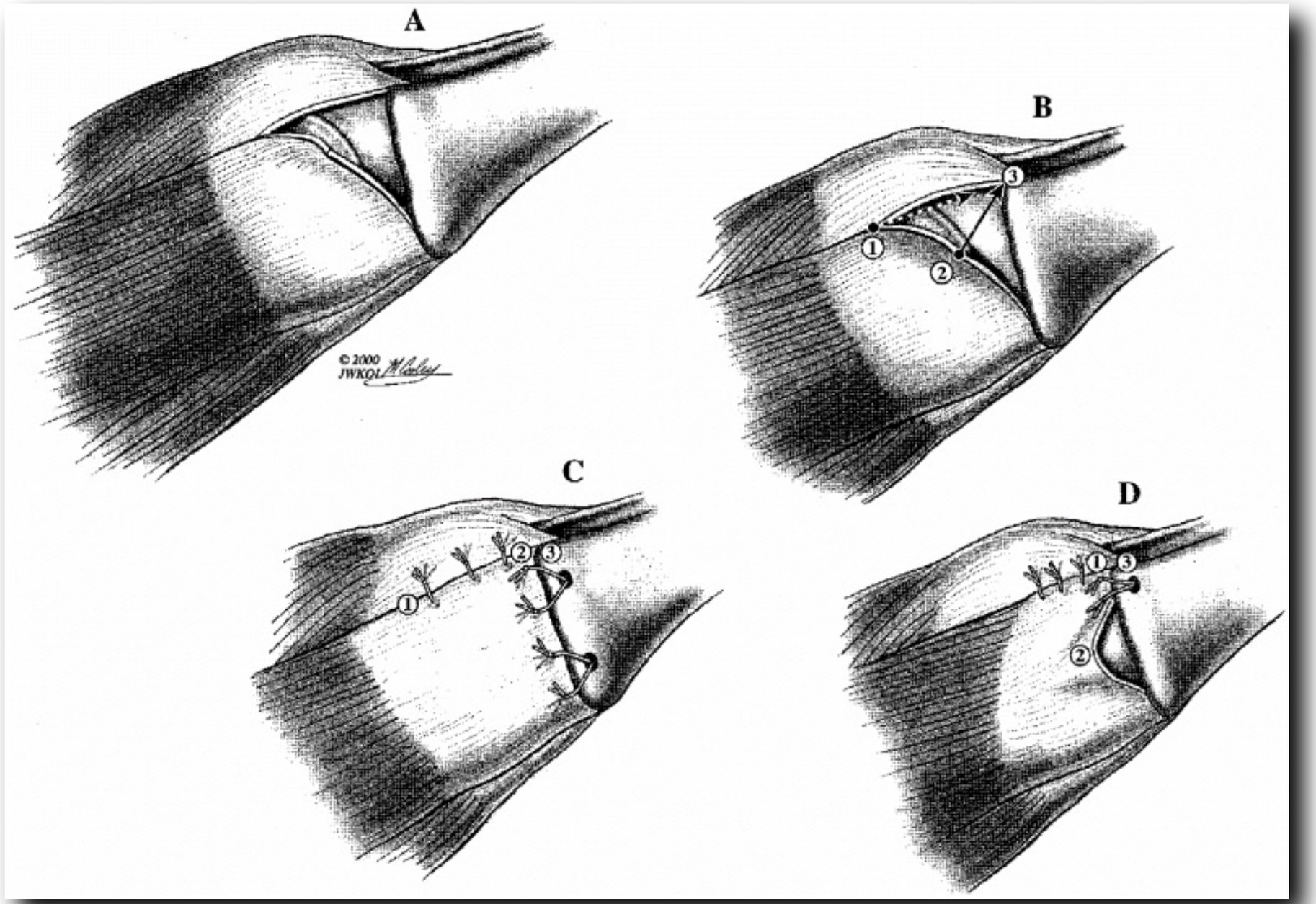
Shape der Läsion



aus Iannotti 2000

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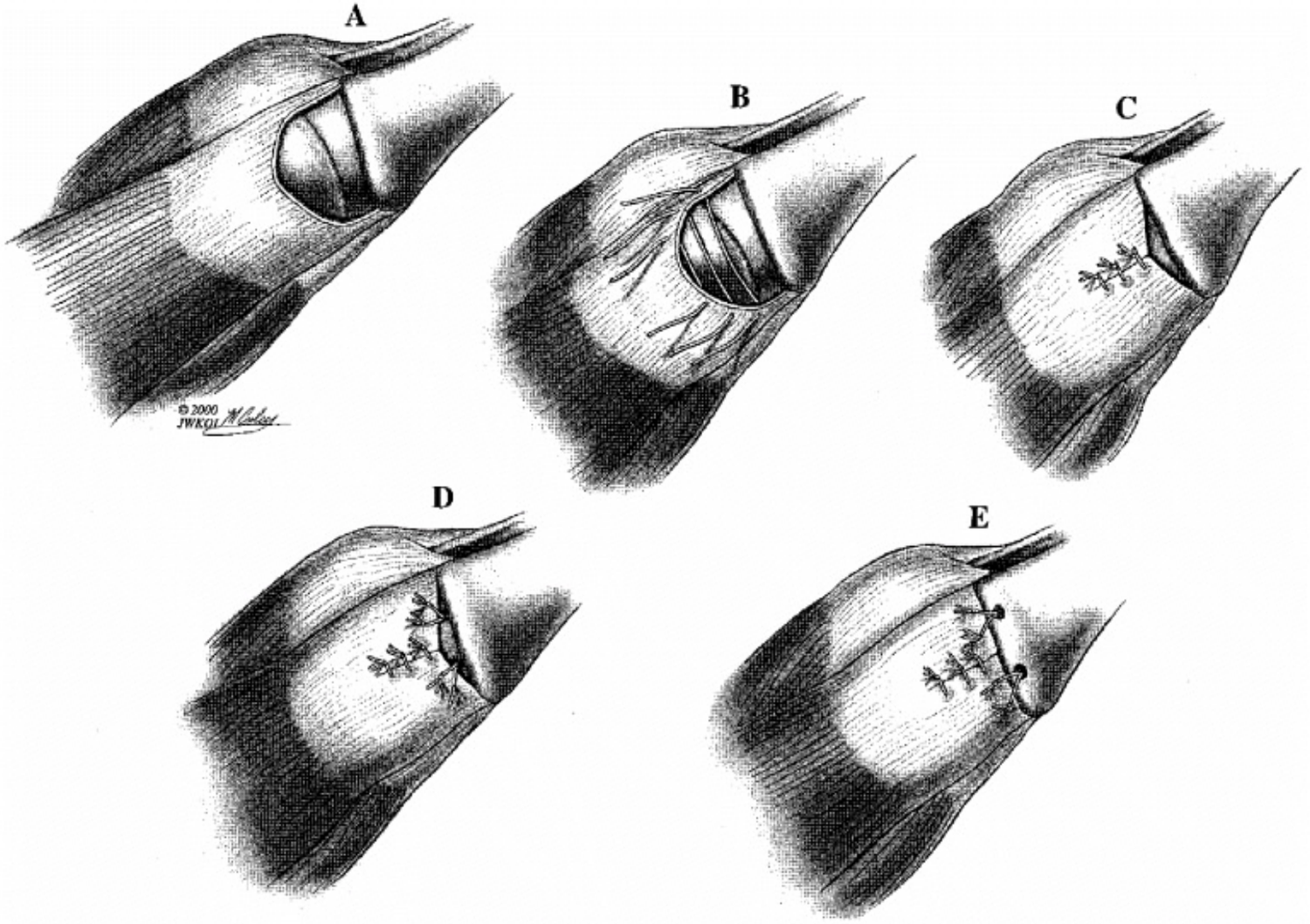
Shape der Läsion



aus Iannotti 2000

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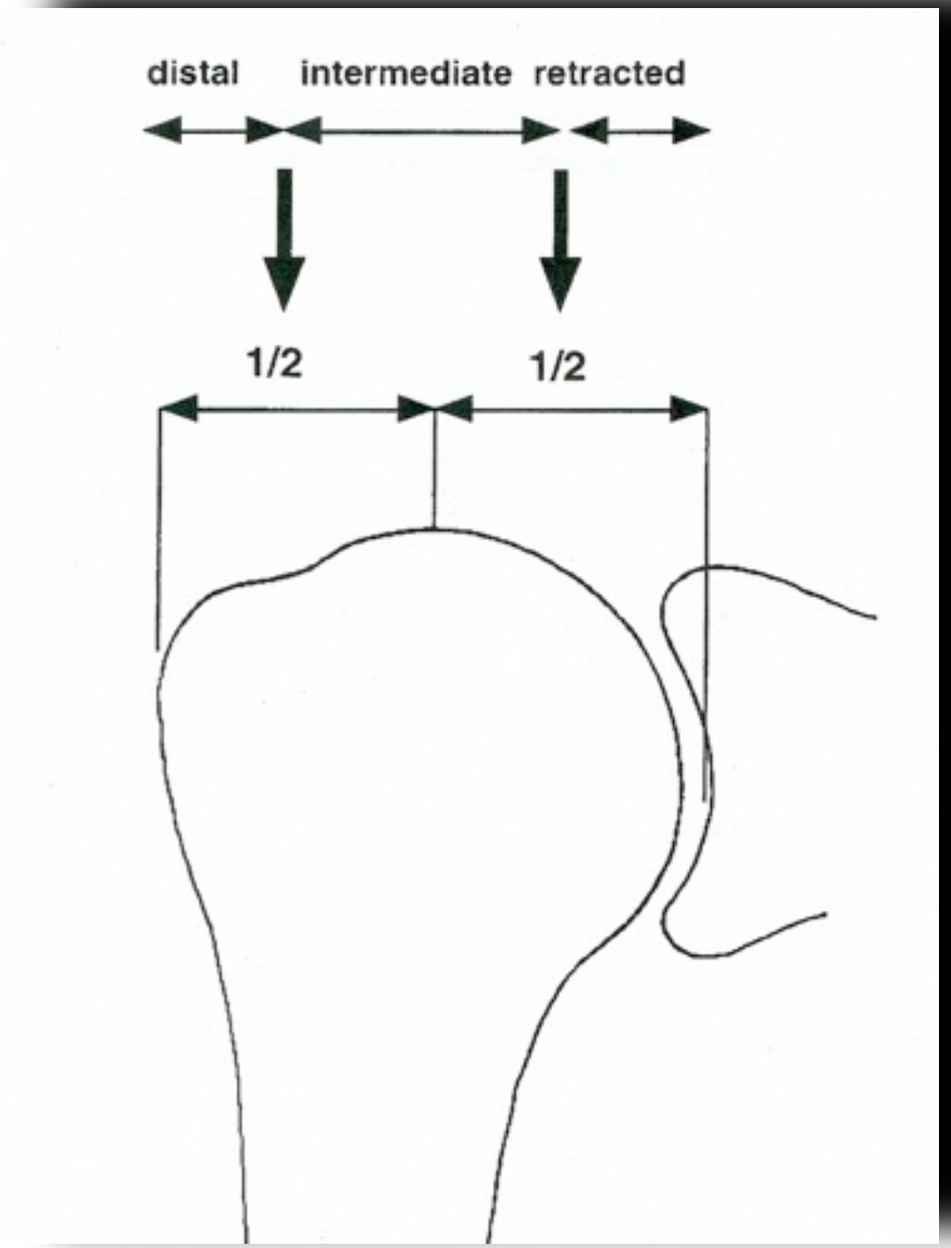
Grad der Retraktion



Patte

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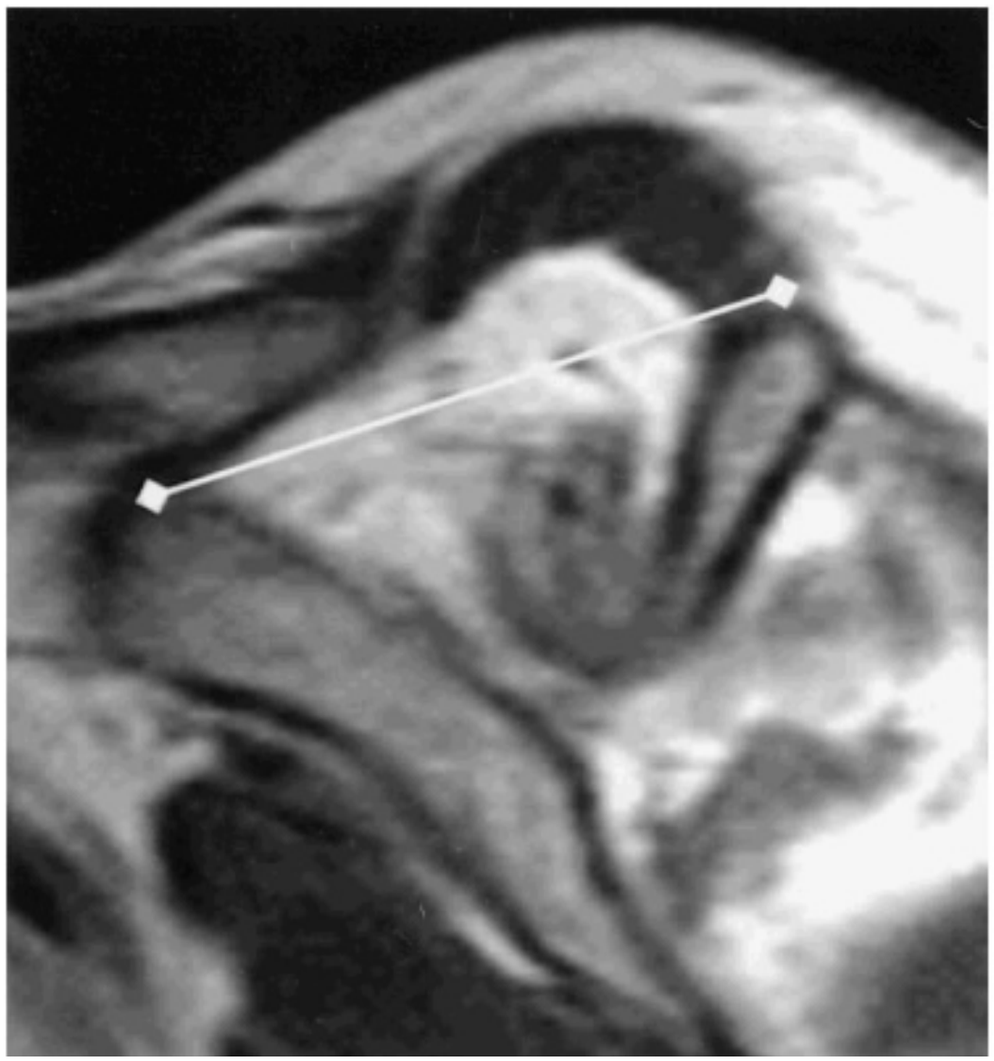
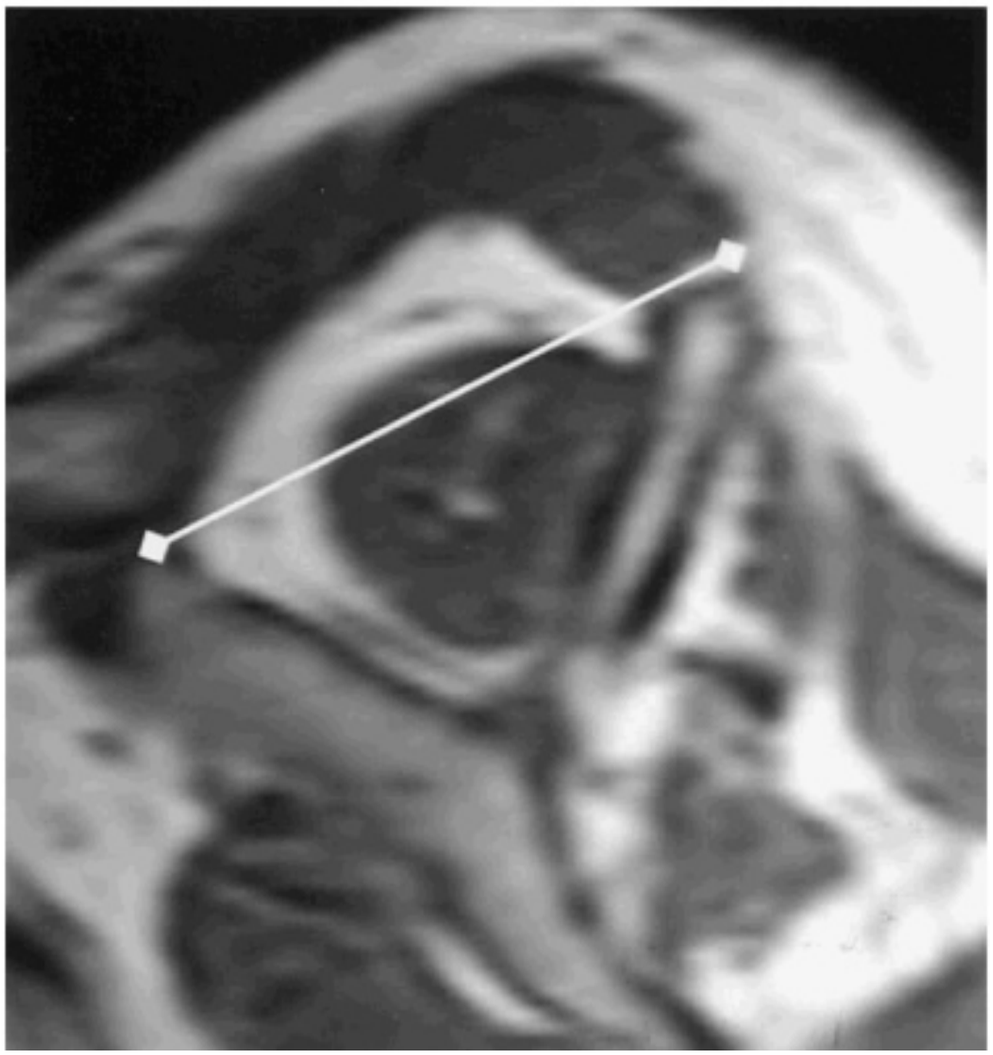
Muskelatrophie

präoperativ



12 Monate Follow up



Reversibel nach
Rekonstruktion ?

Schaefer 2002 Clin orthop rel res

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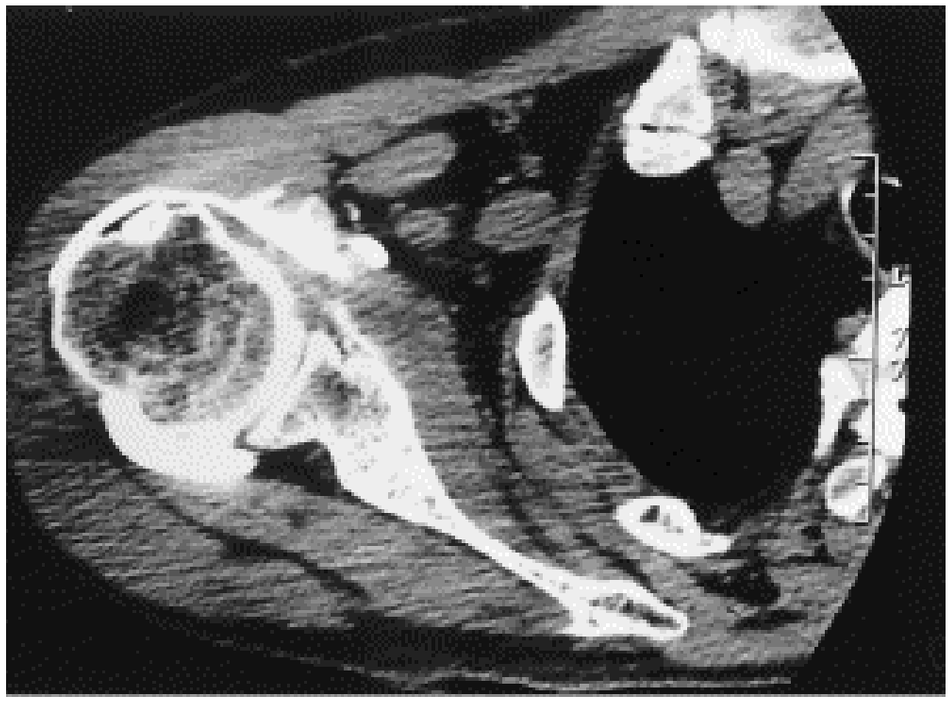
Fettige Degeneration



Grade 1

Grade 2

Grade 0	No fatty deposits
Grade 1	Some fatty streaks
Grade 2	More muscle than fat
Grade 3	As much muscle as fat
Grade 4	Less muscle than fat

Goutallier 1994, 2003

Nicht reversibel nach Rekonstruktion

Gerber 2004

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Benefit bei fettiger Degeneration

- Goutallier Grad III und IV
- über 85 % der Patienten bei UCLA Score

Burhart SS 2007 Arthroscopy

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Wann ist die Rekonstruktion sinnvoll?

- Gute Sehnen- und Muskelqualität
  - Retraktion ? (Patte)
  - Degeneration (Goutallier1994)
  - Rupturgröße (Bateman 1963)
- Acromiohumeraler Abstand mind. 5 mm
- Keine Omarthrose
- Komplette Innervation
- Passiv frei bewegliche Schulter
- Compliance ?

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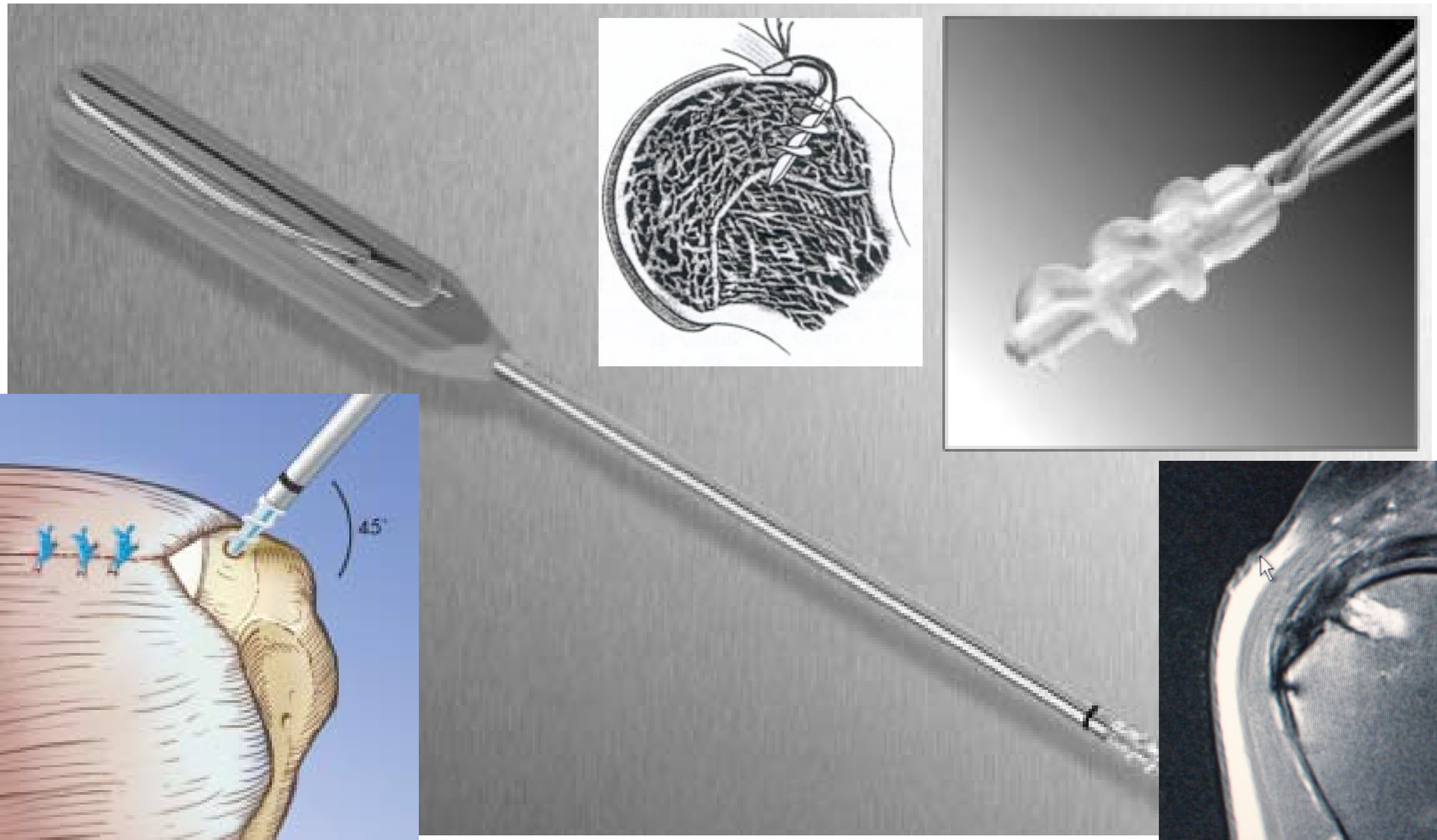
Nahtanker



The deadman theory of suture anchors: Observations along a South Texas fence line - Burkhart SS

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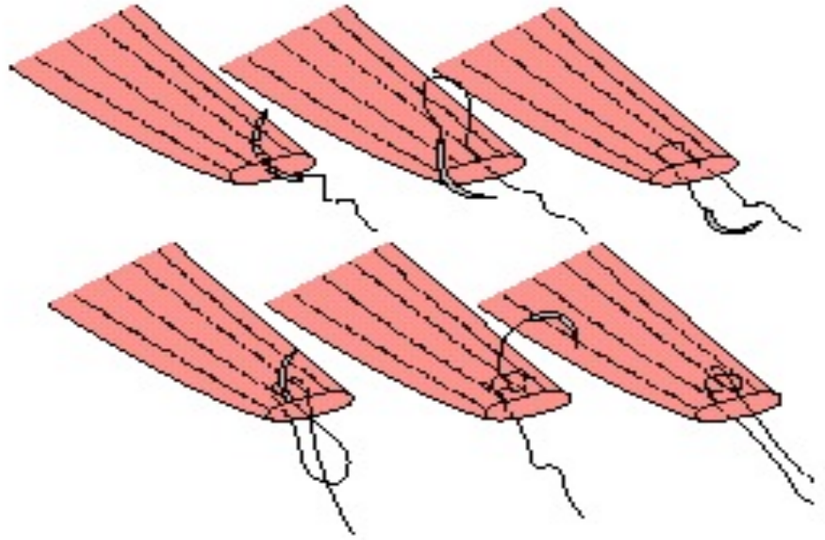
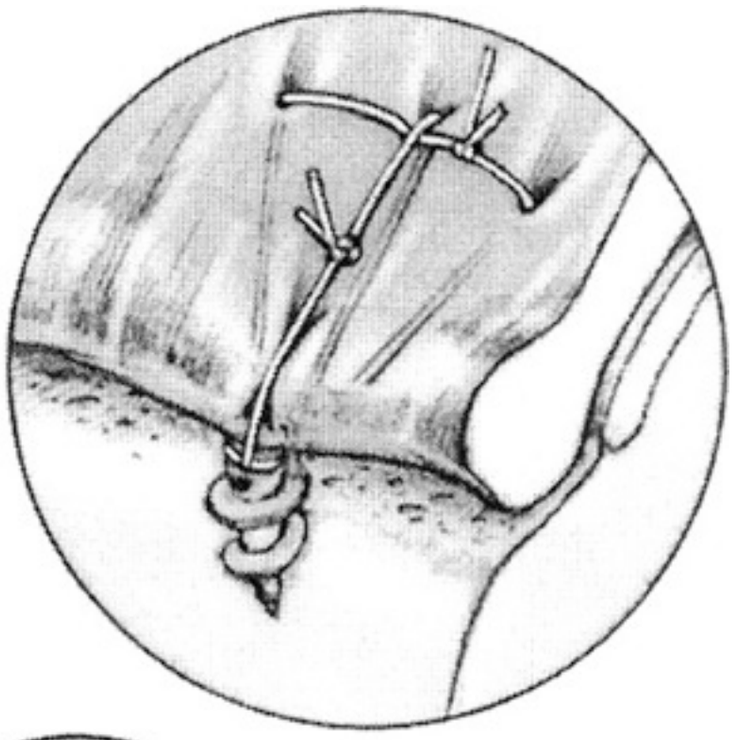
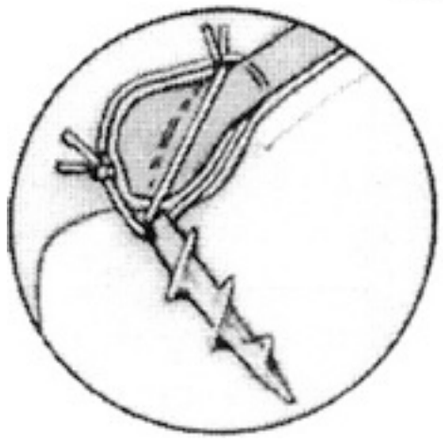
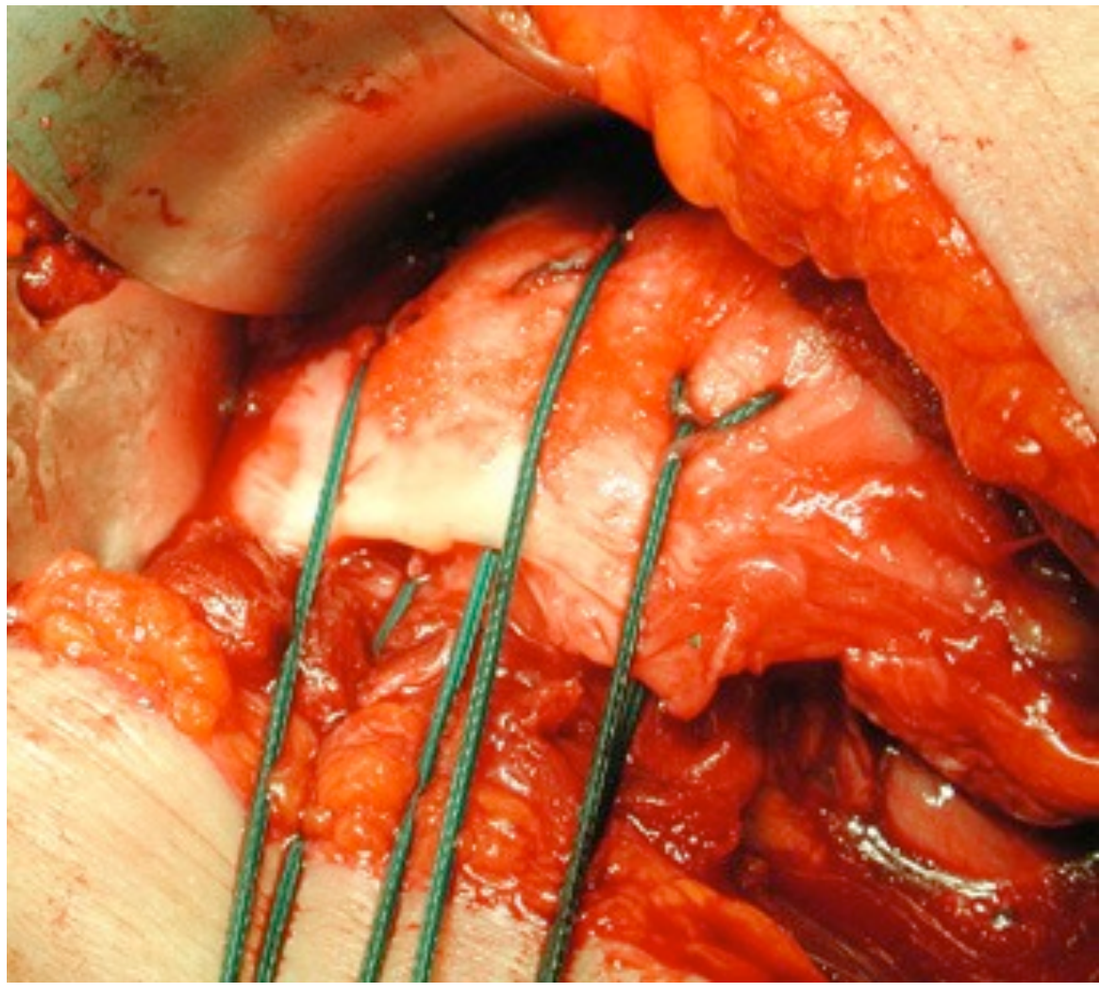
Nahttechnik: Mason-Allen







modifiziert



Gerber 1999 JBJS

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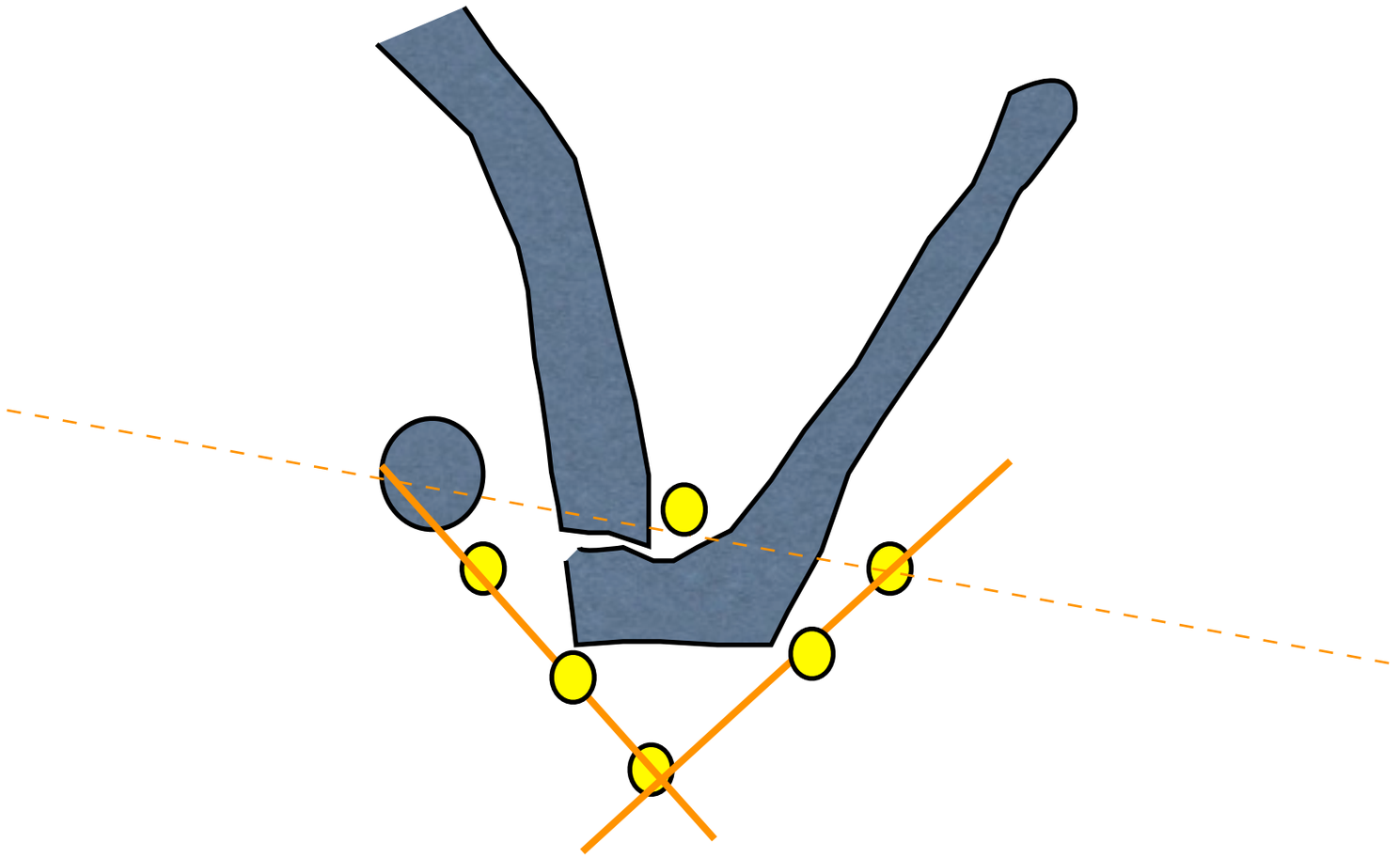
Standardzugänge



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Arbeiten im Subacromialraum: kooperativer Anästhesist

RR < 100 mmHg

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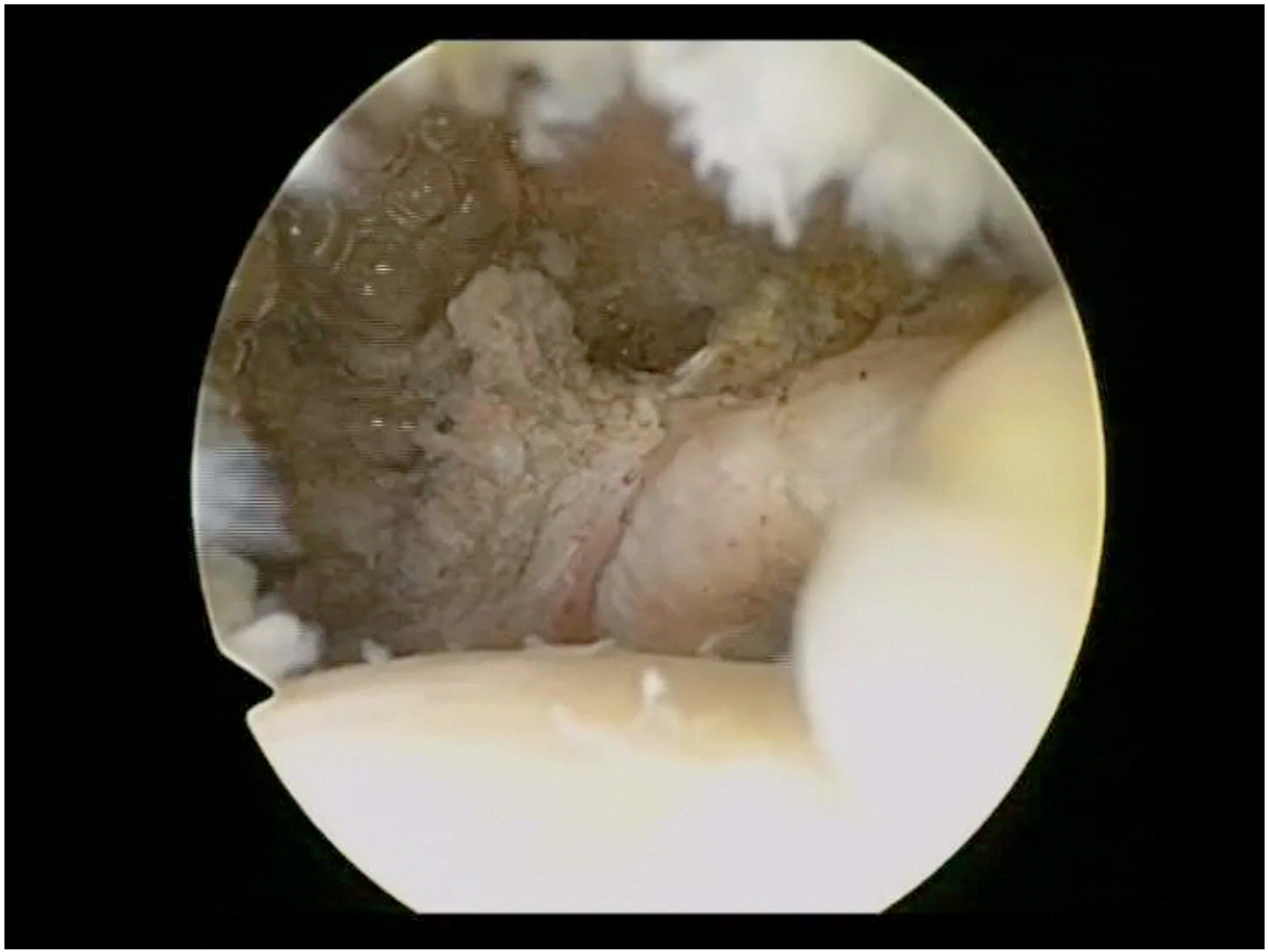
Debridement und Mobilisation



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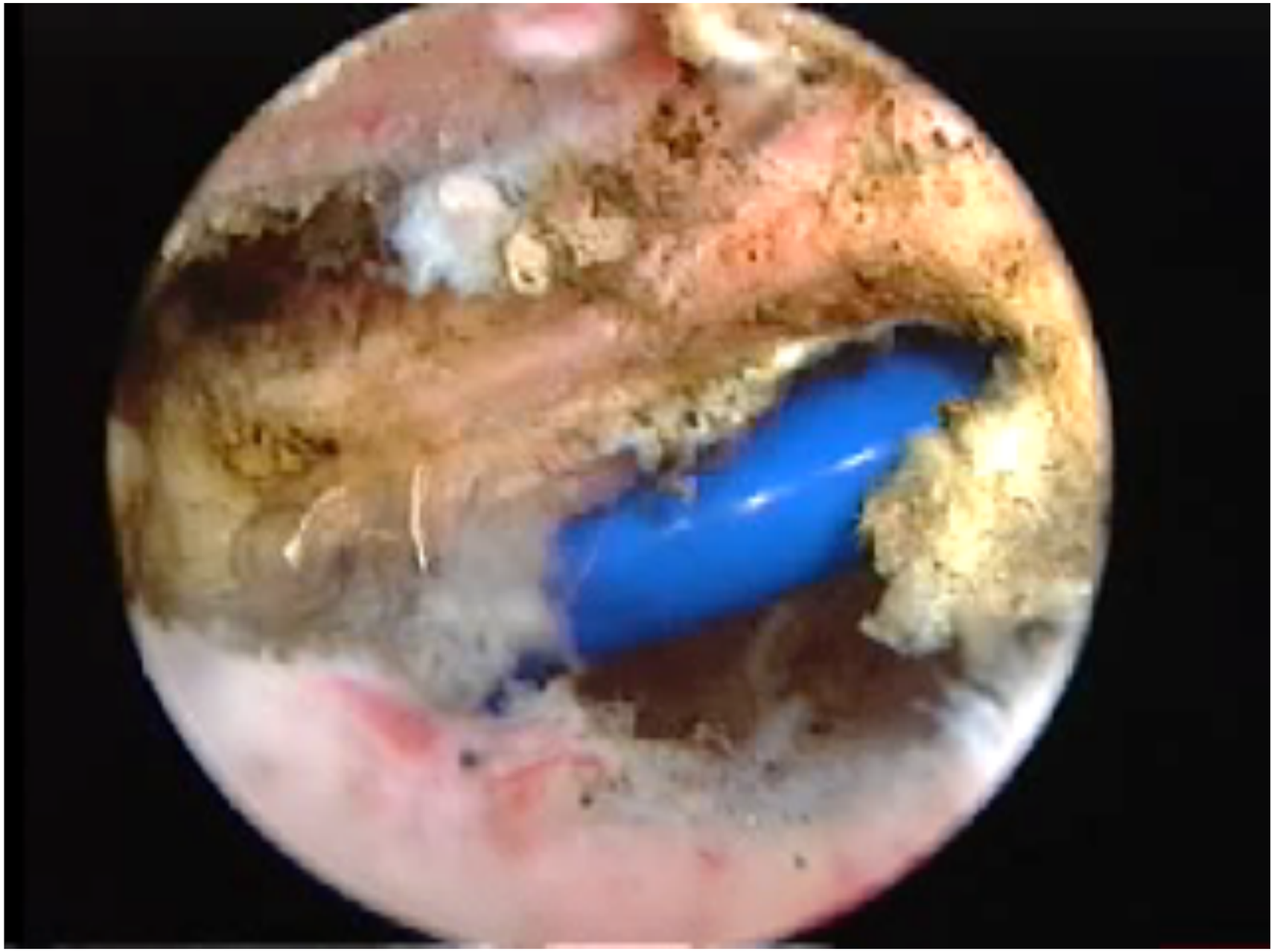
Debridement + Mobilisation



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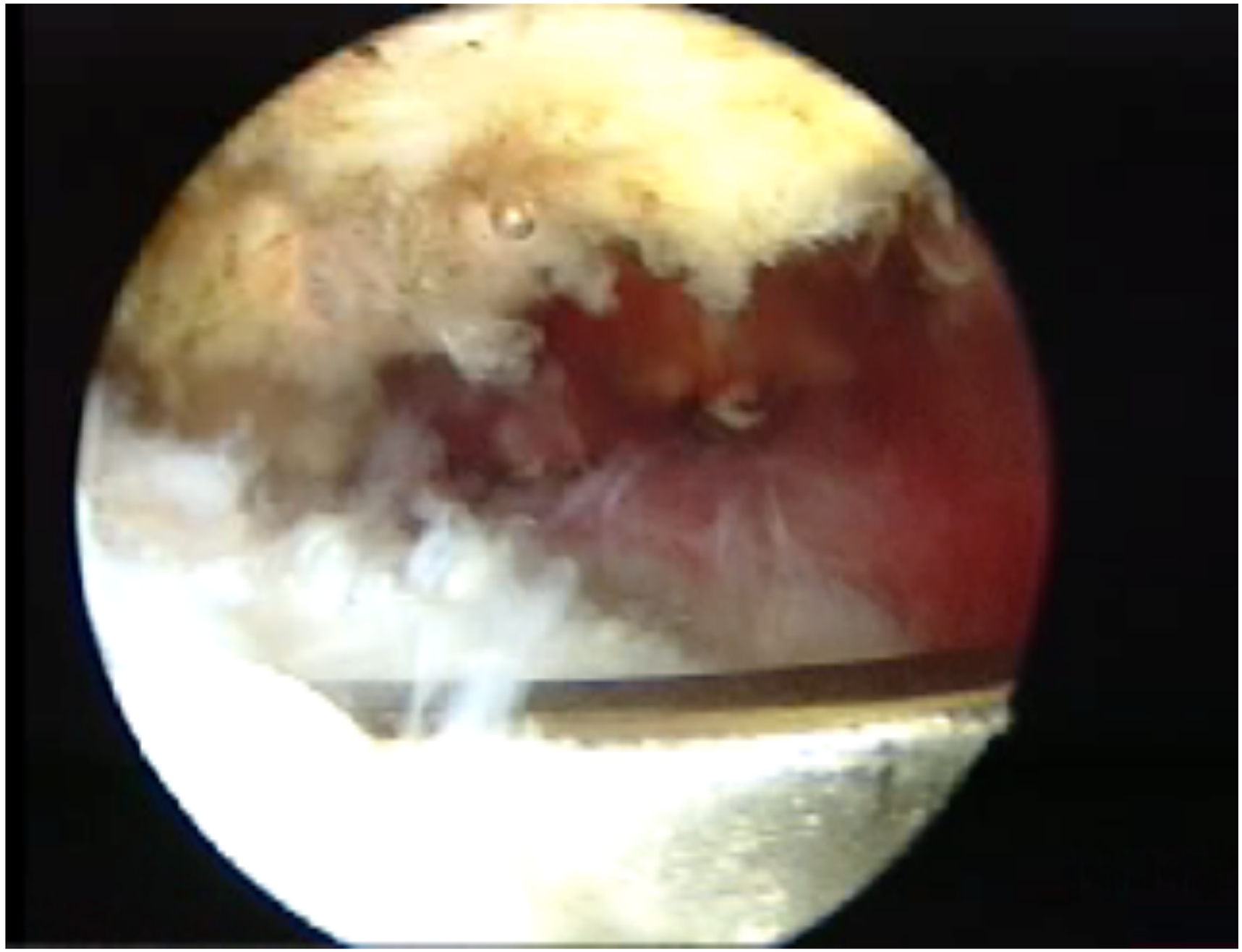
Debridement + Mobilisation



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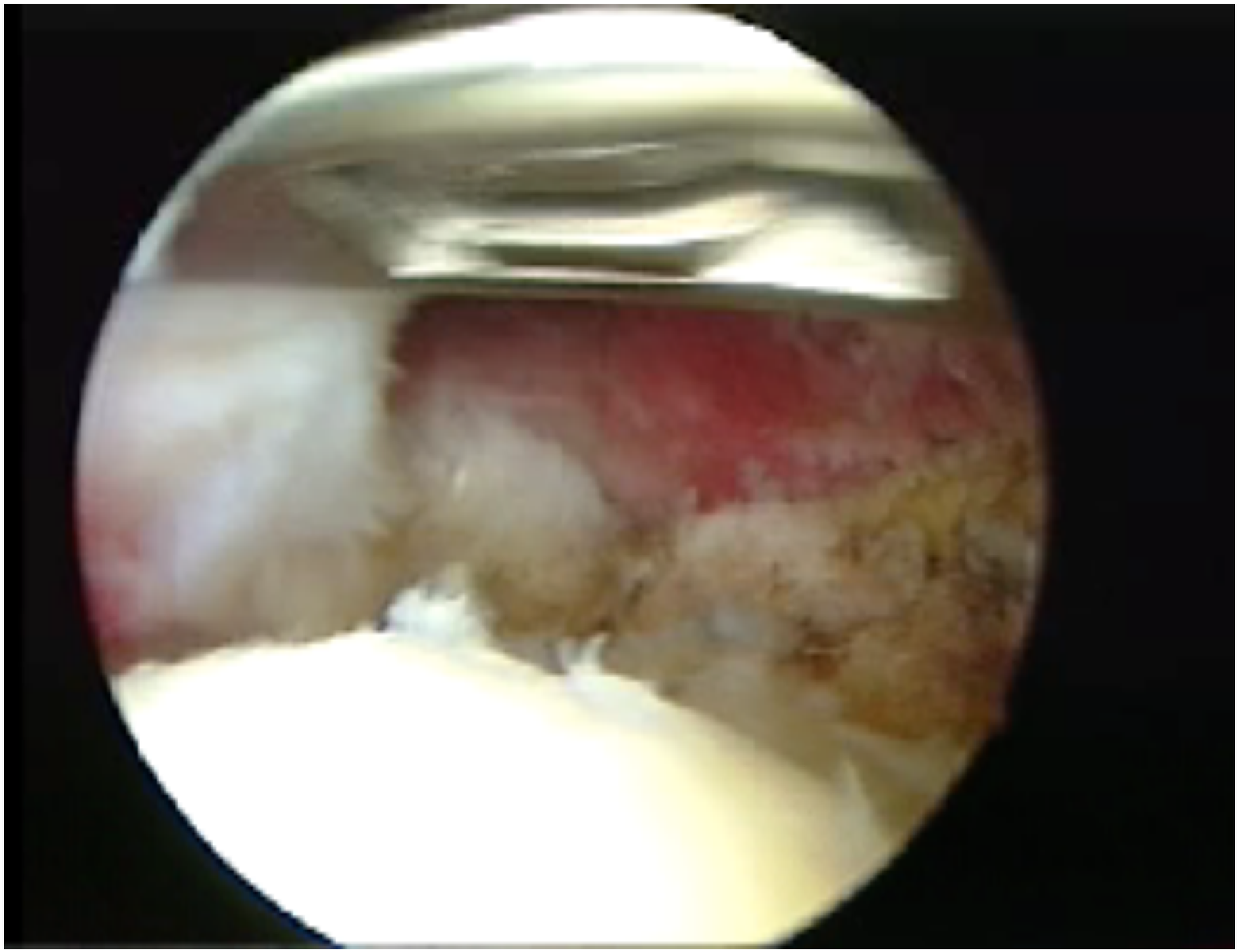
Debridement + Mobilisation



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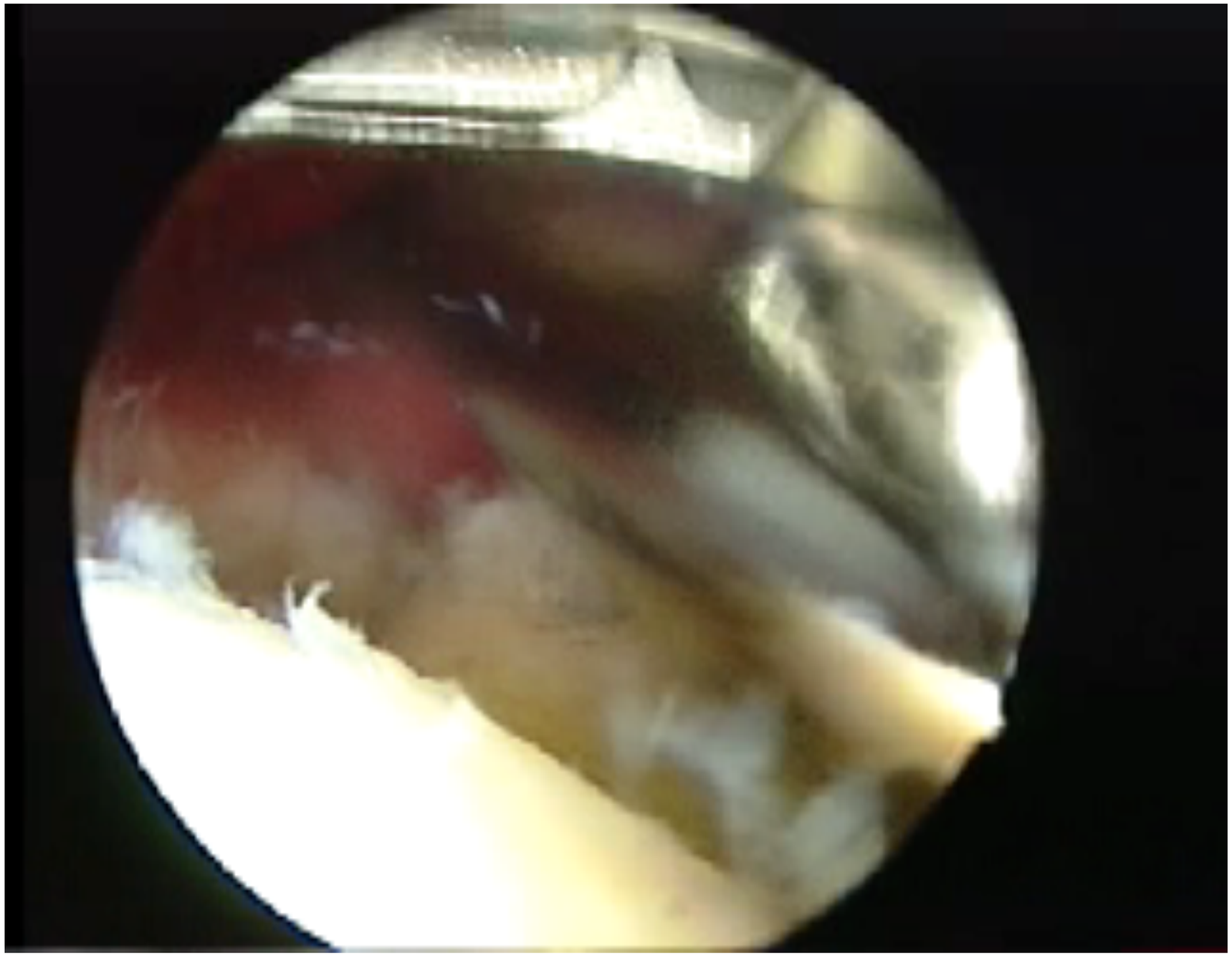
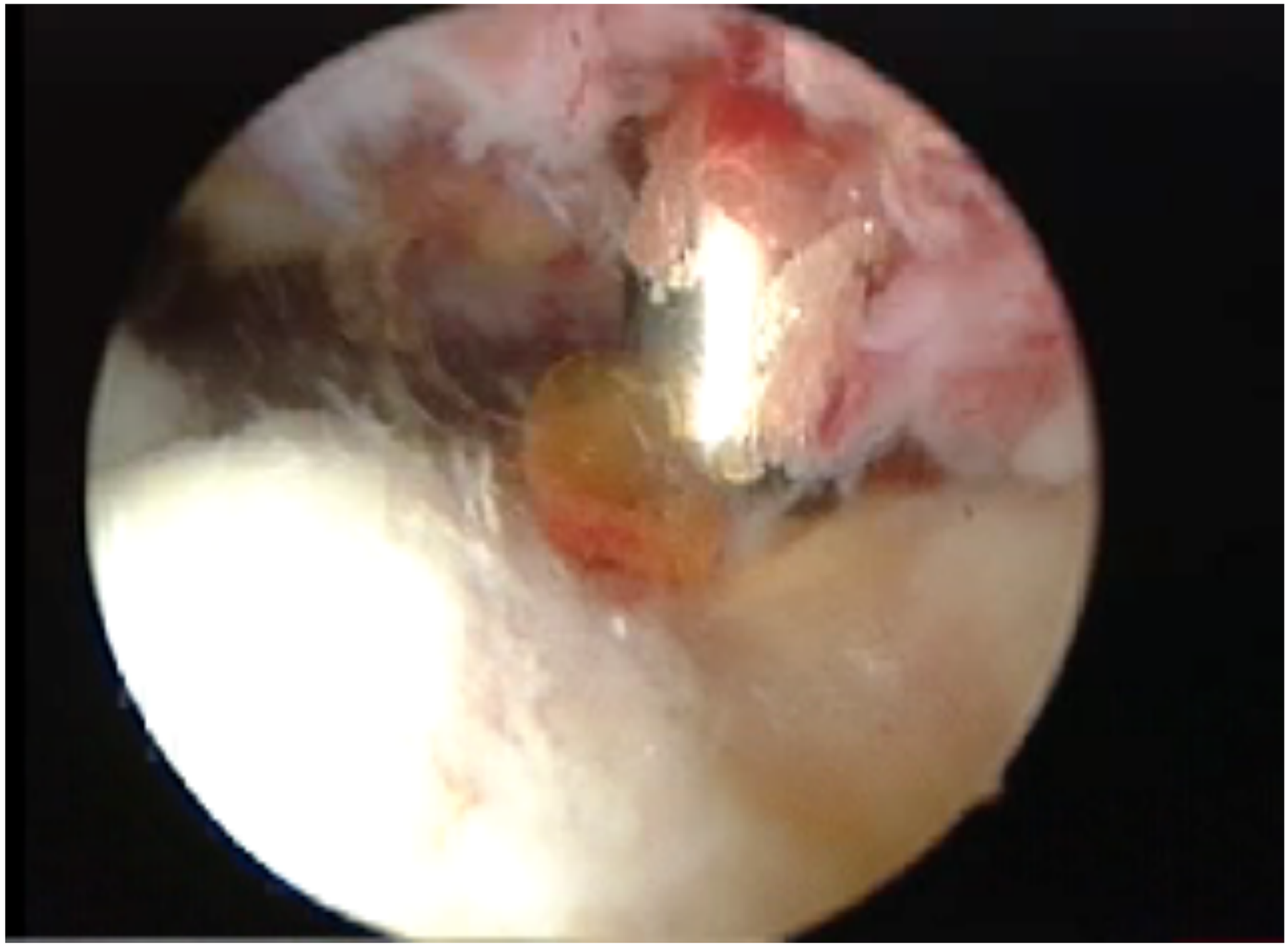
Debridement + Mobilisation



Gelenkzentrum® Leipzig

Anker setzen



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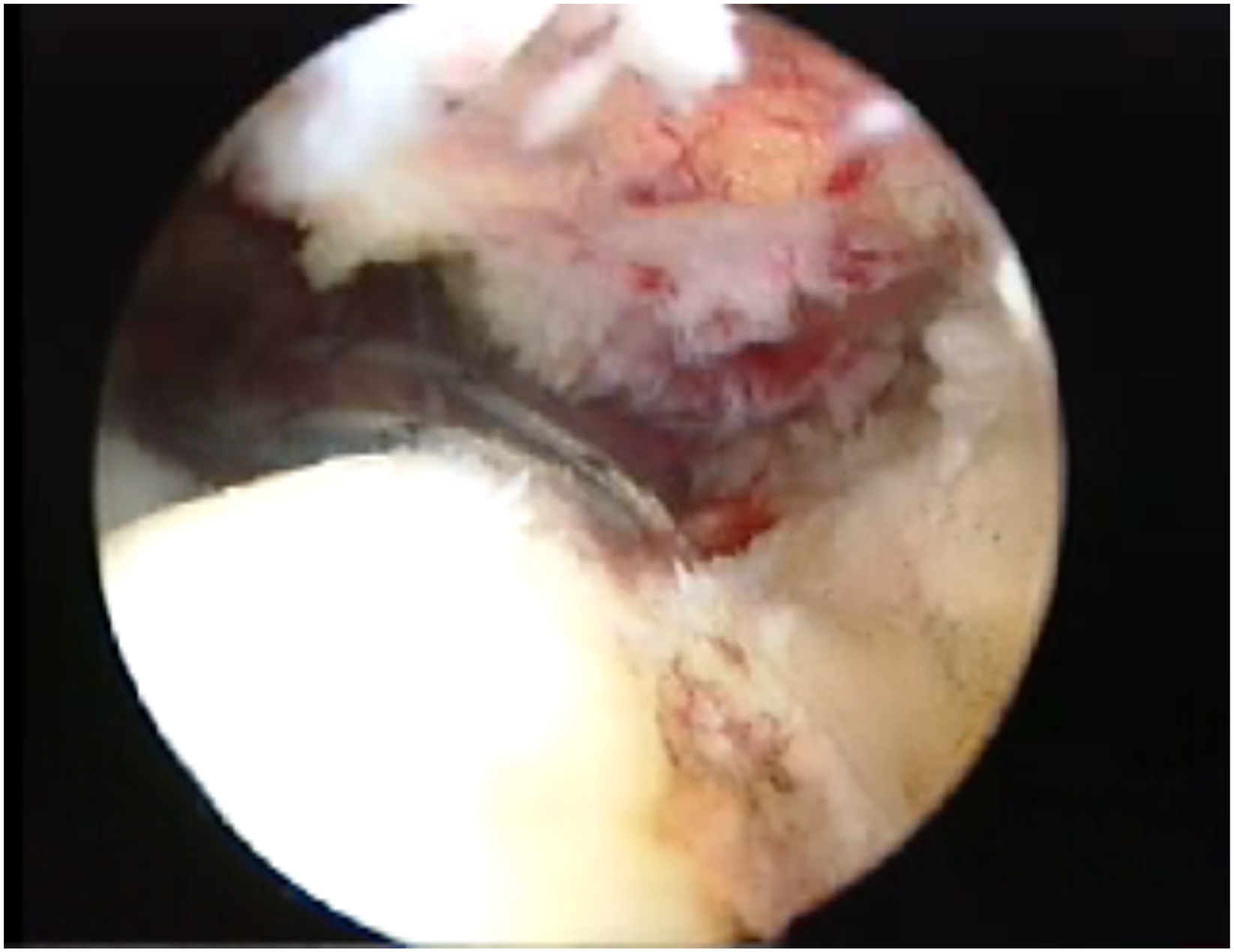
Anker setzen



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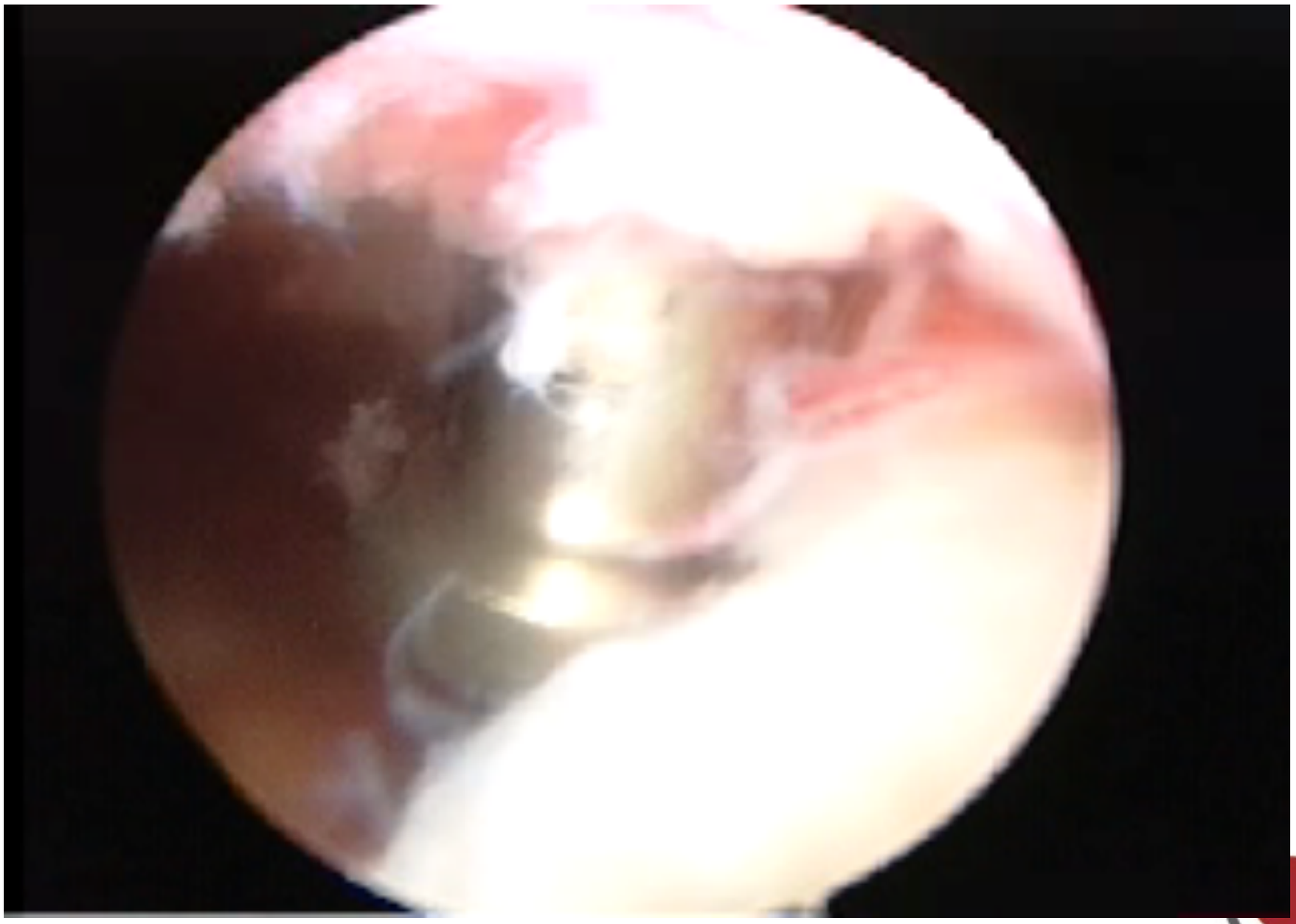
Anker setzen



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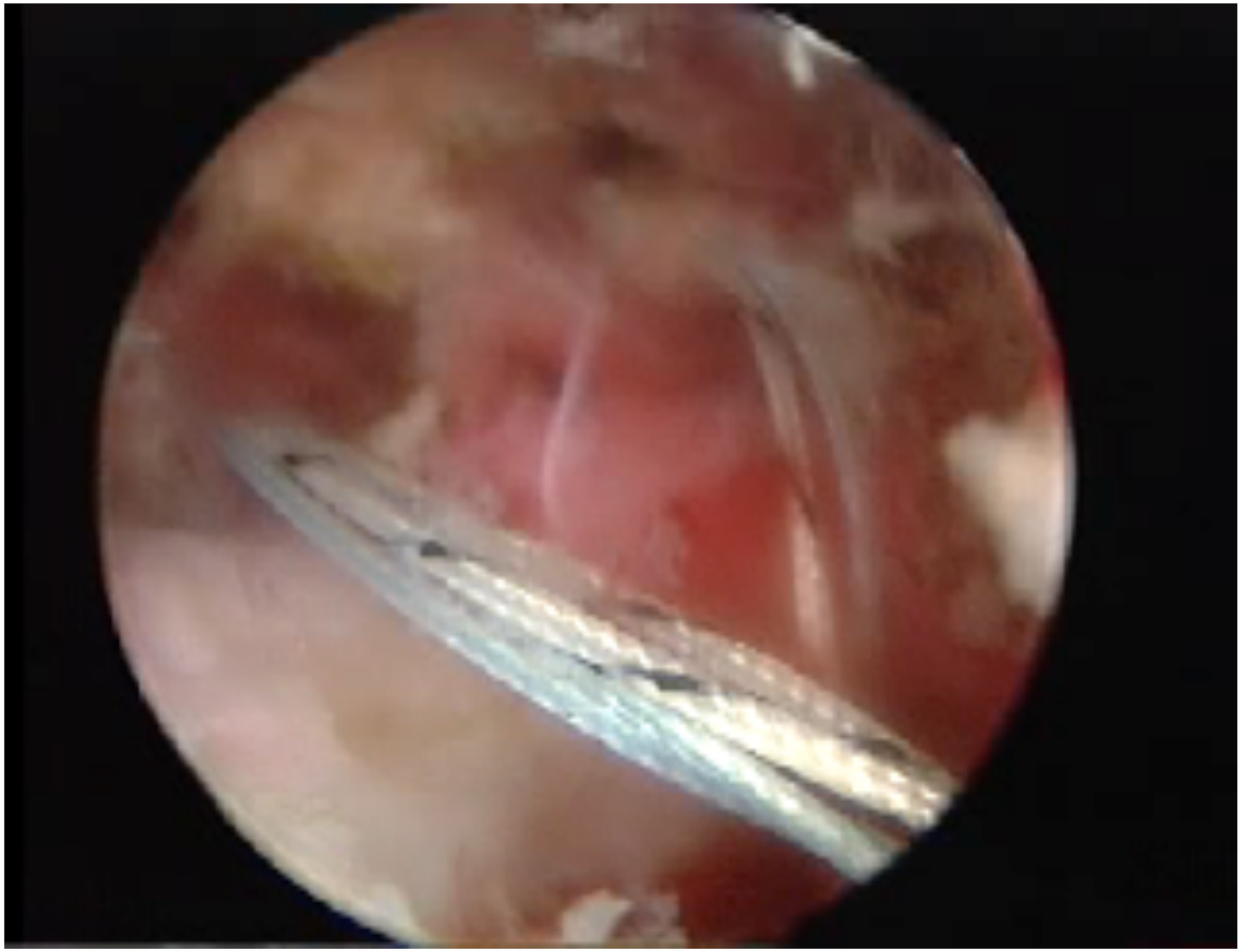
Fadenmanagement



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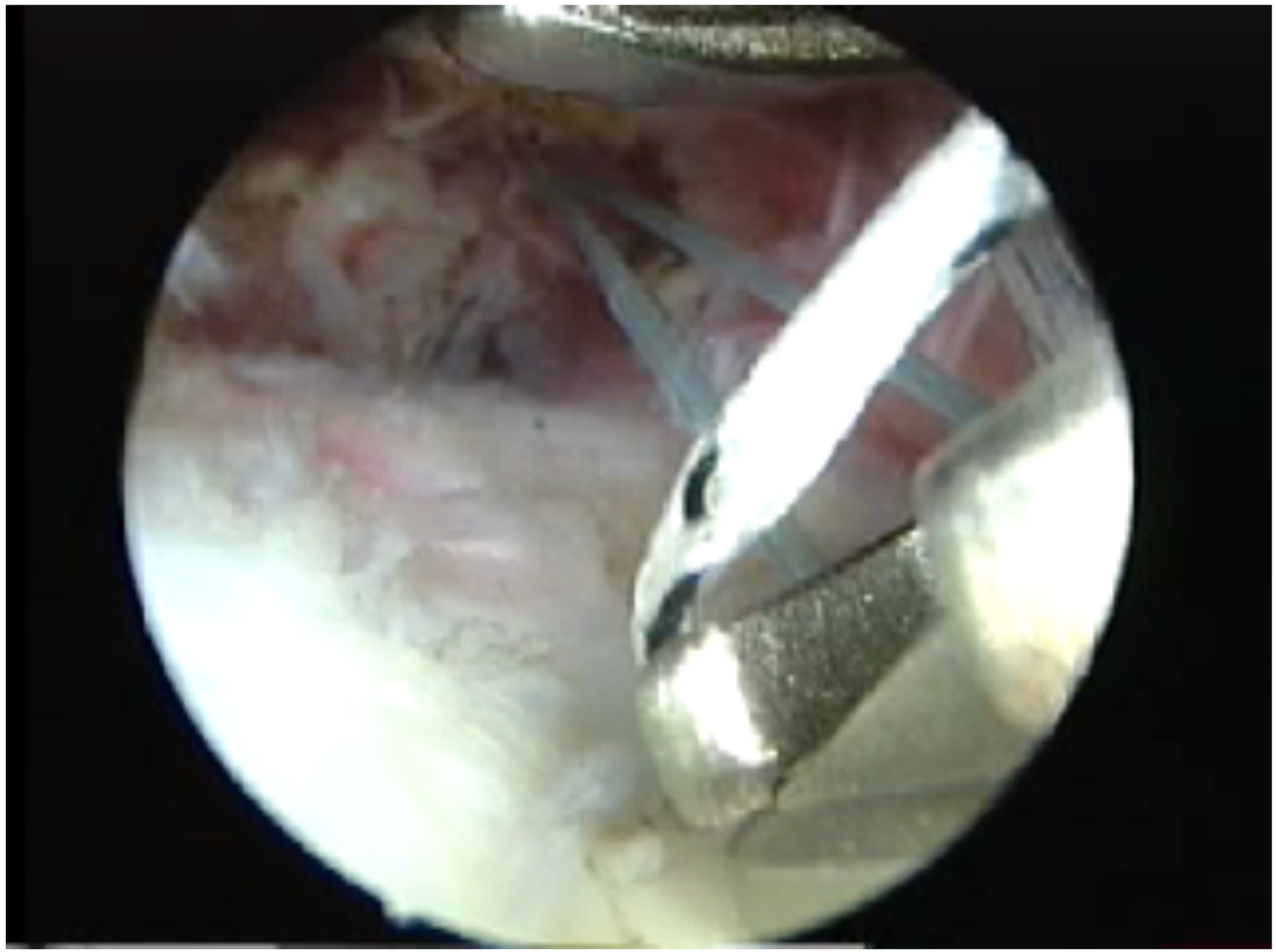
Fadenmanagement



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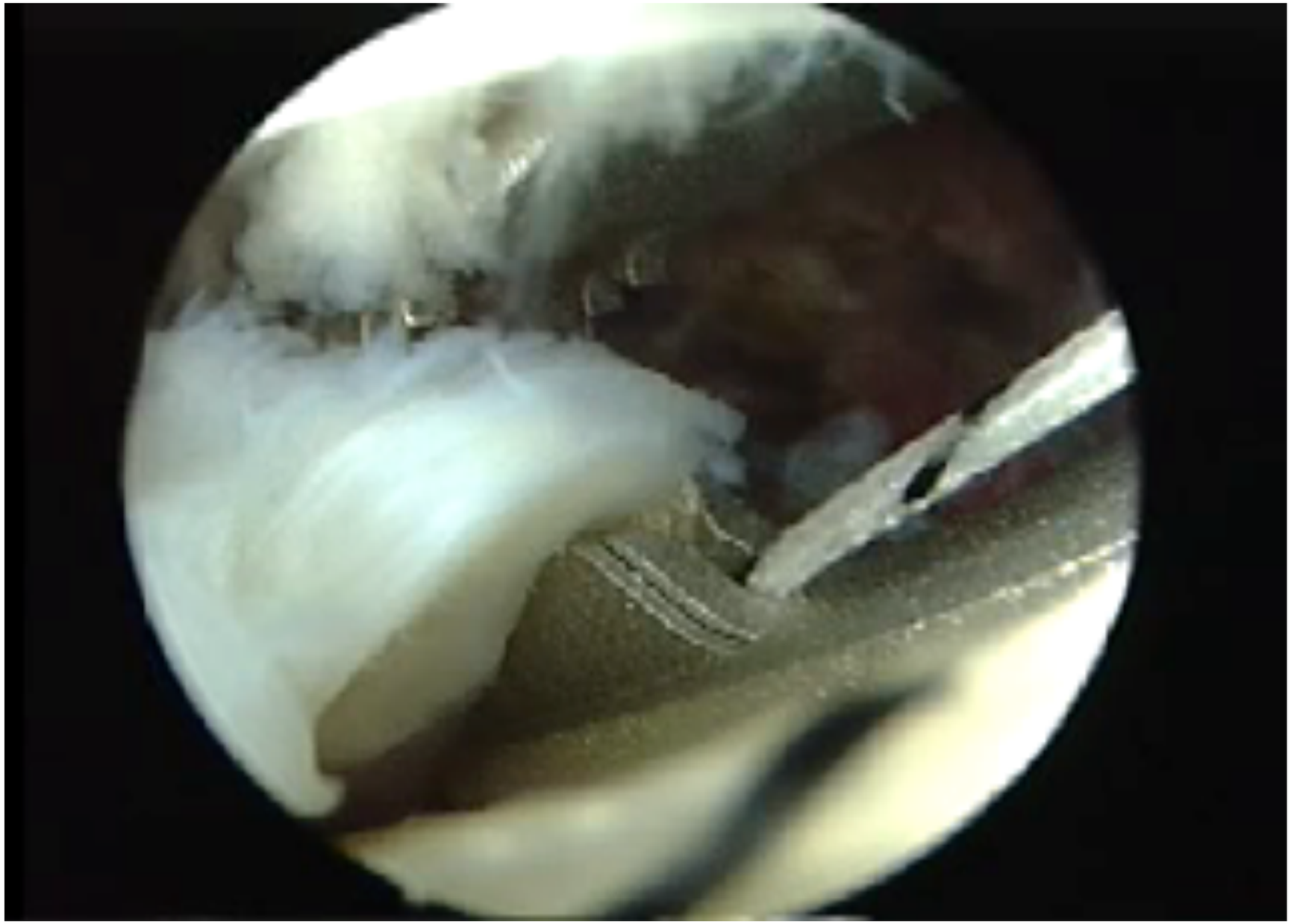
Fäden vorlegen



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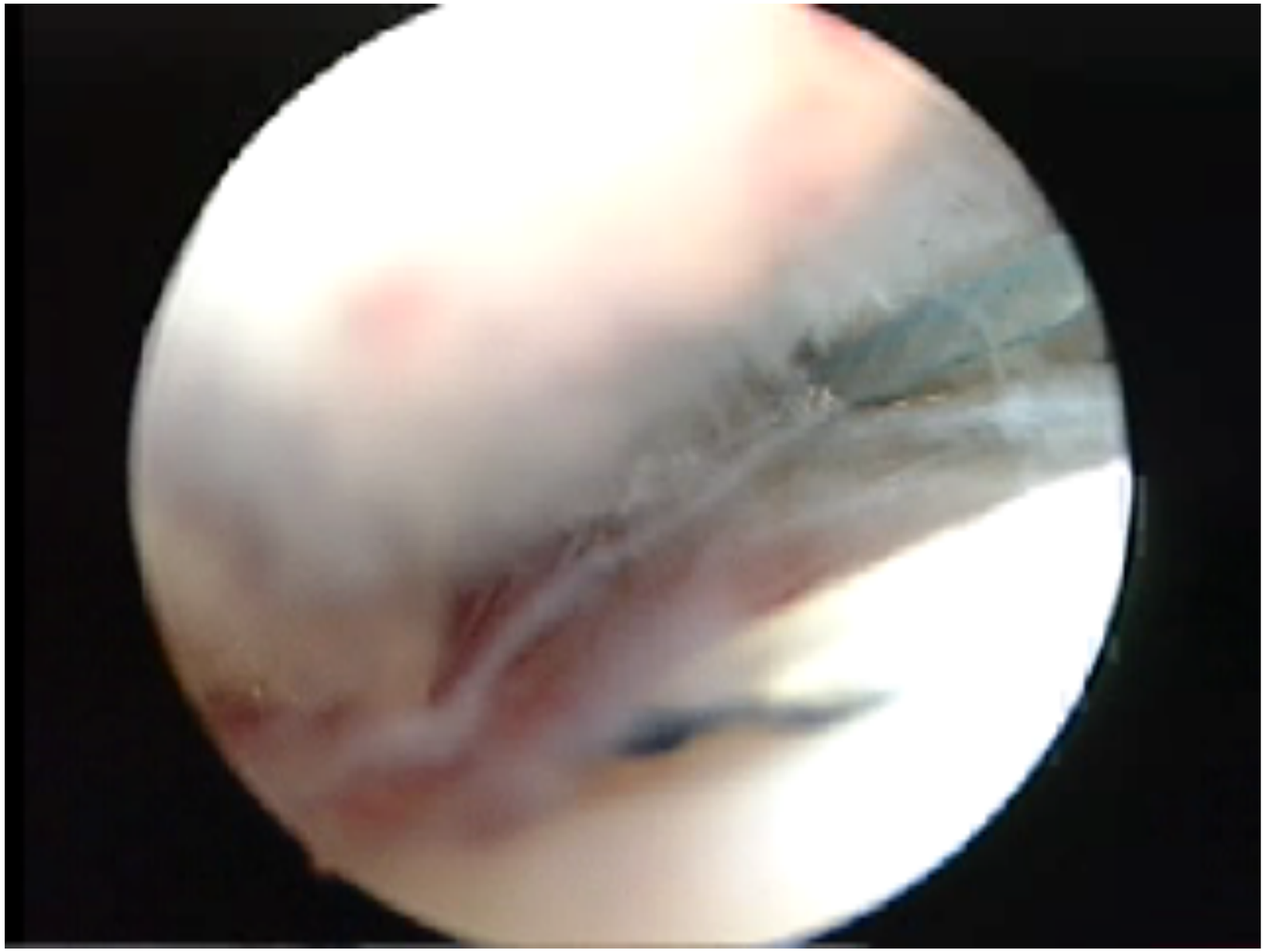
Verknoten



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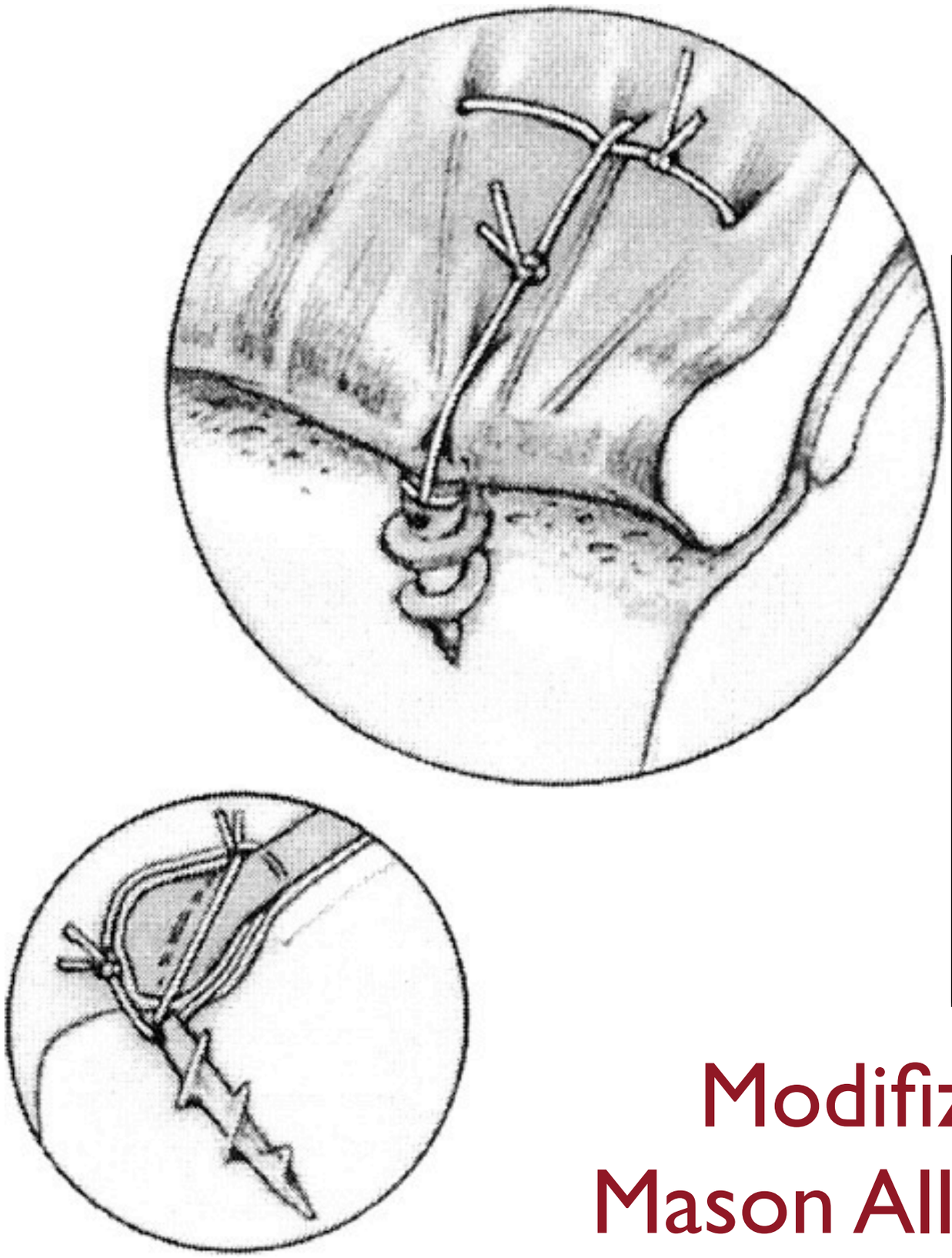

Modifizierte Mason Allen Naht

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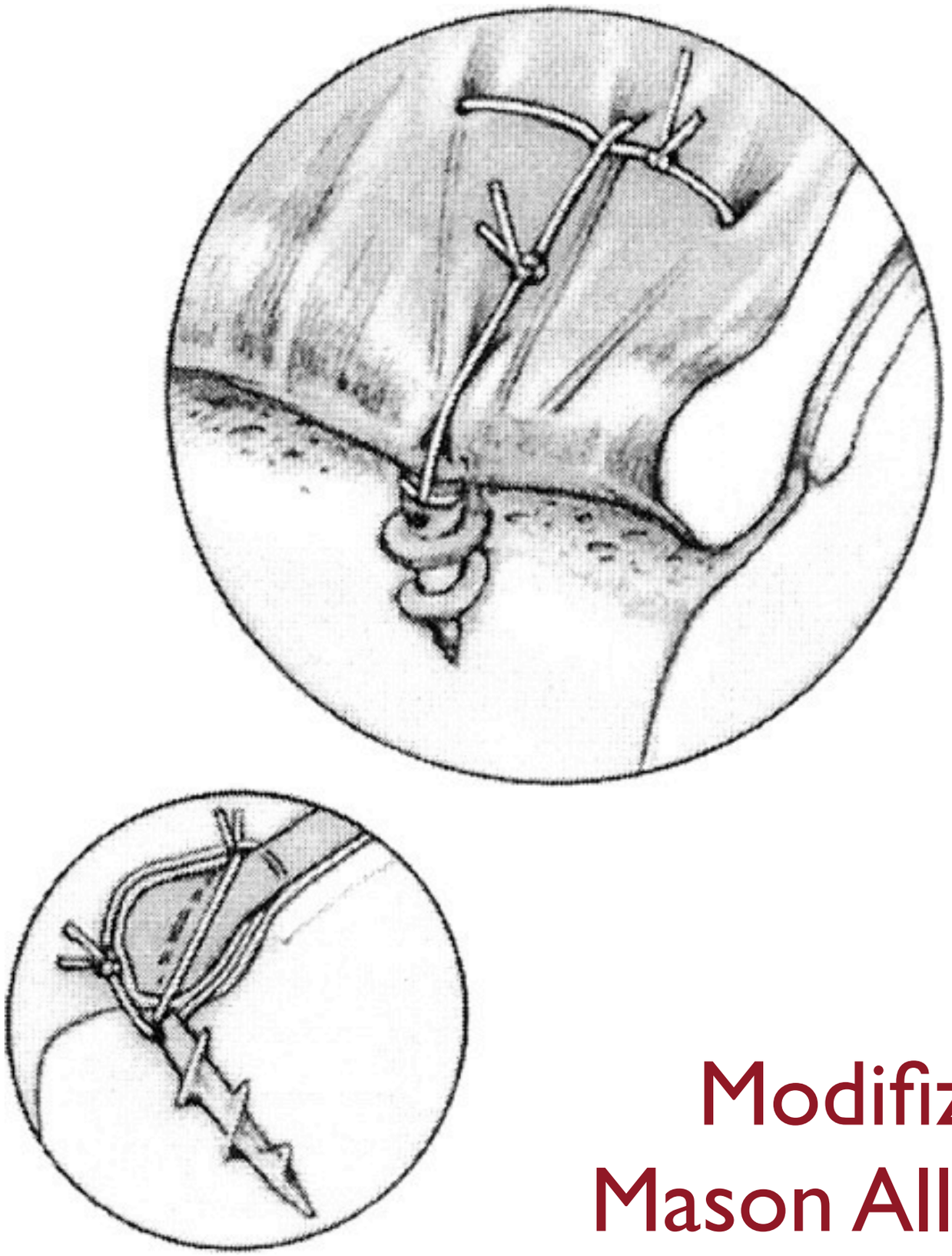
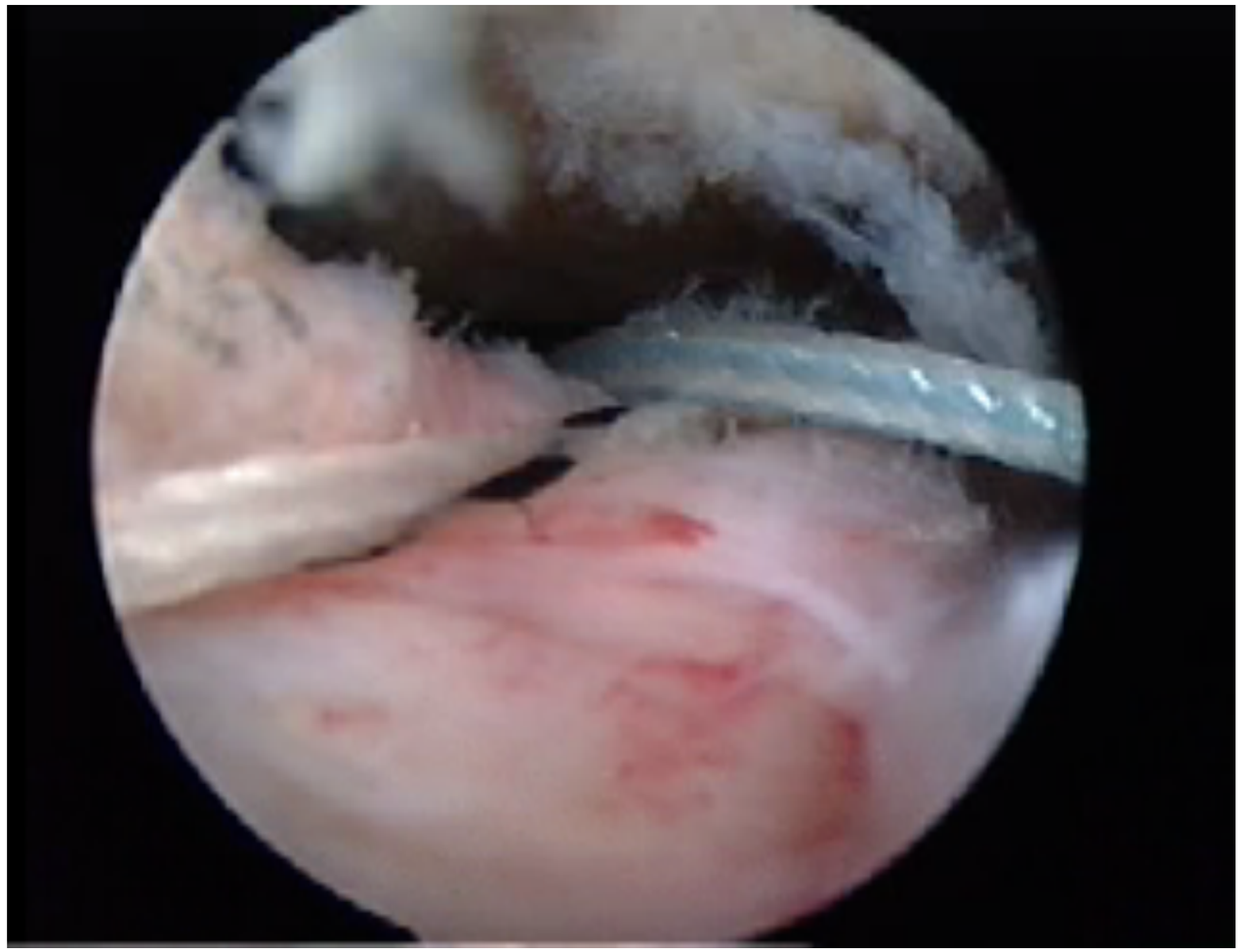
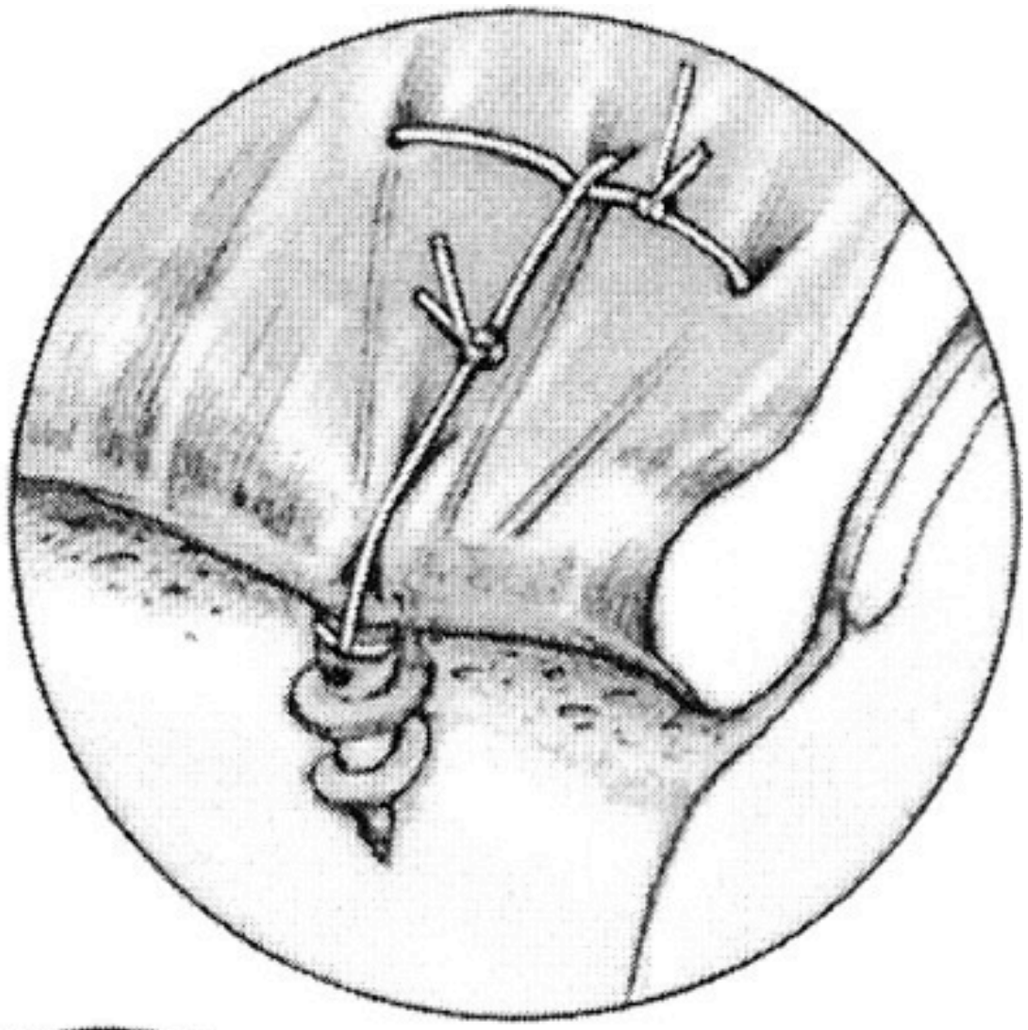
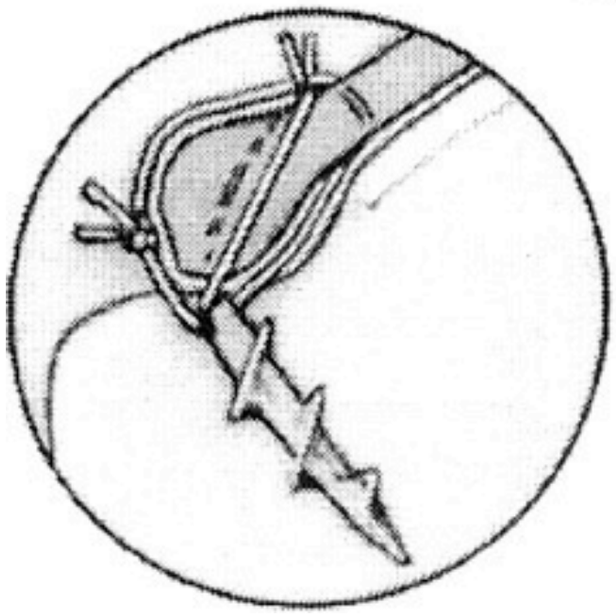


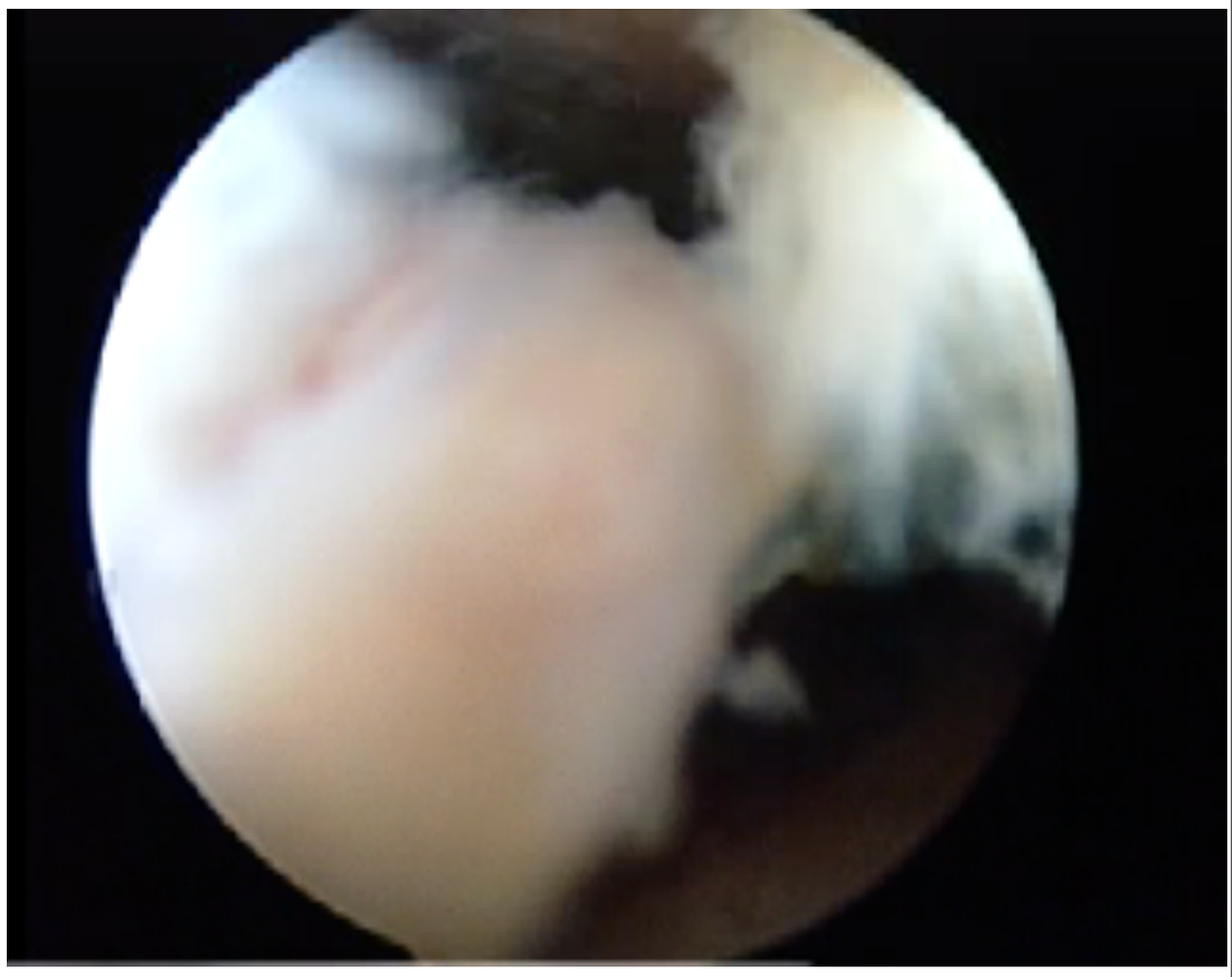


Modifizierte Mason Allen Naht

Gelenkzentrum® Leipzig







Modifizierte Mason Allen Naht

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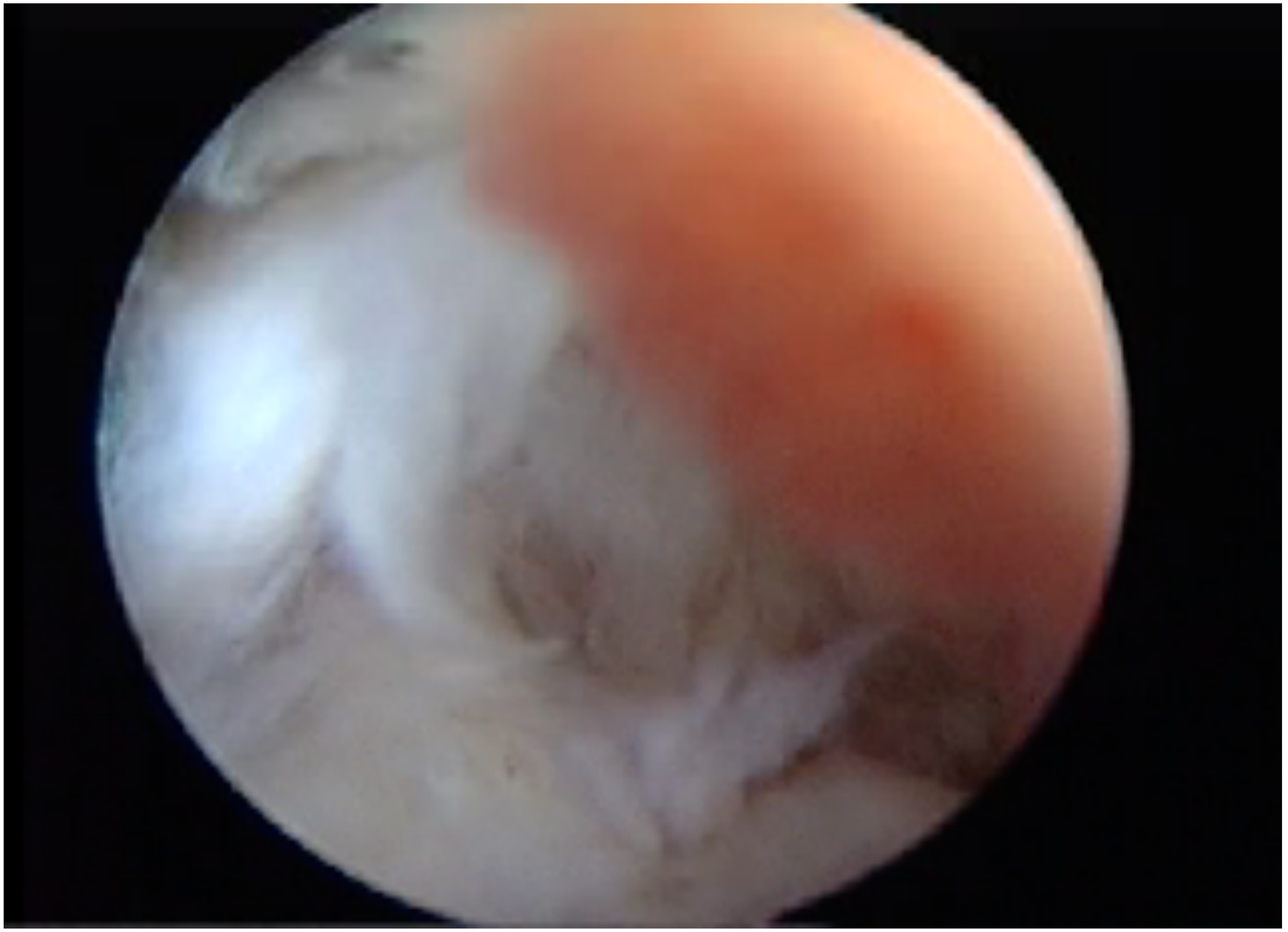
Modifizierte Mason Allen Naht



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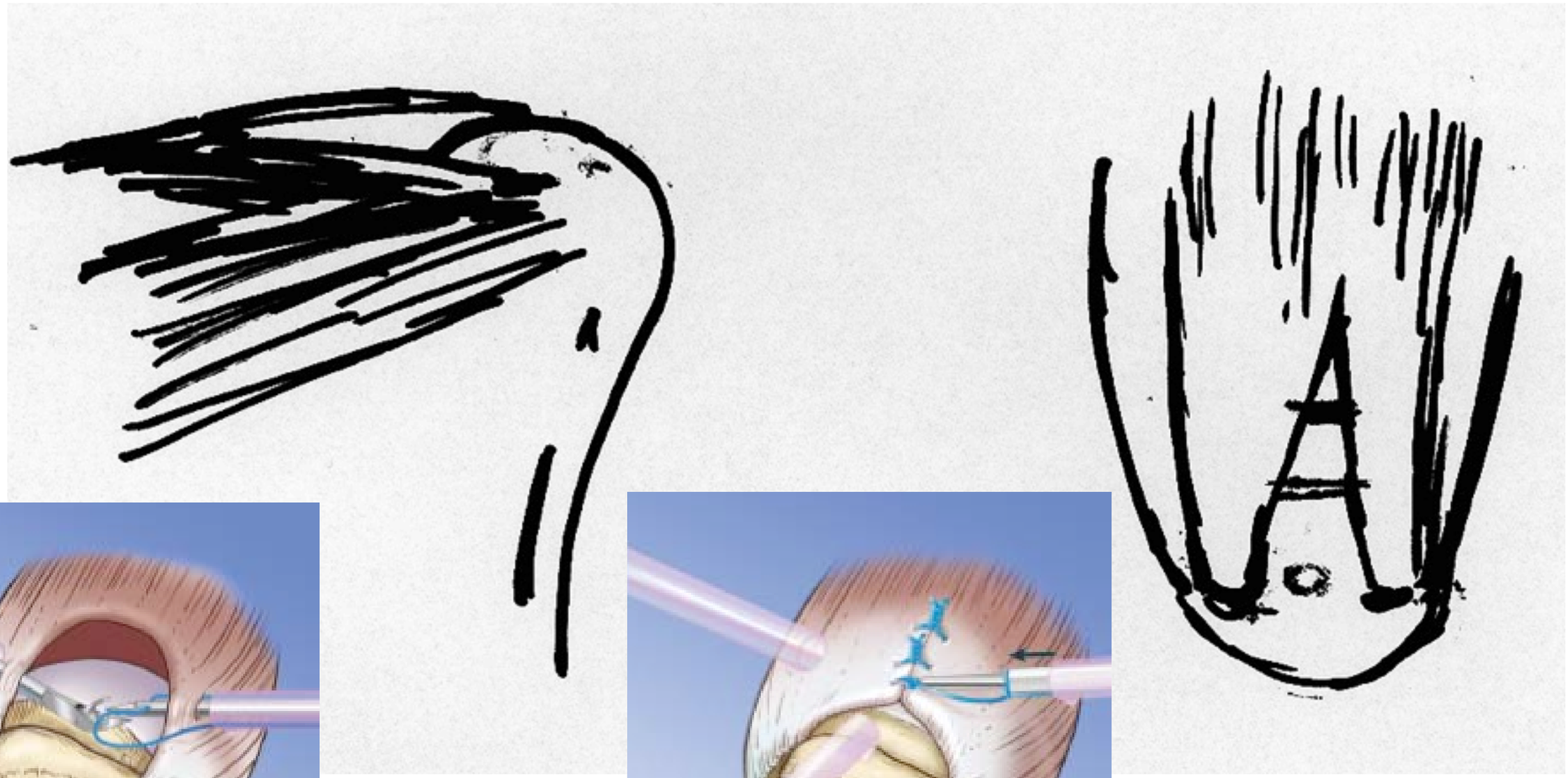
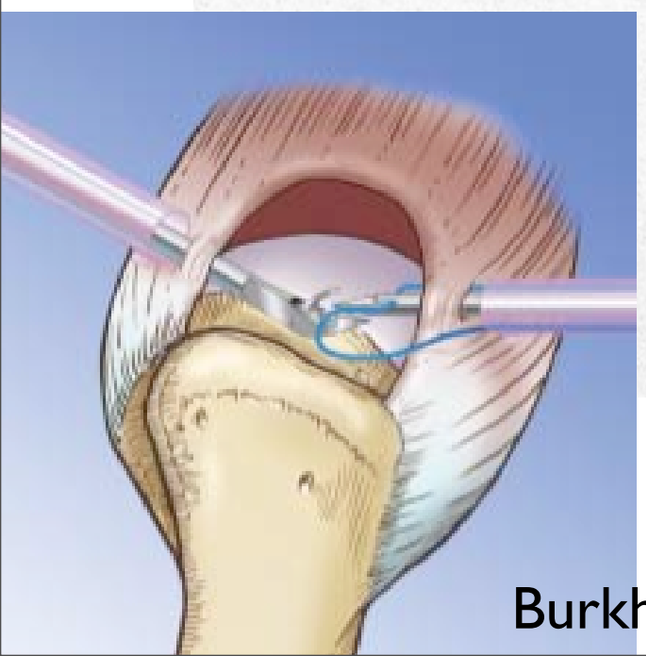
V-förmige Ruptur der Supraspinatussehne





Burkhart 2000 Arthroscopy

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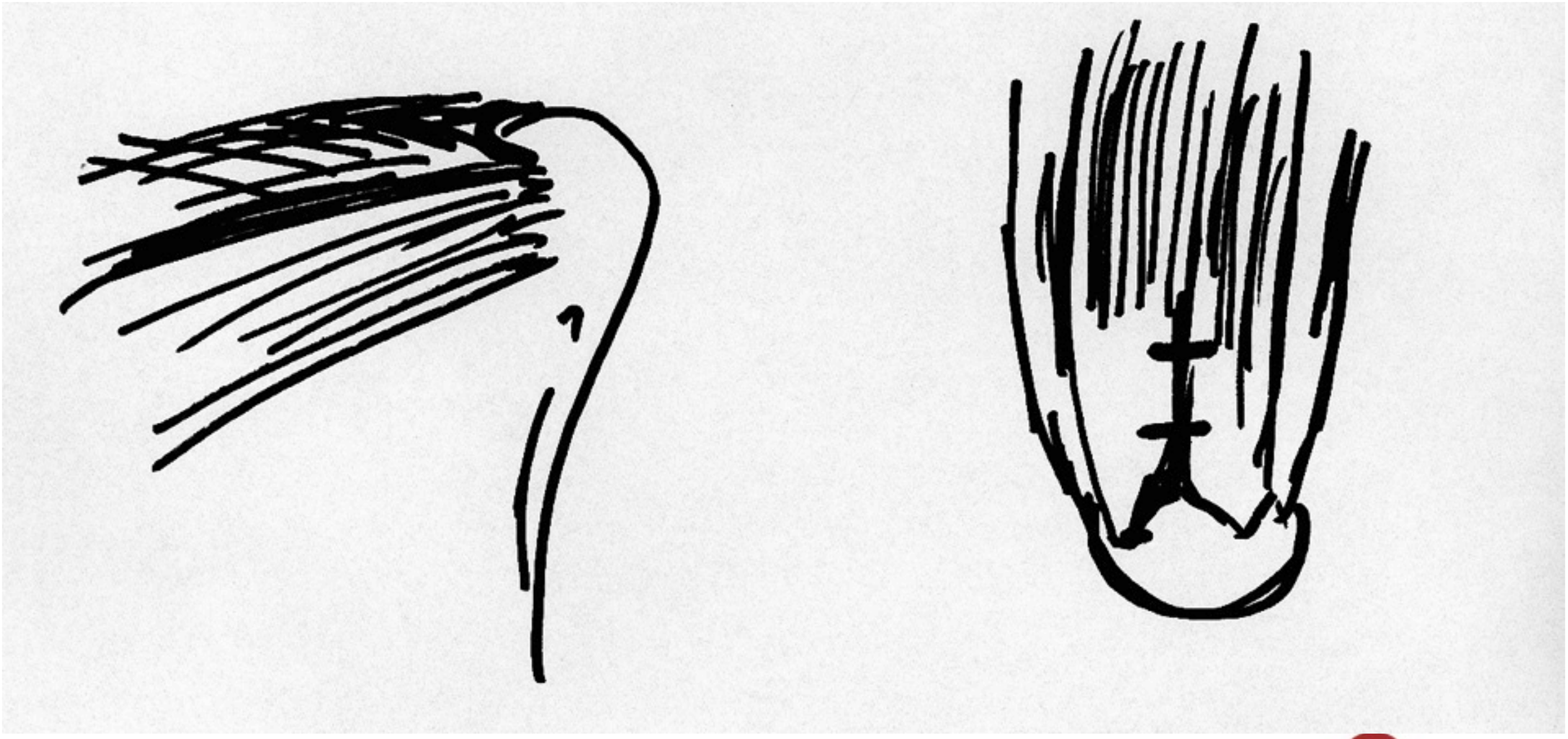
V-förmige Ruptur der Supraspinatussehne



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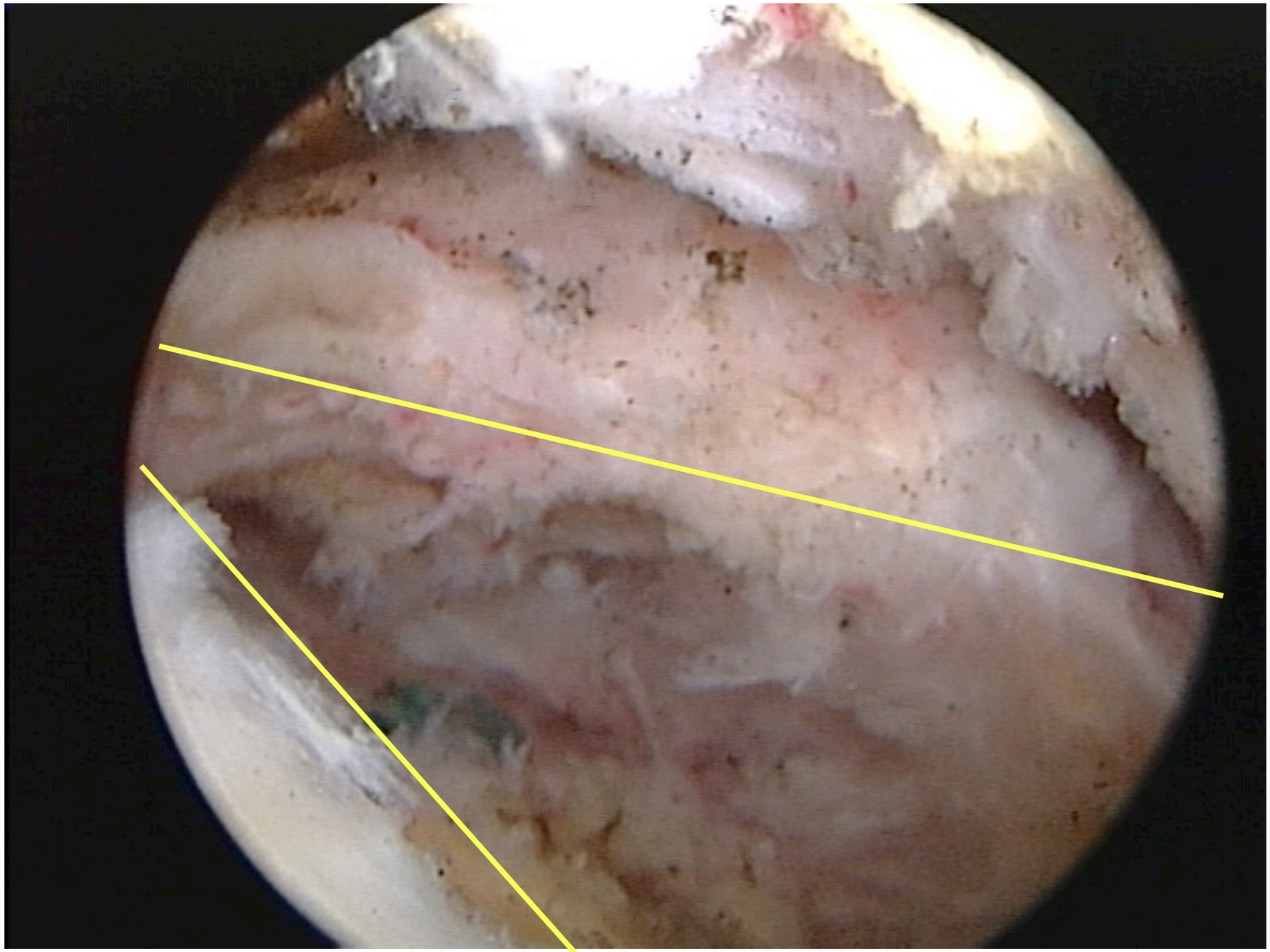
V-förmige Ruptur der Supraspinatussehne

Gelenkzentrum® Leipzig

V-förmige Ruptur der Supraspinatussehne



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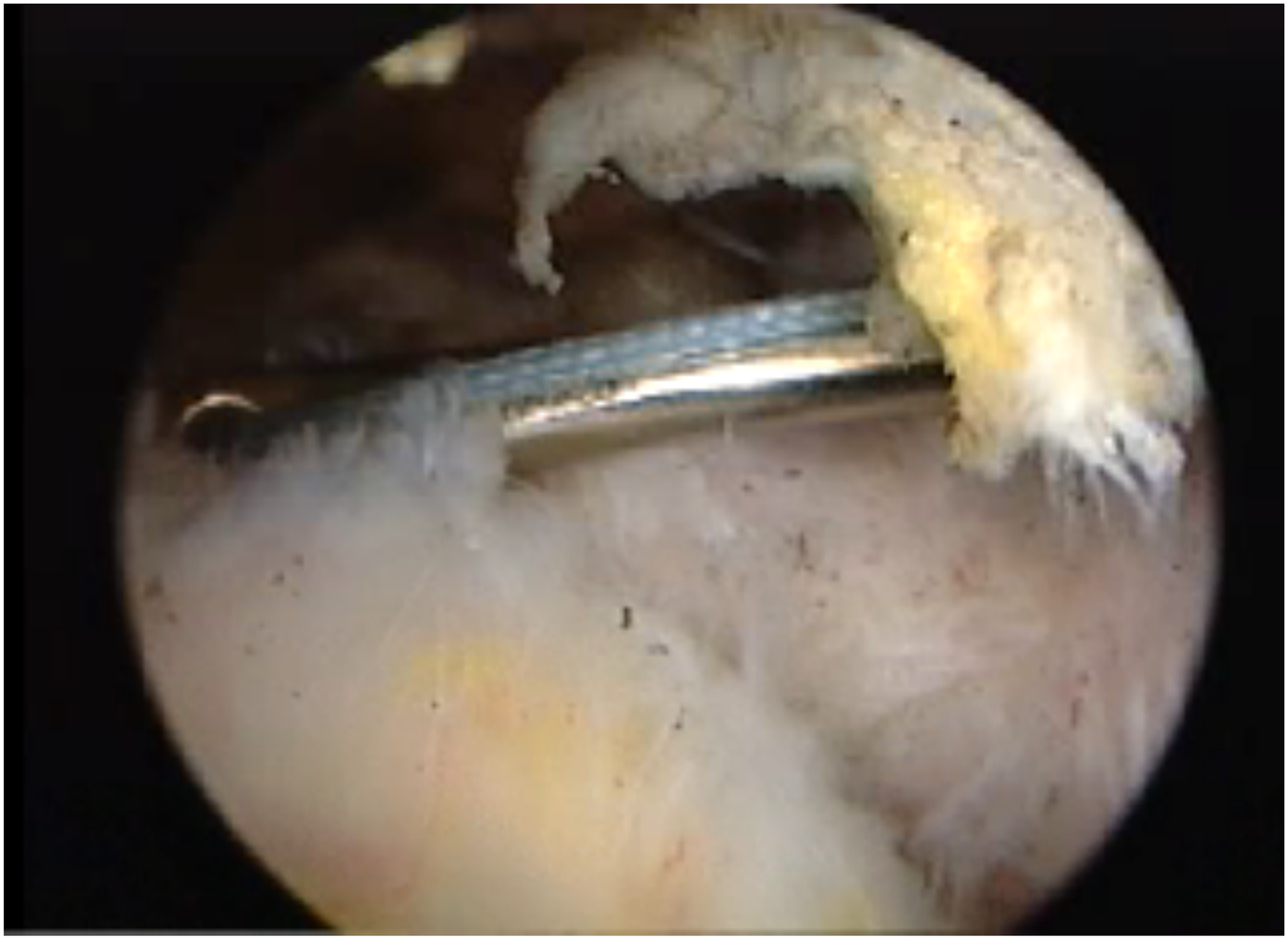
V-förmige Ruptur der Supraspinatussehne



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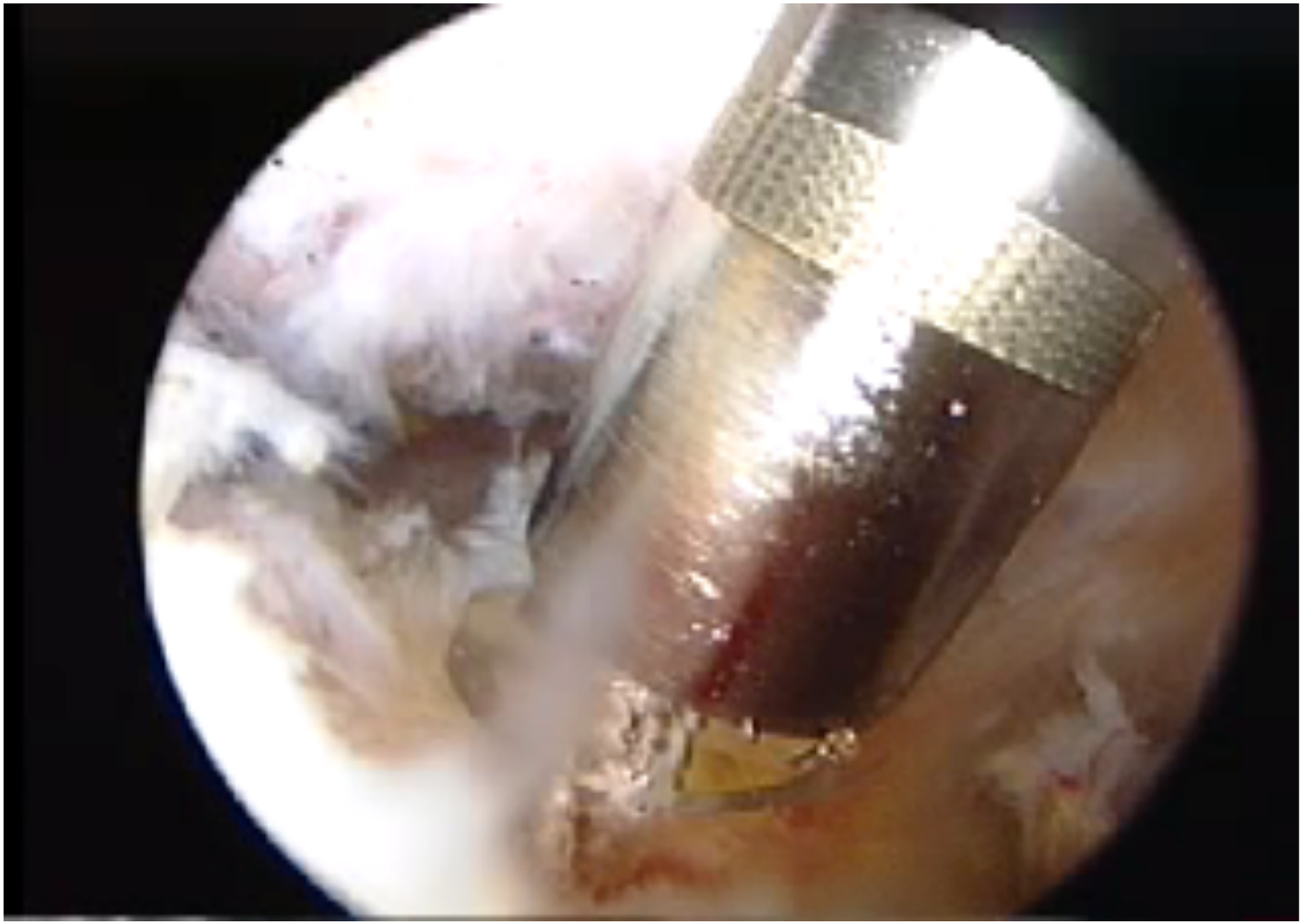
V-förmige Ruptur der Supraspinatussehne



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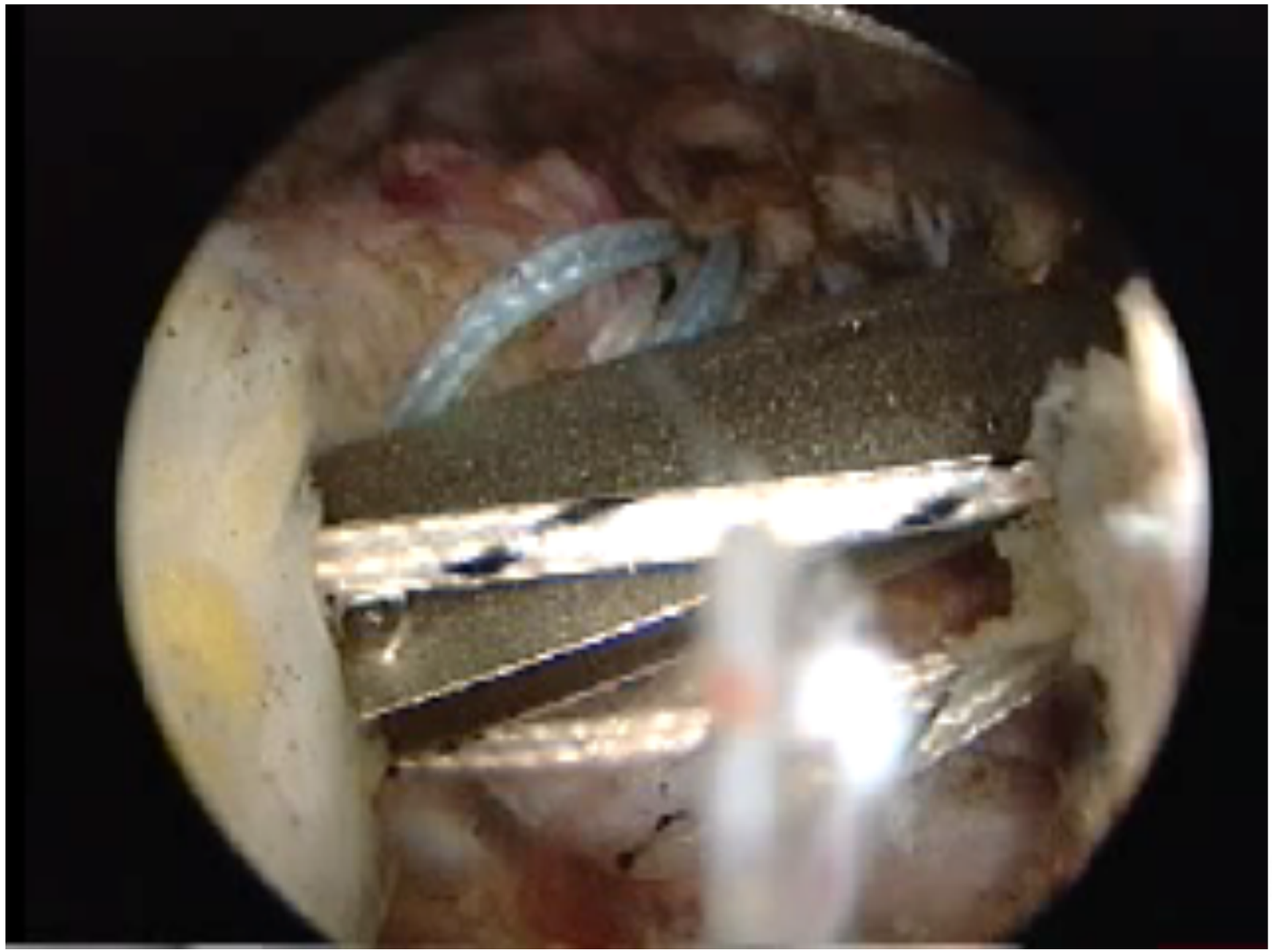
V-förmige Ruptur der Supraspinatussehne



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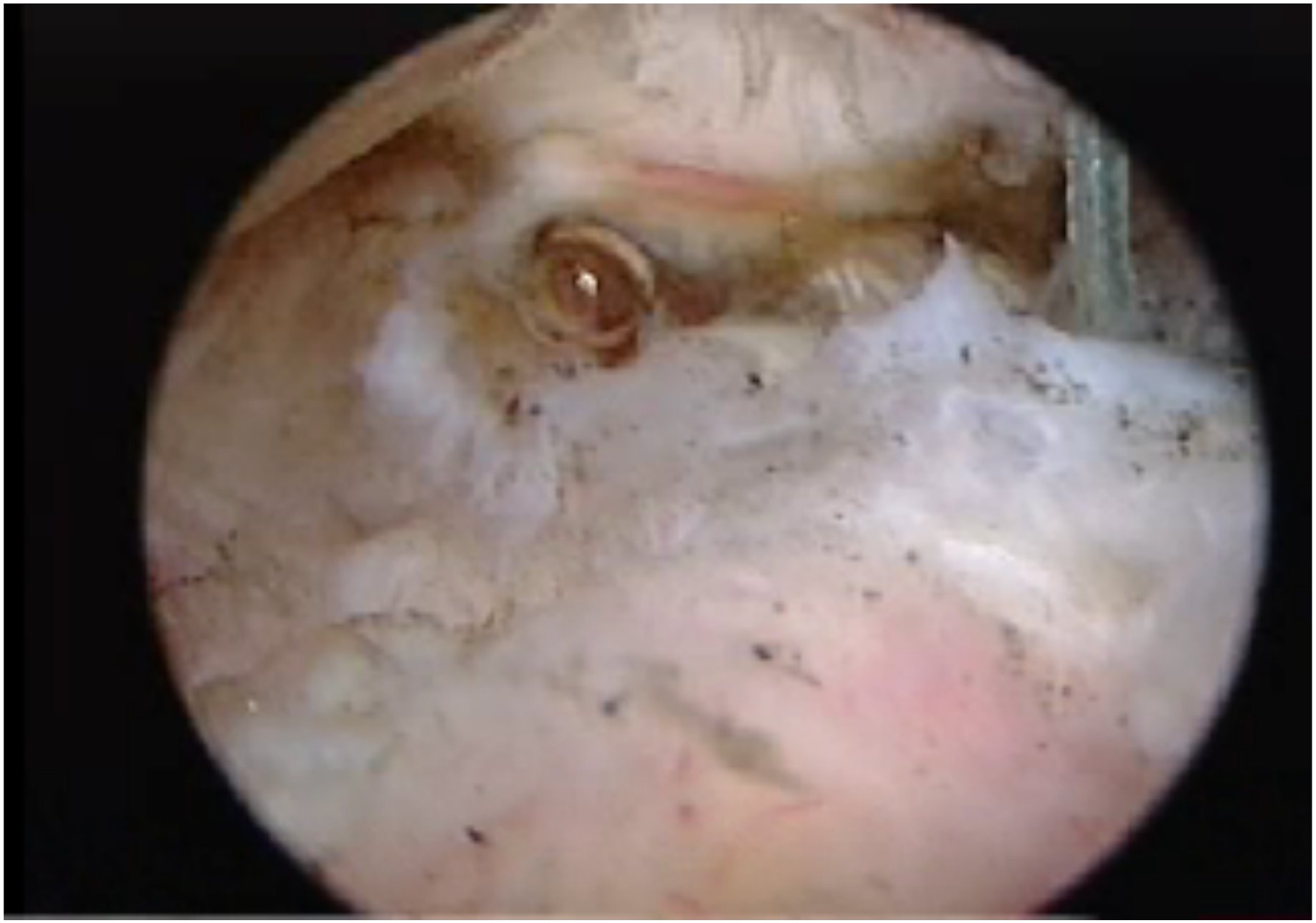
V-förmige Ruptur der Supraspinatussehne



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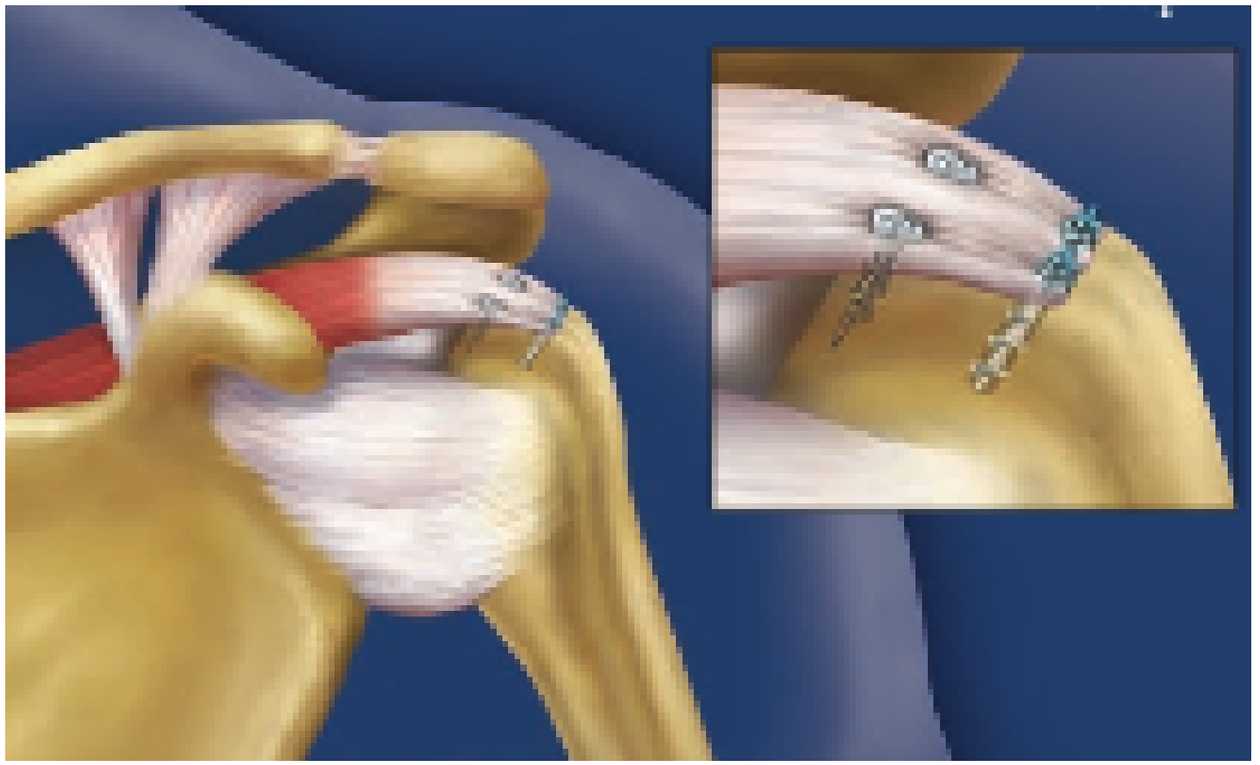
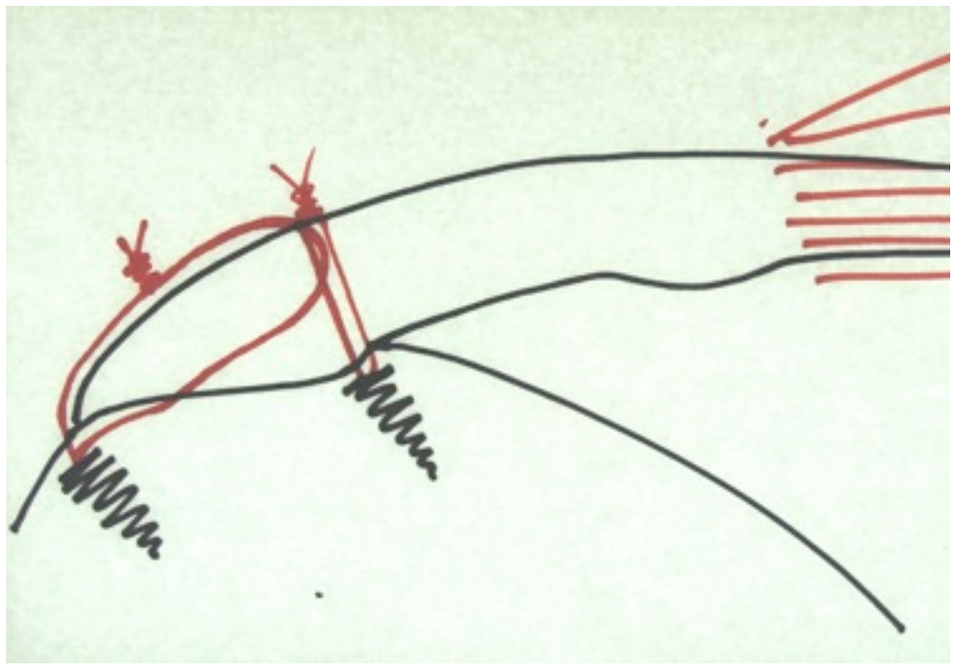
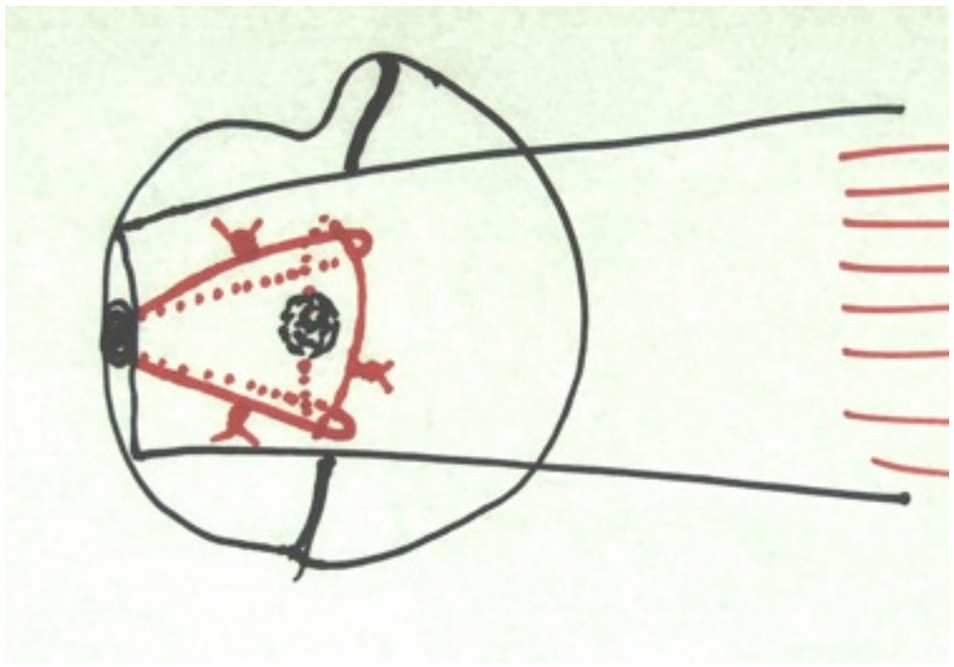
Double row technique



Millett + Guanche 2004 Arthroscopy

DeBeer 2002





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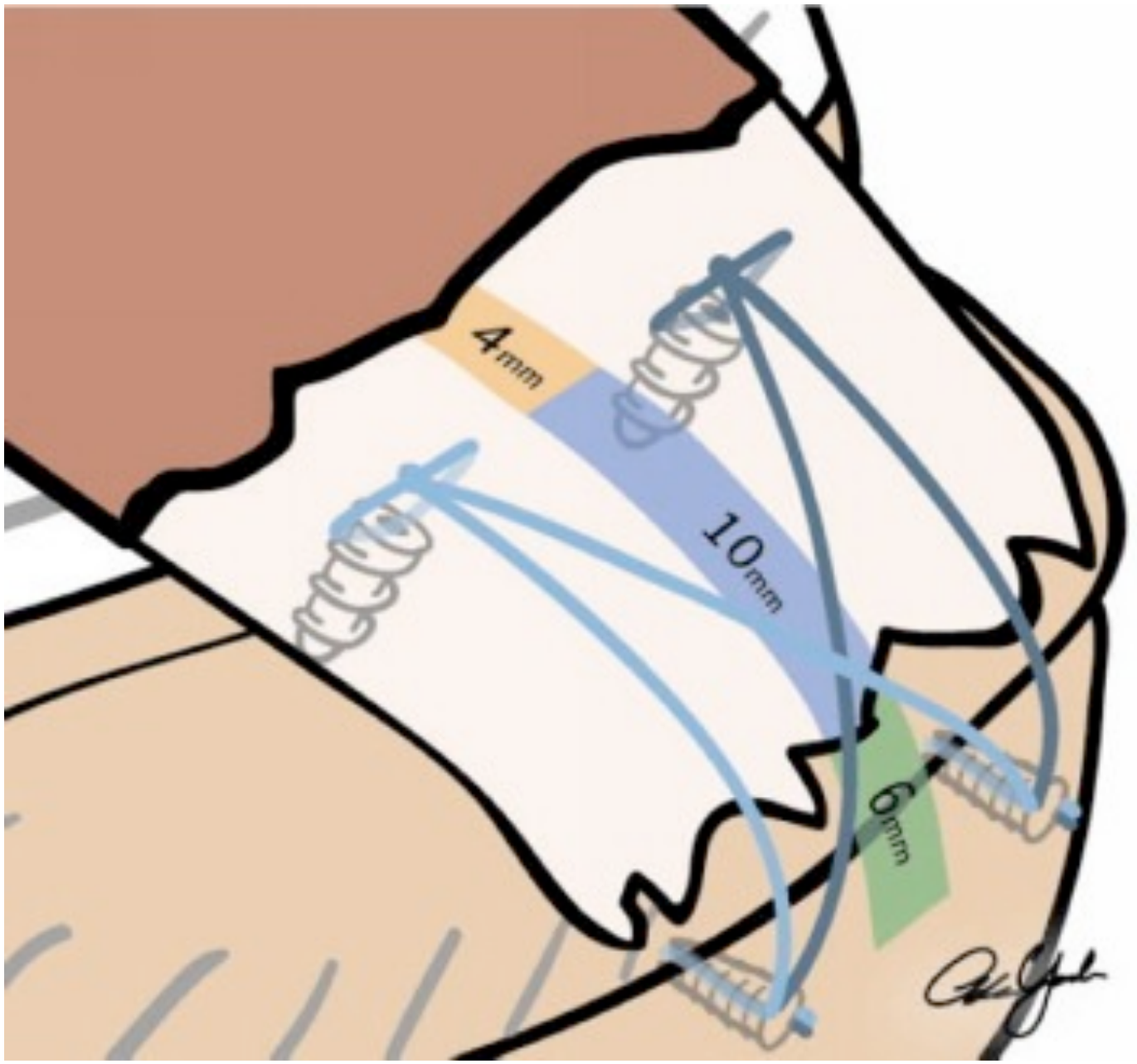
double row



B. Cole 2007 Arthroscopy

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double row

Gelenkzentrum®
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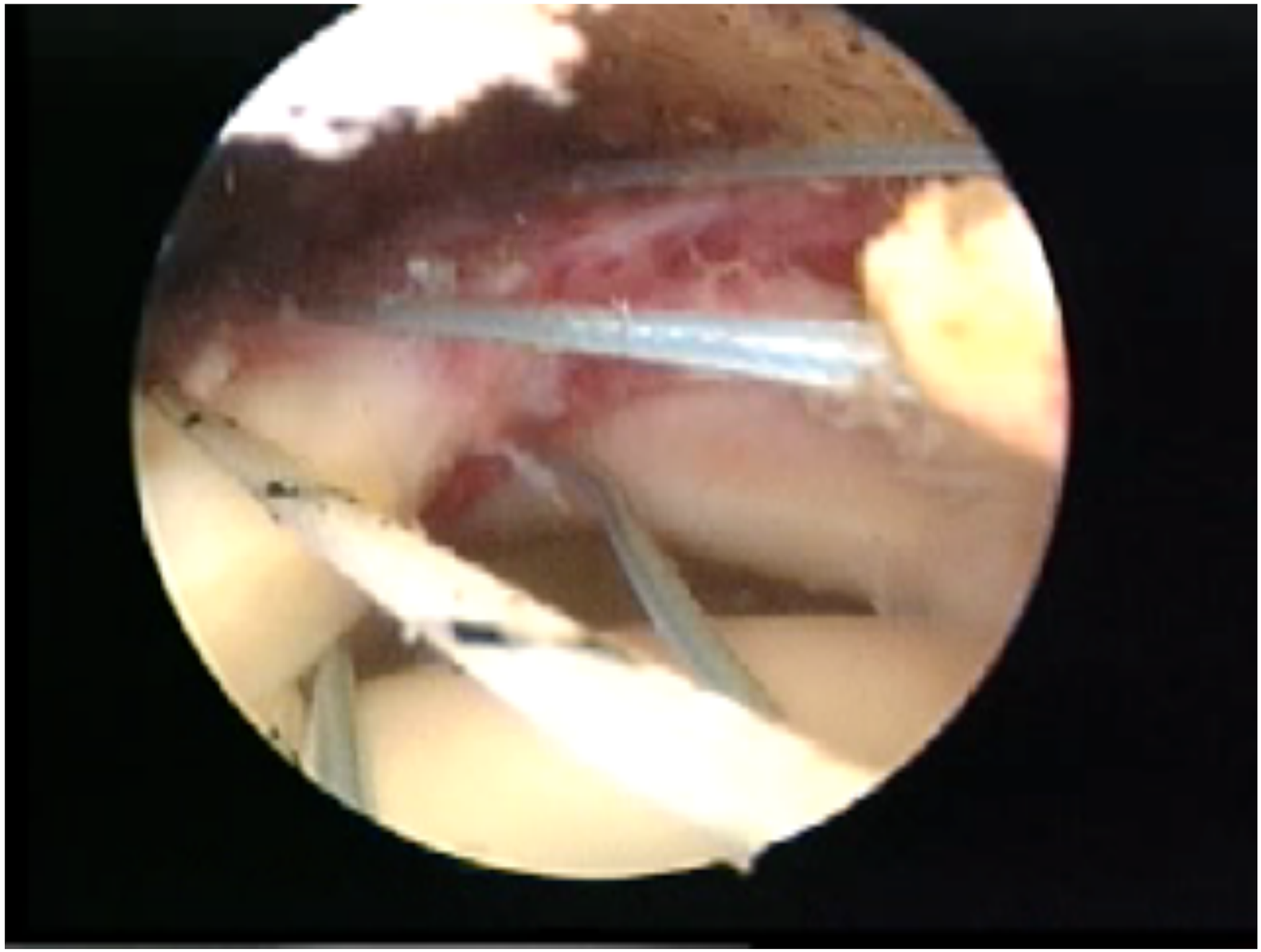
double row



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double row

Gelenkzentrum®
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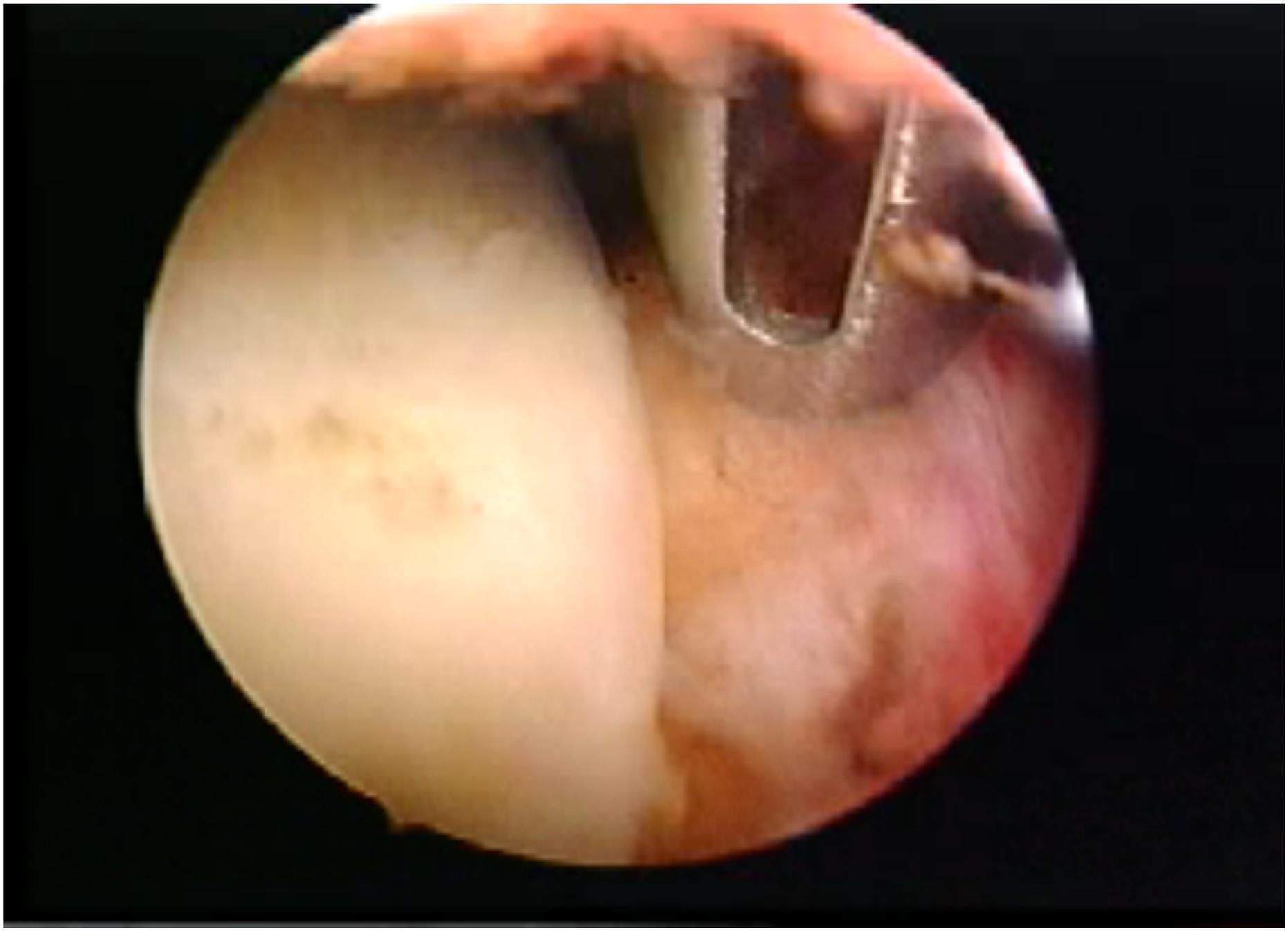
double row



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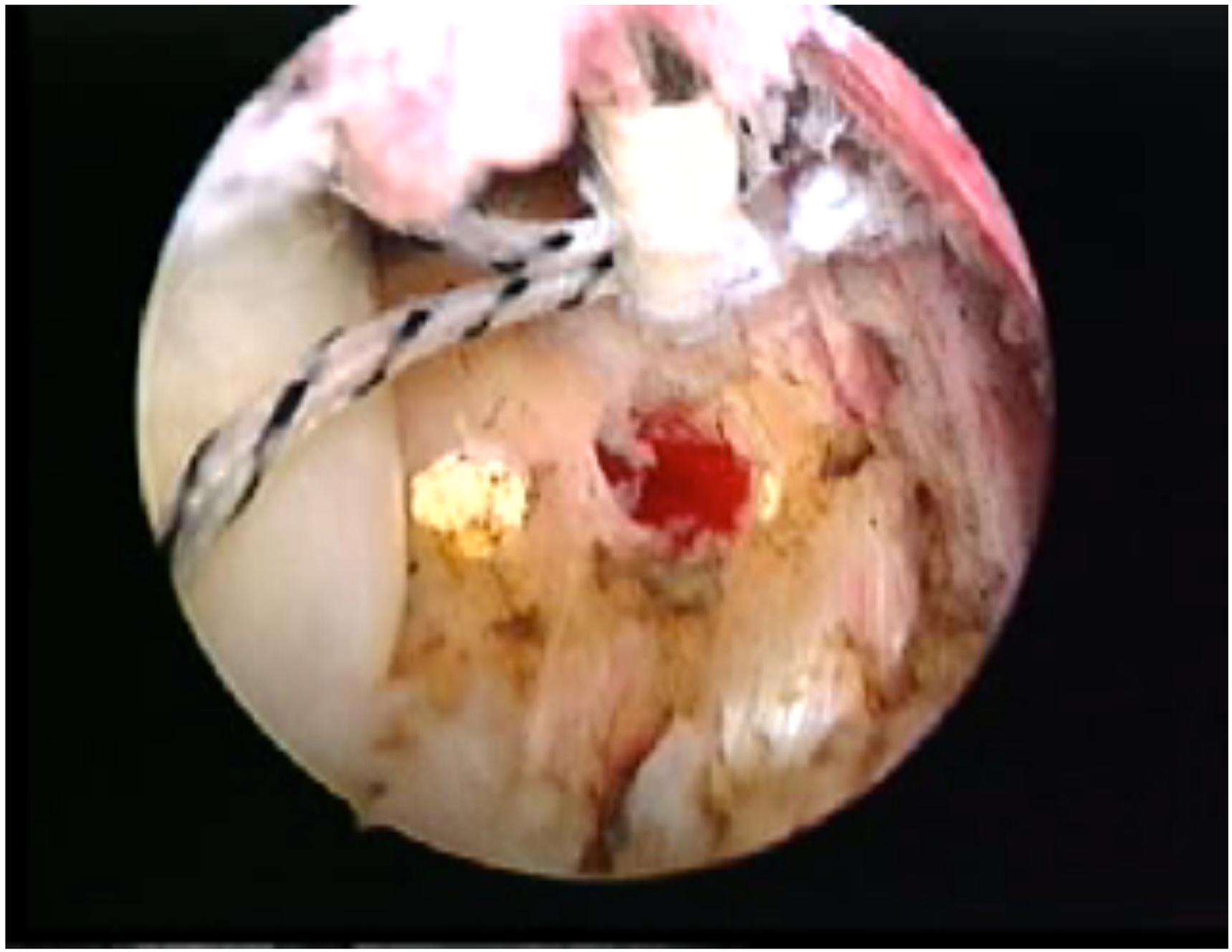
double row



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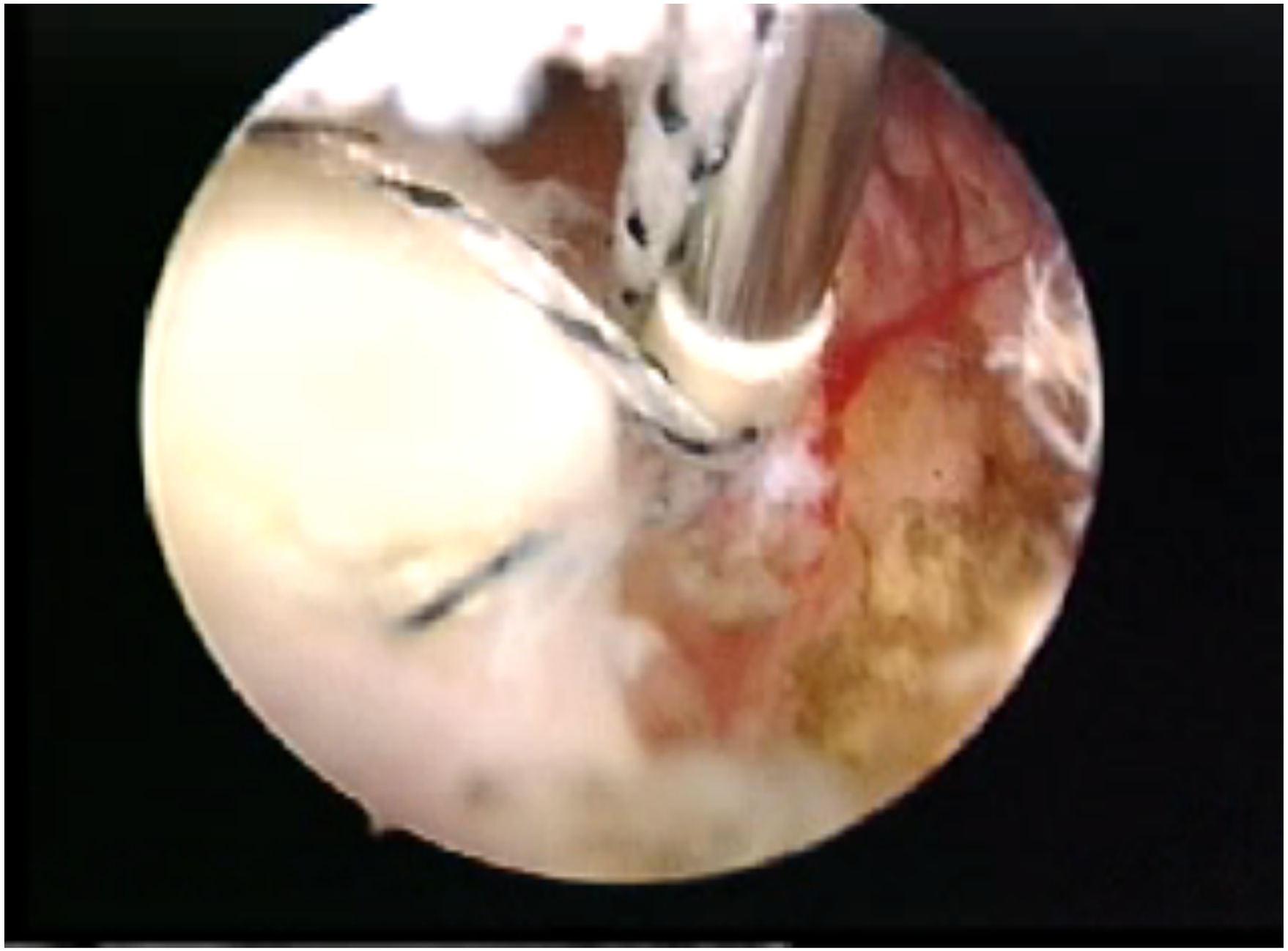
double row



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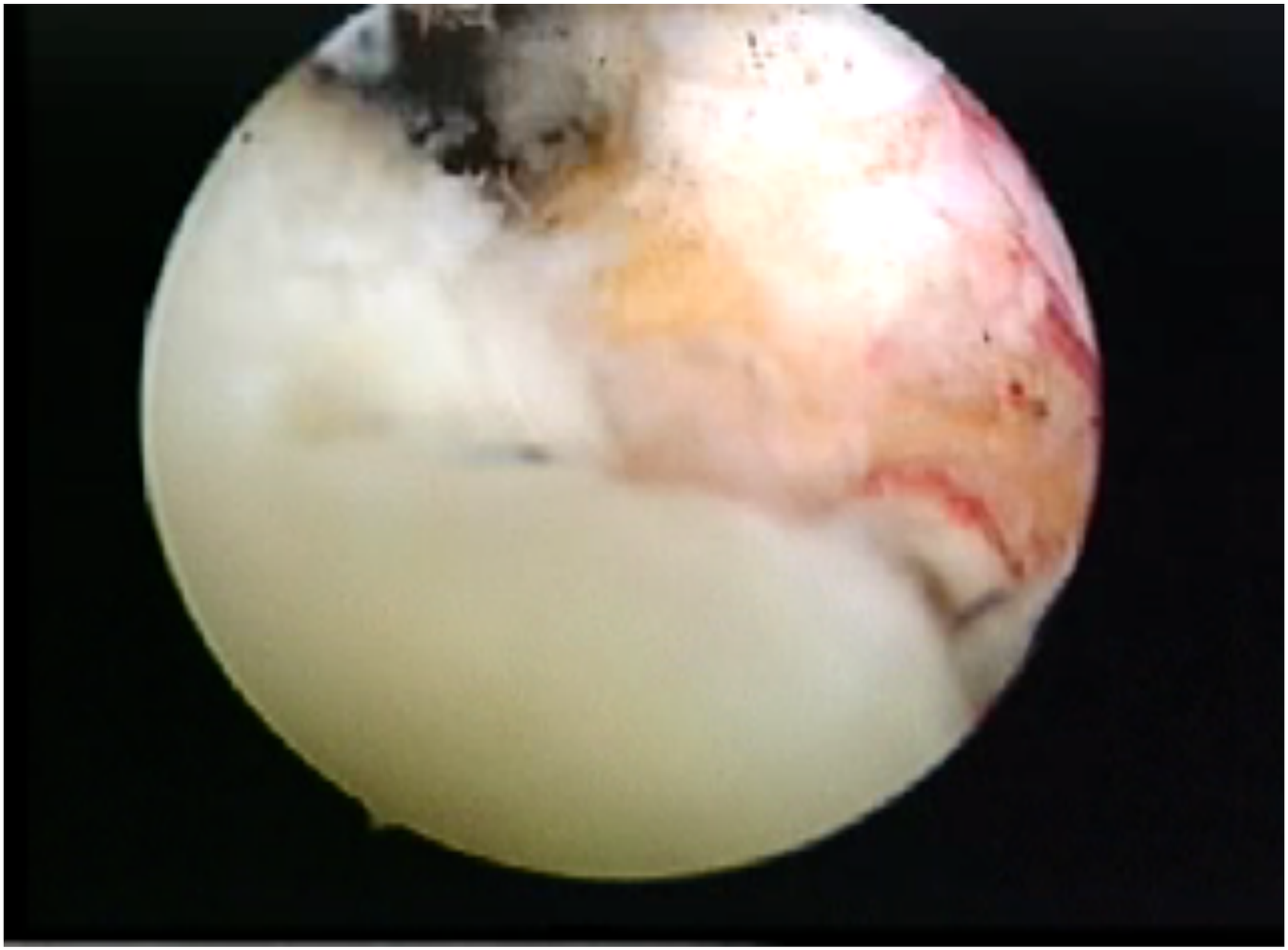
double row



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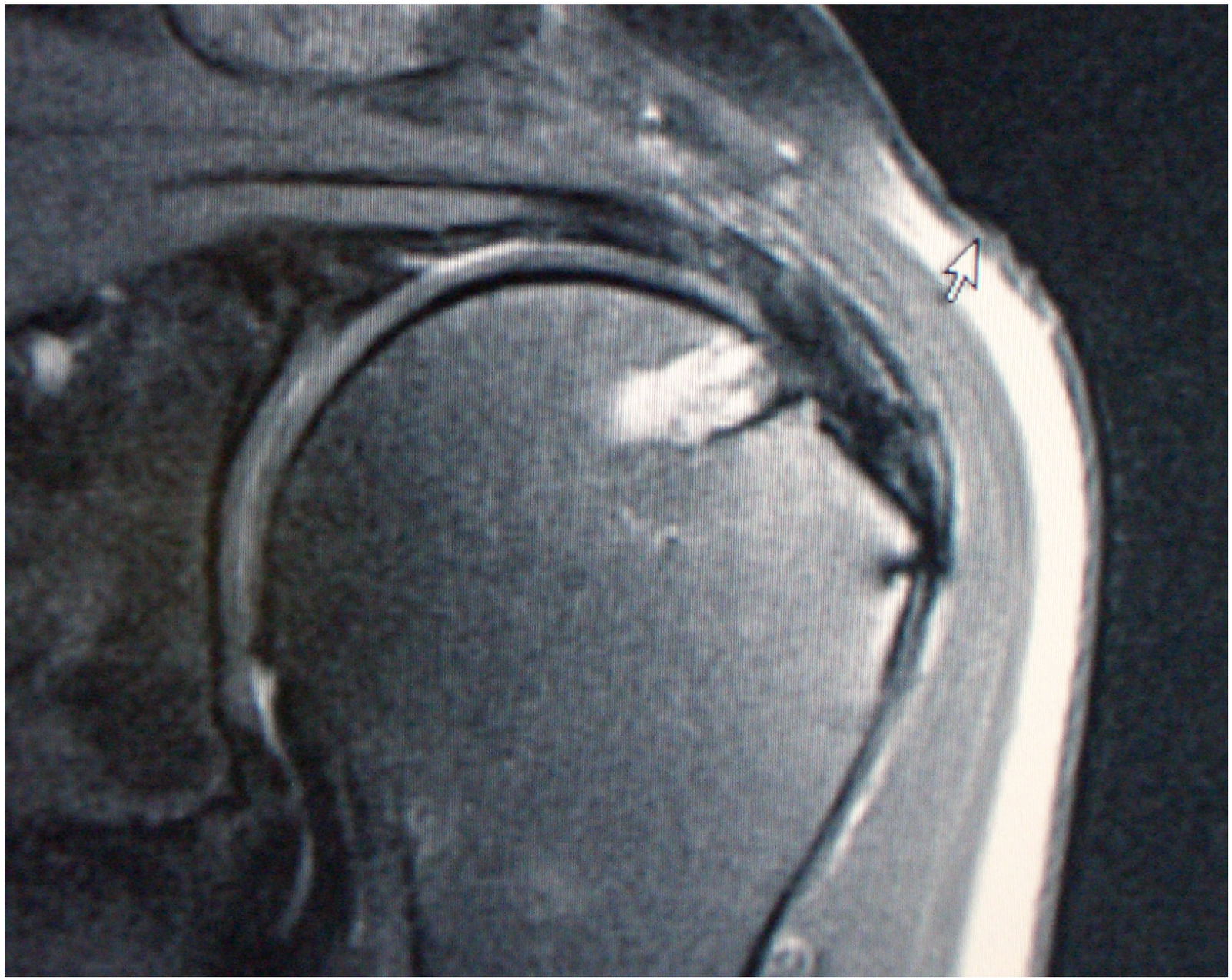
radiologische Kontrolle



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Ergebnisse

- Level I Studie (kontrolliert randomisiert)
- n=40 (2 Gruppen) single vs double row
- F/U= 2 Jahre
- klinisch kein Unterschied!

Grasso A 2009 Arthroscopy

Gelenkzentrum® Leipzig

Ergebnisse

- Level I Studie (kontrolliert randomisiert)
- n=60 (2 Gruppen) single vs double row
- F/U= 2 Jahre
- klinisch kein Unterschied!

Franceschi F 2007 AJSM

Gelenkzentrum® Leipzig

Ergebnisse

- Level 2 Studie (Kohortenstudie)
- n=66 (2 Gruppen) single vs double row
- F/U= 2 Jahre
- klinisch kein Unterschied!
- aber: double row bessere Heilung (CT-Arthrographie)

Charousset C 2007 AJSM

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Review

- bei großen Defekten (> 3cm) double row besser
  - Saridkis P 2010 JBJS
- klinisch keine Unterschiede, aber strukturell bessere Heilung
- bei Defekten über 1 cm weniger Re-Rupturen
  - Duquin TR 2010 AJSM (Review)

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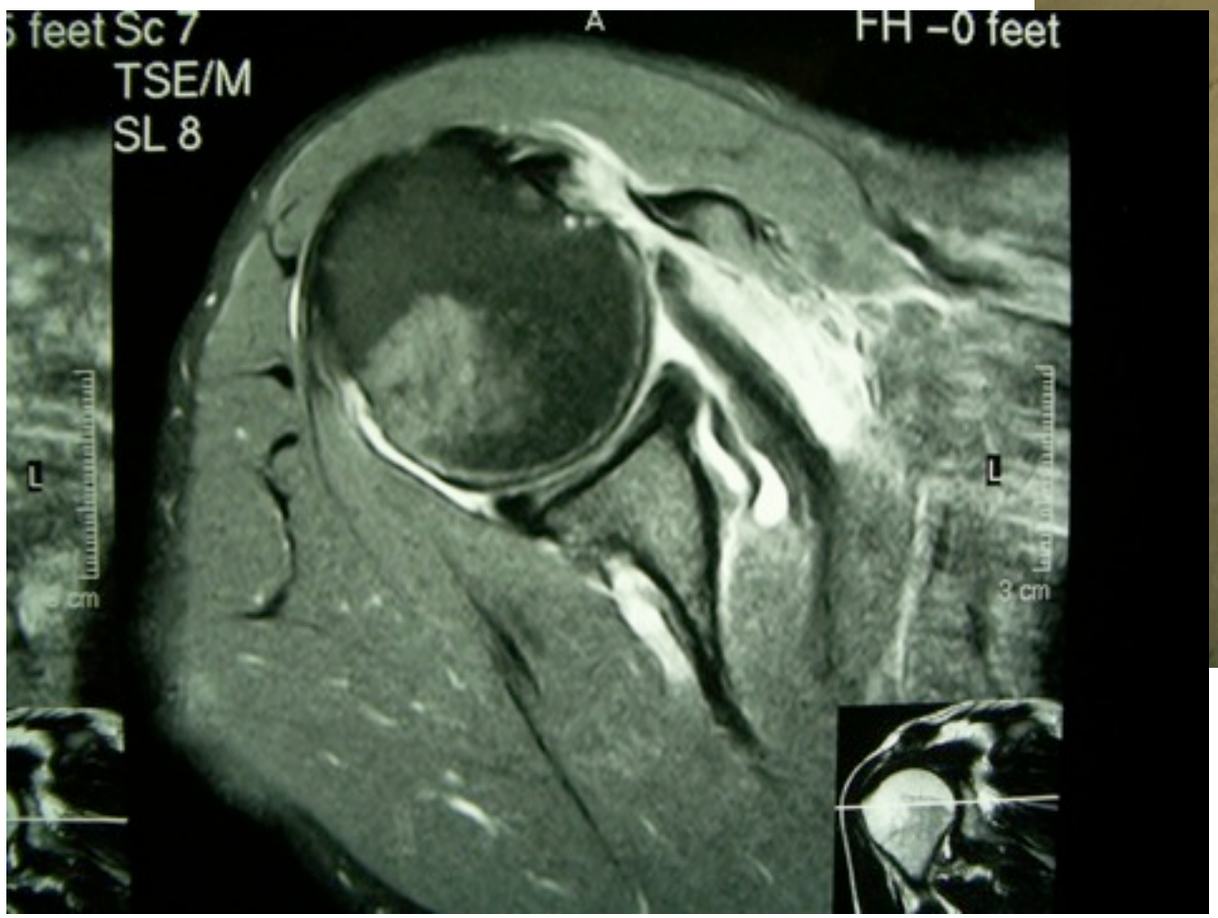
Traumatische Ruptur der Subscapularissehne



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Traumatische Ruptur der Subscapularissehne

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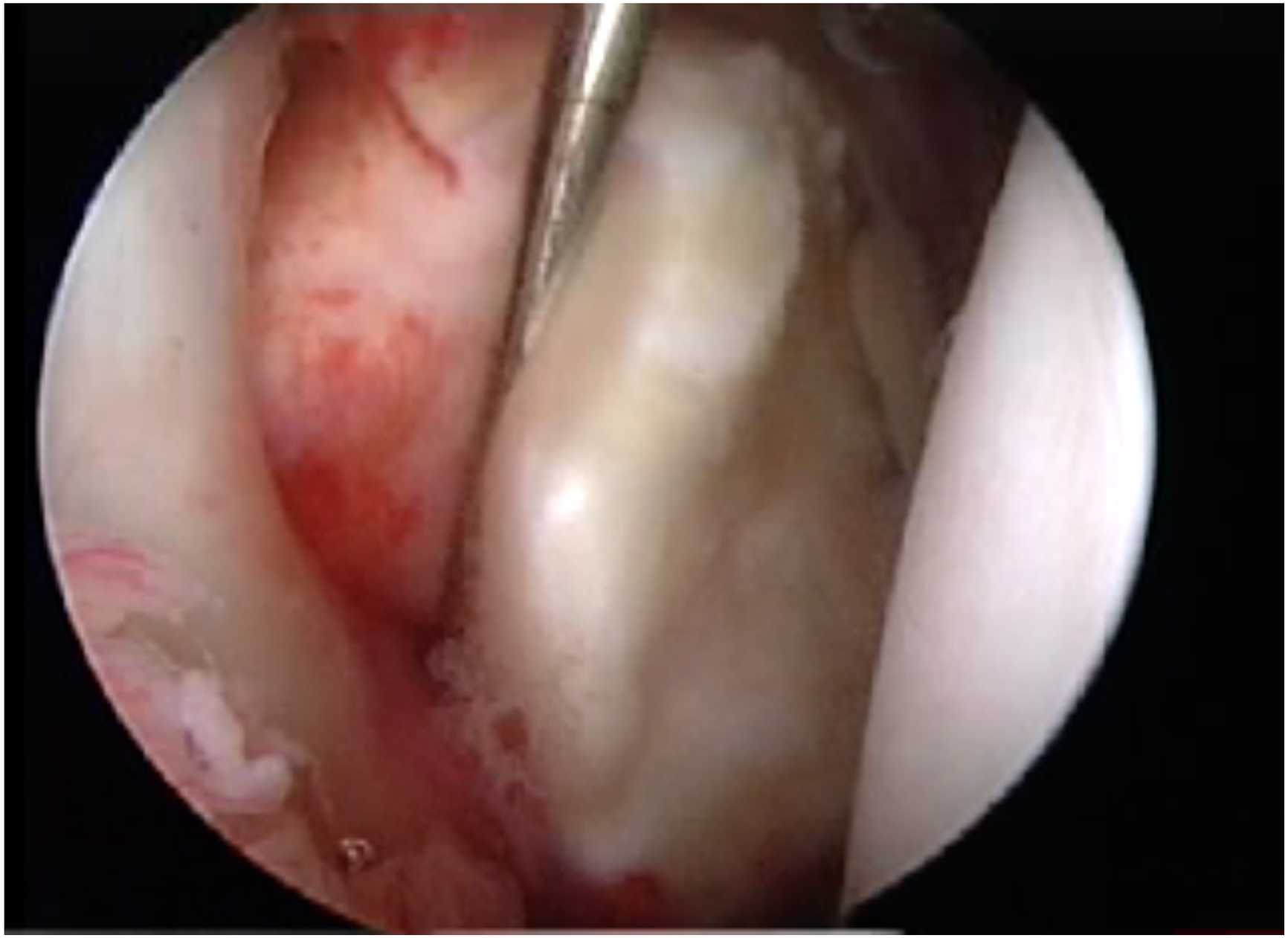
Sicht von dorsal - Ruptur verwachsen



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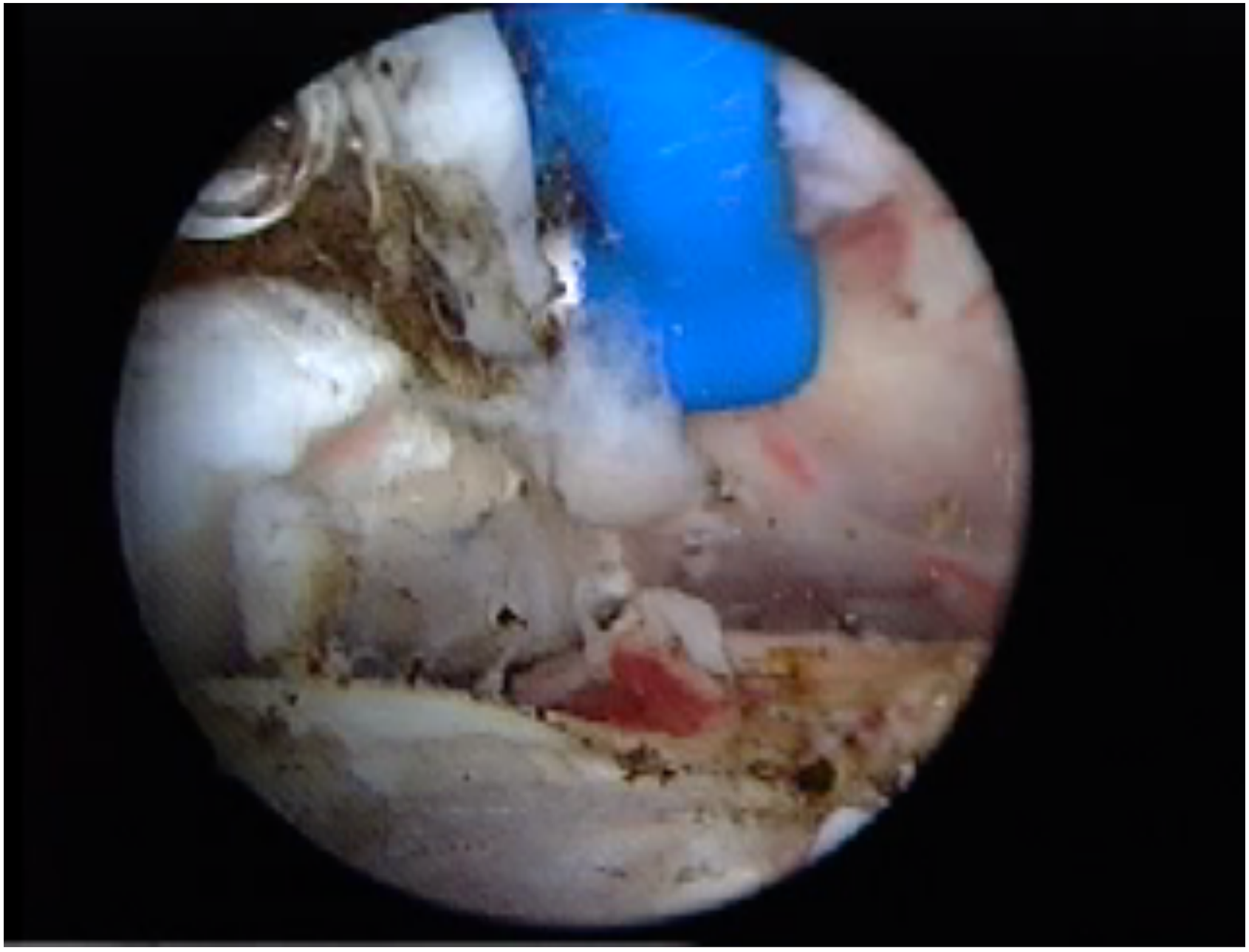
Sicht von kranial - Mobilisation



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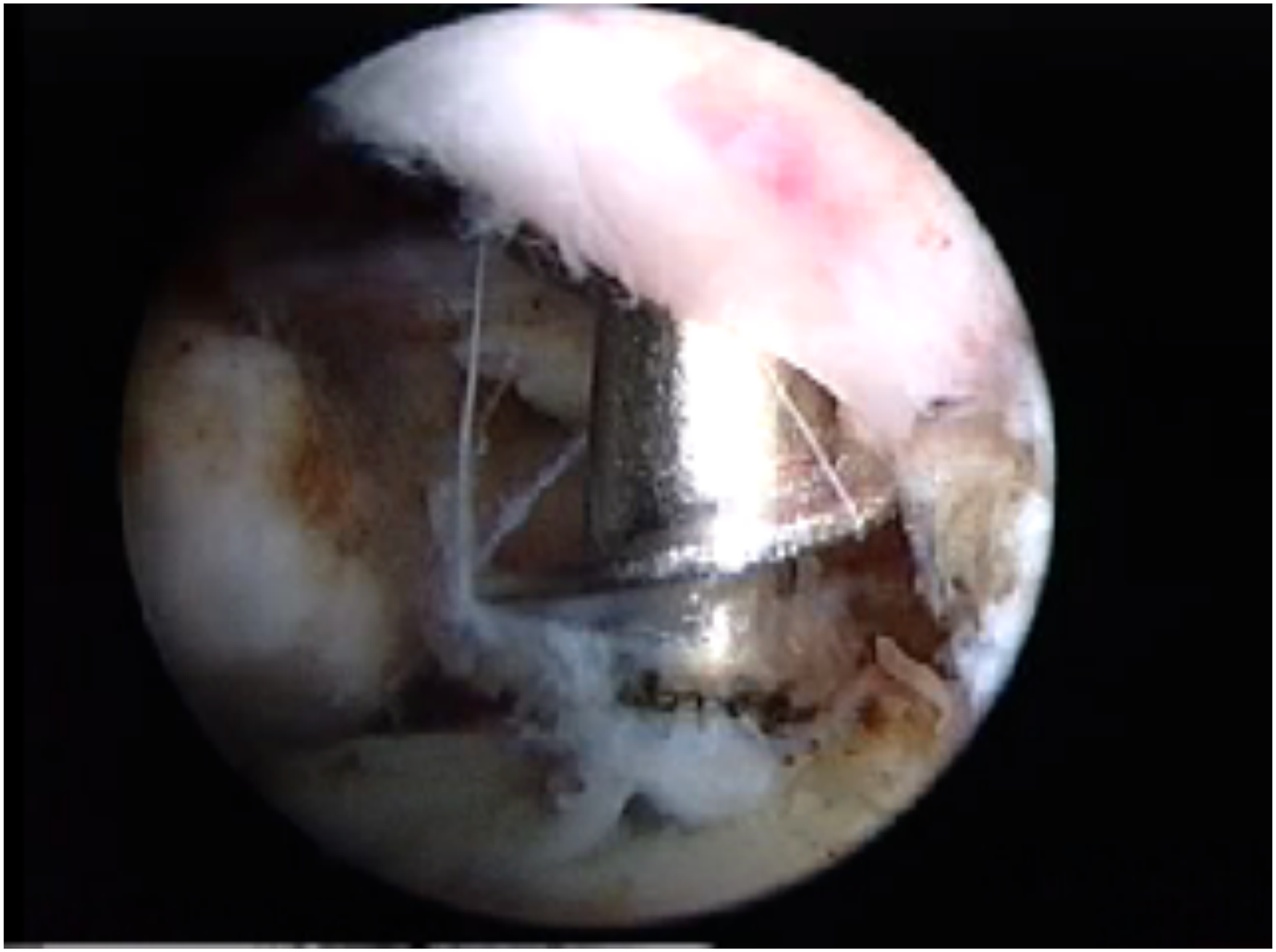
Sicht von kranial
Ankerpositionierung



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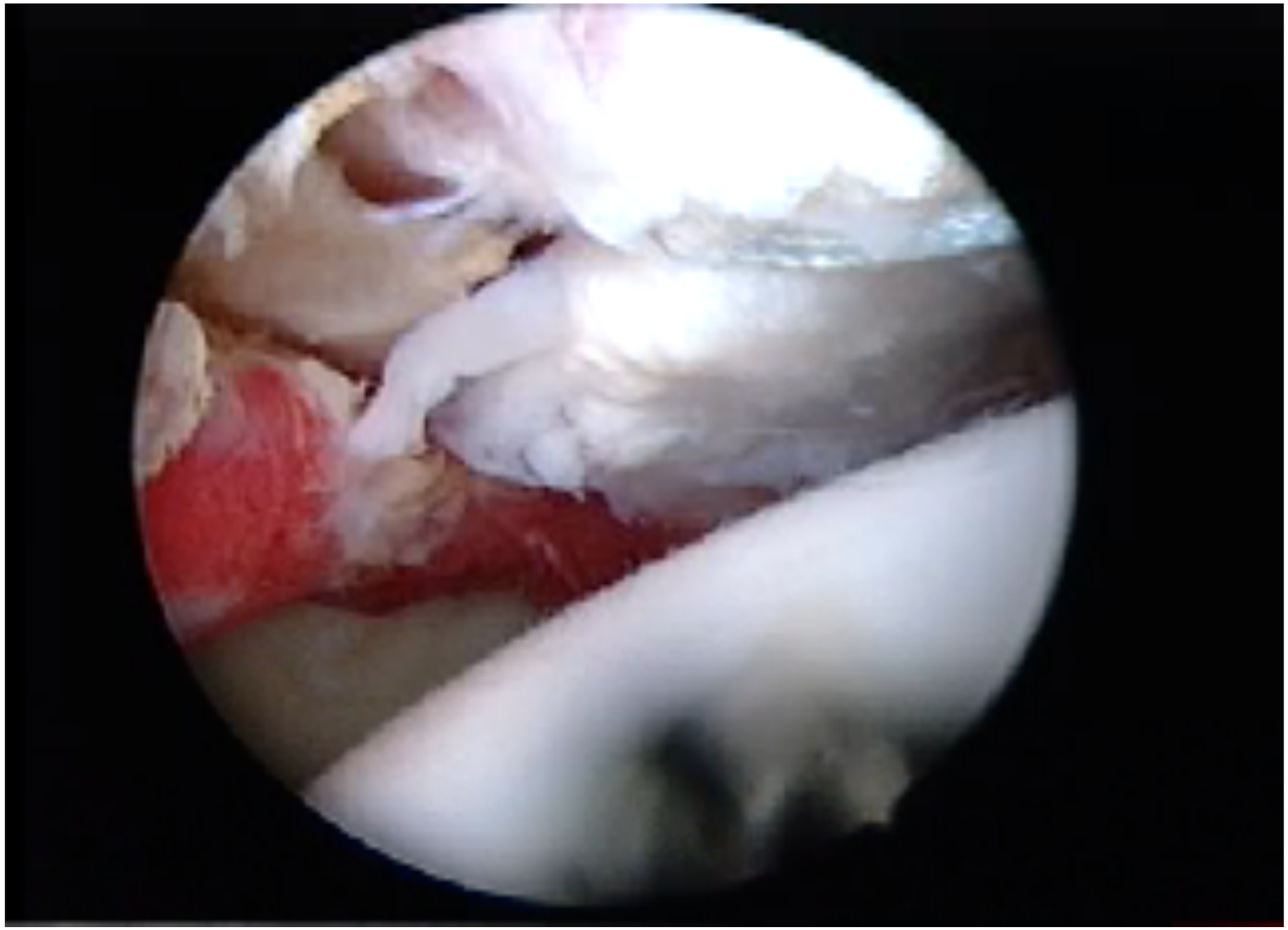
Sicht von kranial - Fadenmanagement



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Sicht von kranial - Fadenmanagement

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Sicht von dorsal - Funktionsprüfung

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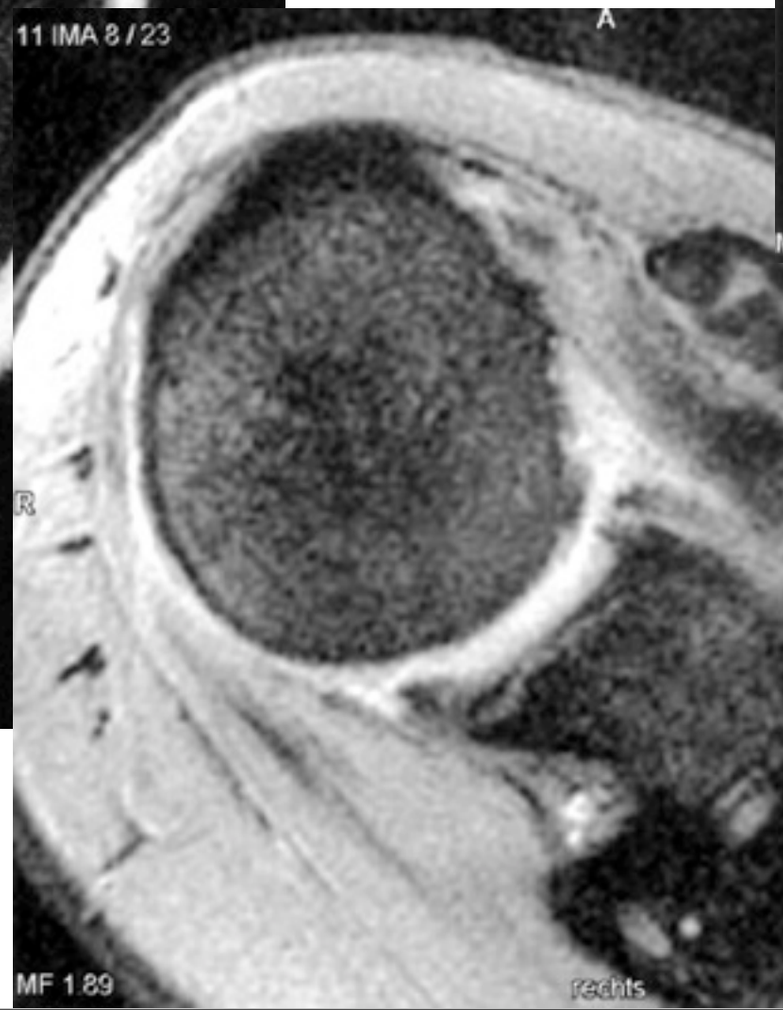

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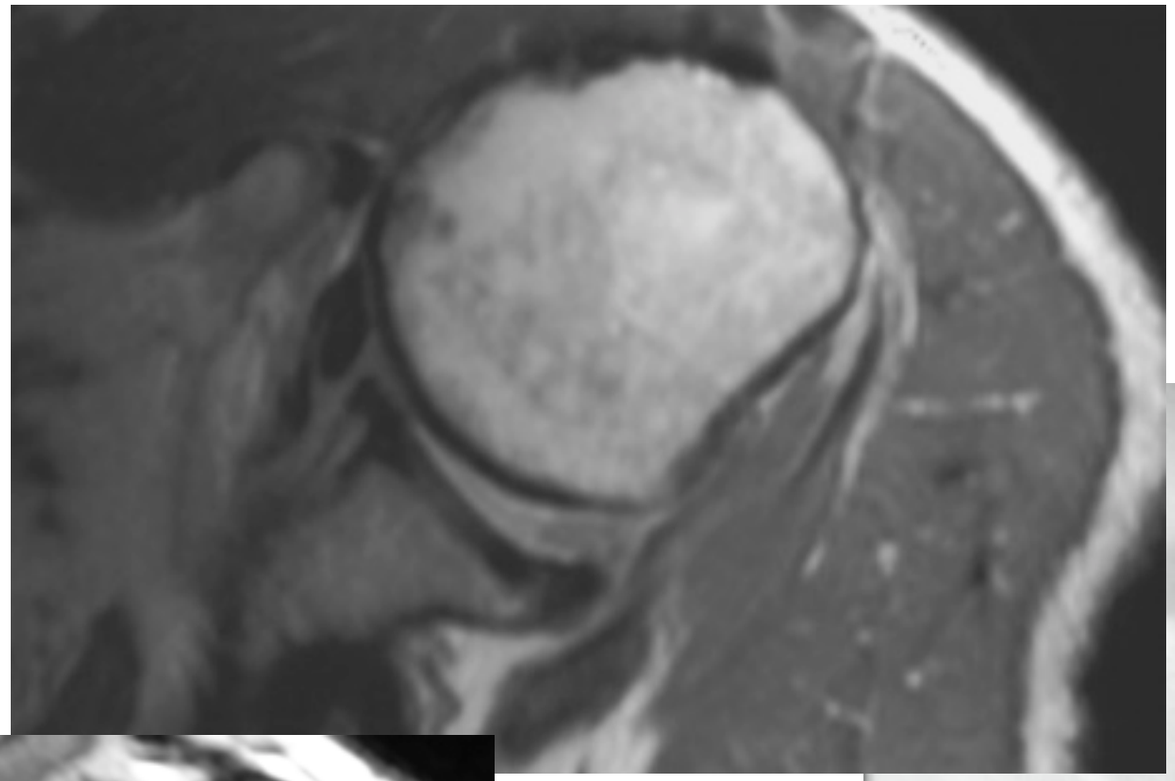
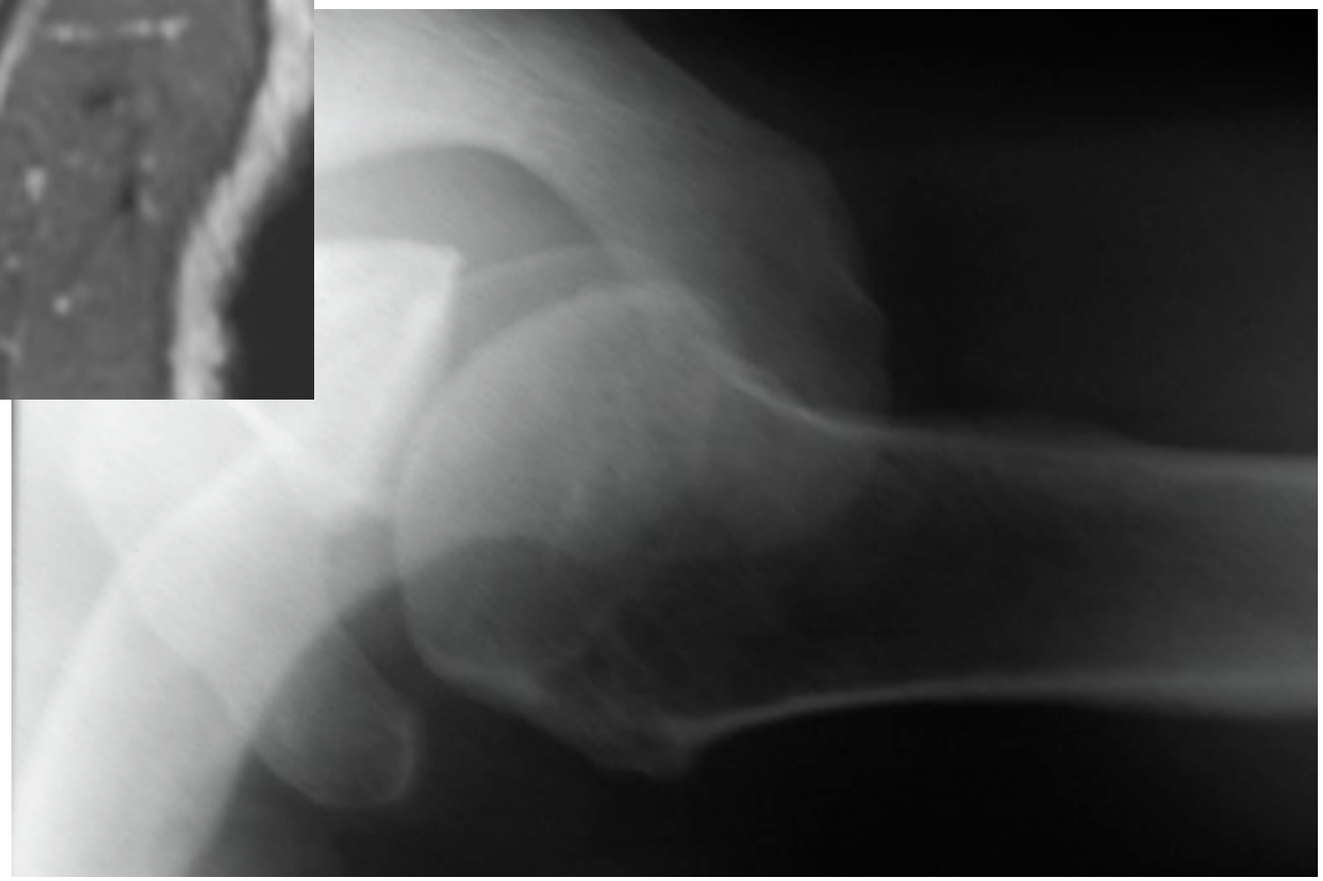
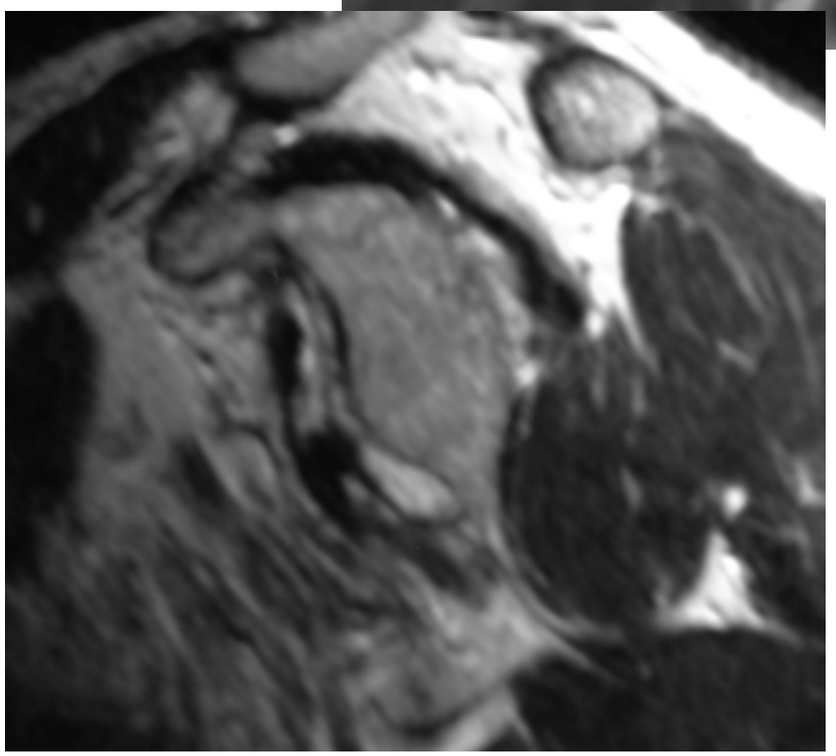
alte SSC-Ruptur







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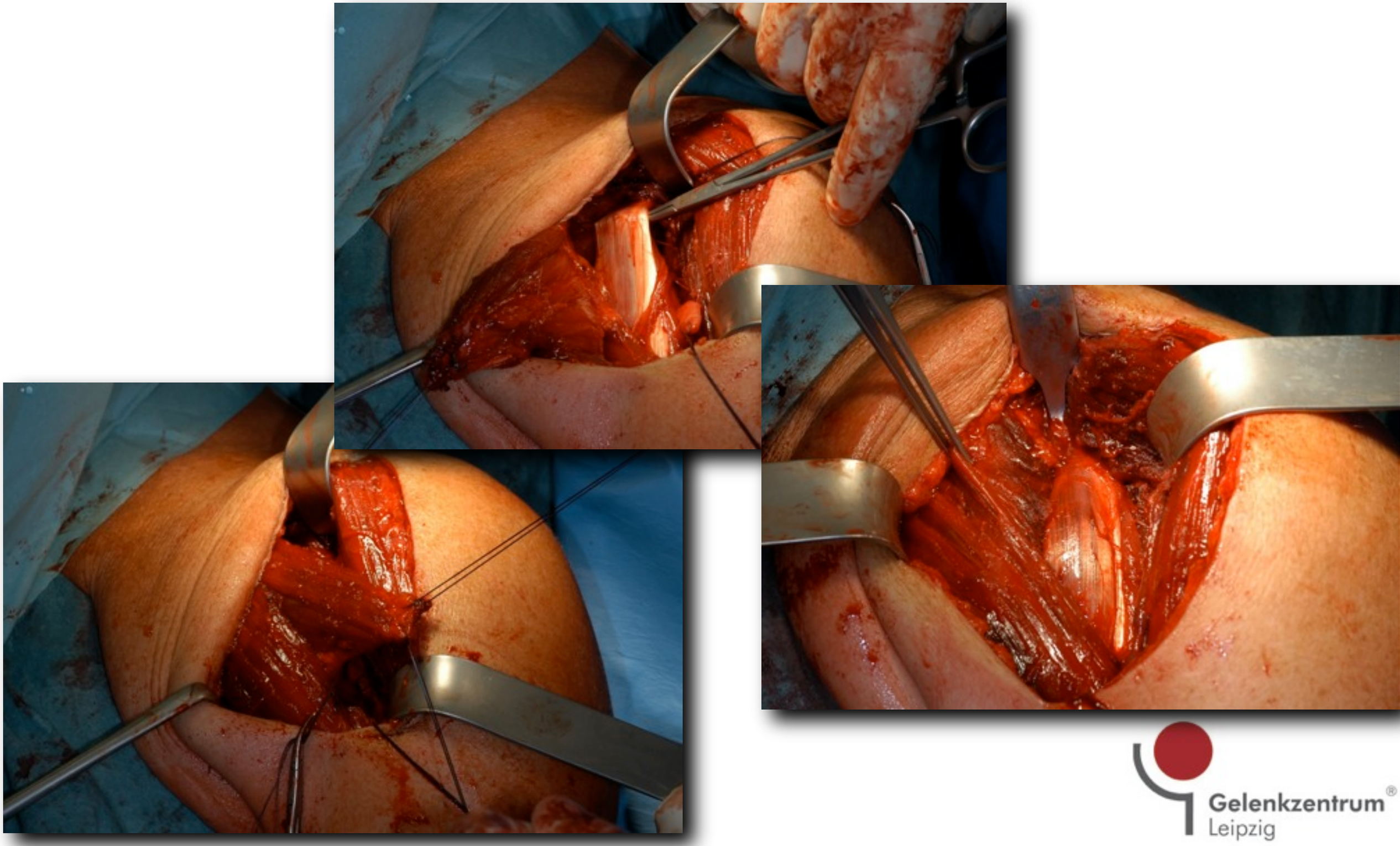
Pectoralis-Transfer



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Pectoralis-Transfer

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Partialläsionen

- Subscapularissehne
- anteriore Supraspinatussehne
- posteriore Supraspinatussehne

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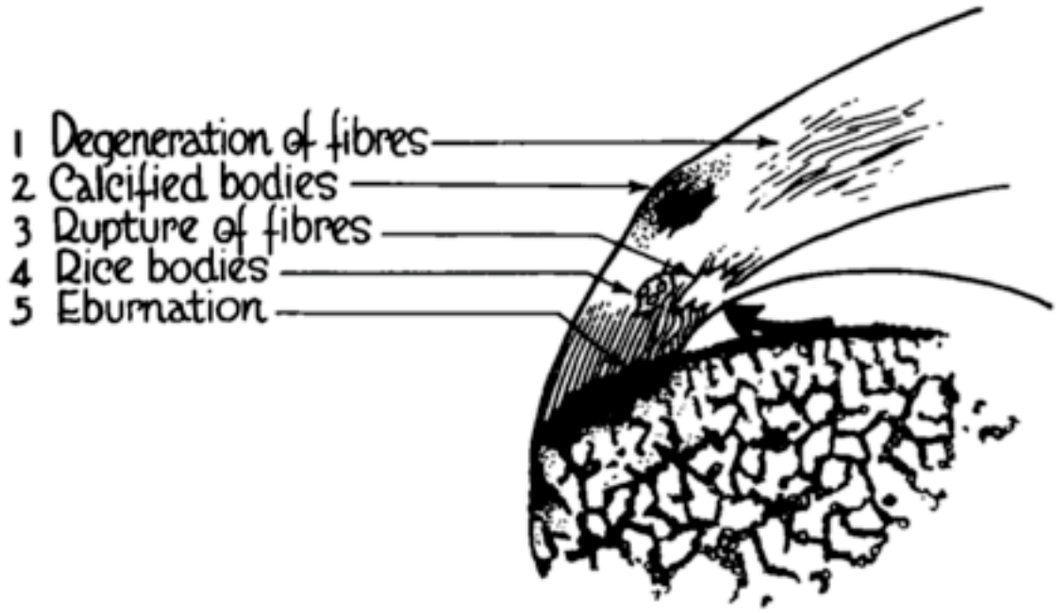
Pathogenese ?

- - degenerativ - instrinsisch
- - outlet impingement (bursaseitig)
- - Pulleyläsion (instabile LBS)
- - Überlastung (overhead activity)



Codman 1934 The Shoulder

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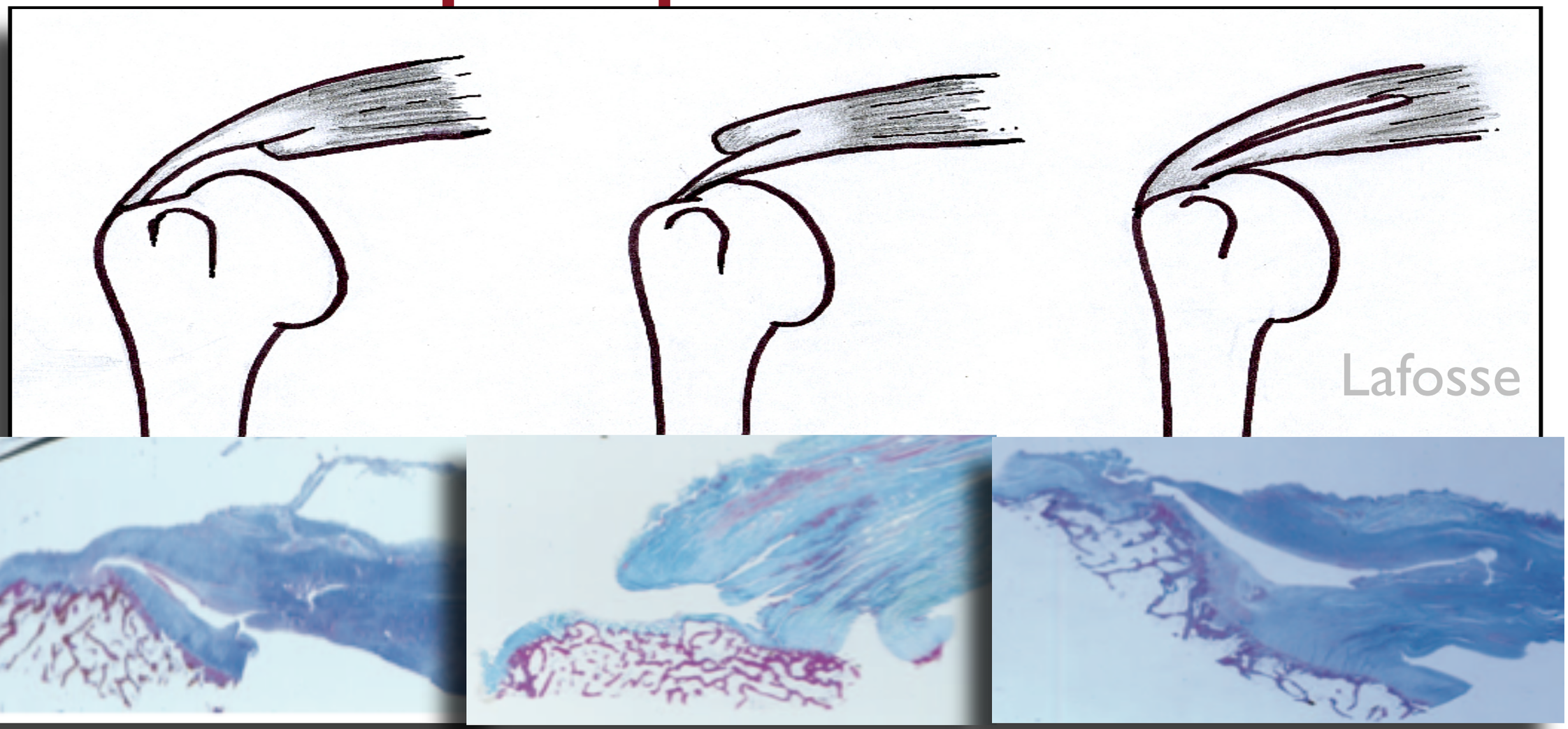
anteriore Supraspinatussehne



A-Läsion
(artikulärseitig)

B-Läsion
(bursaseitig)

C-Läsion
(intratendinös)

Ellman 1990 Clin Orthop Rel Res
Fukuda 2003

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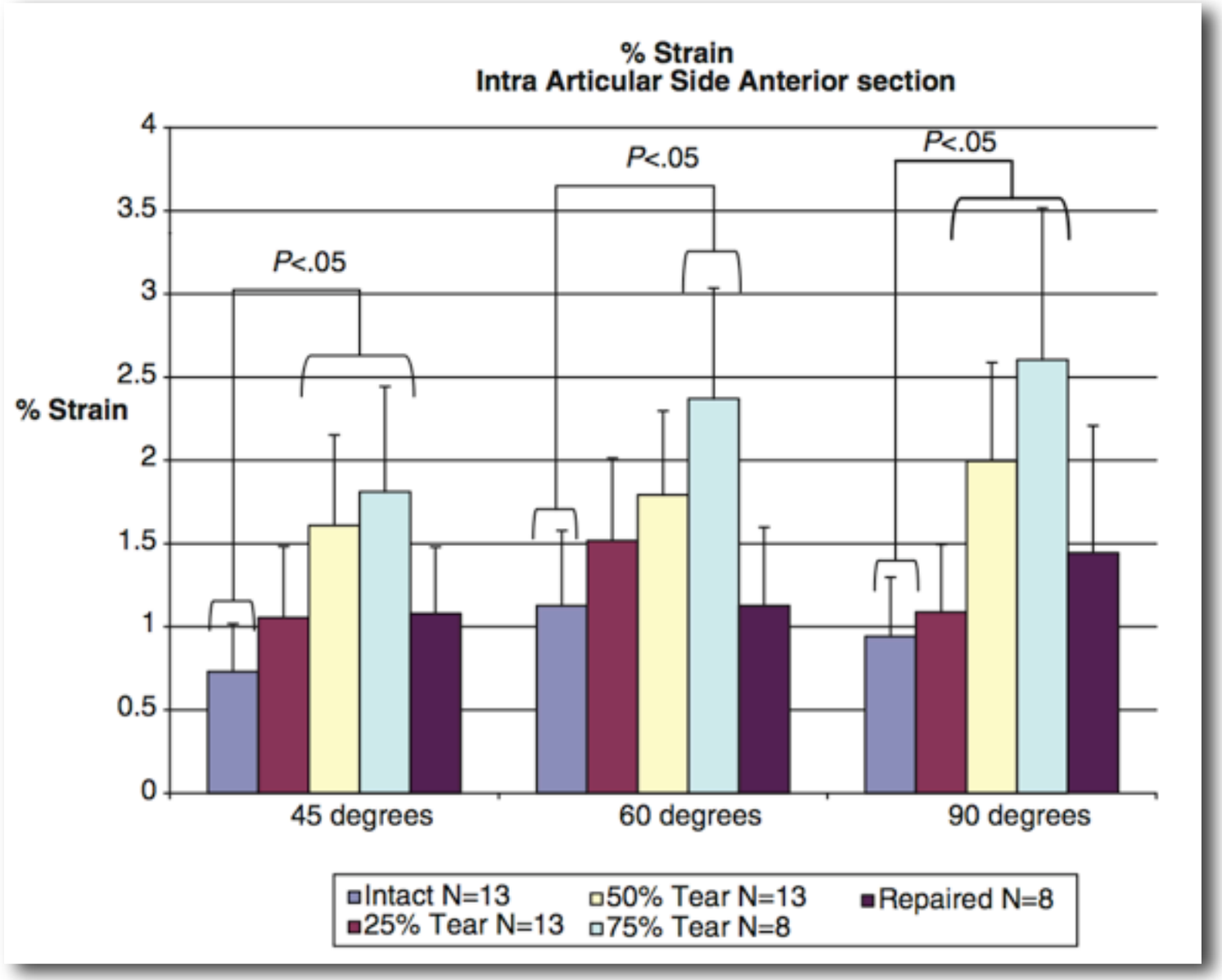
Biomechanik

klinisch nur Debridement

< 50 %

kein Unterschied
(cave B-Läsion)

bursal: Gefäßreicher !



Cordasco FA 2002 AJSM

Mazzocca AD 2008 AJSM

Löhr JF, Uhthoff HK 2007 Orthopäde

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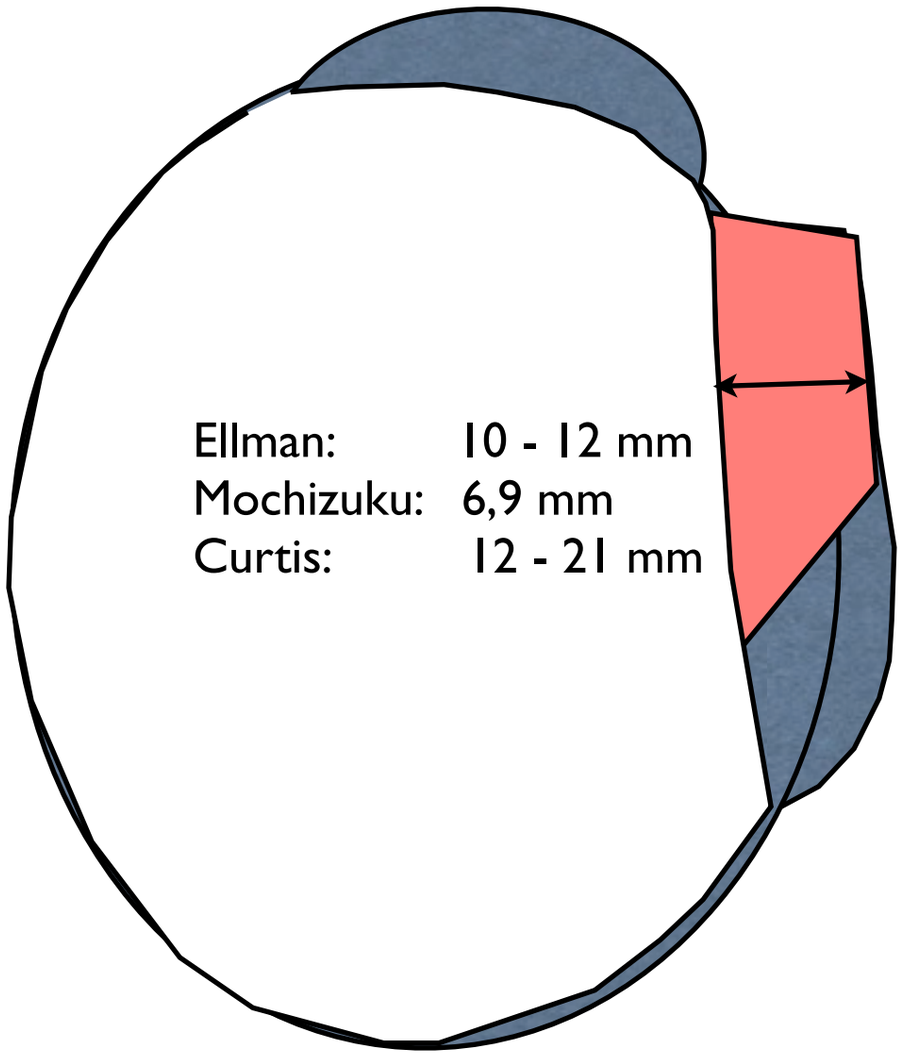
Größe der Läsion



<u>Größe</u>

- Grad 1: < 3 mm
- Grad 2: 3 - 6 mm
- Grad 3: > 6 mm

Mochizuku T 2008 JBJS
Curtis AS 2002 Arthroscopy
Ellman 1990 Clin Orthop Rel Res

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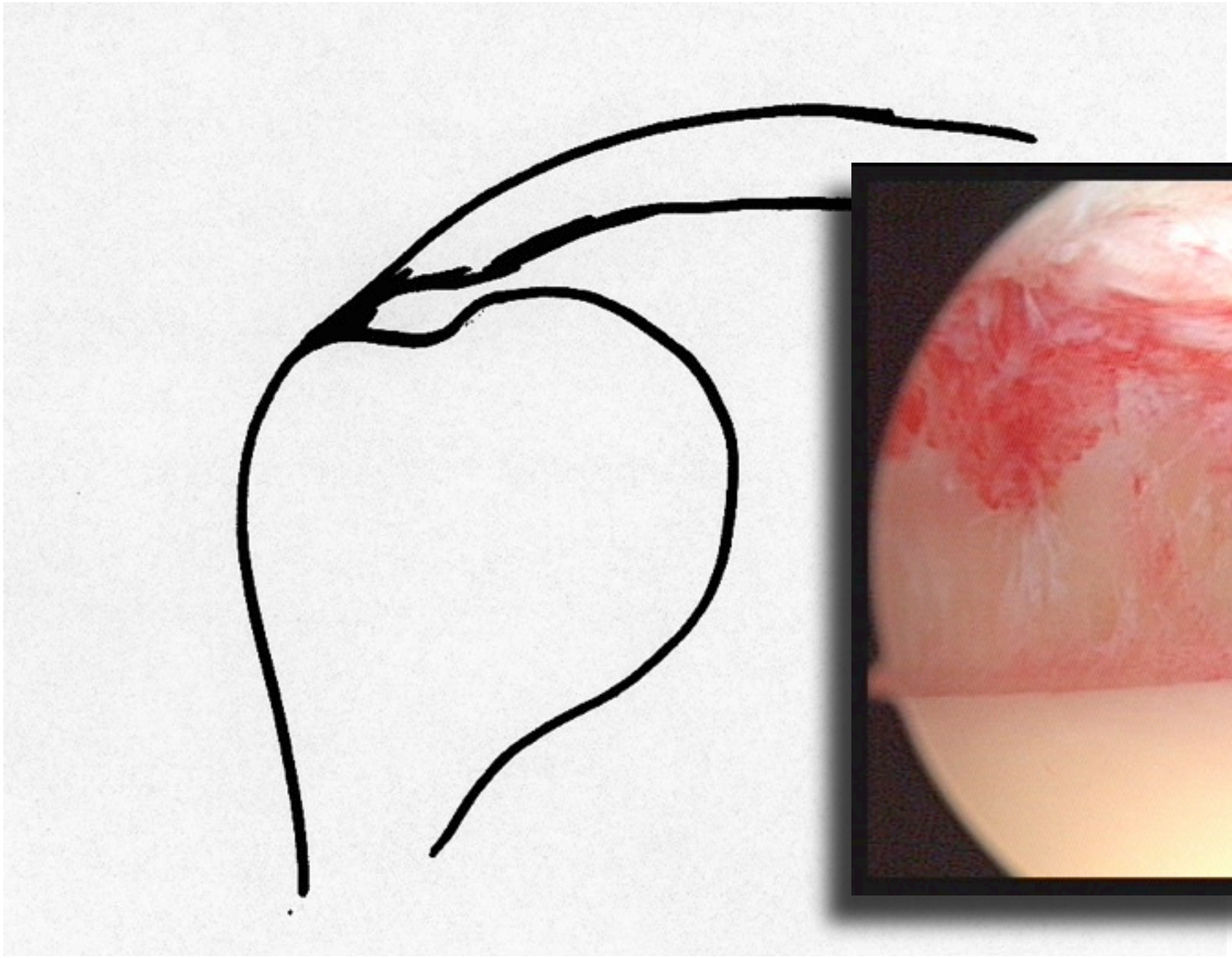
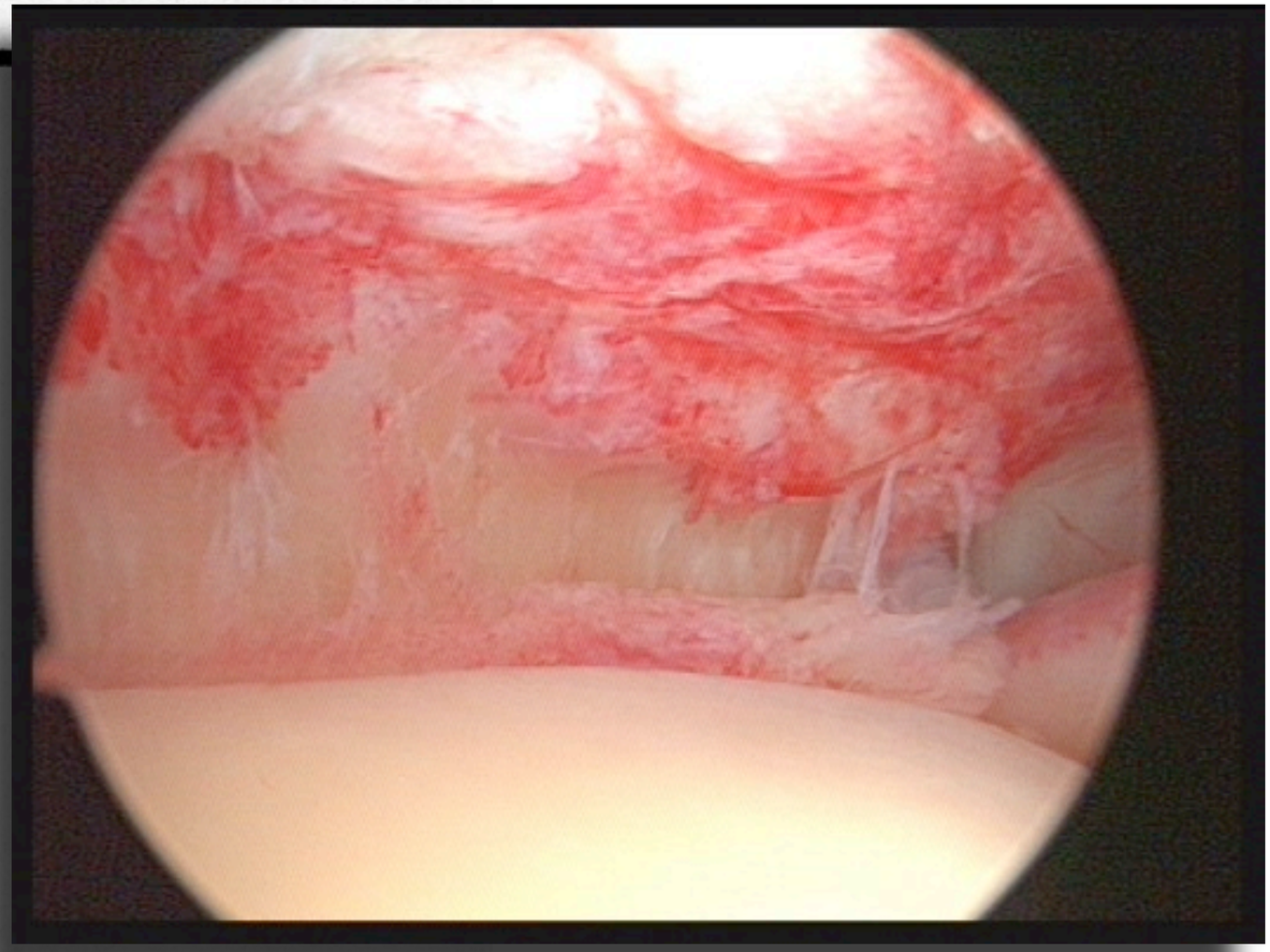
Ruptur Typ A3





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Umwandlung in Komplettruptur ?

- 52 Schulterpatienten (Alter 53 Jahre)
- F/U 11 Monate
- Ultraschall: 5 Komplettrupturen (12 %)
- ASES Score: präop: 46.1 FU: 82.1

Kamath G 2009 JBJS Am

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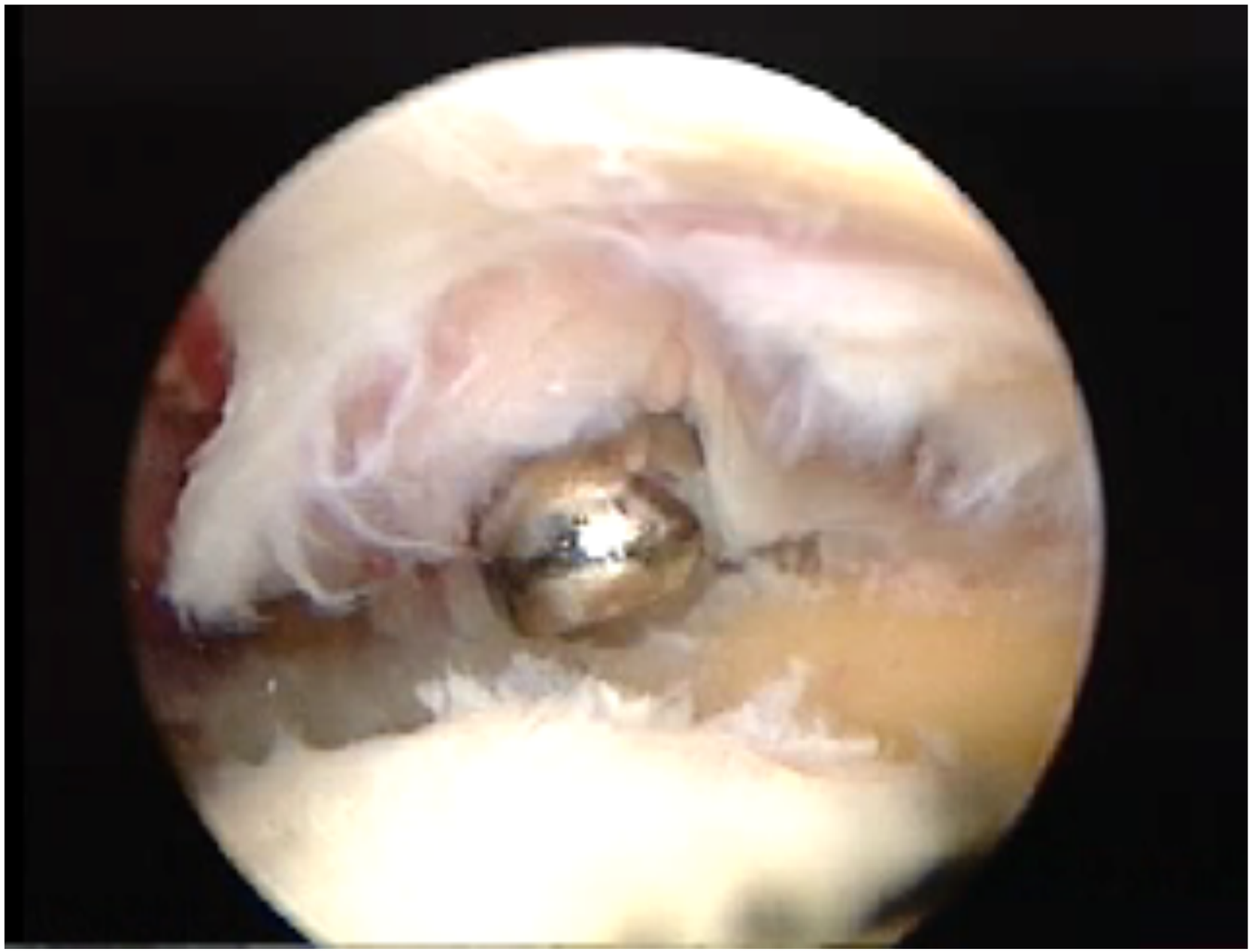
Anfrischen foot print



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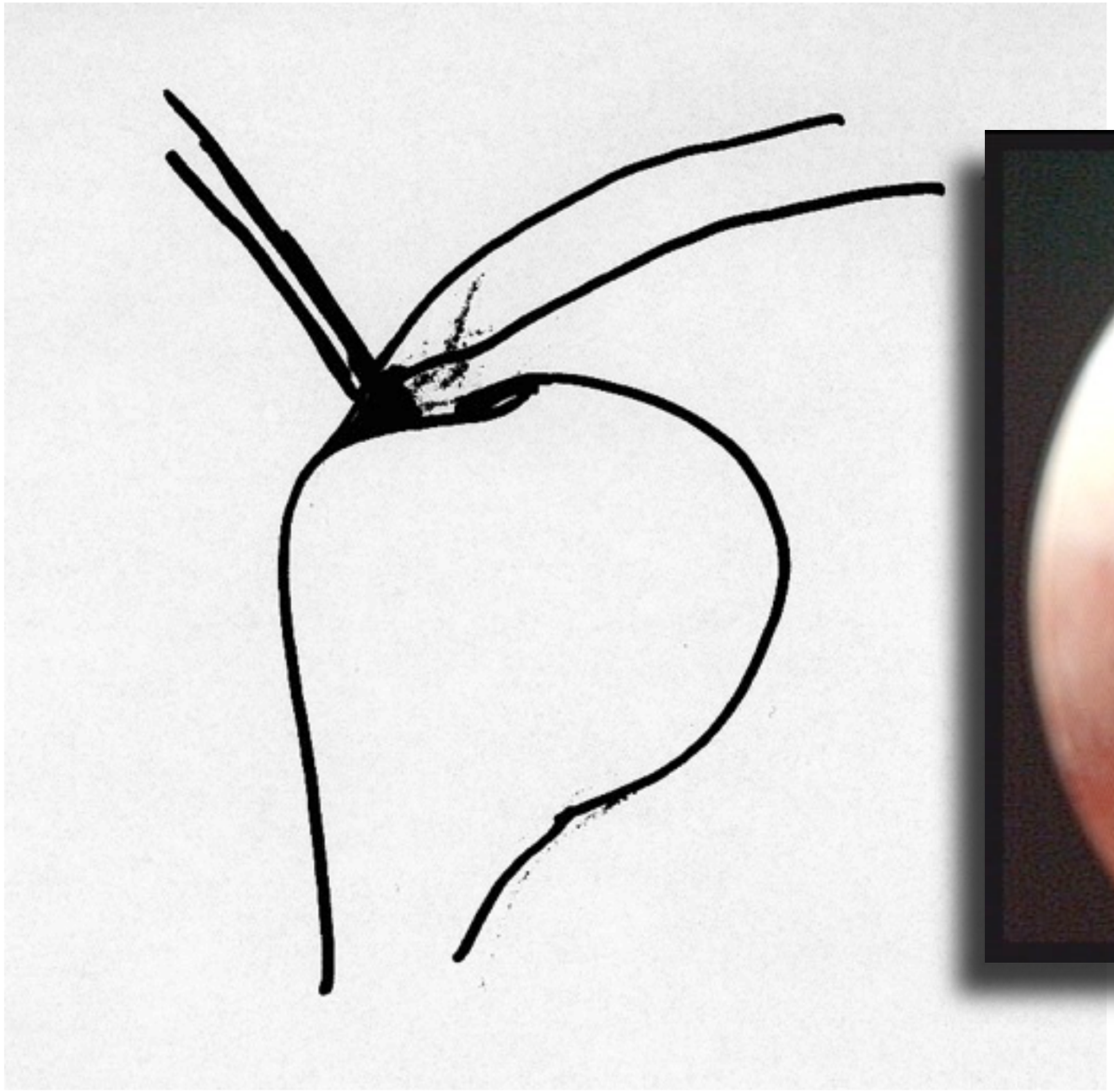
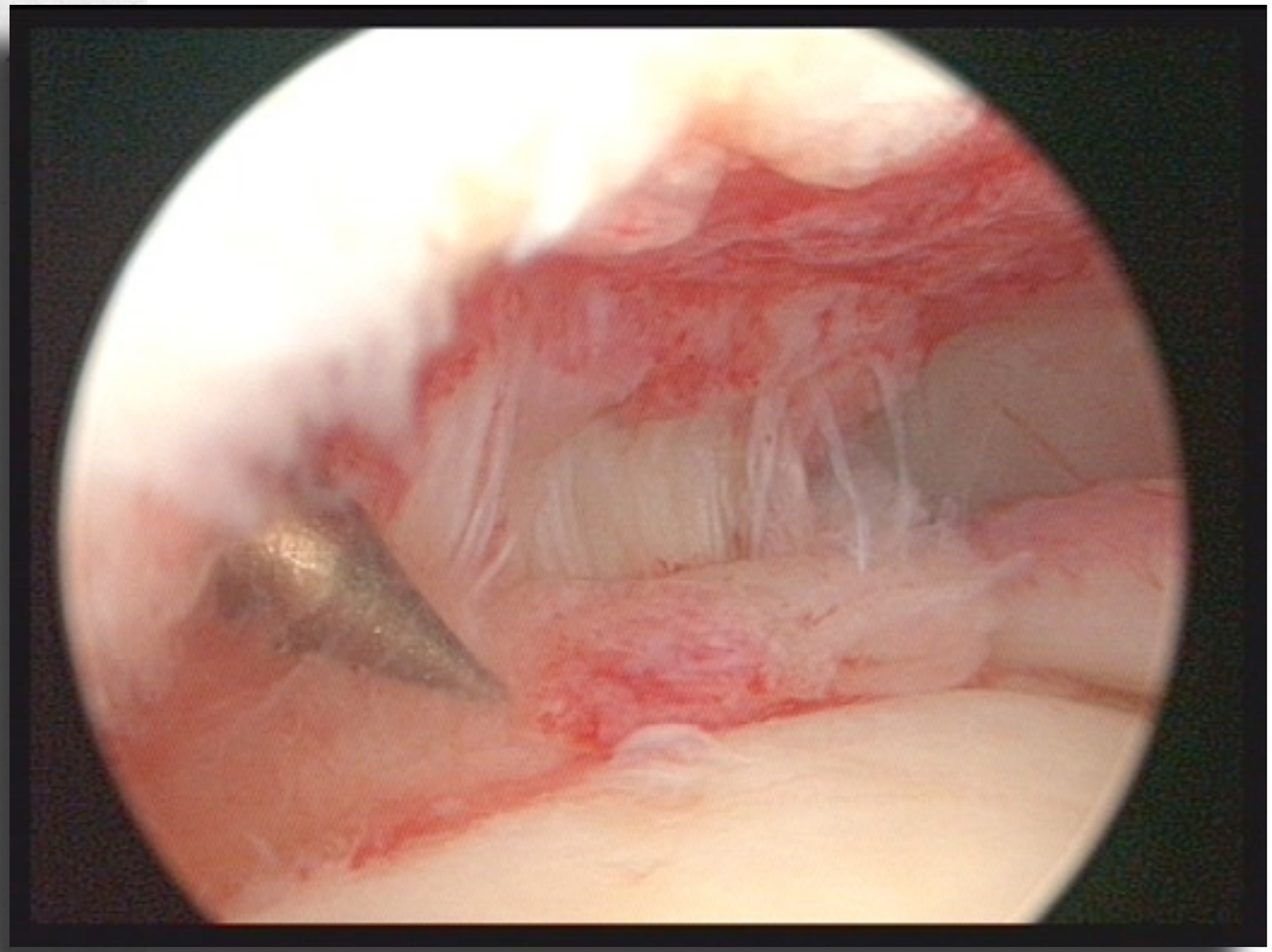
transtendinöse Platzierung Fadenanker





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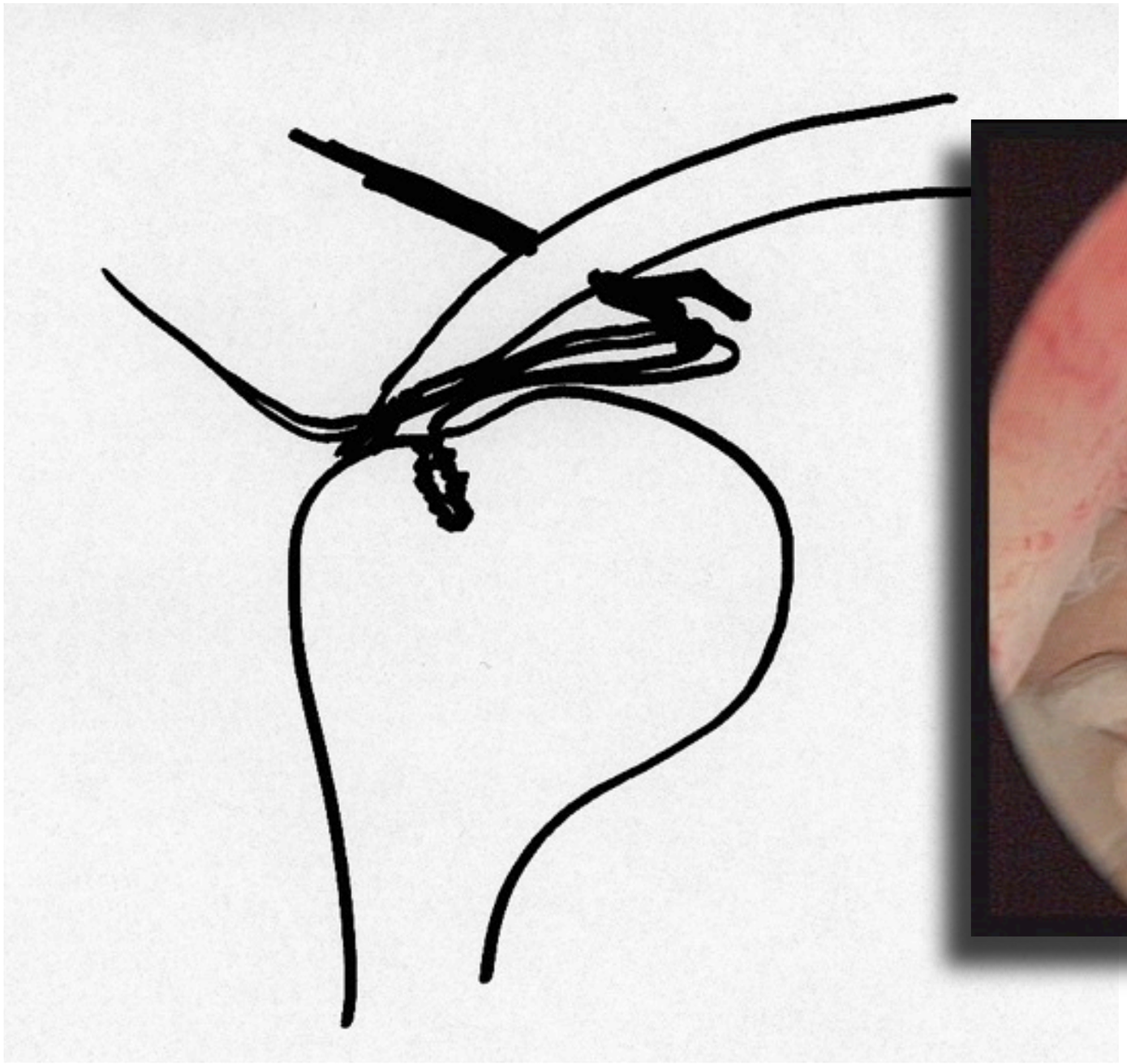
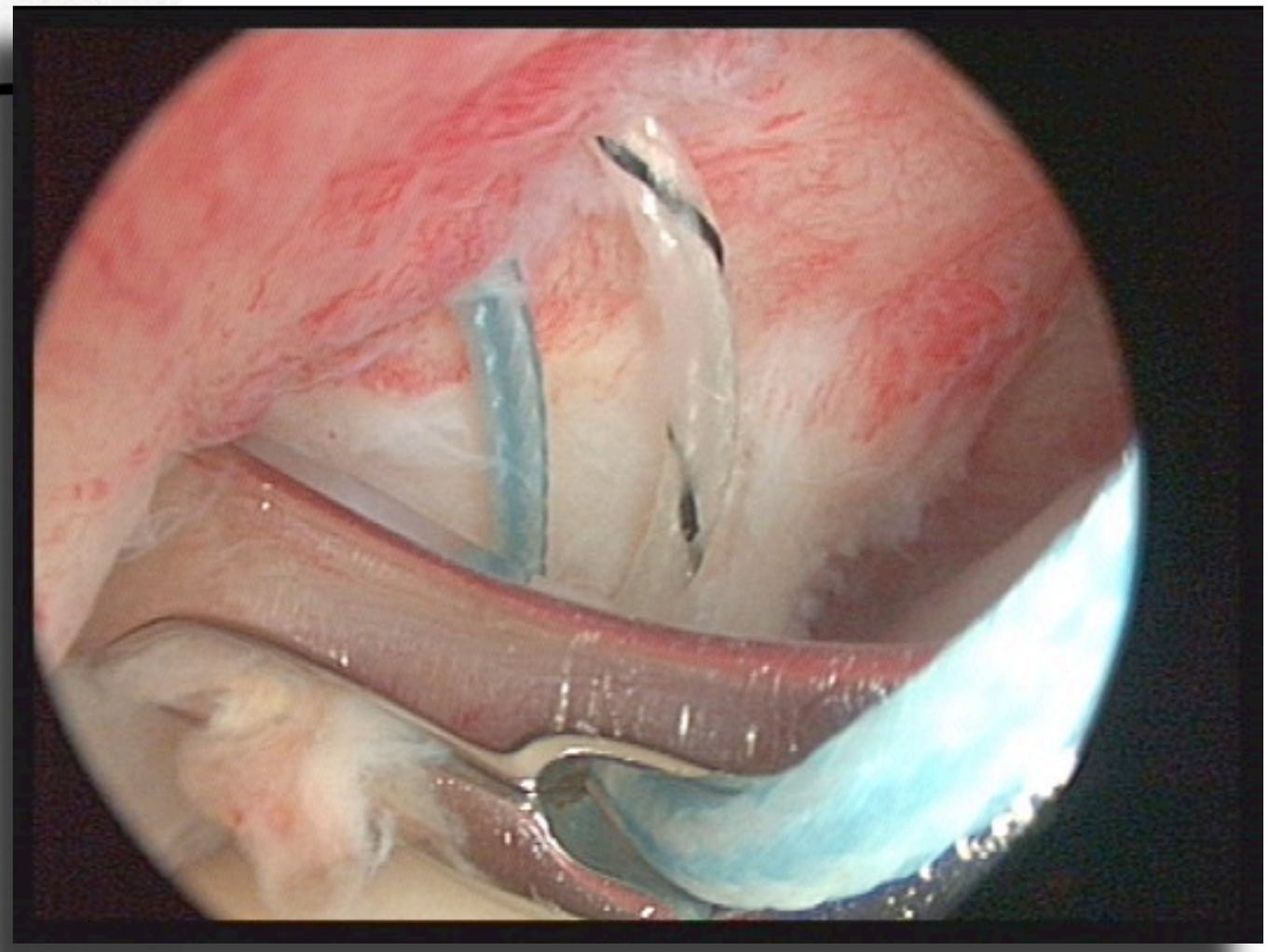
Perforation der Sehne von subacromial





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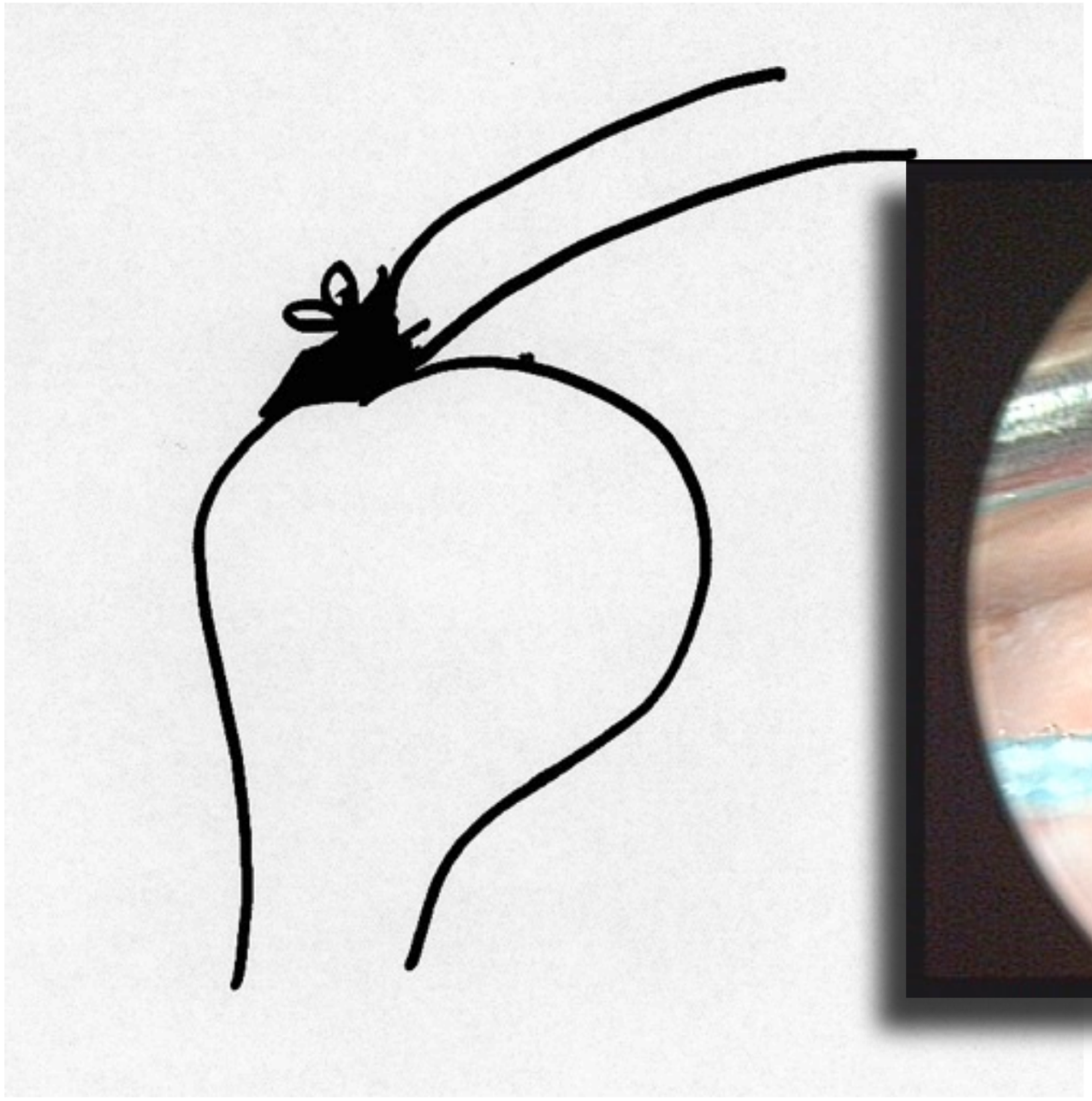
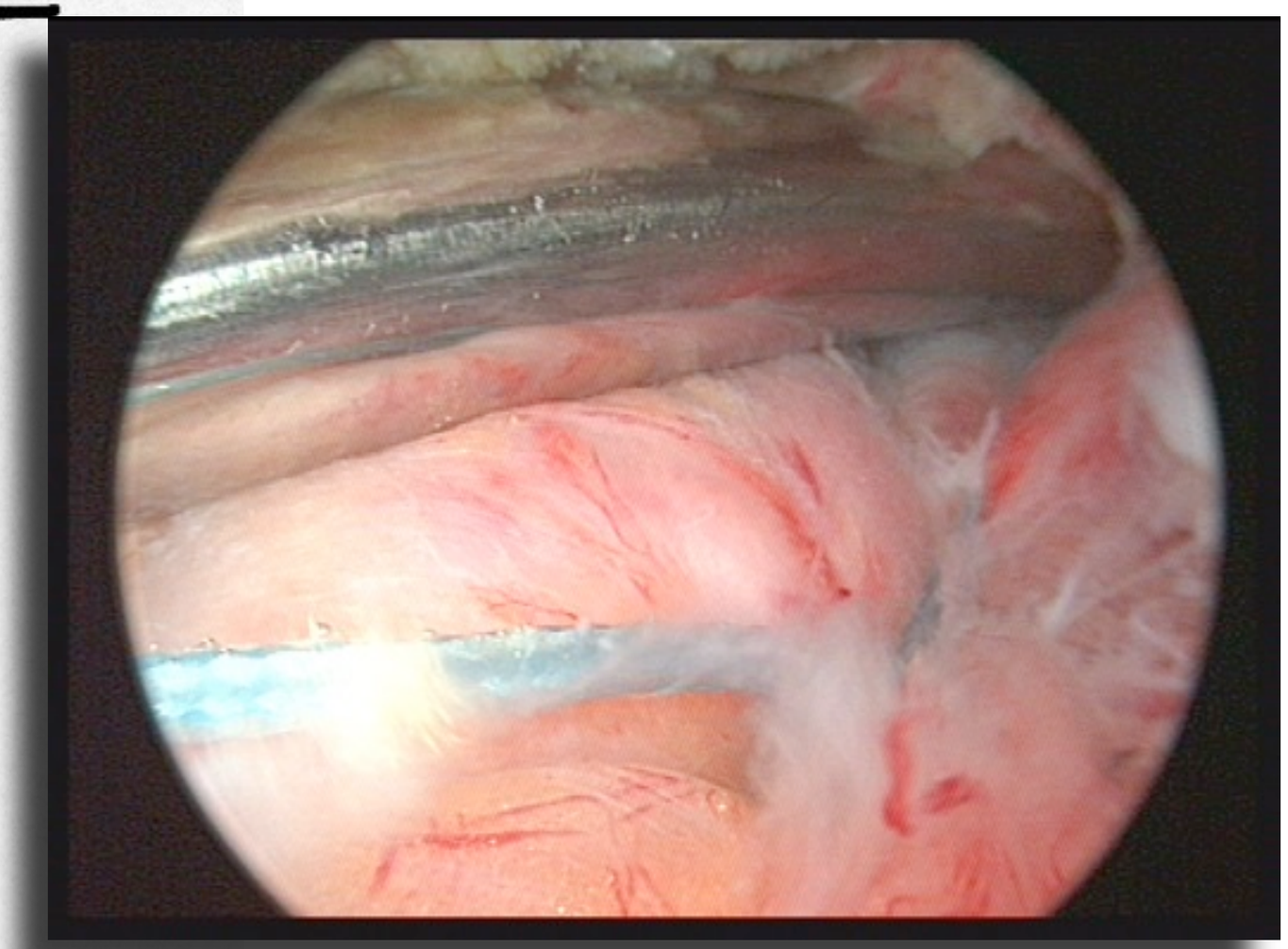
subacromiales Verknoten





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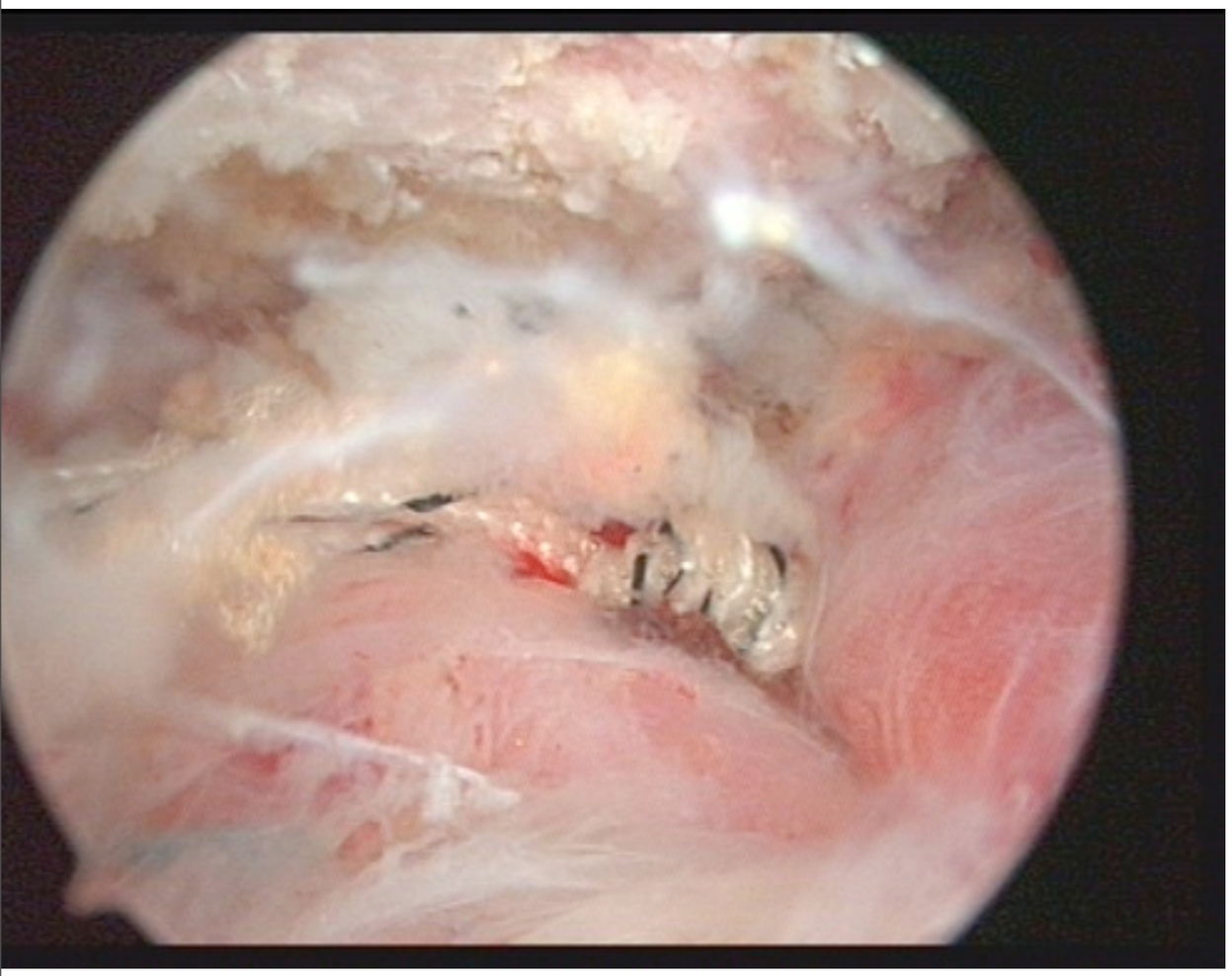
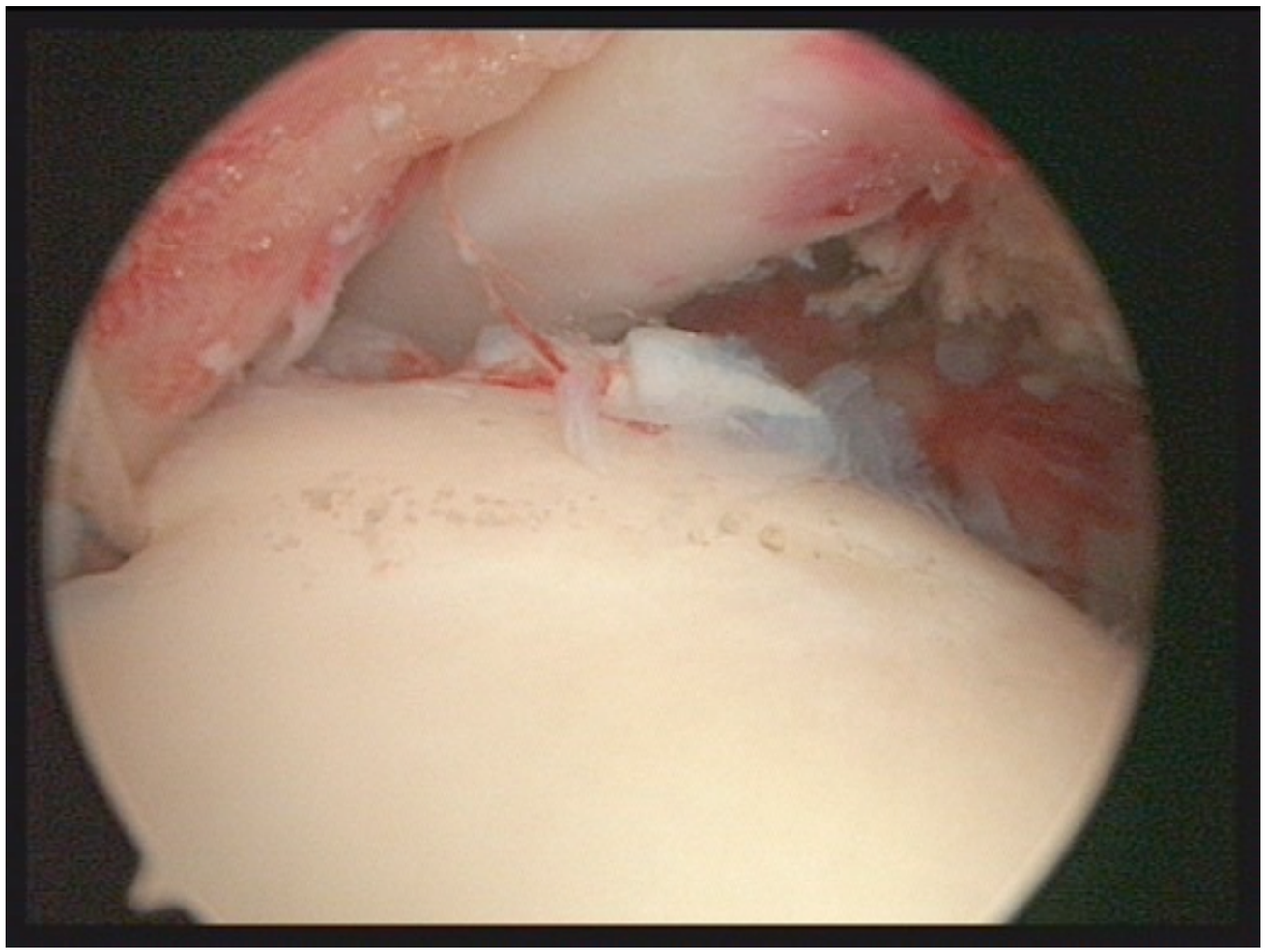
Kontrolle
subacromial und intraartikulär





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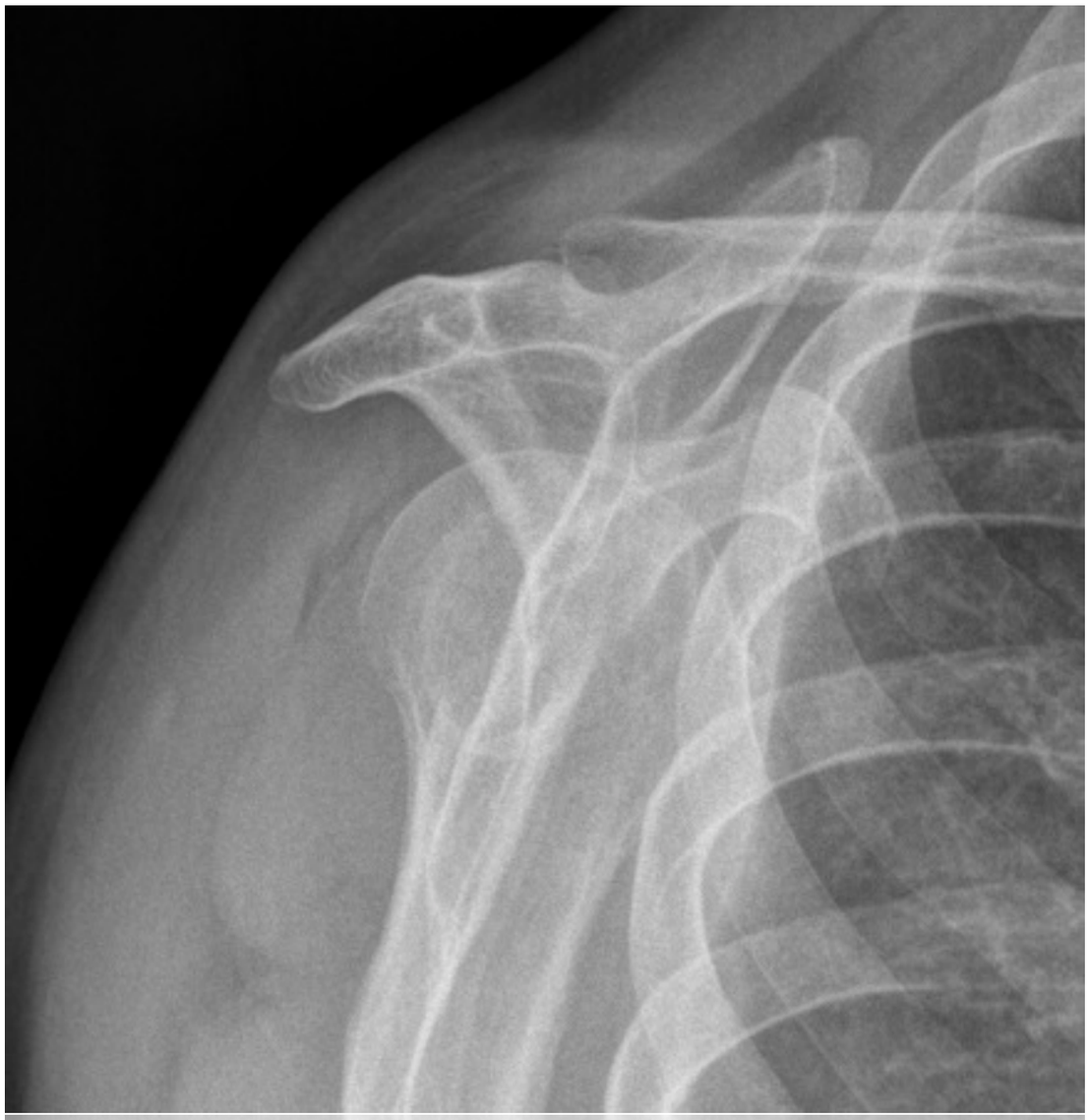
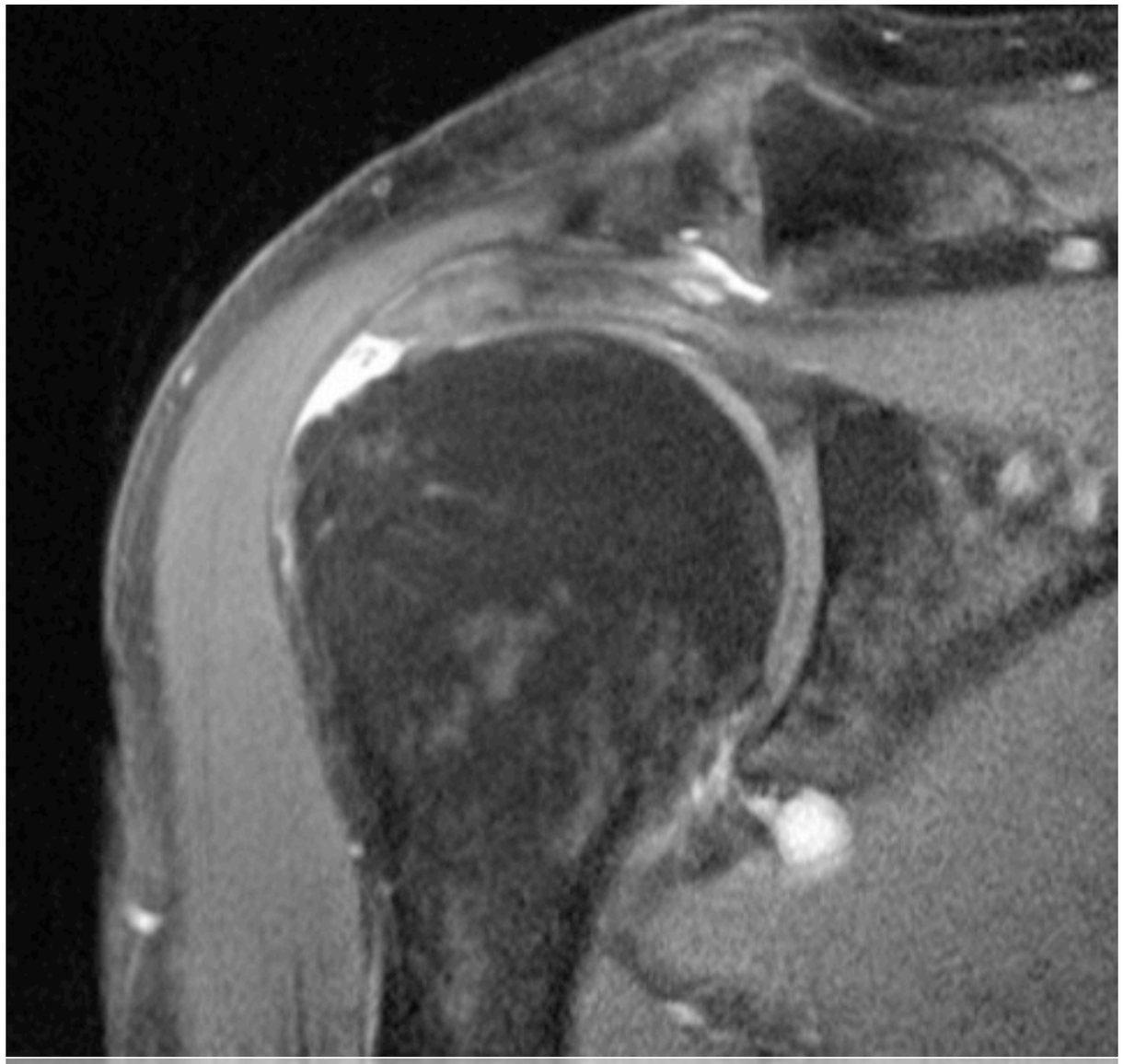
Bursaseitige Partialläsion
SSP





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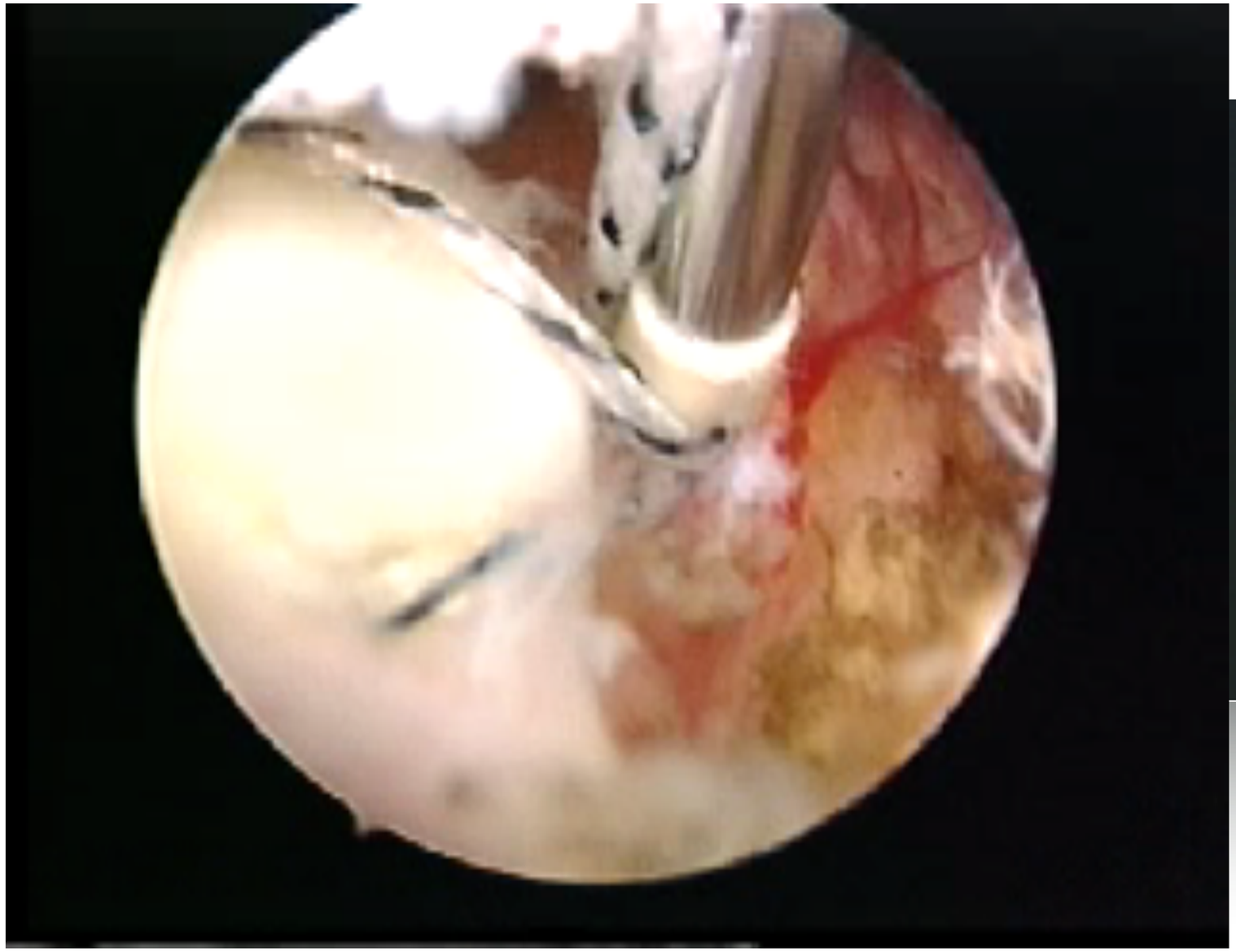
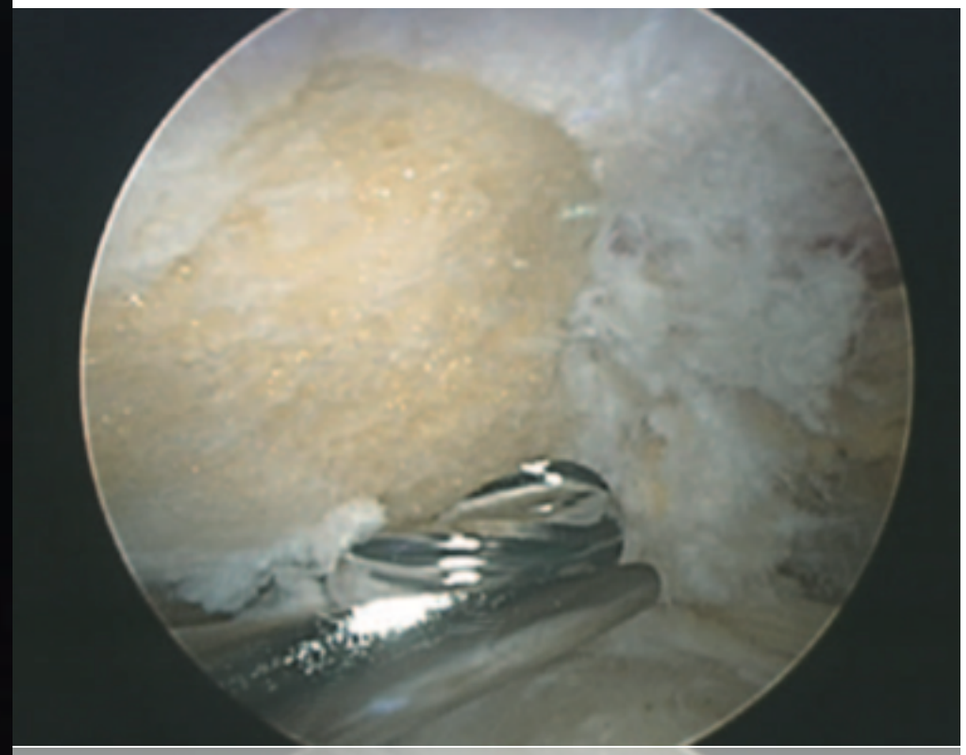
Versorgung bursaseitige Ruptur: lat Anker + Akromioplastik





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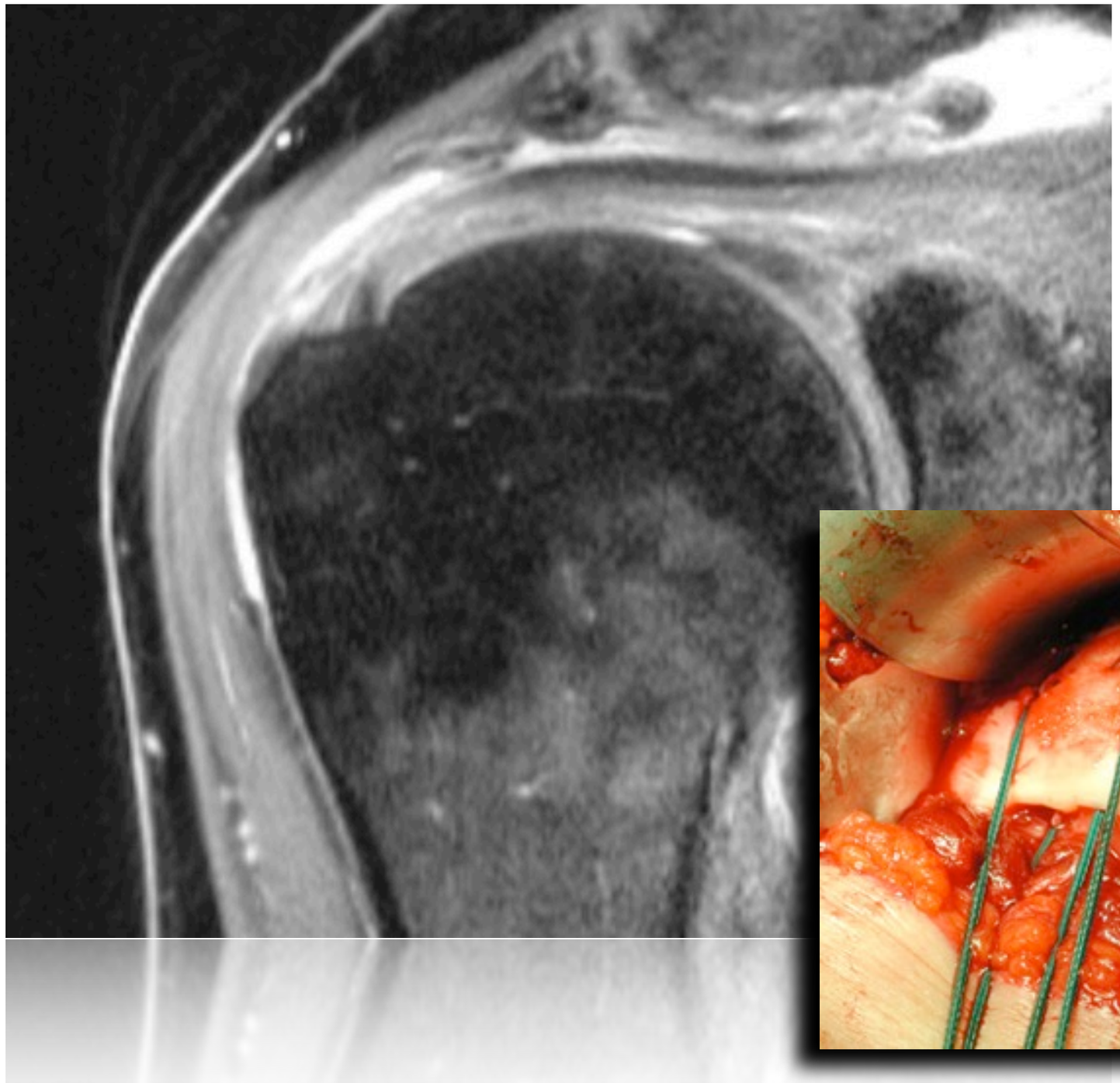
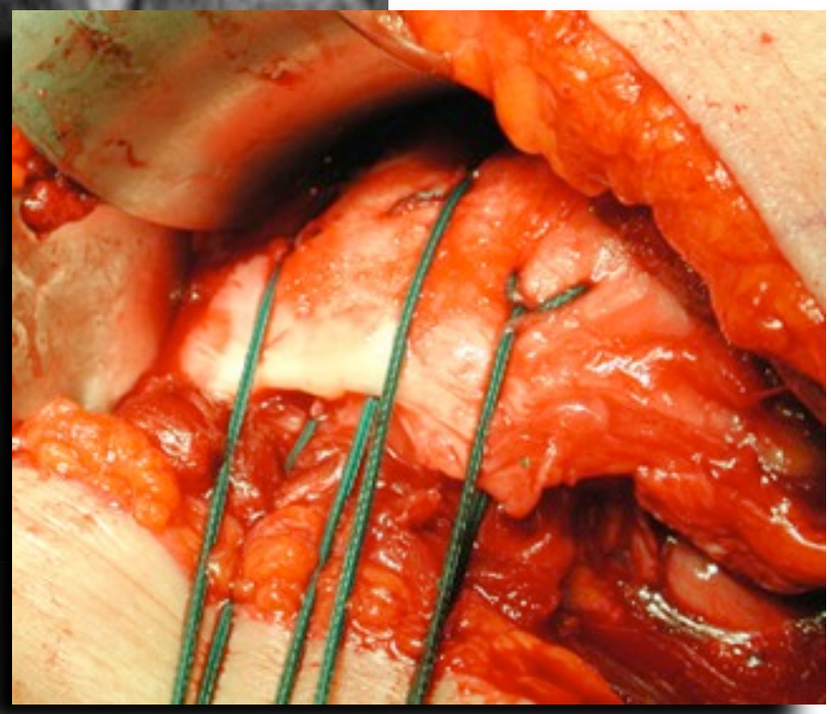
intratendinöse Ruptur
Ellman C





<u>Was tun ?</u>

- Debridieren
- Reinserieren

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Therapie der Wahl

- primär konservativ da:
- hohe Erfolgsquote
- Partialrupturen oft ohne Symptomatik
- wenn operativ dann
- ab 50 % (med - lat)
- bursaseitig großzügigere Indikation

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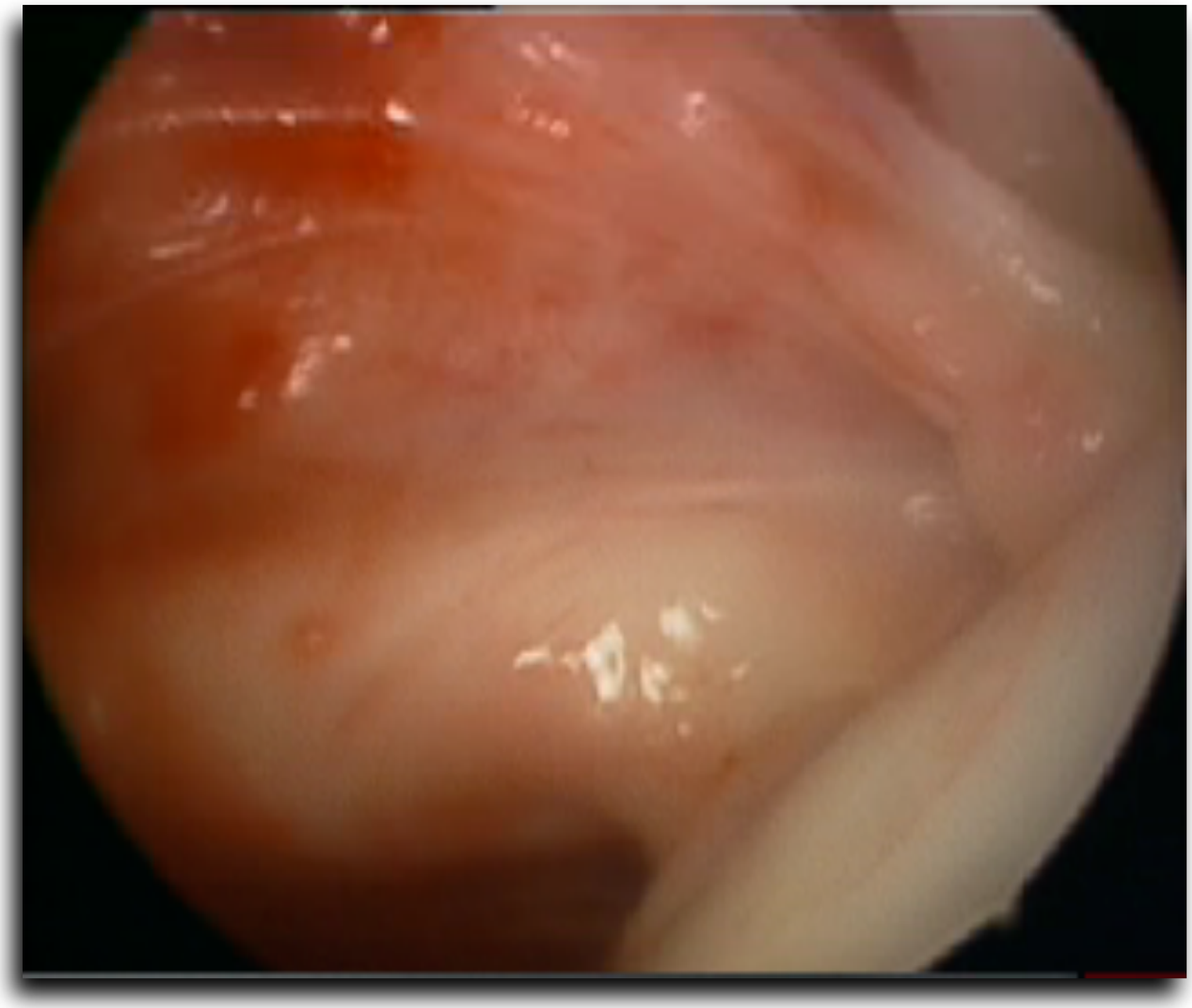
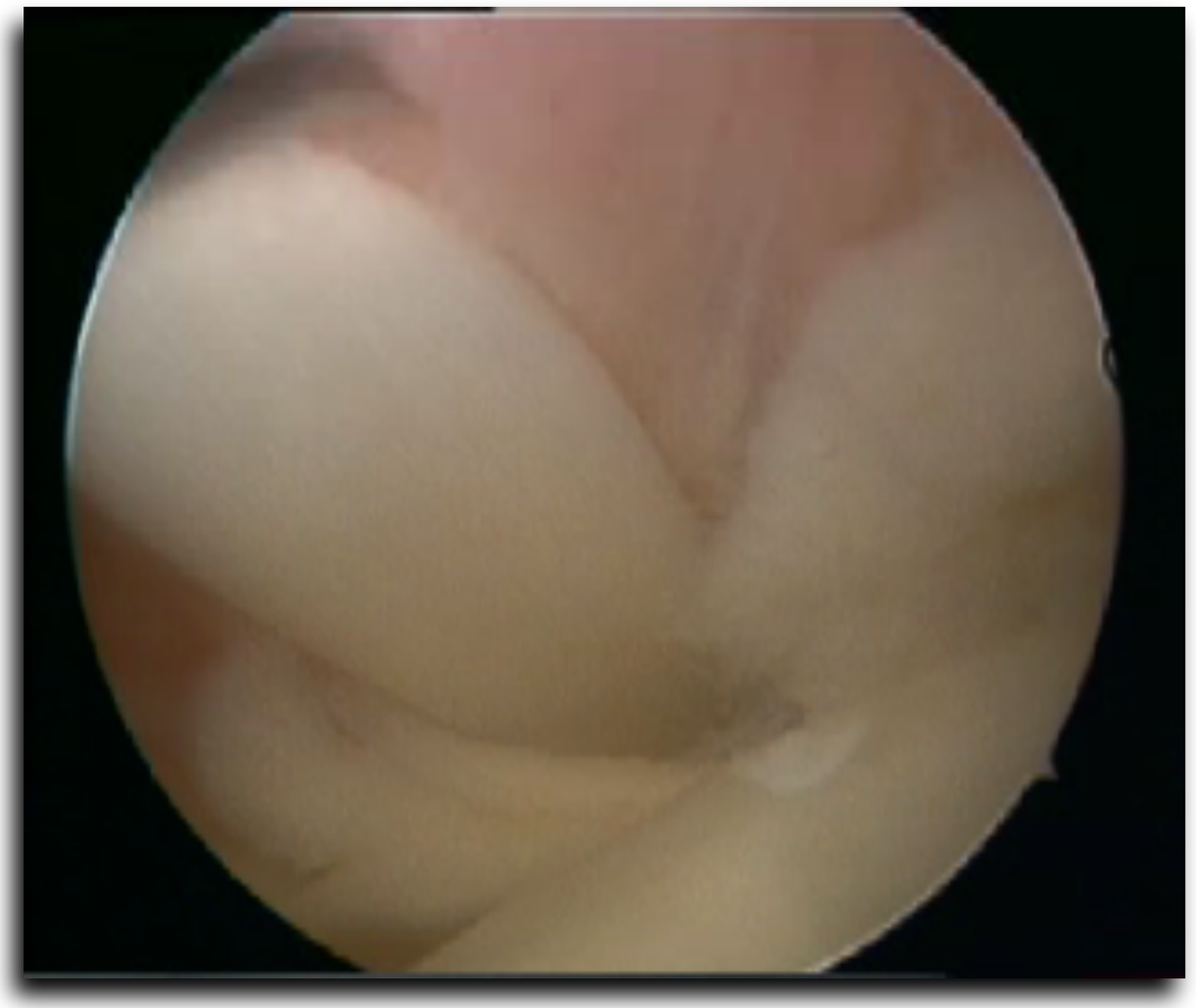
Partialruptur - Pulleyläsion





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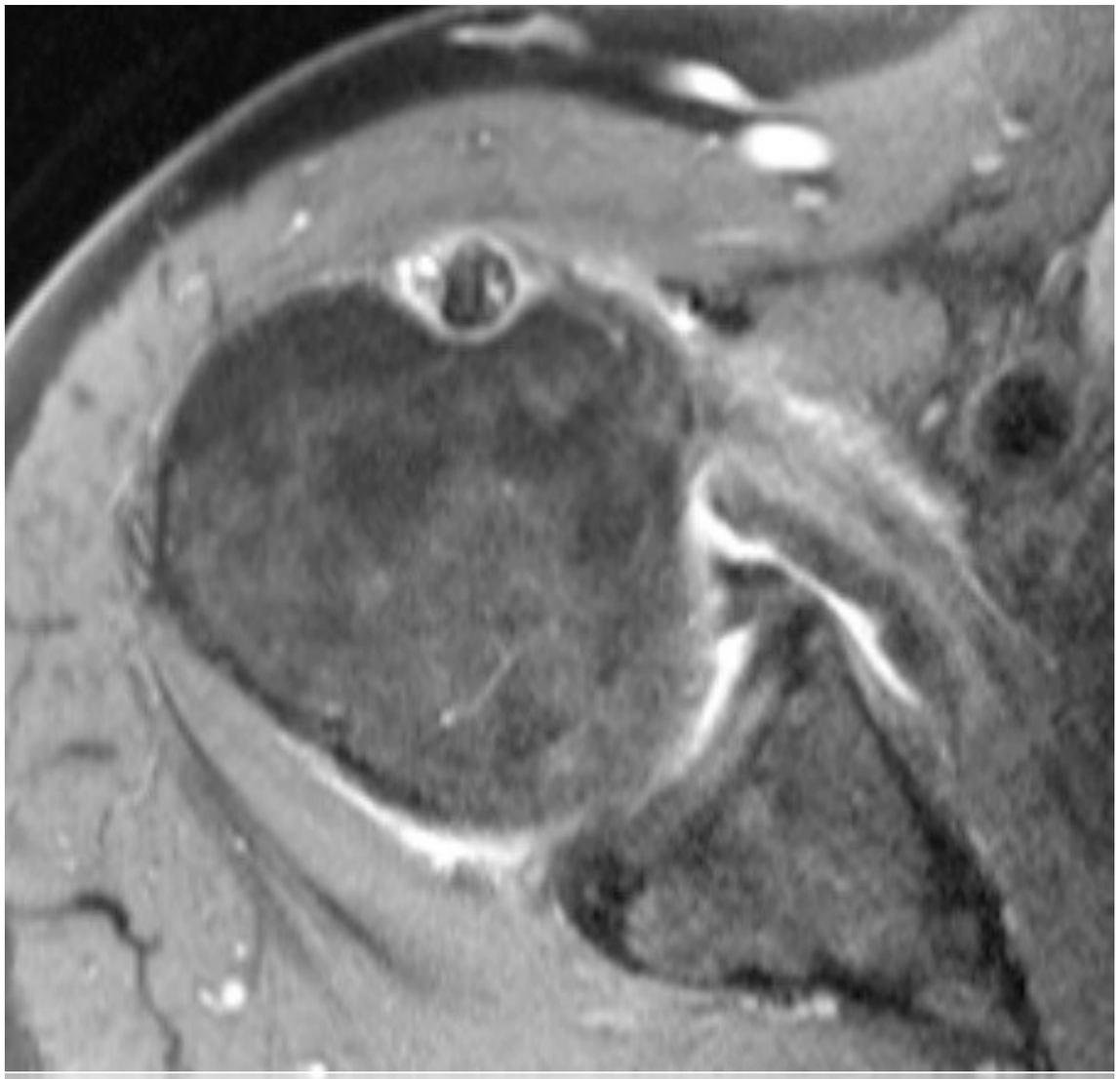
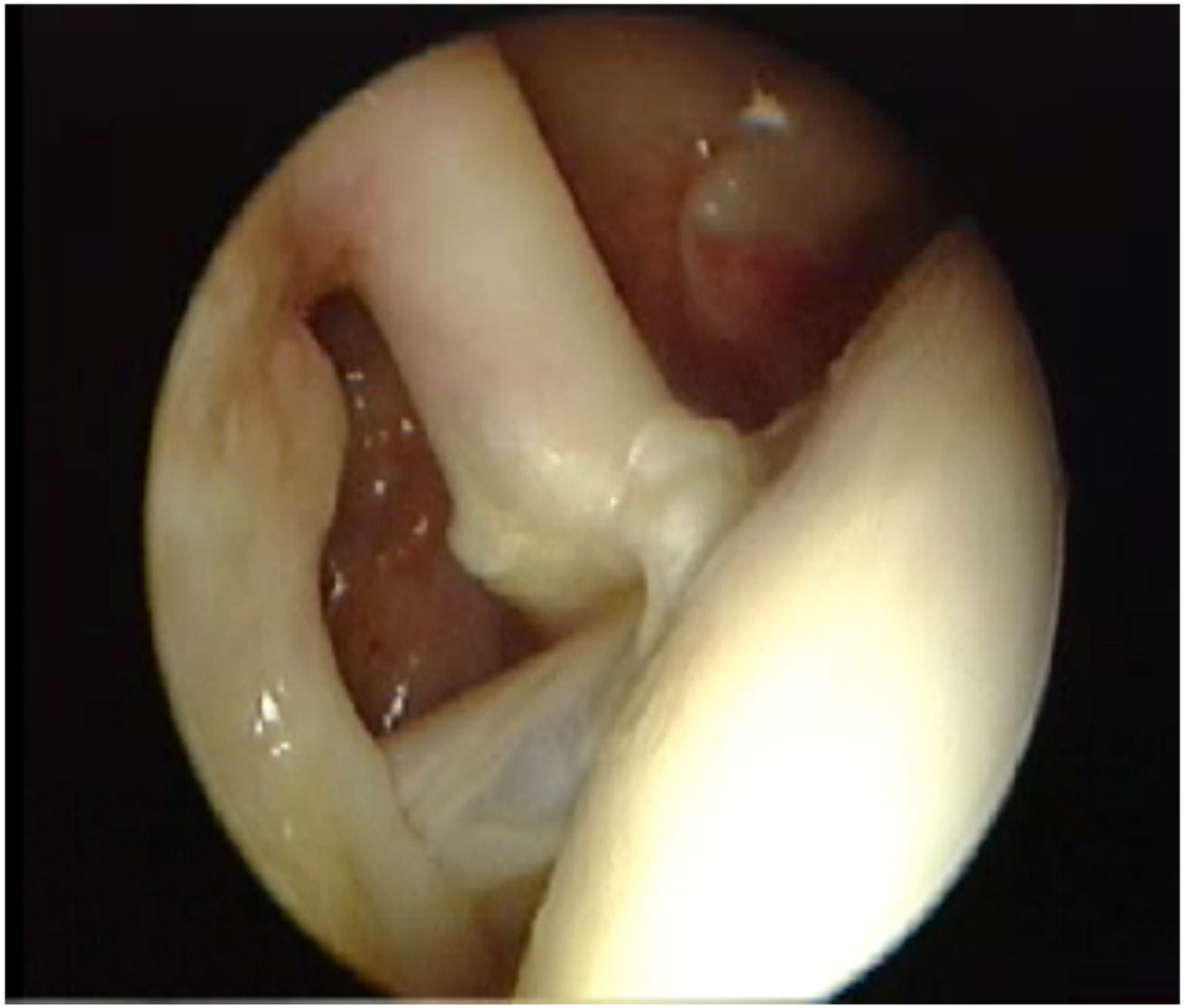
Instabile LBS bei Partialruptur





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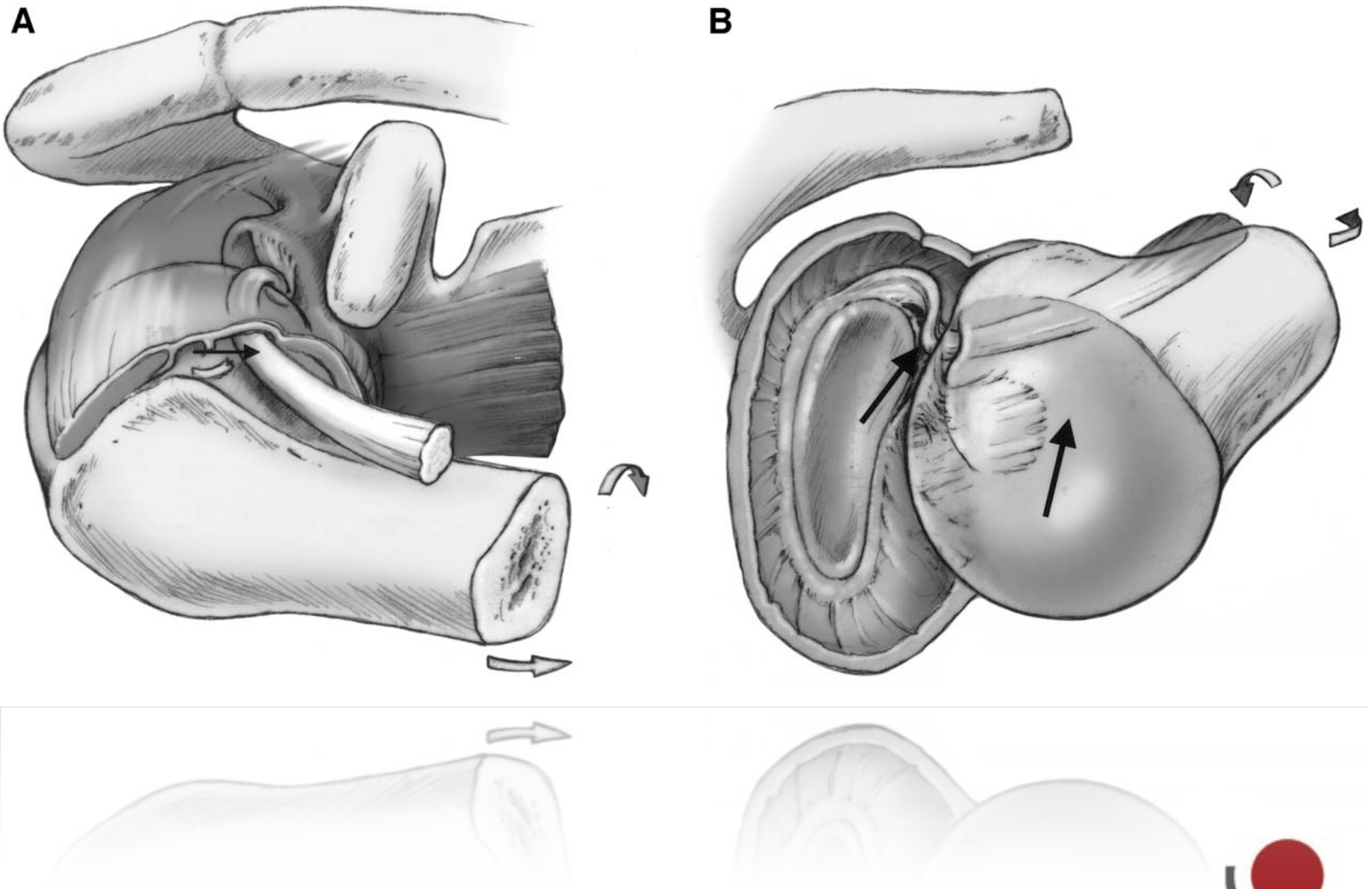
mediale Luxation der LBS (ASI)



Habermeyer 2004 JSES

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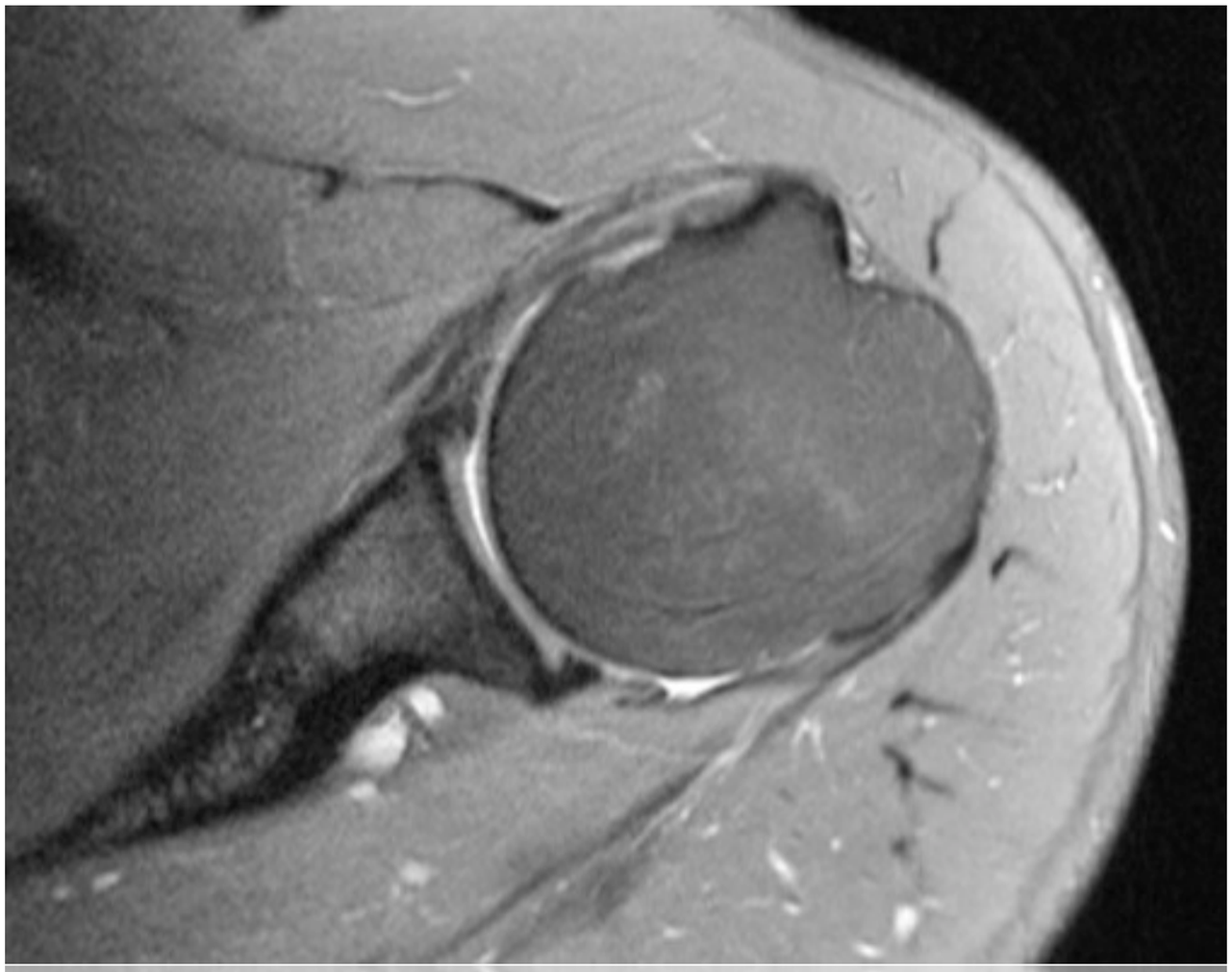
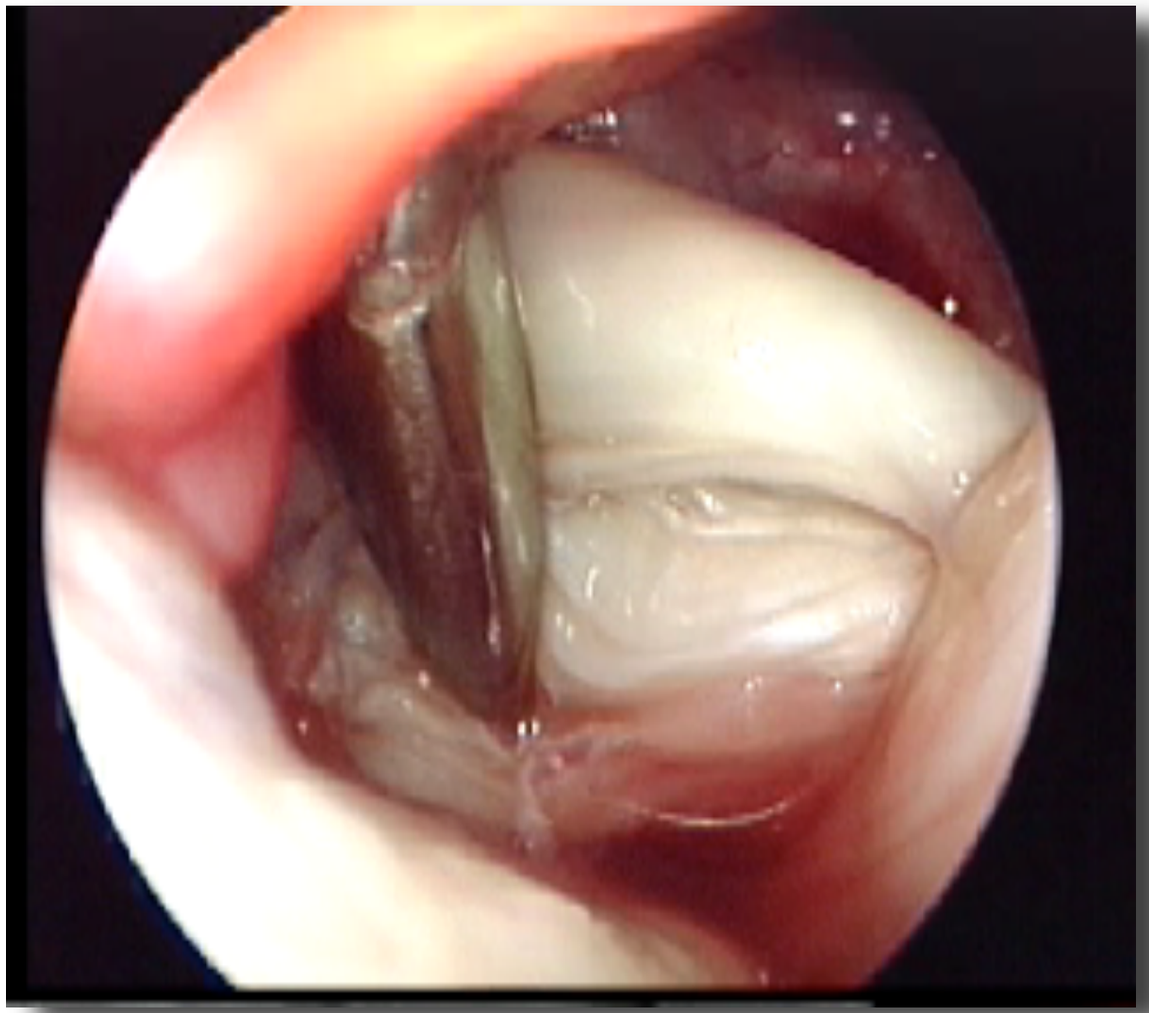
Partialruptur SSC





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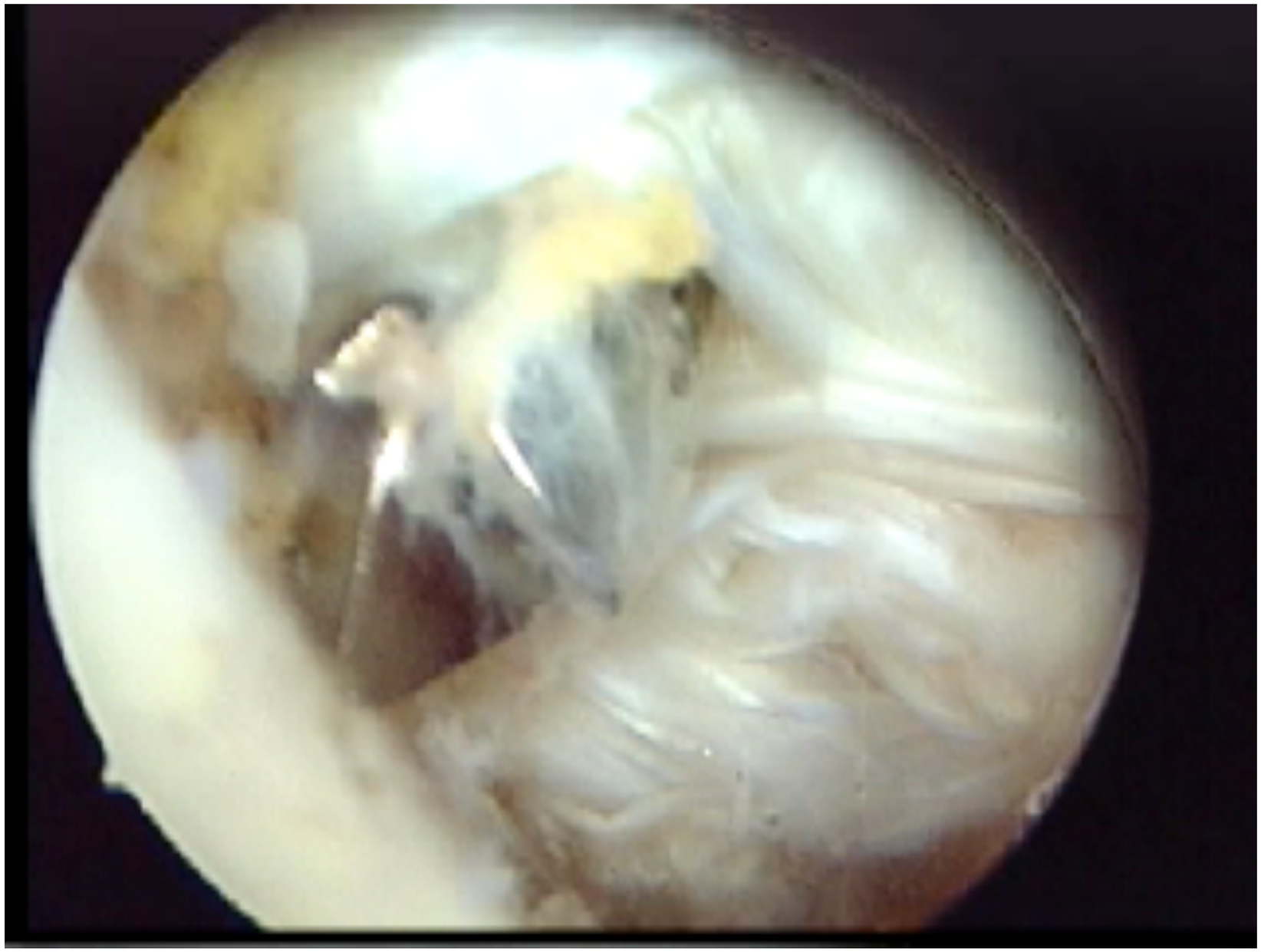
Partialruptur Subscapularissehne



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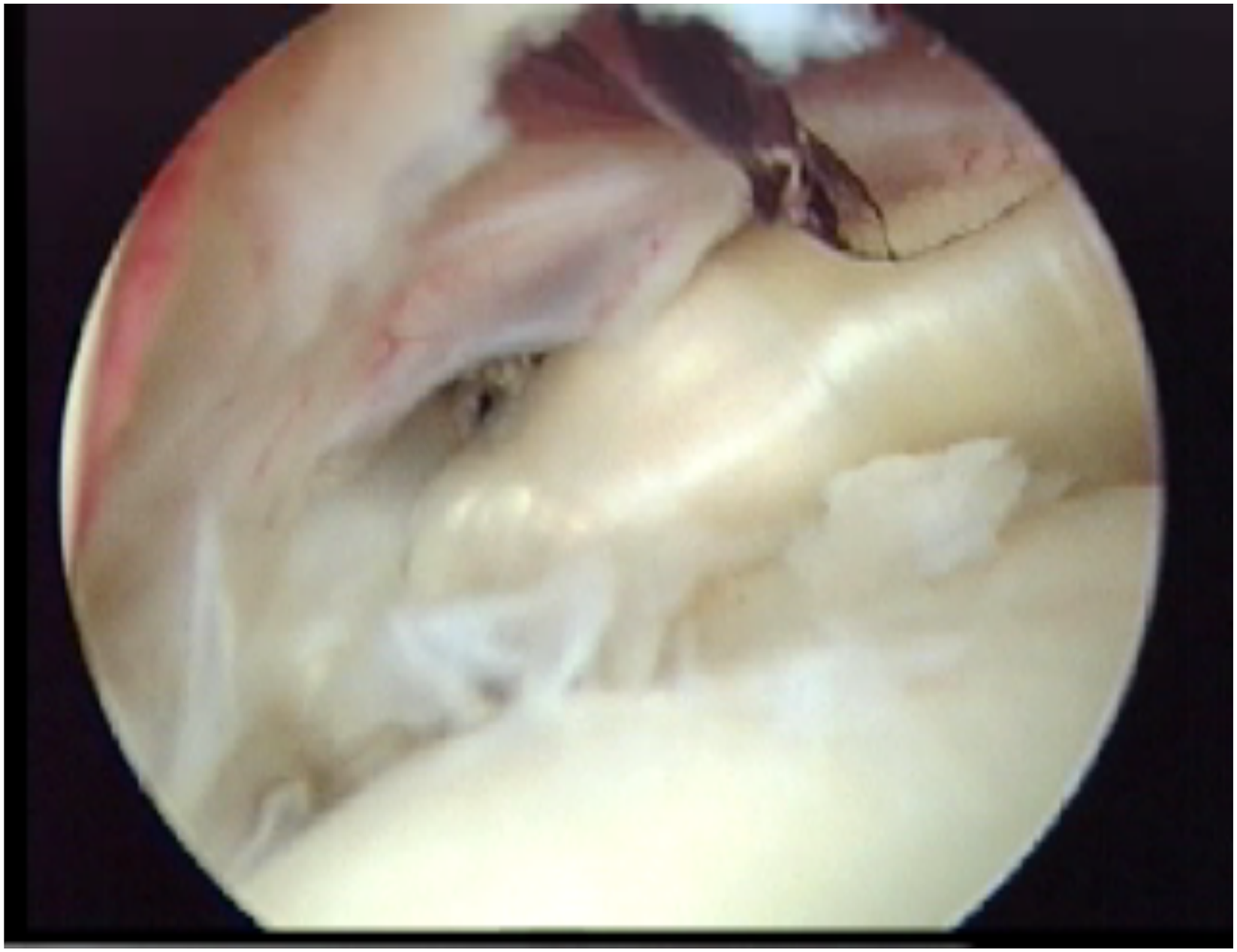
Erhalt der LBS nur bei Stabilität



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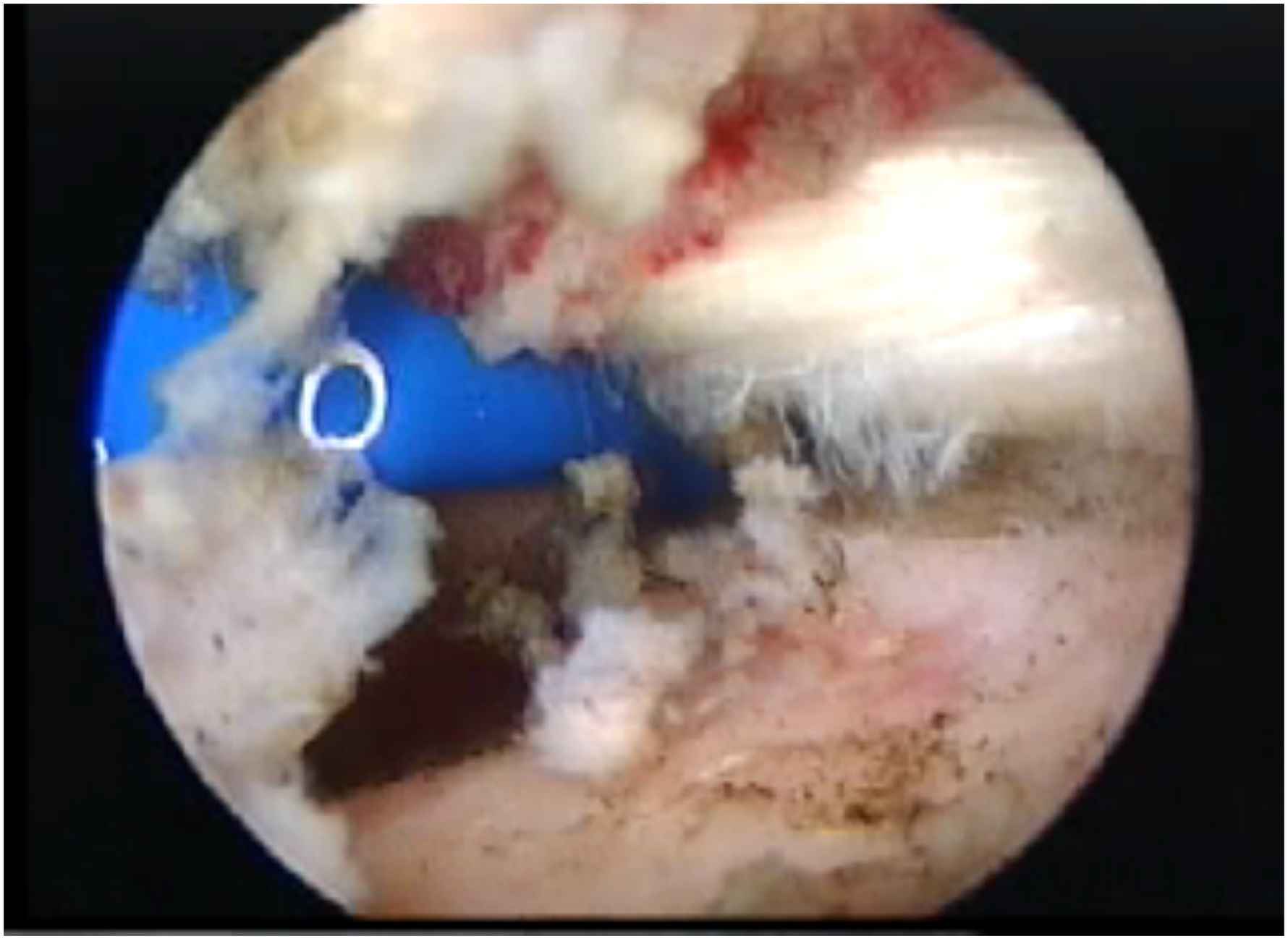
Bizepstenodese arthroskopisch



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Bizepstenodese arthroskopisch

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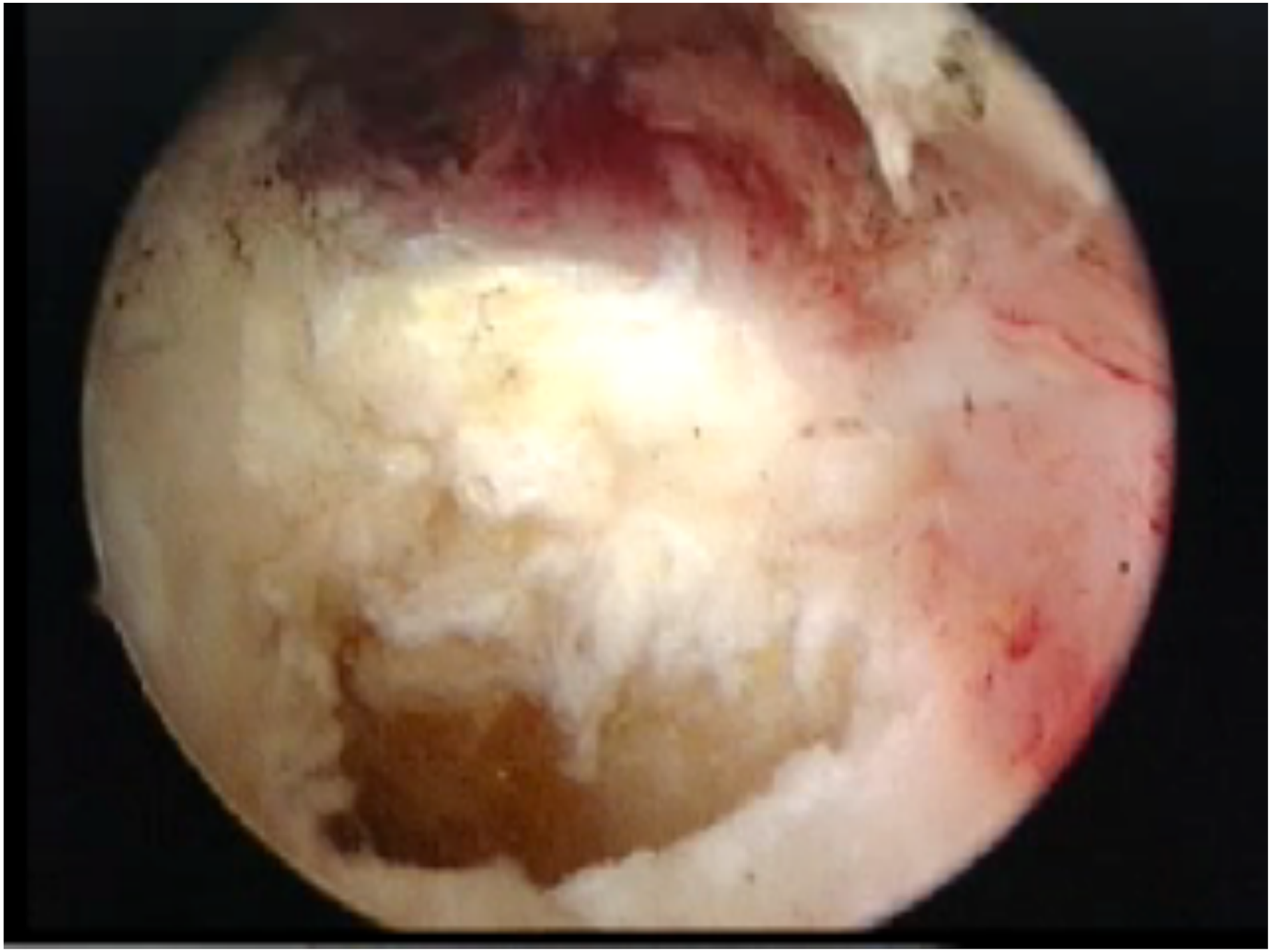
Bizepstenodese arthroskopisch



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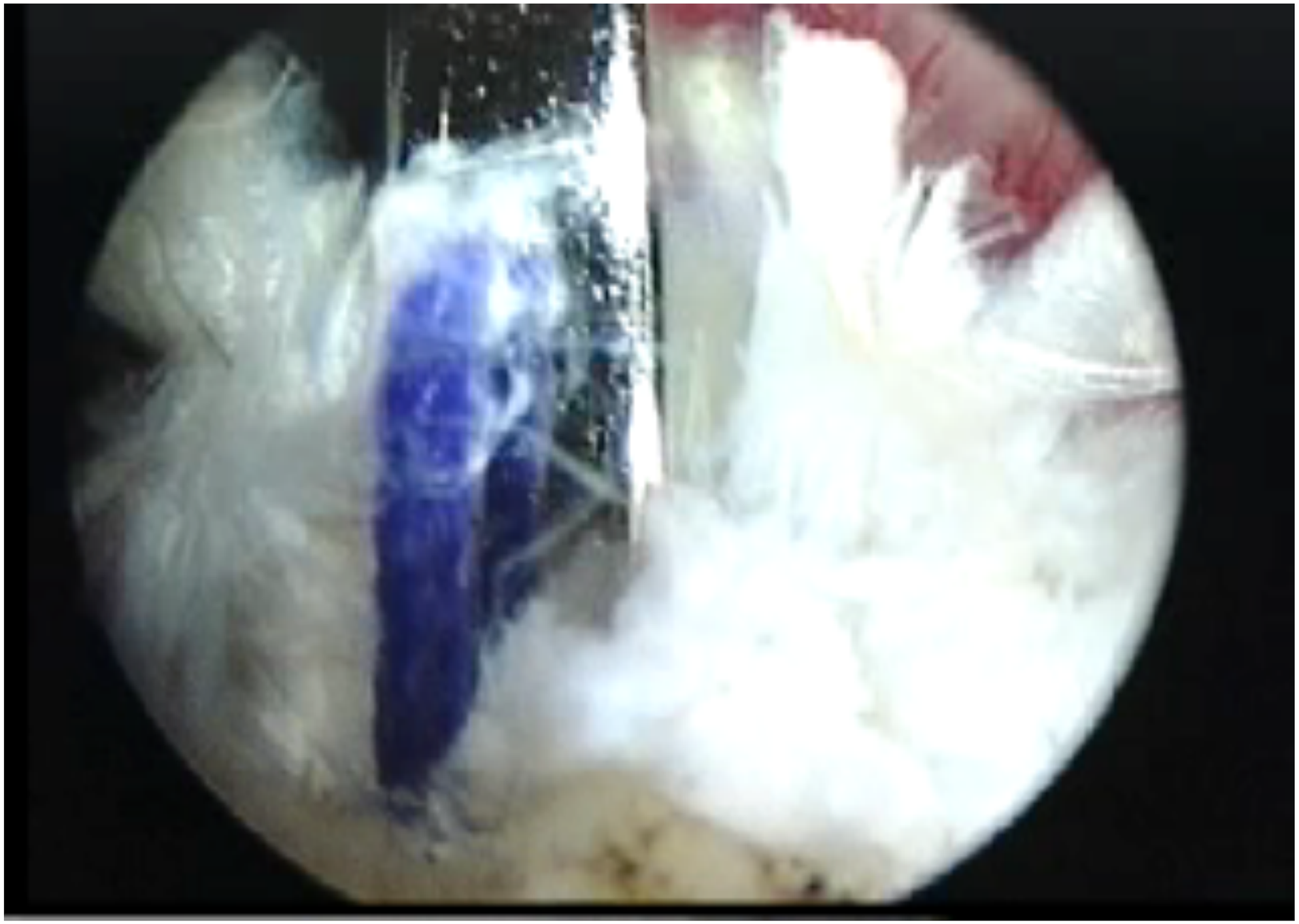
Bizepstenodese arthroskopisch



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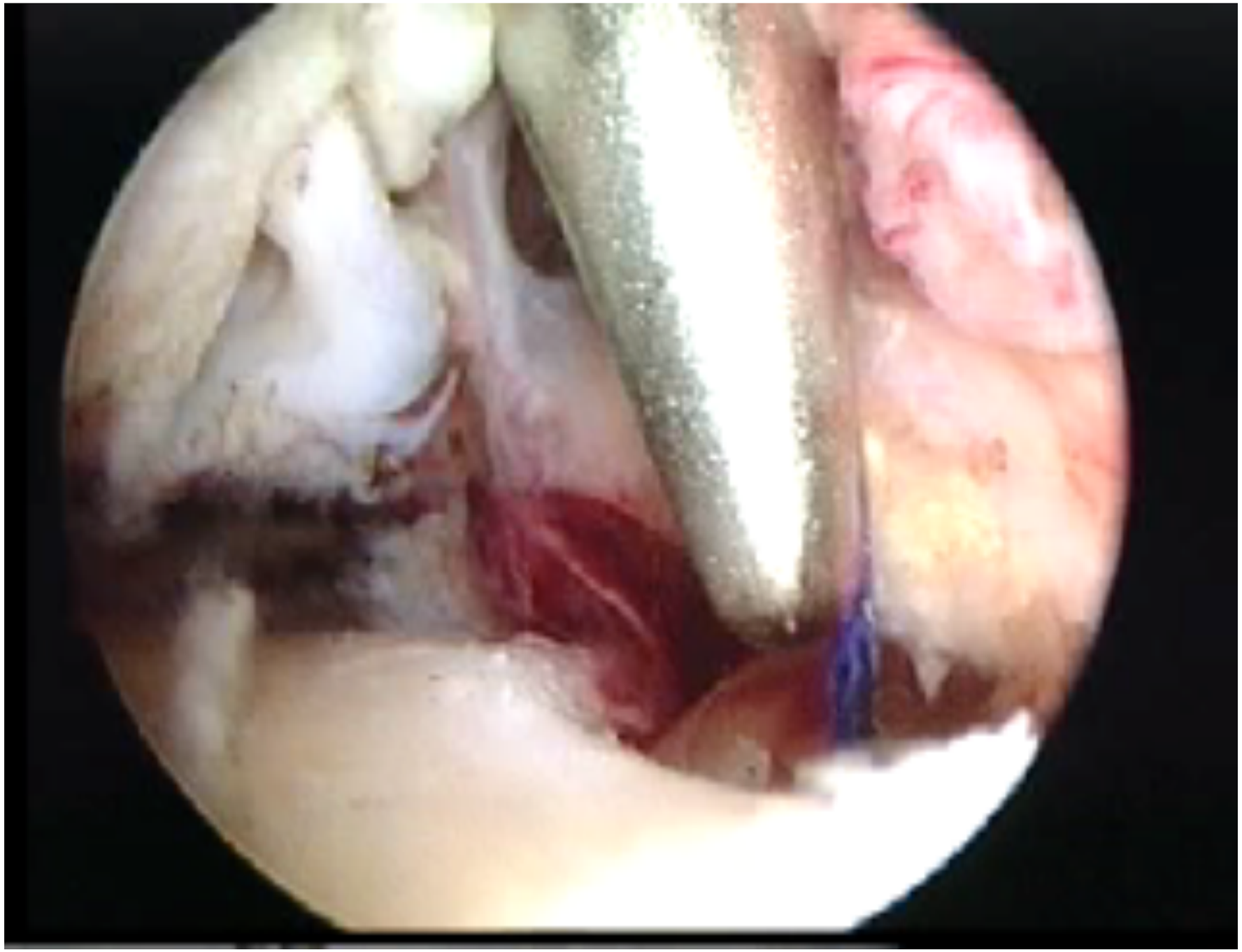
Bizepstenodese arthroskopisch



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Therapie der Wahl

- bei instabiler Bizepssehne:
- operativ, da:
- konservativ geringe Erfolgschance
- Fortschreiten der Ruptur

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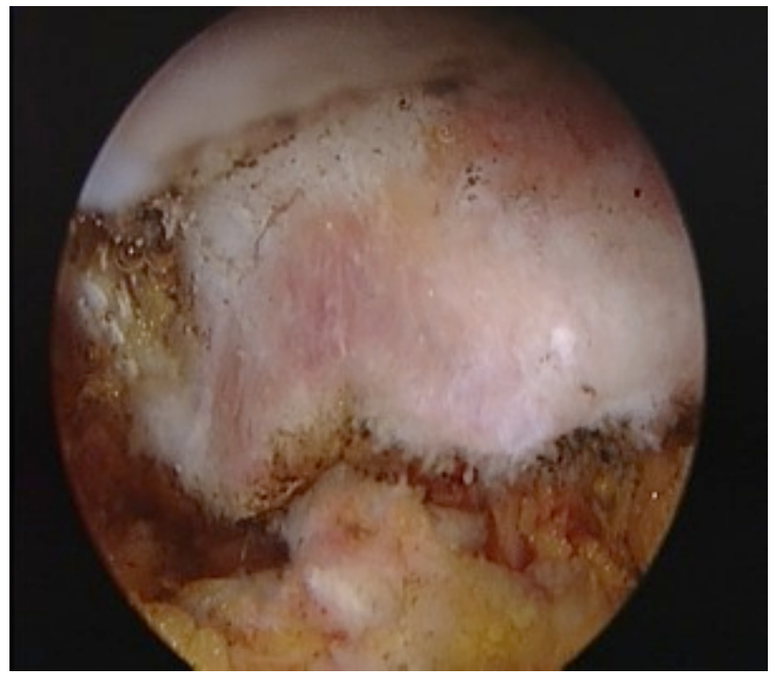
Zusätzliche SAD?

- Vgl. Reko mit SAD vs. Reko ohne SAD
  kein Unterschied
  Gartsman 2004 JSES, Milano 2007 Arthroscopy



- Acromioplastik nur selten indiziert, da:
  - ... durch Reko HK-Depression
  - ... bei Re-Ruptur (60% ?) fehlendes HK-Widerlager
- bei Acromionsporn (B-Läsionen!)
- ACG-Resektion nur wenn symptomatisch

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Nachbehandlung

- Vermeidung von passiven bzw. aktiven Stress auf rekonstruierte Sehne.
- Passive Beübung (CPM)
  - Garofalo R,.. Castagna A 2010 (short term follow up)
- Abduktionskissen (ggf. bei isolierten SSC-Rekonstruktionen Medi-Sling)
- restriktive KGÜ

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Tipps

- Ausreichendes Debridement subacromial
- Wechsel der Optik zwischen den Portalen
- Systolischer Druck unter 100 mmHg
- Keine Kanülen (weniger Schwellung)
- “Umshutteln“ der Fäden zur Vermeidung von Weichteilbrücken

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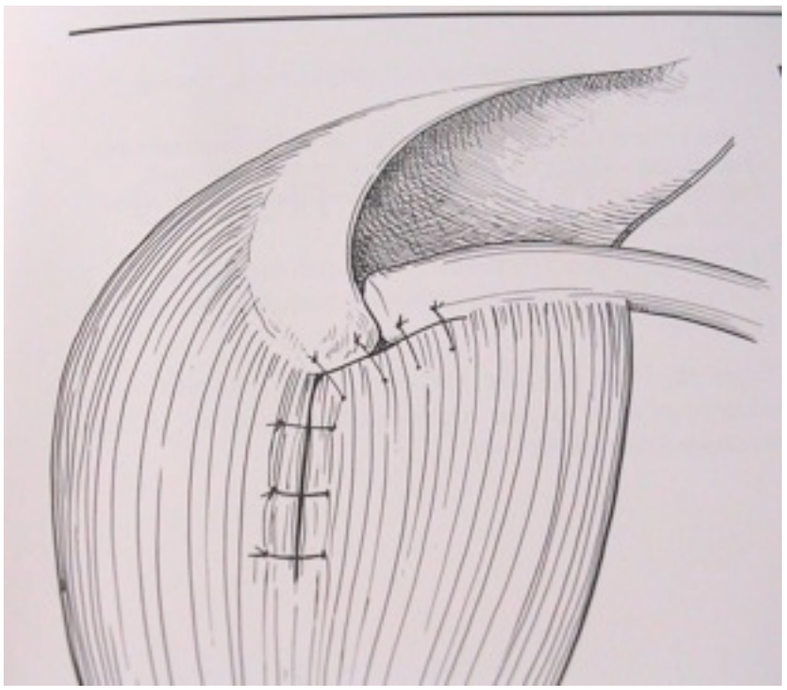
Vorteil arthroskopische Reko



- Geringere Morbidität und Schonung des Deltamuskels
  - Payne 1997 AJSM, Gagey 2000 Clin Orthop
- Gleiche (bessere) Mobilisierungsmöglichkeit als offen
  - Gartsman 1996 Arthroscopy
- Bessere Beurteilung der Ruptur / Sehne
  - Burkhart 2000 Arthroscopy
- ambulante Versorgung möglich

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Nachteil

- Lernkurve
- Zeit
- Kostenintensiv
- DRG!

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Vergleich ASK vs mini-open

	mini open	ASK
Kosten	7.841 $	8.985 $
Zeit	103 Minuten	113 Minuten

- Eingriff bei Zentren mit hoher OP-Zahl (>200 RM/Jahr) signifikant teurer
  - Churchill RS 2010 JSES

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Ergebnis nach ASK-Reko Komplettruptur

- n=65, F/U= 6-36 Monate
- 46 mit kompletter Heilung
- 3 noch Partialläsion
- 15 kleinerer Defekt

Boileau P 2005 JBJS Am

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Ergebnisse RM-Reko

- restriktive Nachbehandlung: weniger Re-Ruptur, keine Steifigkeit
- operative Therapie besser als konservative Therapie (Funktion und Schmerz)
- Muskeldegeneration /-verfettung korreliert mit Outcome
- Irreparable RM-Läsion: Debr +LBS Tenodese
- Re-Rupturrate mit double row geringer?

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Ergebnis

- Vgl. offen -arthroskopisch
  Patientenzufriedenheit und Funktion höher (auch zu Beginn der Lernkurve!) sowie geringere Schmerzen
  - Buess 5/2005 Arthroscopy
- Vgl. mini open - arthroskopisch
  gleiches Ergebnis
  - JP Warner 3/2005 Arthroscopy
- Vgl. mini open - arthroskopisch
  nach 3 Monaten besser, sonst gleich
  - Kang 6/2007 Arthroscopy

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Ergebnis

- keine klinischen Unterschiede zwischen mini-open und arthroskopischer Technik
  - Duquin TR 2010 AJSM (Review)

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