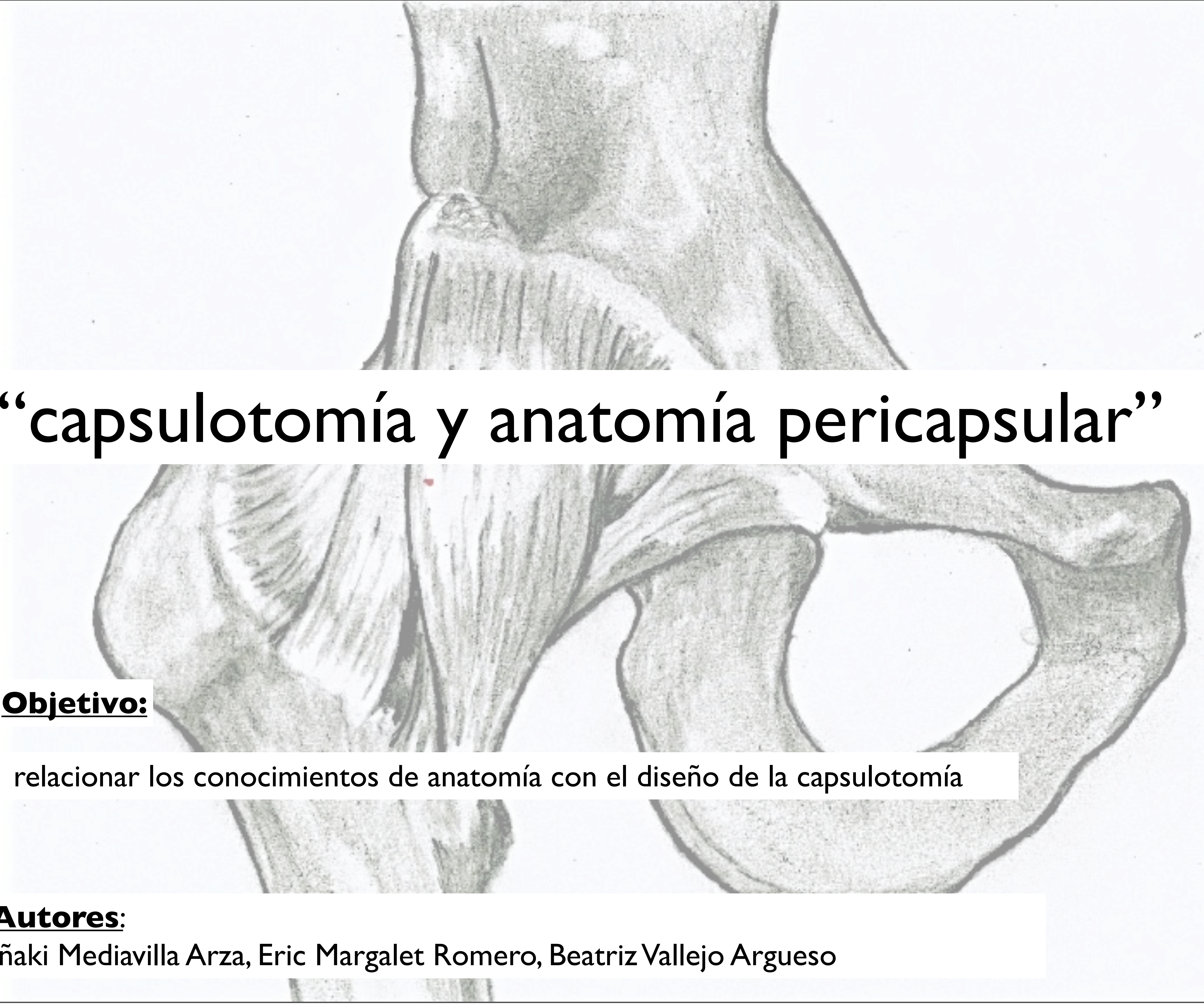
22_24 de abril /2015

Dr. IÑAKI MEDIAVILLA

Prof. Asociado de la Universidad del Pais Vasco

Hospital Universitario Basurto

Bilbao



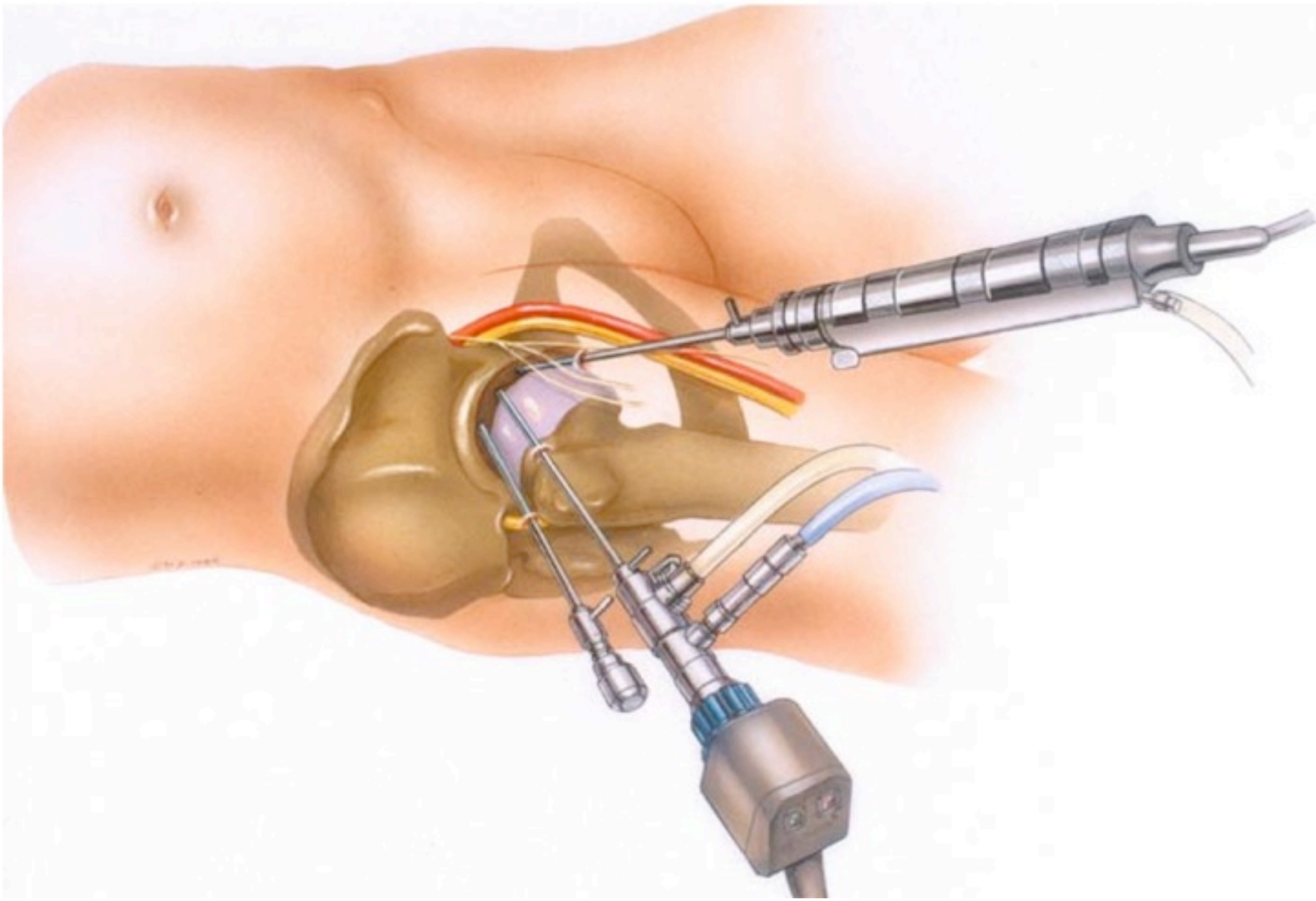
“capsulotomía y anatomía pericapsular”

Objetivo:

relacionar los conocimientos de anatomía con el diseño de la capsulotomía

Autores:
Iñaki Mediavilla Arza, Eric Margalet Romero, Beatriz Vallejo Argueso

capsulotomía



2007

During hip arthroscopy, an anterior capsulotomy is typically performed at the beginning of the procedure with the goal of increasing the maneuverability of instruments and visualization of the joint. In most cases, the incision starts 1 cm from the acetabular rim and continues parallel to the labrum, connecting both portals[23,25]; however there are

Arthroscopic management of femoroacetabular impingement: osteoplasty technique and literature review.
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Am J Sports Med. 2007;35(9):1571-1580.

2007

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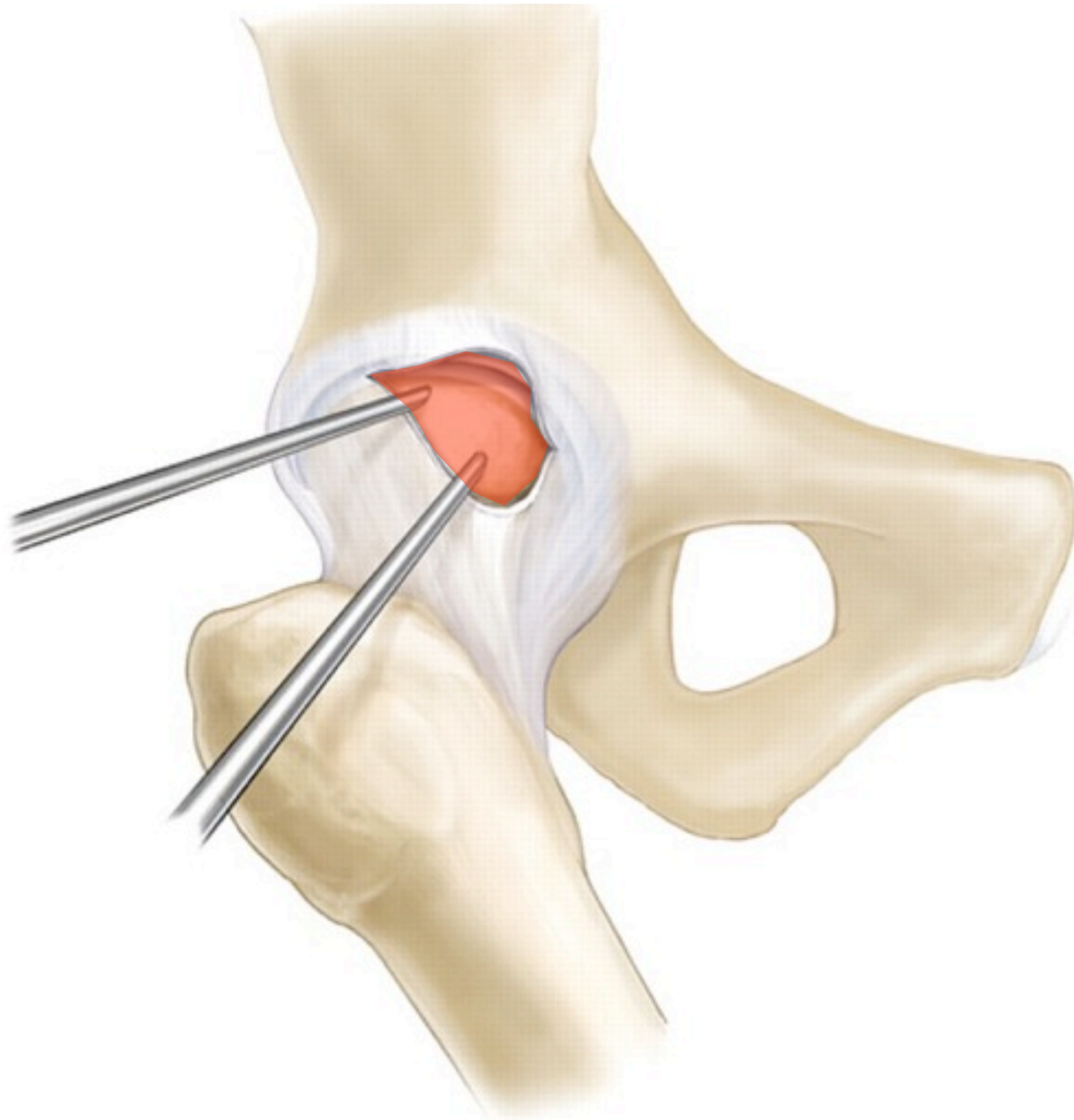


2010

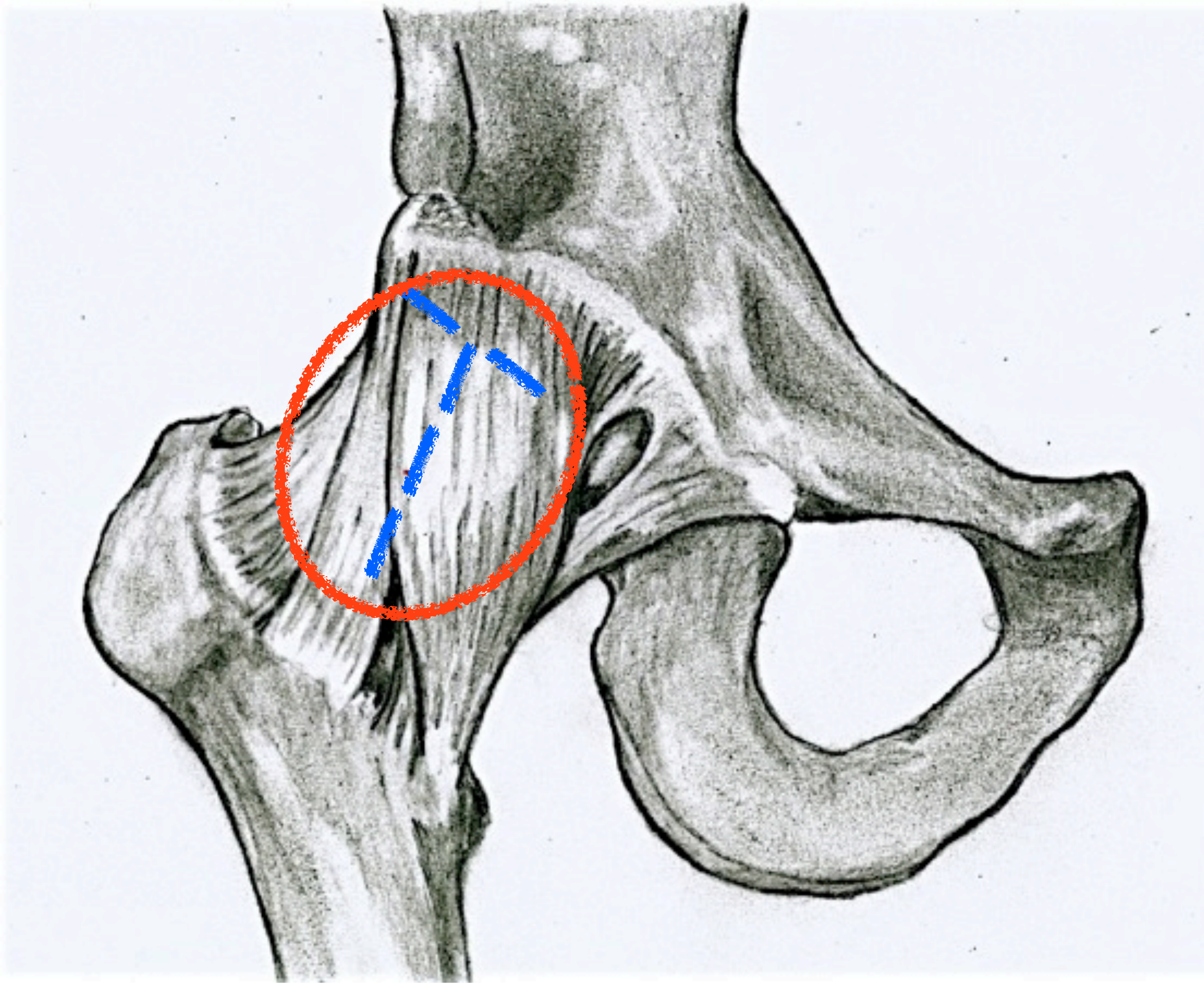
Nuevo abordaje artroscópico de la cirugía de cadera: técnica *out-inside*

Eric Margalet[1], Iñaki Mediavilla[2], Oliver Marín[3]

Capsulotomía

Con la ayuda del bisturí "banana" o de doble filo se inicia una capsulotomía siguiendo el eje del cuello femoral y siempre en sentido distal a proximal. Se continúa la capsulotomía (y se forma un ojal) con la ayuda del vaporizador **(Figura 8)**. Secuencialmente, visualizaremos primero el tejido óseo del cuello femoral y más proximalmente el cartílago articular cuya visión precede a la del *labrum*. Seguidamente, y sobre el hueso pélvico, se realiza una incisión transversal para poder exponer la inserción del *labrum* **(Figura 9)**.

Cuadernos de Artroscopia. Vol. 17, fasc. 1, n.º 41, abril 2010



2003

Clarke MT, Villar RN.
Hip arthroscopy: complications in 1054 cases.
Clin Orthop Relat Res. 2003;406:84–88.

1054

2005

Sampson TG.
Complications of hip arthroscopy.
Techniques in Orthopedics. 2005;20:63–66.

1000

+

2008

Byrd JWT.
Complications associated with hip arthroscopy.
In: Byrd JWT, ed. Operative Hip Arthroscopy. New York: Thieme; 1998:171–176.

1491

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instability ....

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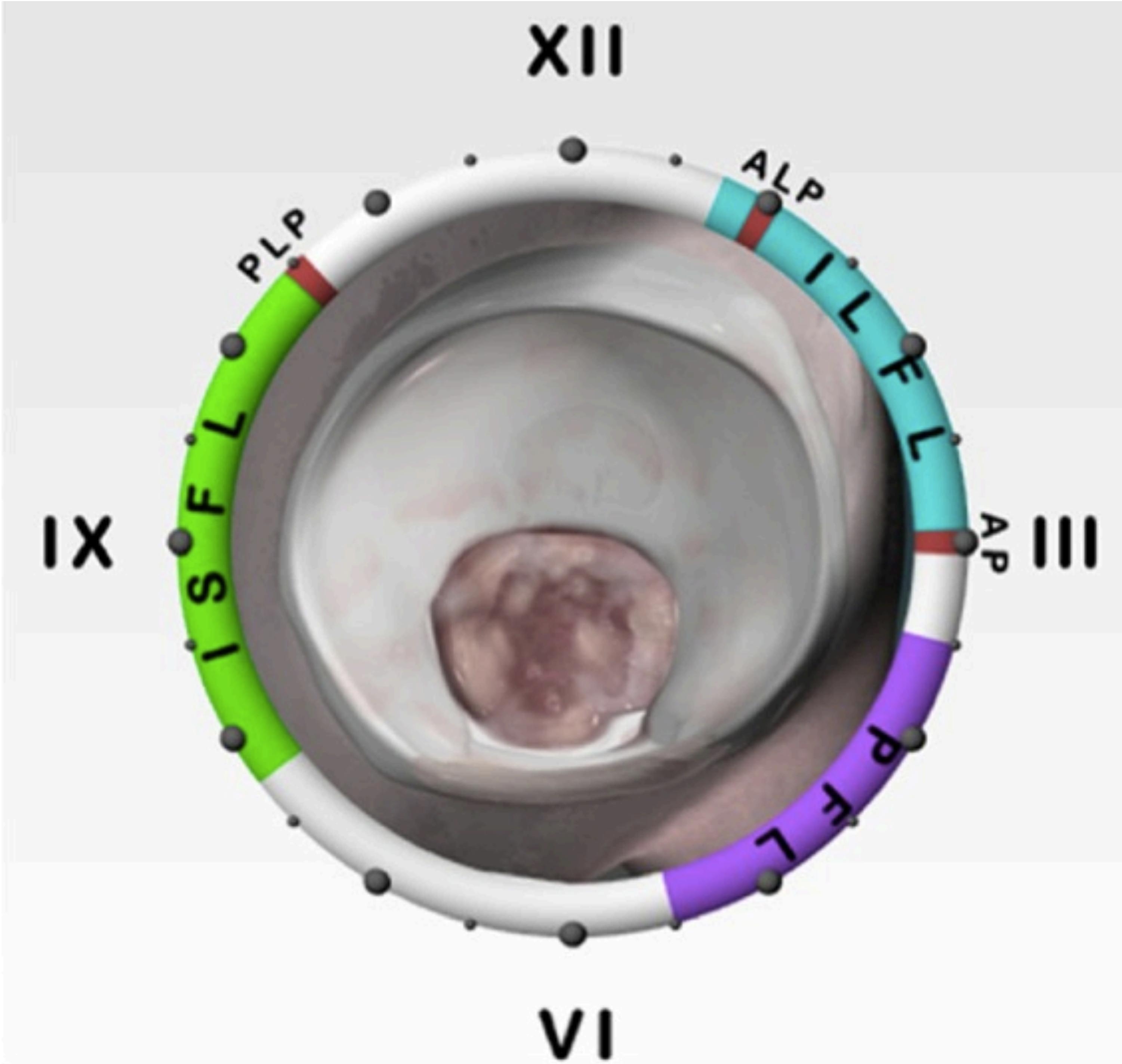
1491

instability 0

An Anatomic Arthroscopic Description of the Hip Capsular Ligaments for the Hip Arthroscopist

2011

Jessica J. M. Telleria, B.S., Derek P. Lindsey, M.S., Nicholas J. Giori, M.D., Ph.D., and Marc R. Safran, M.D.



Arthroscopy: The Journal of Arthroscopic and Related Surgery, Vol 27, No 5 (May), 2011: pp 628-636

2011

An Anatomic Arthroscopic Description of the Hip Capsular Ligaments for the Hip Arthroscopist

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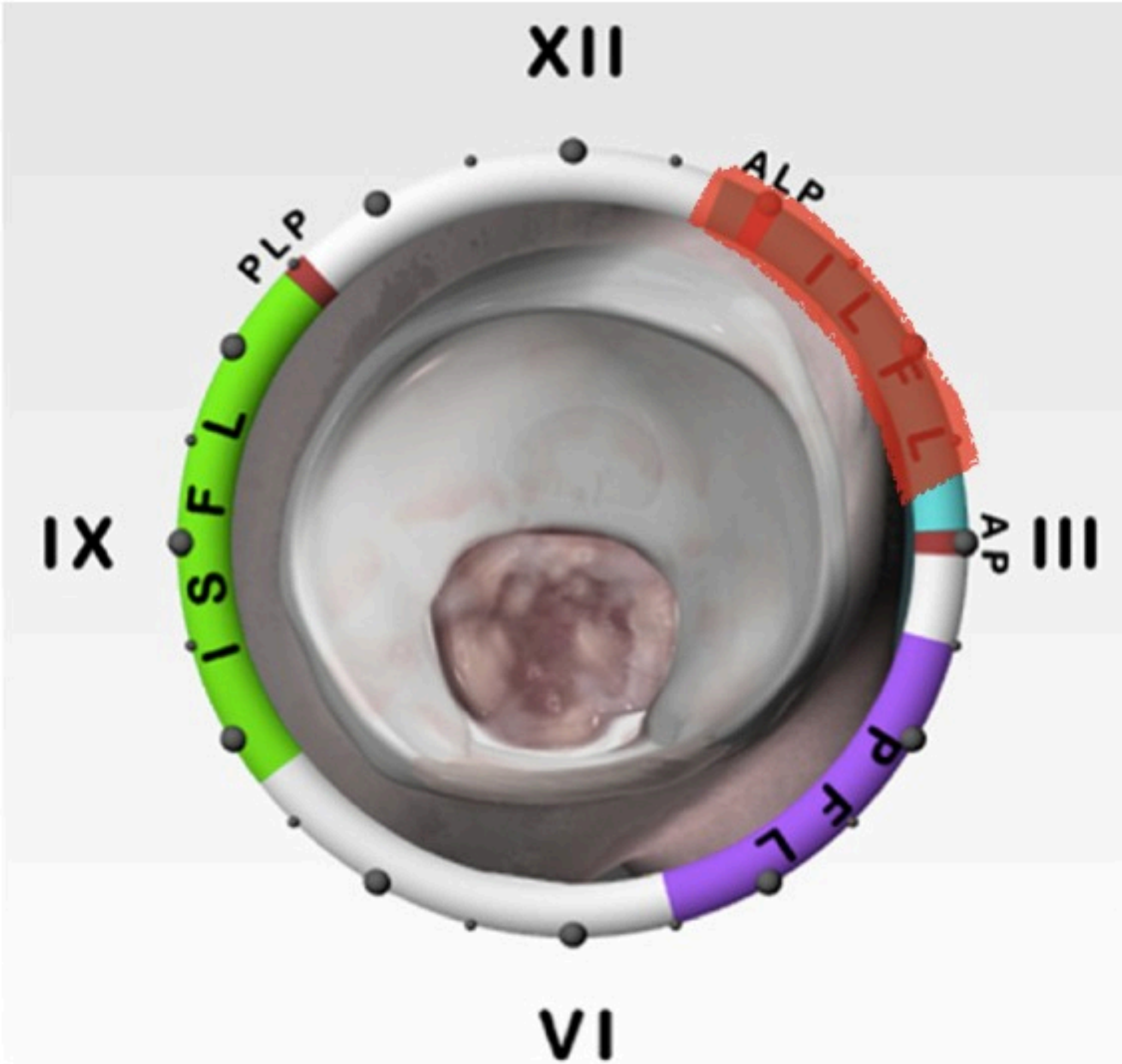

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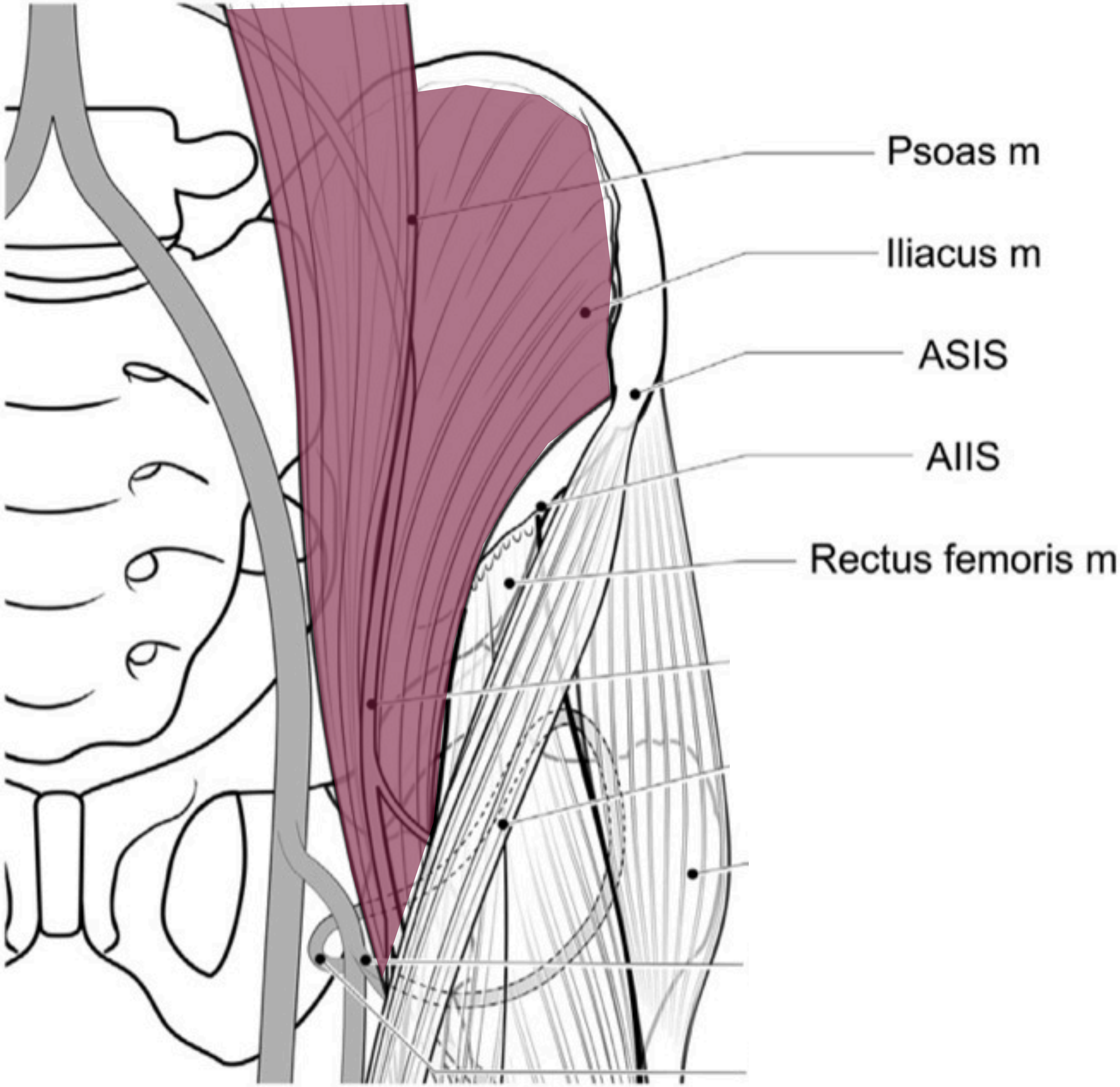
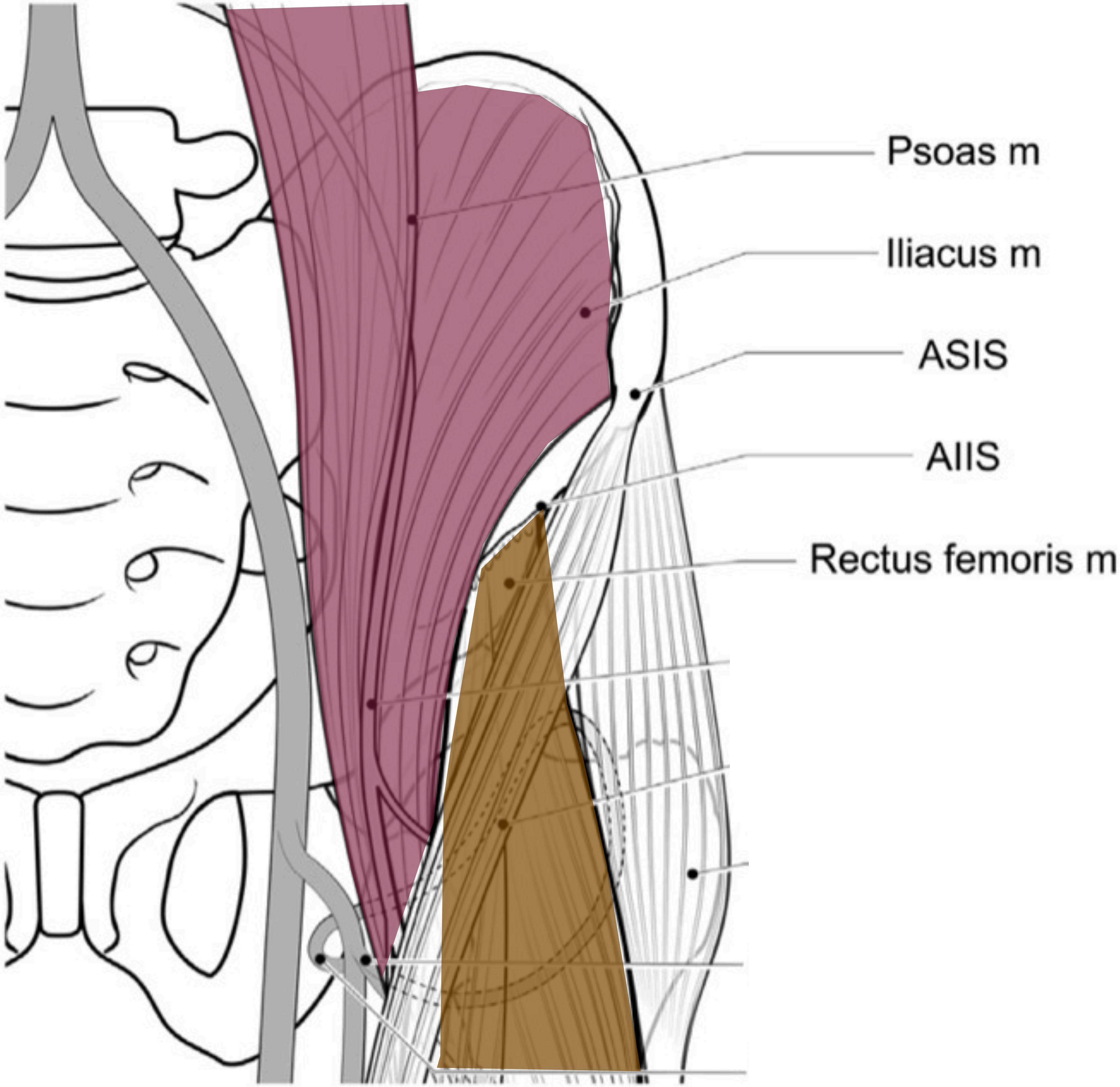
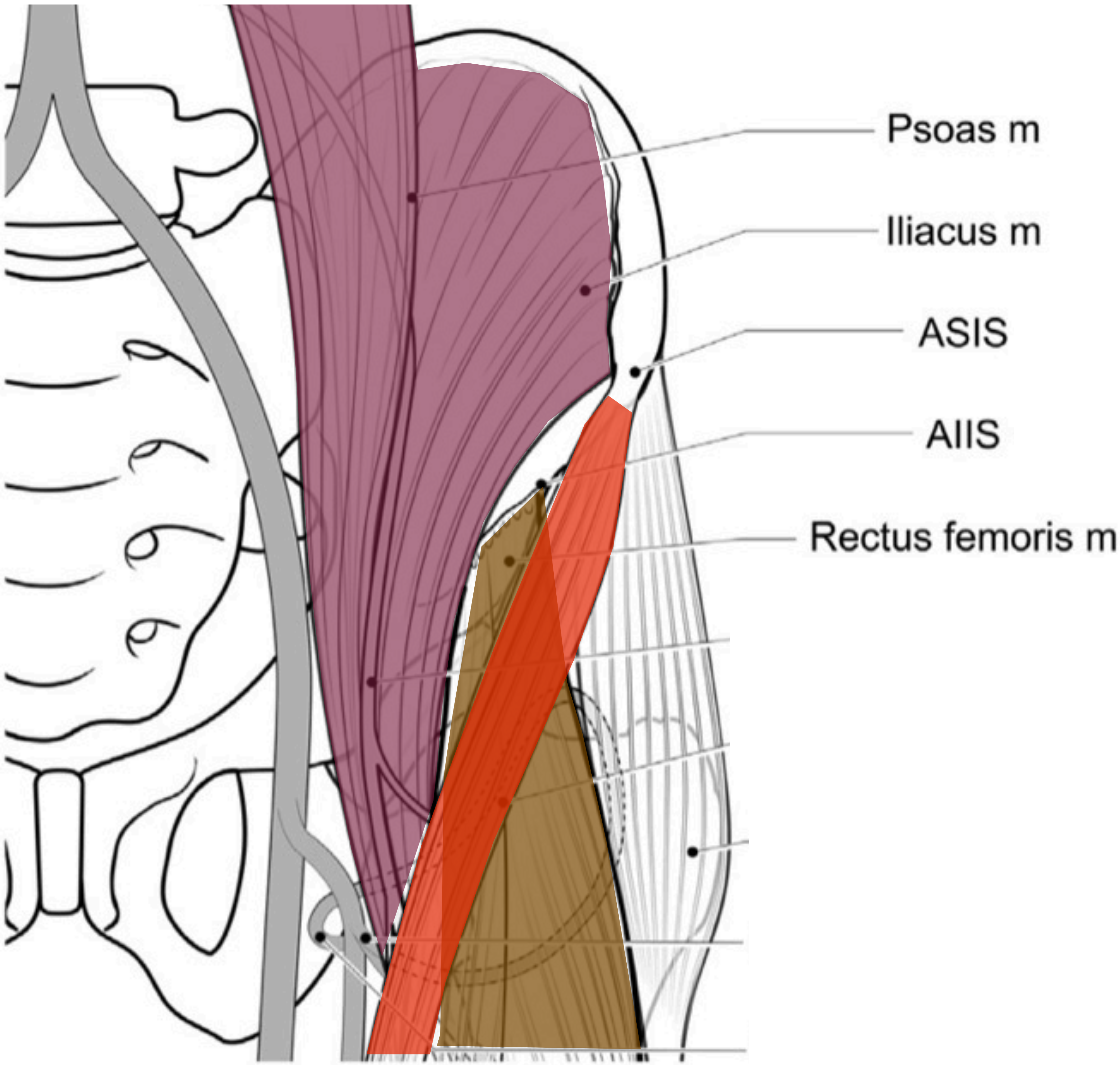

Psoas m
Iliacus m
ASIS
AIIS
Rectus femoris m


Psoas m
Iliacus m
ASIS
AIIS
Rectus femoris m

estabilización dinámica



2011

Role of the Acetabular Labrum and the Iliofemoral Ligament in Hip Stability

An In Vitro Biplane Fluoroscopy Study

Casey A. Myers,*† MSc, Bradley C. Register,‡ MD, Pisit Lertwanich,§ MD, Leandro Ejnisman,* MD, W. Wes Pennington,* MSc, J. Erik Giphart,* PhD, Robert F. LaPrade,* MD, PhD, and Marc J. Philippon,*|| MD
Investigation performed at the Biomechanics Research Department of the Steadman Philippon Research Institute, Vail, Colorado

Background: Recent biomechanical reports have described the function of the acetabular labrum and iliofemoral ligament in providing hip stability, but the relative stability provided by each structure has not been well described.

Hypothesis: Both the iliofemoral ligament and acetabular labrum are important for hip stability by limiting external rotation and anterior translation, with increased stability provided by the iliofemoral ligament compared with the acetabular labrum.

Study Design: Controlled laboratory study.

Methods: Fifteen fresh-frozen male cadaveric hips were utilized for this study. Each specimen was selectively skeletonized down to the hip capsule. Four tantalum beads were embedded into each femur and pelvis to accurately measure hip translations and rotations using biplane fluoroscopy while either a standardized 5 N·m external or internal rotation torque was applied. The hips were tested in 4 hip flexion angles (10° of extension, neutral, and 10° and 40° of flexion) in the intact state and then by sectioning and later repairing the acetabular labrum and iliofemoral ligament in a randomized order.

Results: External rotation significantly increased from the intact condition (41.5° ± 7.4°) to the sectioned iliofemoral ligament condition (54.4° ± 6.6°) and both-sectioned condition (61.5° ± 5.7°; $P < .01$), but there was no significant increase in external rotation when the labrum alone was sectioned (45.6° ± 5.9°). The intact and fully repaired conditions were not significantly different. External rotation and internal rotation significantly decreased when the hip flexion angle decreased from 40° of flexion to 10° of extension ($P < .01$) regardless of sectioned condition. Anterior translation varied significantly across sectioned conditions but not across flexion angles ($P < .001$). The ligament-sectioned (1.4 ± 0.5 mm), both-sectioned (2.2 ± 0.2 mm), and labrum-repaired (1.1 ± 0.2 mm) conditions all resulted in significantly greater anterior translation than the intact condition (−0.4 ± 0.1 mm) ($P < .001$).

Conclusion: The iliofemoral ligament had a significant role in limiting external rotation and anterior translation of the femur, while the acetabular labrum provided a secondary stabilizing role for these motions.

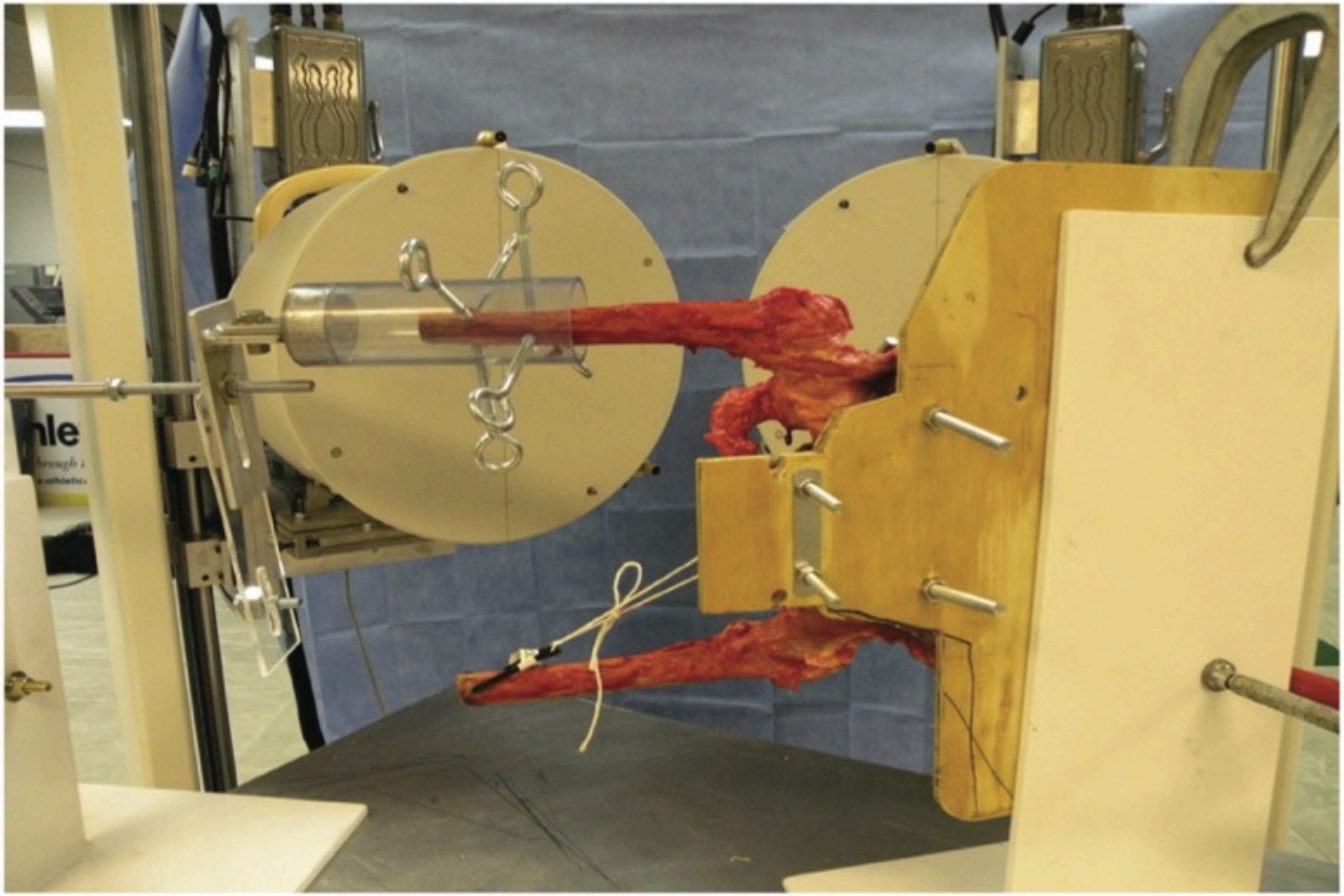
Clinical Relevance: These results suggest that, if injured, both the acetabular labrum and iliofemoral ligament should be surgically repaired to restore native hip rotation and translation. In addition, a careful repair of an arthroscopic capsulotomy should be performed to avoid increased external hip rotation and anterior translation after arthroscopy.

Keywords: iliofemoral ligament; acetabular labrum; hip stability; capsulotomy; hip biomechanics

Hip instability has gained interest in recent years as a cause of pain and disability in the athletic population. The healthy human hip is an inherently stable joint primarily because of the bony congruence between the femoral head and acetabulum. However, the unique soft tissue anatomy surrounding the hip joint is also important in maintaining hip stability, particularly in the presence of hip injury or lesions. The iliofemoral ligament is the strongest of the 3 capsular ligaments and functions to restrict extension and external rotation of the hip.[13,16,18] Additionally, the acetabular labrum is a fibrocartilage ring that attaches to the near-circular outer rim of the acetabulum and limits femoral head translation by deepening the hip socket and maintaining negative intra-articular pressure.[8,11,22]

Athletes who participate in sports causing repetitive twisting and pivoting of the hip frequently suffer from a combination of anterior labral tears, elongation of the iliofemoral ligament, and hip microinstability.[1,9] Loads as high as 5 times body weight have been reported in the hip during running, with potentially greater loads present during more dynamic movements.[7,26] Additionally,

The American Journal of Sports Medicine, Vol. 39, Supplement 1
DOI: 10.1177/0363546511412161



ligamento ileofemoral:

- primero lo corta

ligamento ileofemoral:

- primero lo corta → - para decir que estabiliza

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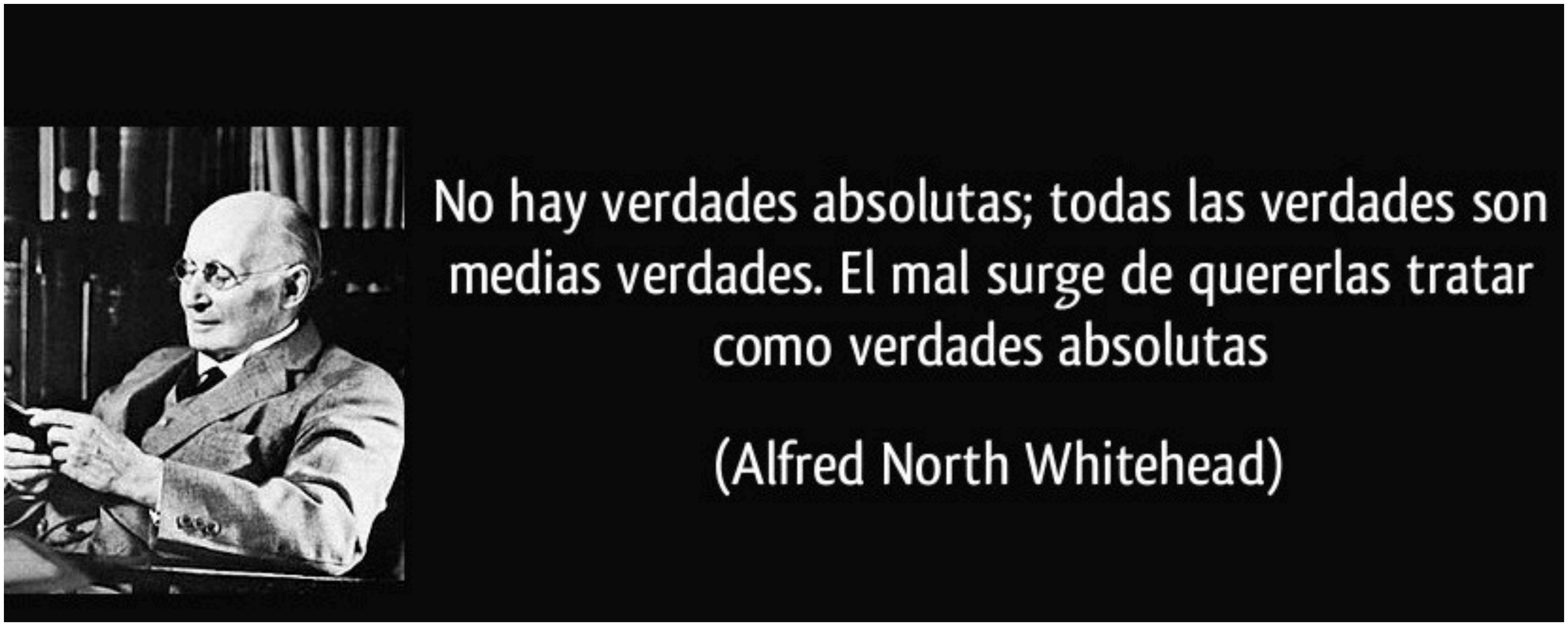
¡ a coser cápsulas!


No hay verdades absolutas; todas las verdades son medias verdades. El mal surge de quererlas tratar como verdades absolutas
(Alfred North Whitehead)

¡sesgo conceptual!


Iliofemoral ligament
¿cómo cicatriza?

<u>choque femoroacetabular (cfa):</u>

- tipo “cam”
- tipo “pincer”

choque femoroacetabular (cfa):

a) - cfa intrarticular:

- tipo “cam”

- tipo “pincer”

b) - cfa extraarticular:

- deformidad EIAI

- “impingement” del psoas

2011

Iliopsoas Impingement: A Newly Identified Cause of Labral Pathology in the Hip

Benjamin G. Domb, MD · Michael K. Shindle, MD · Benjamin McArthur, MD · James E. Voos, MD · Erin M. Magennis, BA · Bryan T. Kelly, MD

Received: 16 April 2010/Accepted: 7 February 2011/Published online: 1 April 2011

Abstract Labral tears typically occur anterosuperiorly in association with femoroacetabular impingement or dysplasia. Less commonly, labral pathology may occur in an atypical direct anterior location adjacent to the iliopsoas tendon in the absence of bony abnormalities. We hypothesize that this pattern of injury is related to compression or traction on the anterior capsulo-labral complex by the iliopsoas tendon where it crosses the acetabular rim. In a retrospective review of prospectively collected data, we identified 25 patients that underwent isolated, primary, unilateral iliopsoas release and presented for at least 1 year follow-up (mean 21 months). Pre-operative demographics, clinical presentation, intra-operative findings, and outcome questionnaires were analyzed. The injury was treated with a tenotomy of the iliopsoas tendon at the level of the joint line and either labral debridement or repair. Mean post-operative outcome scores were 87.17, 92.46, and 78.8 for the modified Harris Hip Score, activities of daily living Hip Outcome Score, and sports-related score, respectively. The atypical labral injury identified in this study appears to represent a distinct pathological entity, psoas impingement, with an etiology which has not been previously described.

Keywords psoas impingement · hip arthroscopy · labral tears

Each author certifies that he or she has no commercial associations (e.g., consultancies, stock ownership, equity interest, patent/licensing arrangements, etc.) that might pose a conflict of interest in connection with the submitted article.

Each author certifies that his or her institution has approved the reporting of this case, that all investigations were conducted in conformity with ethical principles of research.

Level of Evidence: Level IV: Case Series

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535 East 70th Street New York, NY 10021, USA

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M. K. Shindle, MD (✉)
Summit Medical Group,
1 Diamond Hill Road,
Berkely Heights, NJ 07922, USA
e-mail: MShindle@smgnj.com

Introduction

Recent developments in hip arthroscopy have led to increased recognition of labral tears in the hip [2, 4, 7, 12, 14, 19, 21, 22, 27, 29–31]. Multiple etiologies have been identified, including femoroacetabular impingement (FAI), trauma, dysplasia, capsular laxity, and degenerative joint disease. The vast majority of labral tears are associated with bony abnormalities, including bony lesions seen with FAI [40].

The most common location of labral tears is in the anterosuperior region, which can be accurately described as the 1 to 2 o'clock position [4, 29]. This location corresponds to the most frequent area of impingement in FAI, which generally occurs in hip flexion, adduction, and internal rotation. However, we have observed a distinct pattern of labral pathology which occurs in a direct anterior location in the labrum or 3 o'clock position, which could not be attributed to any of the known etiologies of labral injuries. This was a distinct 3 o'clock lesion, exactly at the iliopsoas notch, without any extension anterosuperiorly. In other words, it was too focal to be related to femoroacetabular impingement or dysplasia. These injuries have included some labra with frank tears and mucoid degeneration, while other labra have an inflamed appearance without a tear. We have recognized that these labral injuries at the 3 o'clock position consistently occur directly beneath the iliopsoas tendon, which lies in an extra-articular position immediately adjacent to the capsule at the 3 o'clock position.

2013

Clin Orthop Relat Res (2013) 471:2497–2503
DOI 10.1007/s11999-013-2847-4

Clinical Orthopaedics and Related Research®
A Publication of The Association of Bone and Joint Surgeons®

SYMPOSIUM: ADVANCED HIP ARTHROSCOPY

Anterior Inferior Iliac Spine Morphology Correlates With Hip Range of Motion: A Classification System and Dynamic Model

Iftach Hetsroni MD, Lazaros Poultsides MD,
Asheesh Bedi MD, Christopher M. Larson MD,
Bryan T. Kelly MD

Published online: 15 February 2013

Abstract

Background The anterior inferior iliac spine (AIIS) contributes to hip dysfunction in patients with symptomatic impingement and resection of a prominent AIIS can reportedly improve function. However, the variability of the AIIS morphology and whether that variability correlates with risk of associated symptomatic impingement are unclear.

Questions/purposes We characterized AIIS morphology in patients with hip impingement and tested the association between specific AIIS variants and hip range of motion.

Methods We evaluated three-dimensional CT reconstructions of 53 hips (53 patients) with impingement and defined three morphological AIIS variants: Type I when there was a smooth ilium wall between the AIIS and the acetabular rim, Type II when the AIIS extended to the level of the rim, and Type III when the AIIS extended distally to the acetabular rim. A separate cohort of 78 hips (78 patients) with impingement was used to compare hip range of motion among the three AIIS types.

Results Mean hip flexion was limited to 120°, 107°, and 93° in hips with Type I, Type II, and Type III AIIS, respectively. Mean internal rotation was limited to 21°, 11°, and 8° in hips with Type I, Type II, and Type III AIIS, respectively.

Conclusions When the AIIS is classified into three variants based on the relationship between the AIIS and the acetabular rim in patients with impingement, Type II and III variants are associated with a decrease in hip flexion and internal rotation, supporting the rationale for considering AIIS decompression for variants that extend to and below the rim.

Level of Evidence Level III, diagnostic study. See Guidelines for Authors for a complete description of levels of evidence.

Each author certifies that he or she, or a member of his or her immediate family, has no funding or commercial associations (eg, consultancies, stock ownership, equity interest, patent/licensing arrangements, etc) that might pose a conflict of interest in connection with the submitted article.
All ICMJE Conflict of Interest Forms for authors and *Clinical Orthopaedics and Related Research* editors and board members are on file with the publication and can be viewed on request.
Each author certifies that his or her institution approved the human protocol for this investigation, that all investigations were conducted in conformity with ethical principles of research, and that informed consent for participation in the study was obtained.
This work was performed at the Hospital for Special Surgery, New York, NY, USA.

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A. Bedi
MedSport, Sports Medicine and Shoulder Surgery, University of Michigan, Ann Arbor, MI, USA

C. M. Larson
Minnesota Orthopedic Sports Medicine Institute at Twin Cities Orthopedics, Edina, MN, USA

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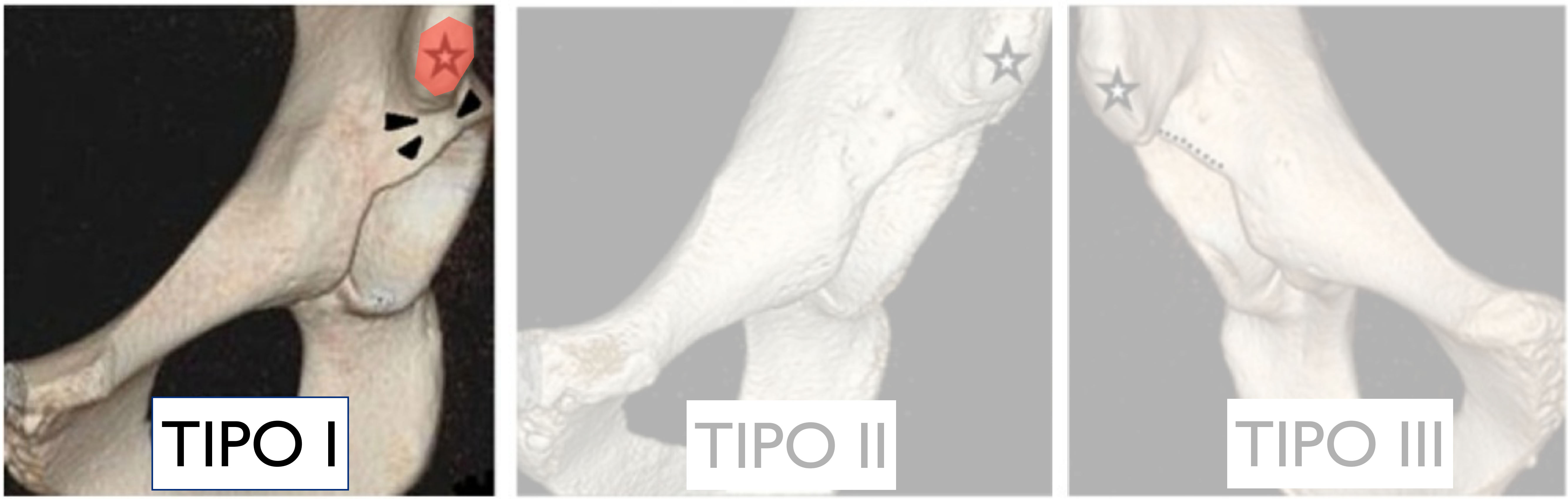

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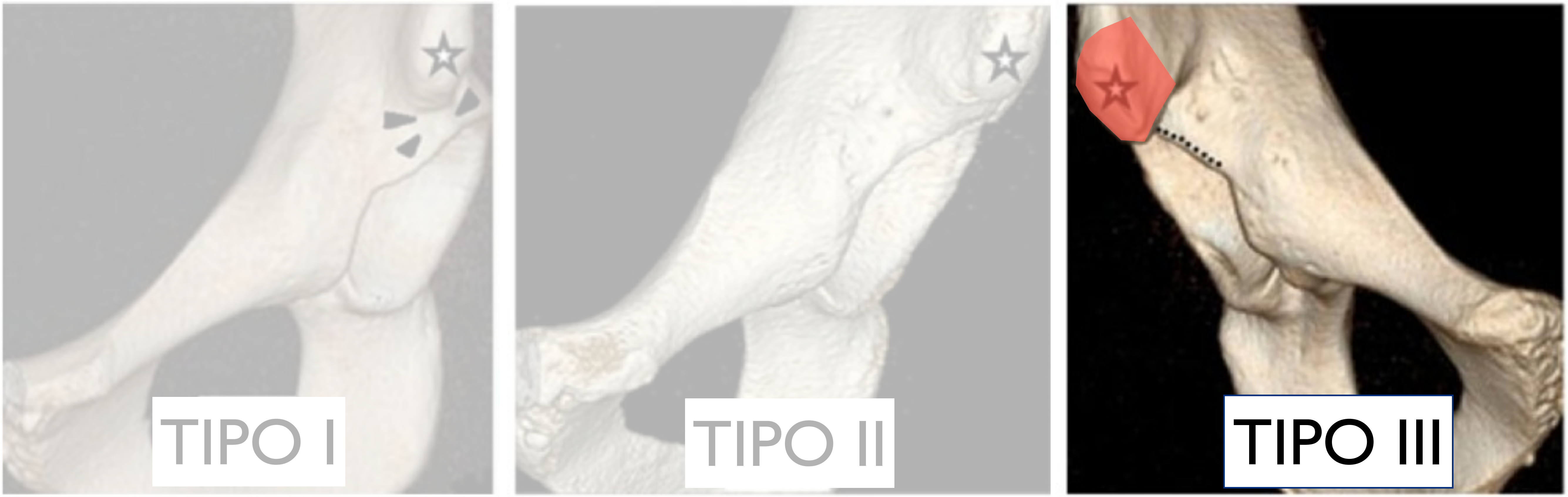
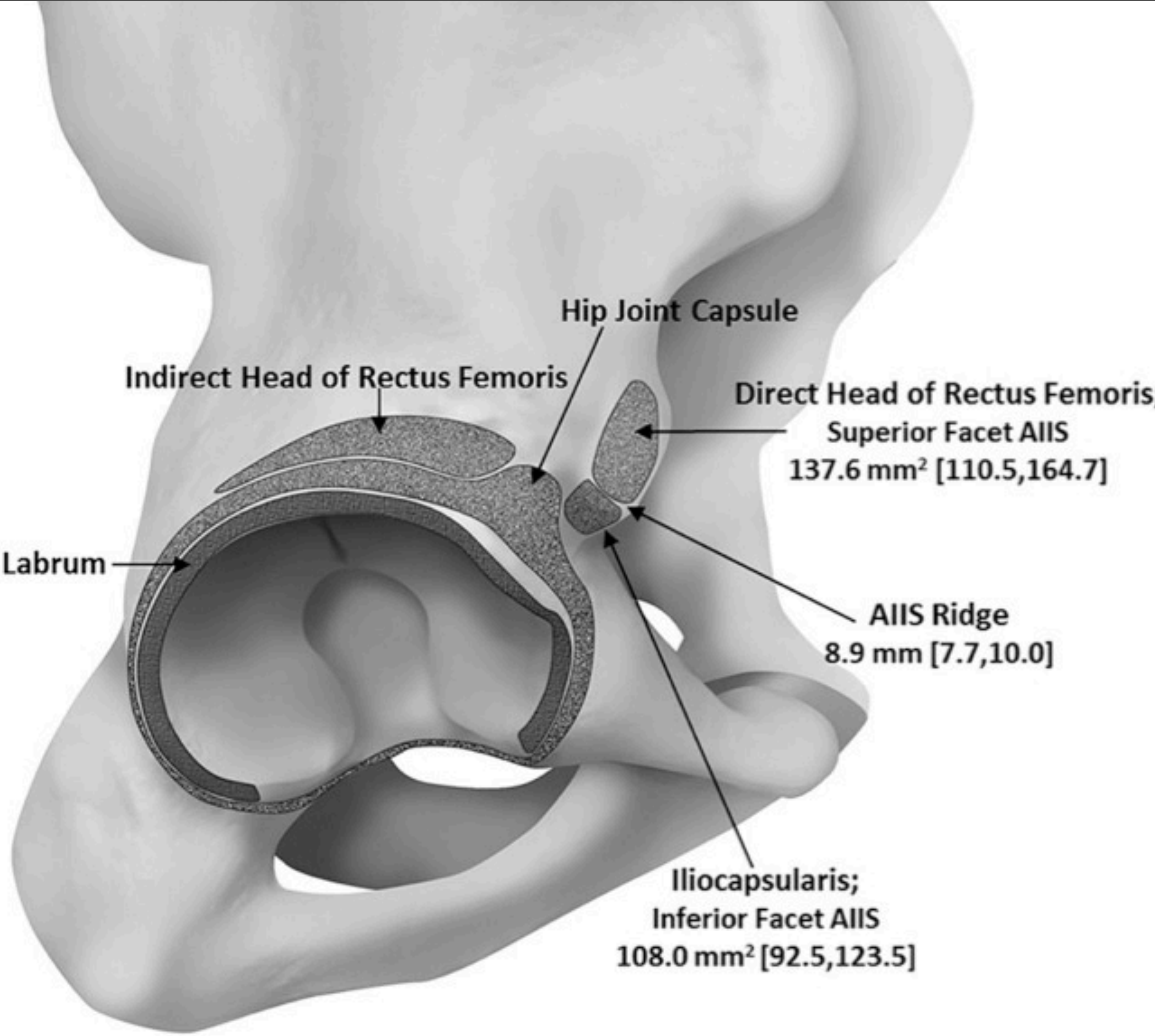
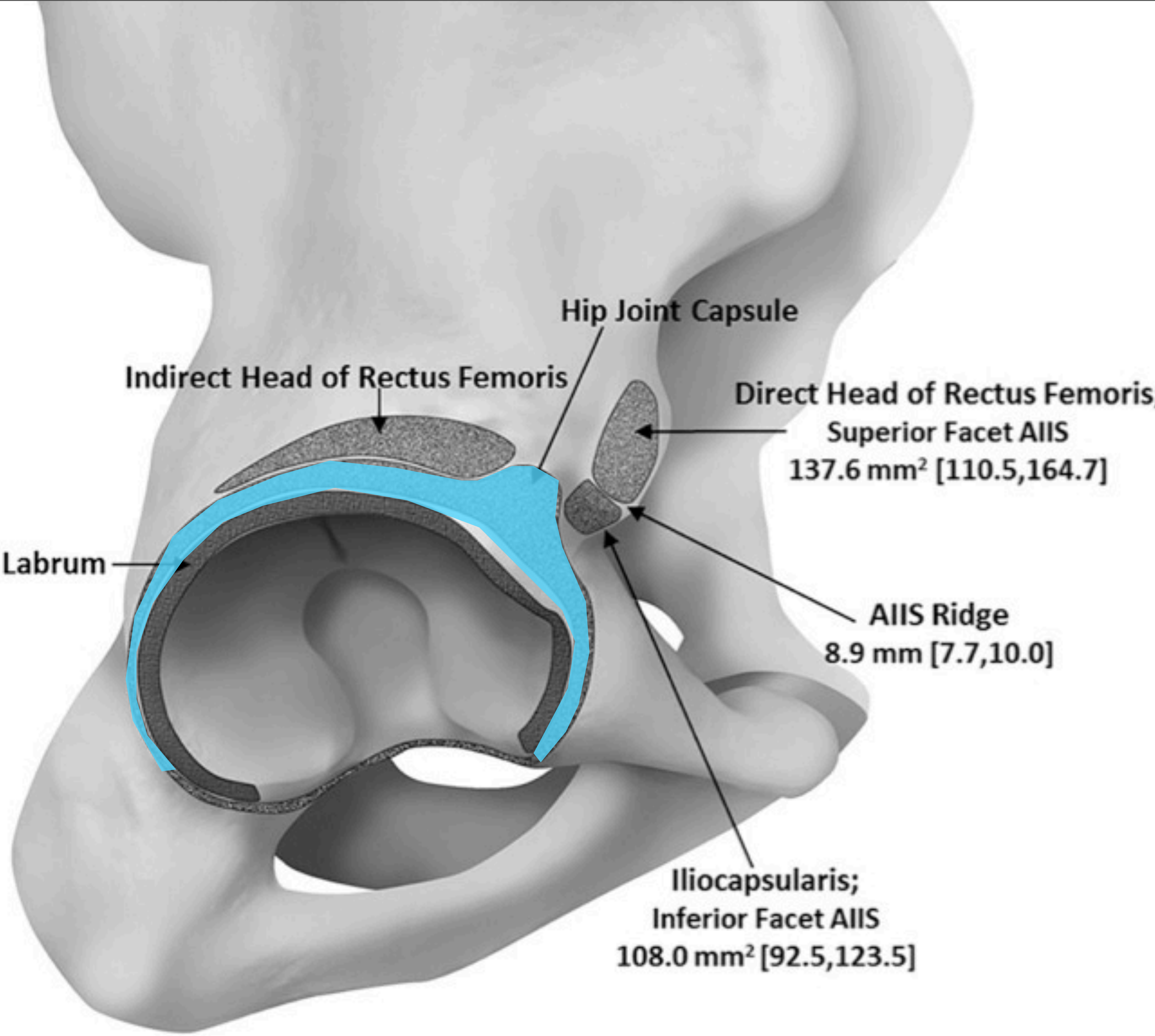


¿Qué capsulotomía?



An Anatomical Study of the Acetabulum with Clinical Applications to Hip Arthroscopy

Marc J. Philippon, Max P. Michalski, Kevin J. Campbell et al.
J Bone Joint Surg Am, 2014 Oct 15; 96 (20): 1673 -1682 .



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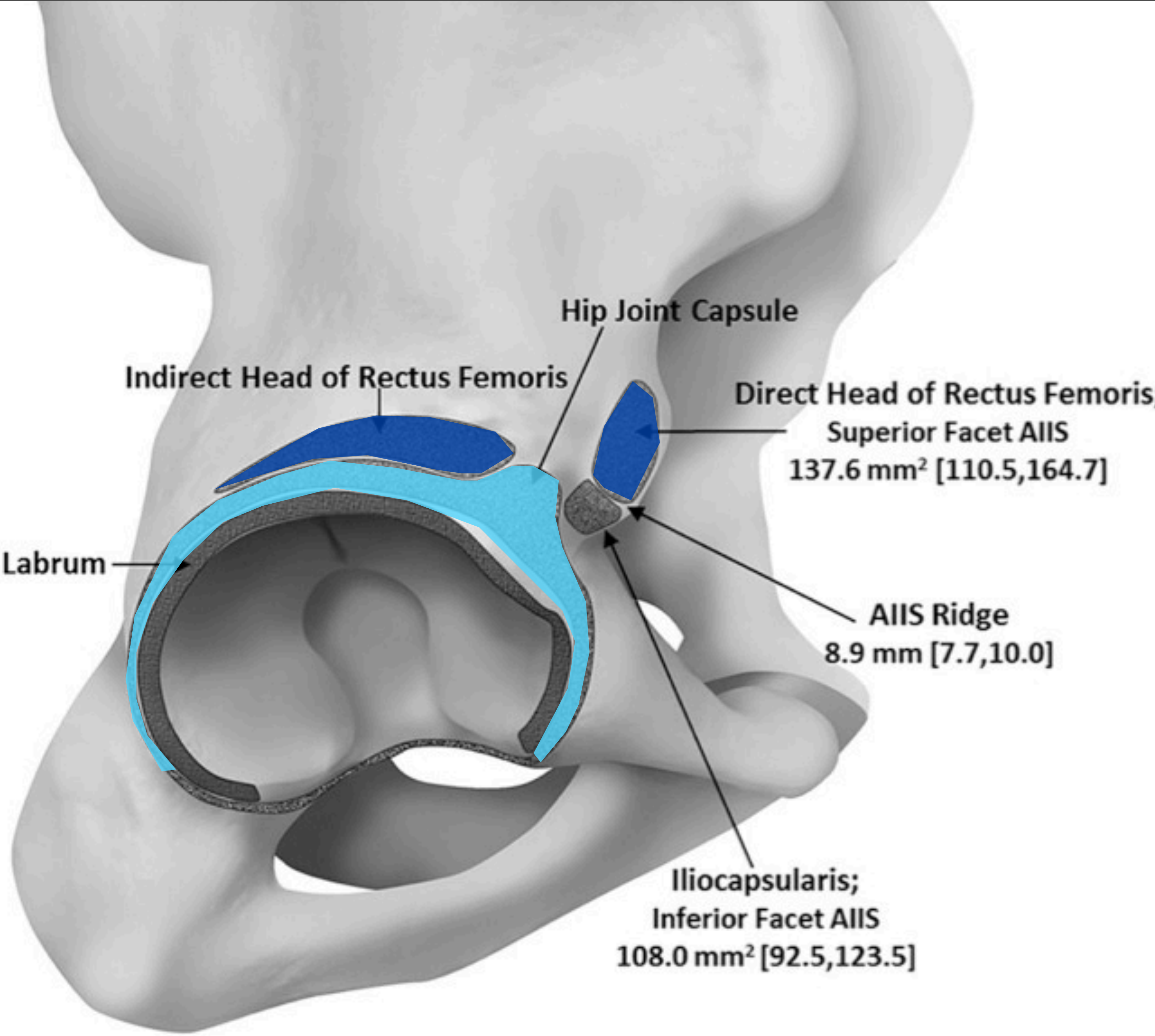

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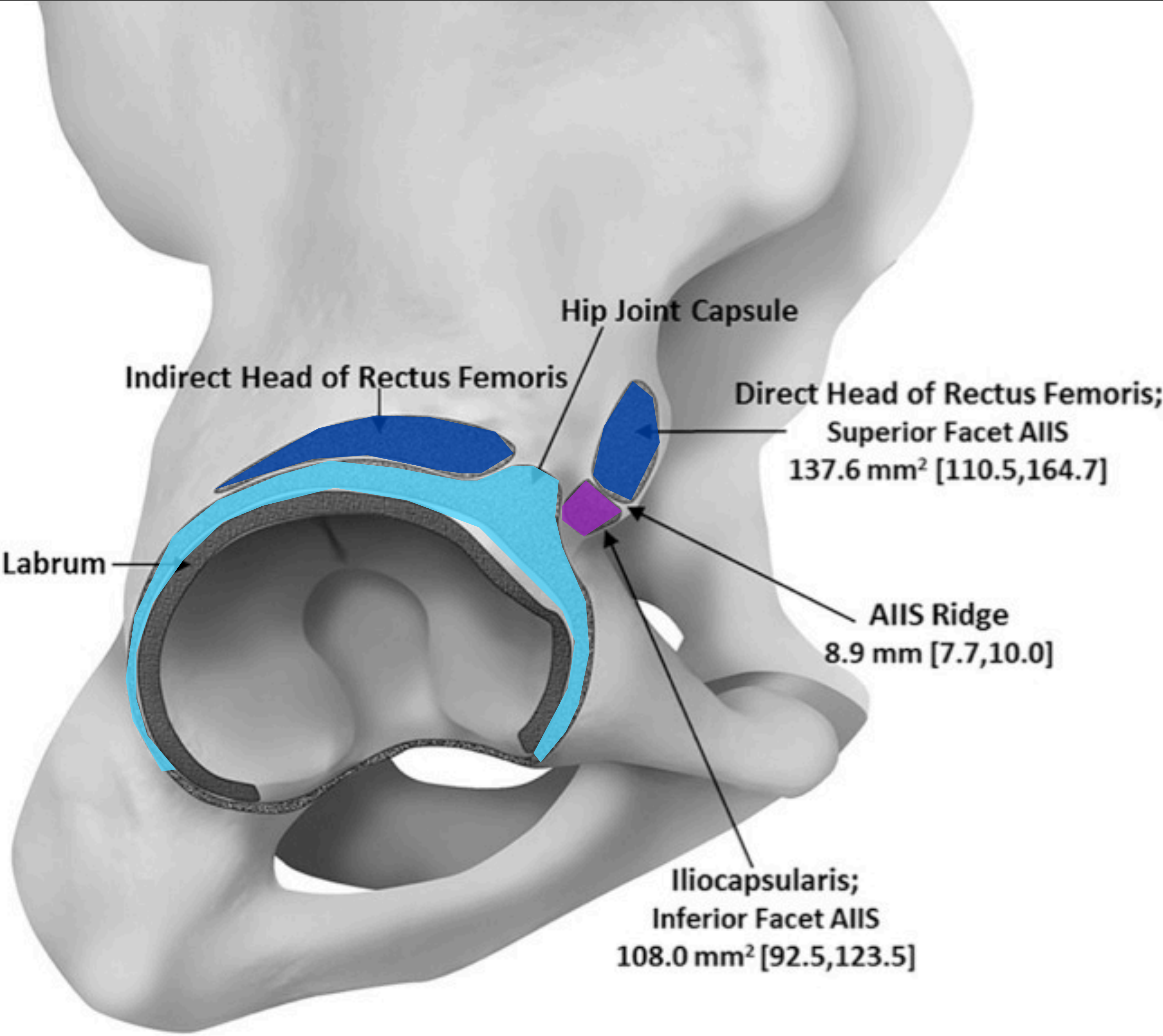

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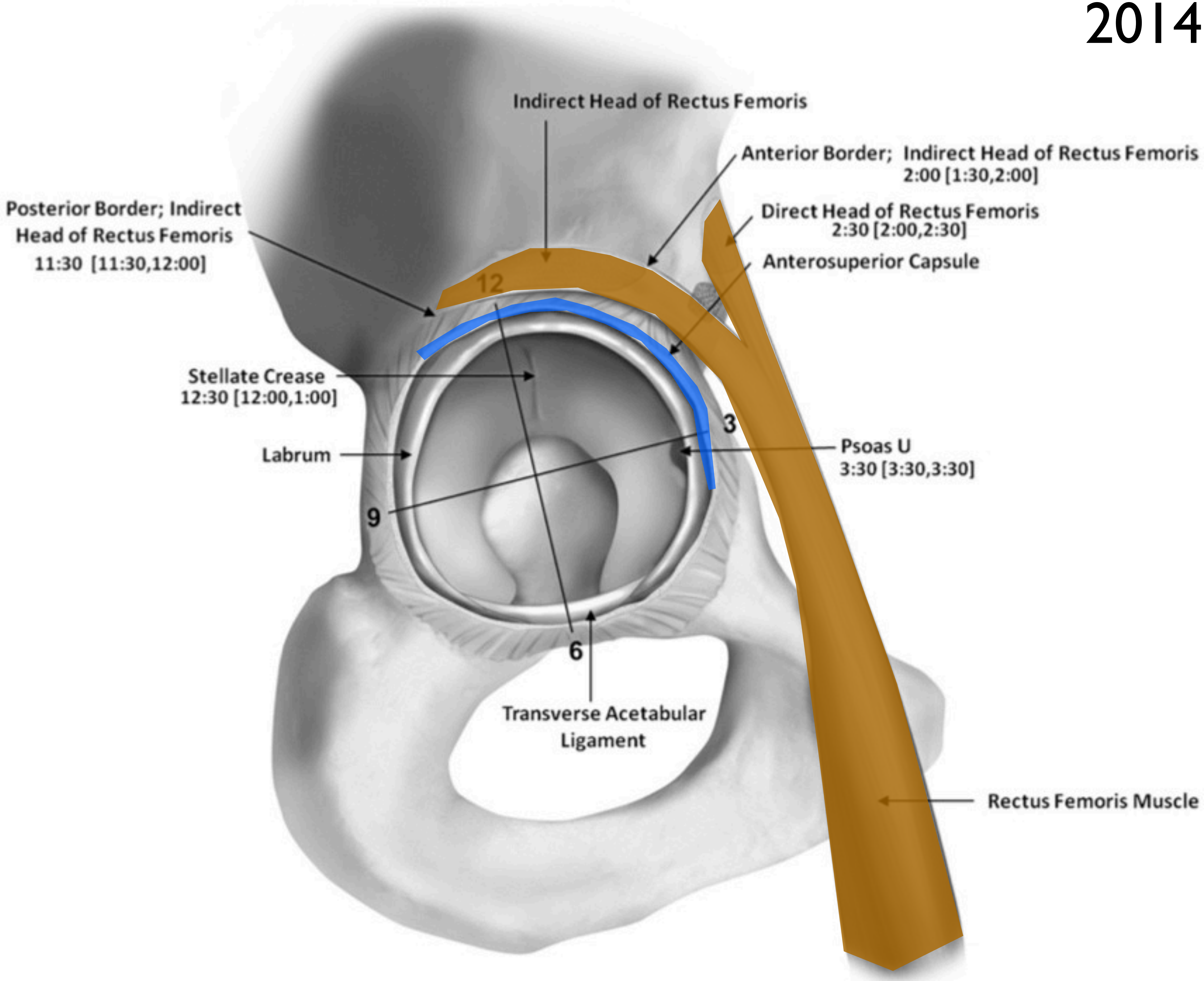
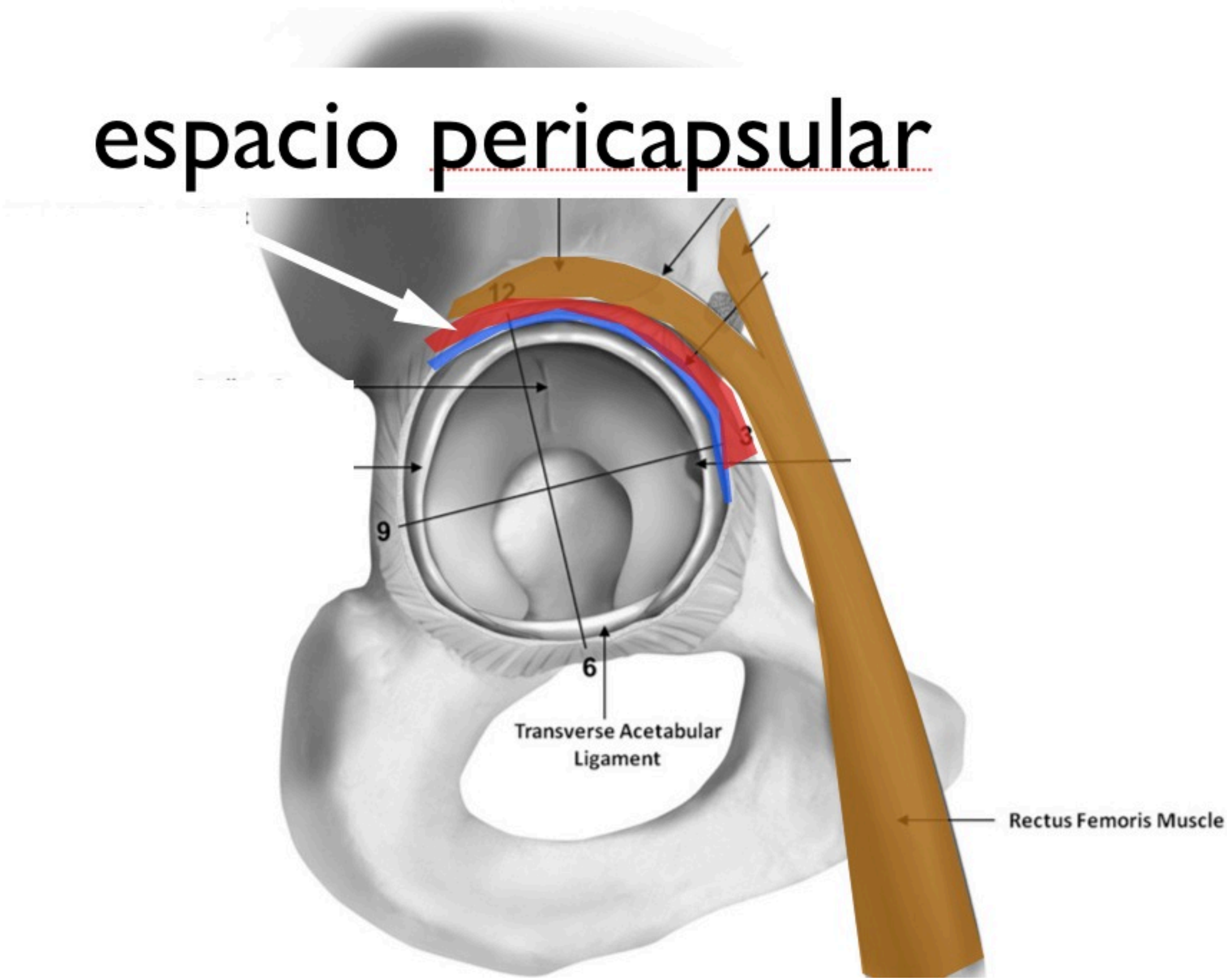

Indirect Head of Rectus Femoris
Anterior Border; Indirect Head of Rectus Femoris
2:00 [1:30,2:00]
Posterior Border; Indirect Head of Rectus Femoris
11:30 [11:30,12:00]
Direct Head of Rectus Femoris
2:30 [2:00,2:30]
Anterosuperior Capsule
12
Stellate Crease
12:30 [12:00,1:00]
3
Labrum
Psoas U
3:30 [3:30,3:30]
9
6
Transverse Acetabular Ligament
Rectus Femoris Muscle

espacio pericapsular



2014

New Findings in Hip Capsular Anatomy: Dimensions of Capsular Thickness and Pericapsular Contributions

Brian L. Walters, M.D., John H. Cooper, M.D., and José A. Rodriguez, M.D.

Purpose: The purpose of this investigation was to provide a detailed description of the anatomy of the hip capsule and pericapsular structures. **Methods:** Dissections were performed on 11 nonpaired, fresh-frozen cadaveric hips by 2 independent observers: 1 fellowship-trained orthopaedic total joint surgeon and 1 chief orthopaedic surgery resident. Documentation of capsular thickness, origins, insertions, and attachments to pericapsular structures including the abductors, rectus femoris, piriformis, short external rotators, and iliocapsularis muscles was performed. Tendinous insertions of the surrounding pericapsular muscles were measured according to size and distance from reproducible osseous landmarks. **Results:** The capsule is thickest near the acetabular origin at the posterosuperior and superior hemi-quadrants and is thinnest near the femoral insertion in the posterior and posteroinferior hemi-quadrants. The iliocapsularis, indirect head of the rectus, conjoint, obturator externus, and gluteus minimus tendons all show consistent capsular contributions, whereas the piriformis does not have a capsular attachment. Osseous landmarks for tendinous attachments are defined and illustrated. The inter-relation of these structures is complex, yet their relations to the anterior hip capsule and contributions to its thickness are predictable. **Conclusions:** The dynamic pericapsular structures pertinent to the hip arthroscopist include the iliocapsularis, gluteus minimus, and reflected head of the rectus femoris. At the acetabulum, the thickest region of the capsule is posterosuperior and superolateral. At the femoral insertion, the thickest region is anterior. **Clinical Relevance:** Knowledge of the intricate relation between the hip capsule and pericapsular structures presented here will be useful for surgeons as they perform the precise and specific capsular releases required during hip arthroscopy. Our anatomic findings contribute important qualitative data that build on the recent literature regarding the importance of capsular management during hip arthroscopy to postoperative hip stability.

A review of the literature shows that our understanding of the pericapsular anatomy and its contribution to hip stability is still evolving. It was not until the early 2000s that studies detailing the complex anatomy of the iliocapsularis, gluteus minimus, and medial femoral circumflex artery made essential contributions to our understanding of the pericapsular musculature and vascular anatomy.[1-3] These studies paved the way for later studies that have sought to more clearly define the relation between the dynamic and static contributions of the pericapsular anatomy and hip stability.[4-8] More recently, as hip arthroscopists have performed extensive capsular releases to address various pathologies in the peripheral compartment of the hip, there have been several case reports showing poor outcomes and complications related to postoperative hip instability.[9,10] These case reports suggest that postoperative instability may be related to extensive capsulotomy without repair. Currently, research efforts are focused on determining the role the hip capsular ligaments and pericapsular musculature may play in hip stability and understanding how the preservation of their anatomy during hip arthroscopy may contribute to greater postoperative stability.[5-8,11]

It is now clear that an accurate anatomic description of the hip capsule and pericapsular structures is necessary not only to allow surgeons to clearly understand the relations among these structures but also to facilitate analysis of their functional roles in hip stability through biomechanical studies. Correspondingly, the purpose of this study was to provide a detailed description of the anatomy of the hip capsule and pericapsular structures. We hypothesized that the anatomy of the hip capsule

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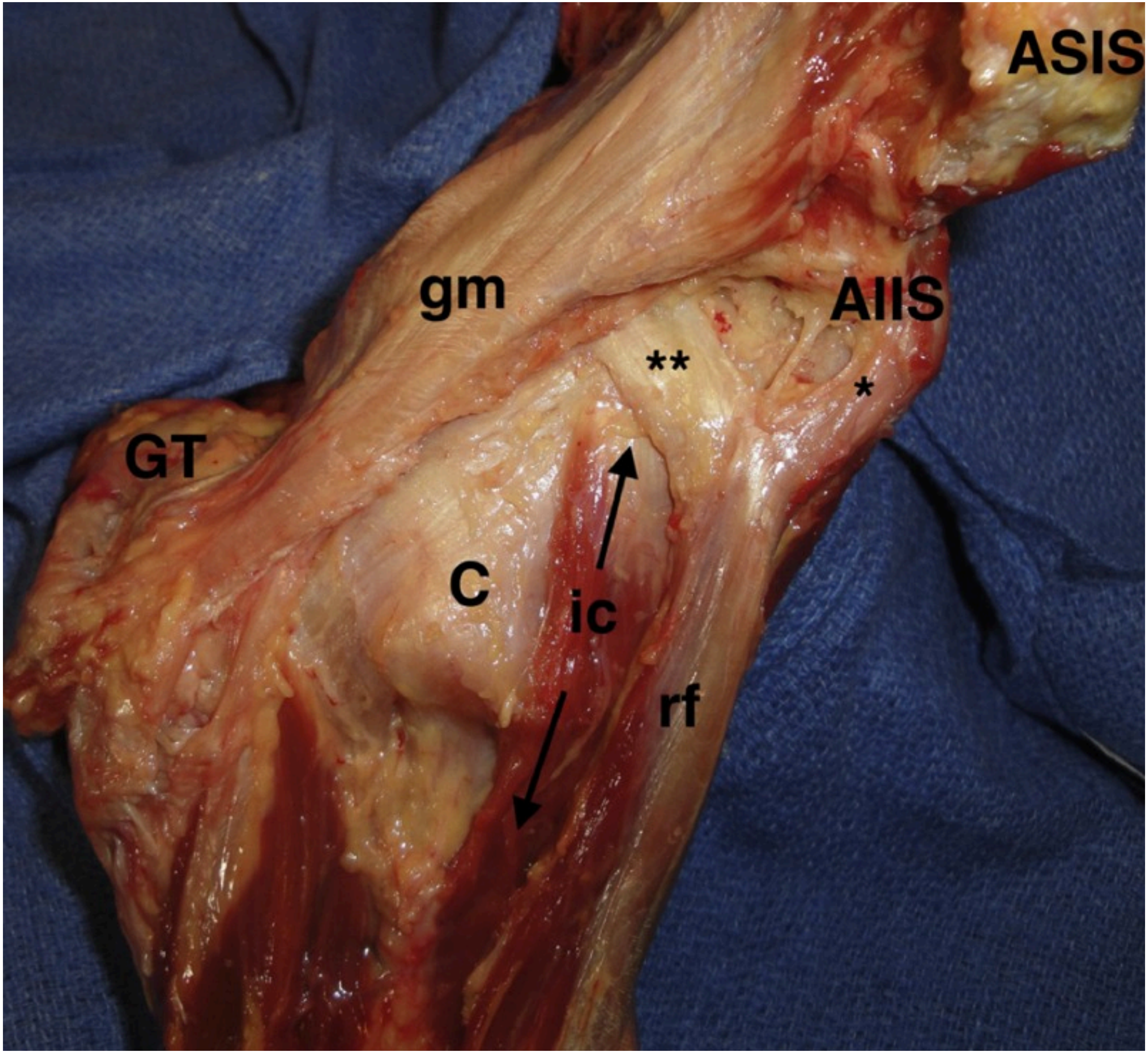
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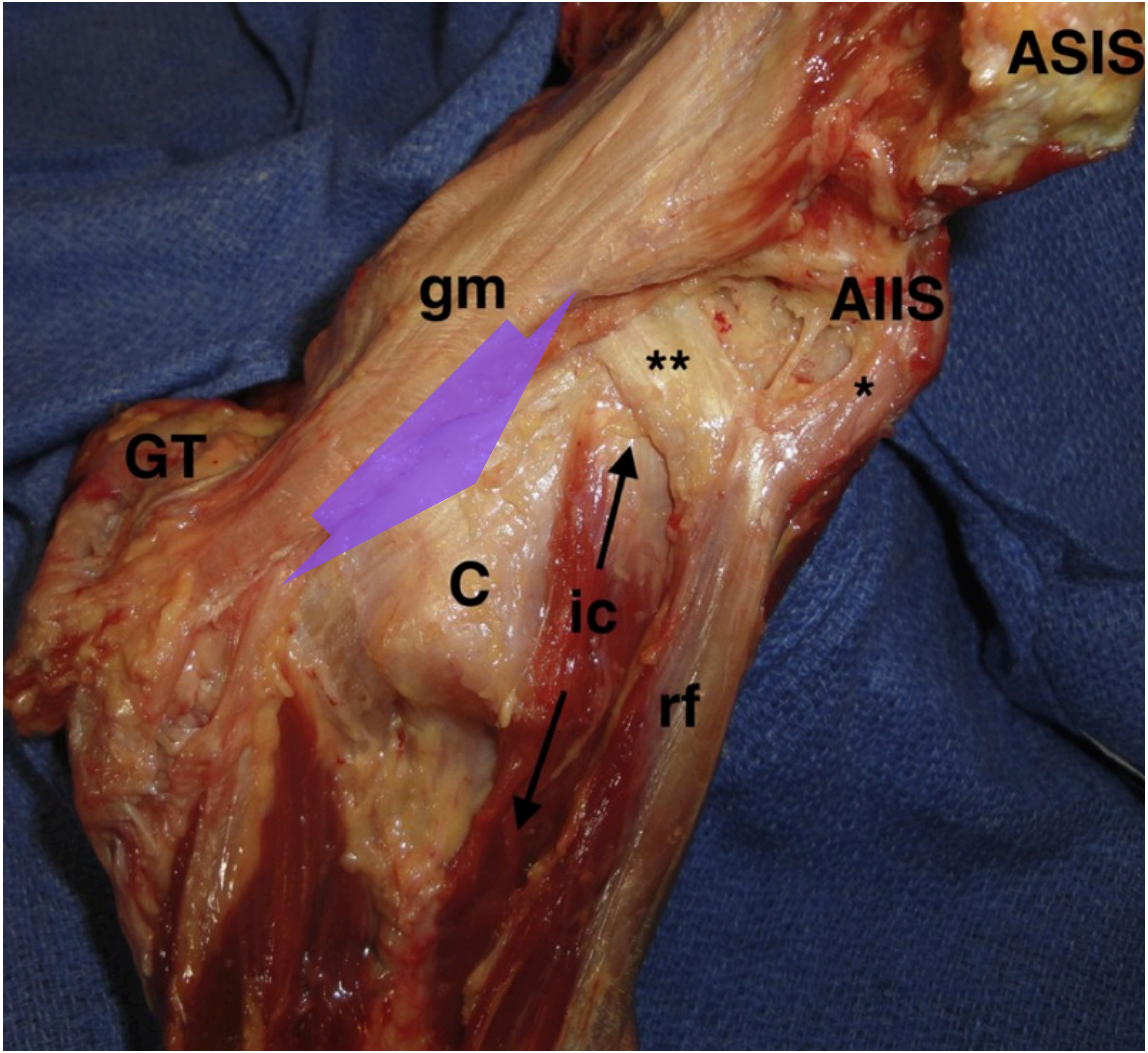
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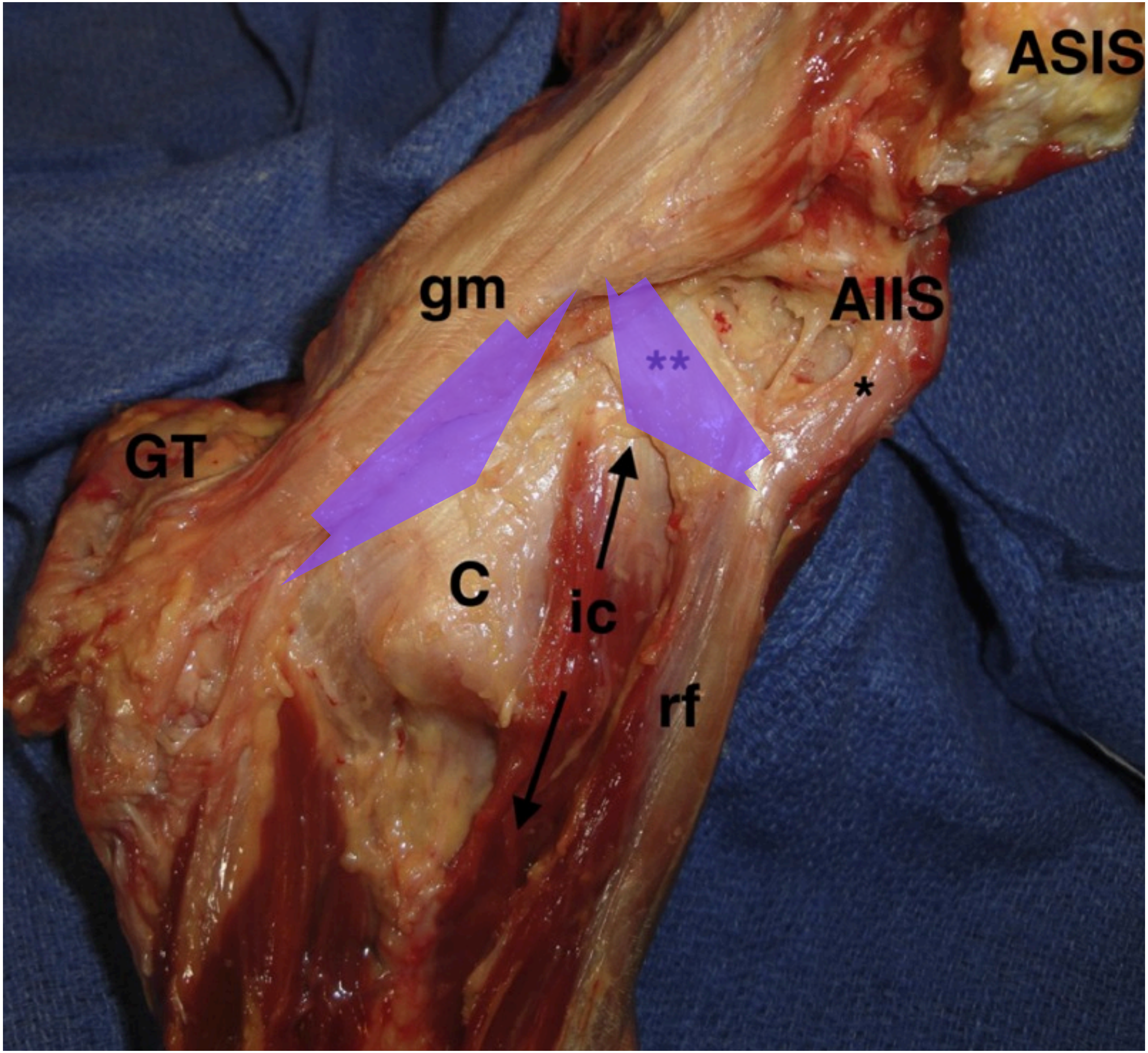
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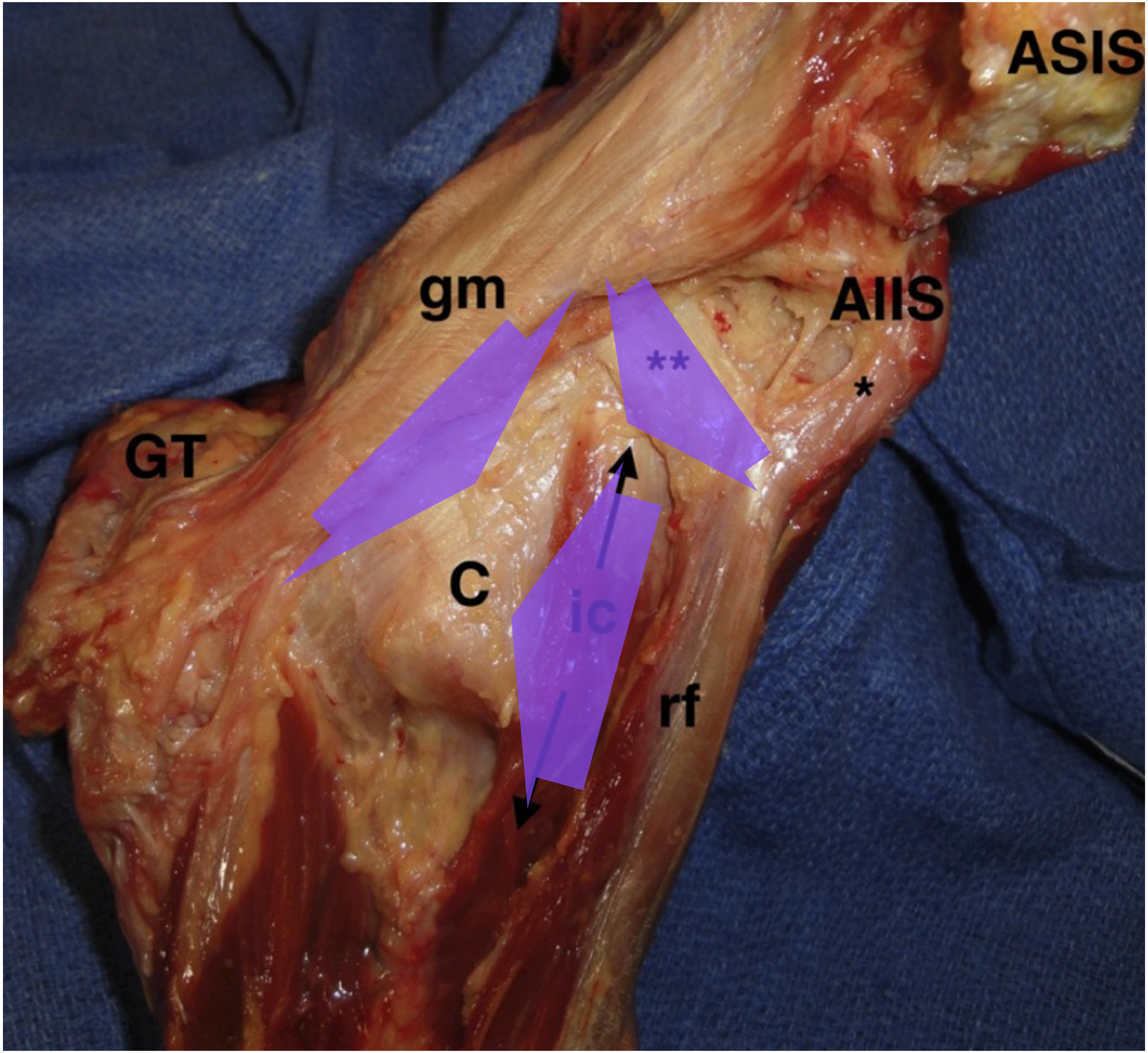
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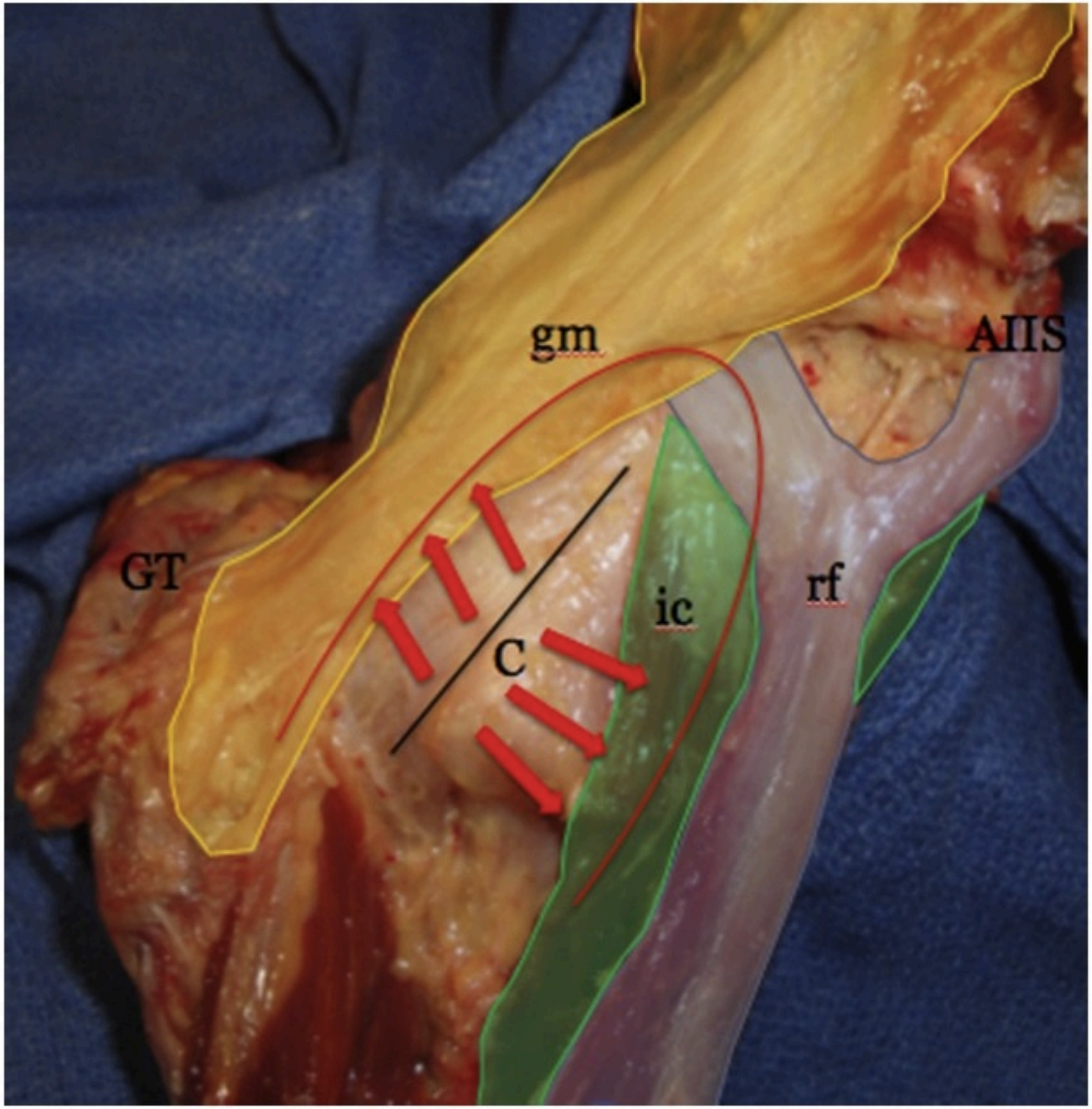
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conclusiones

capsulotomía:

- respetar estructuras del espacio pericapsular

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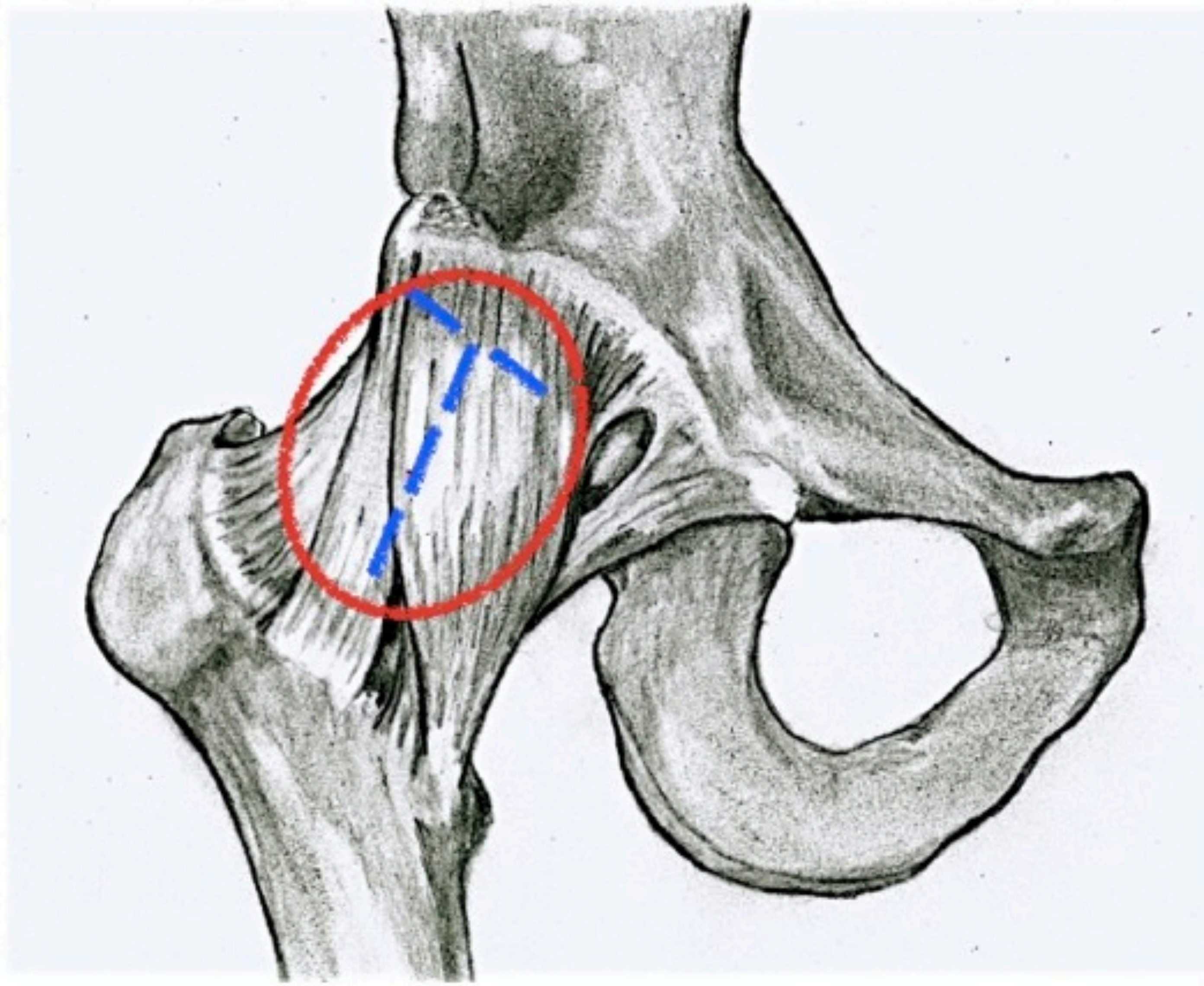
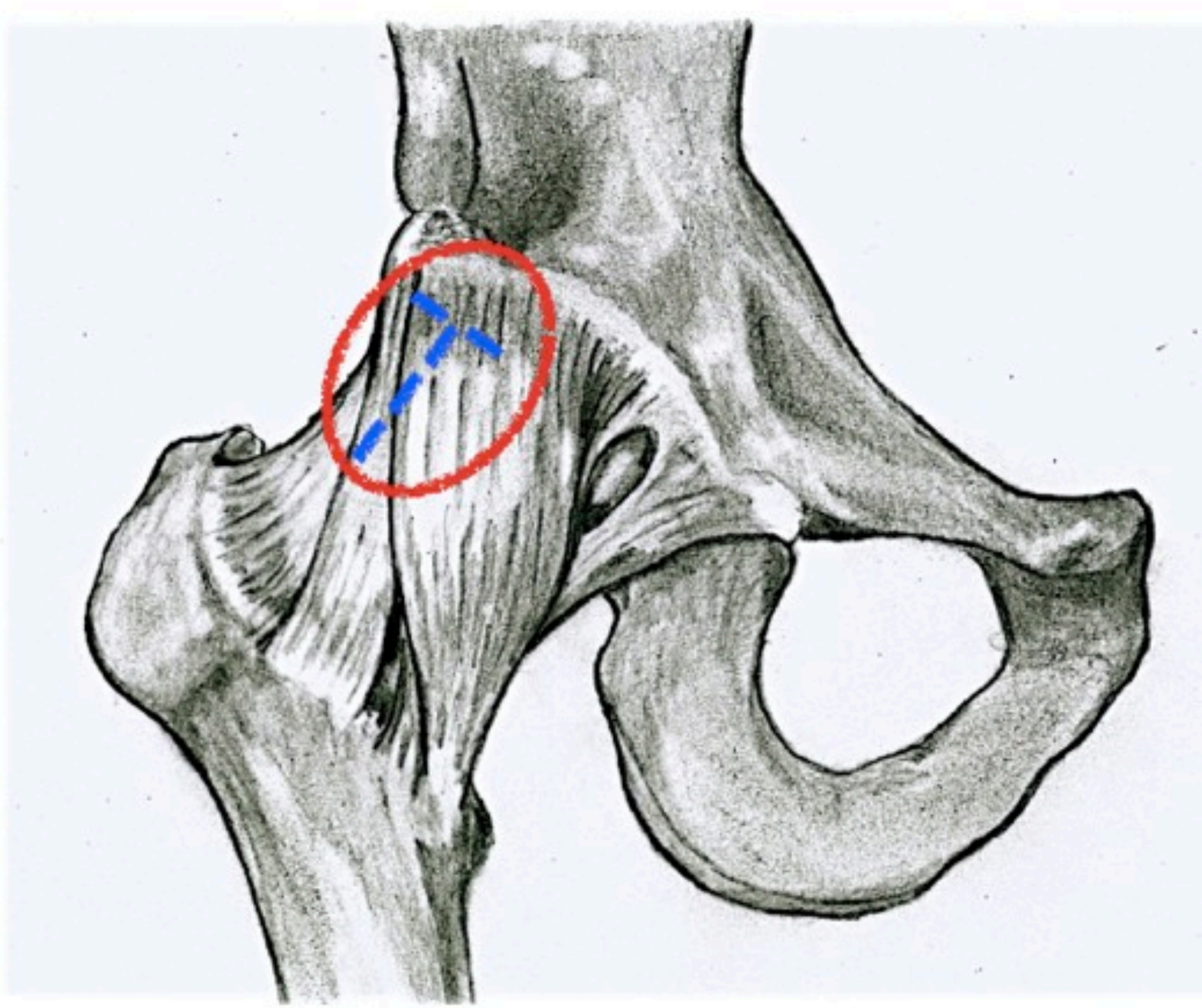
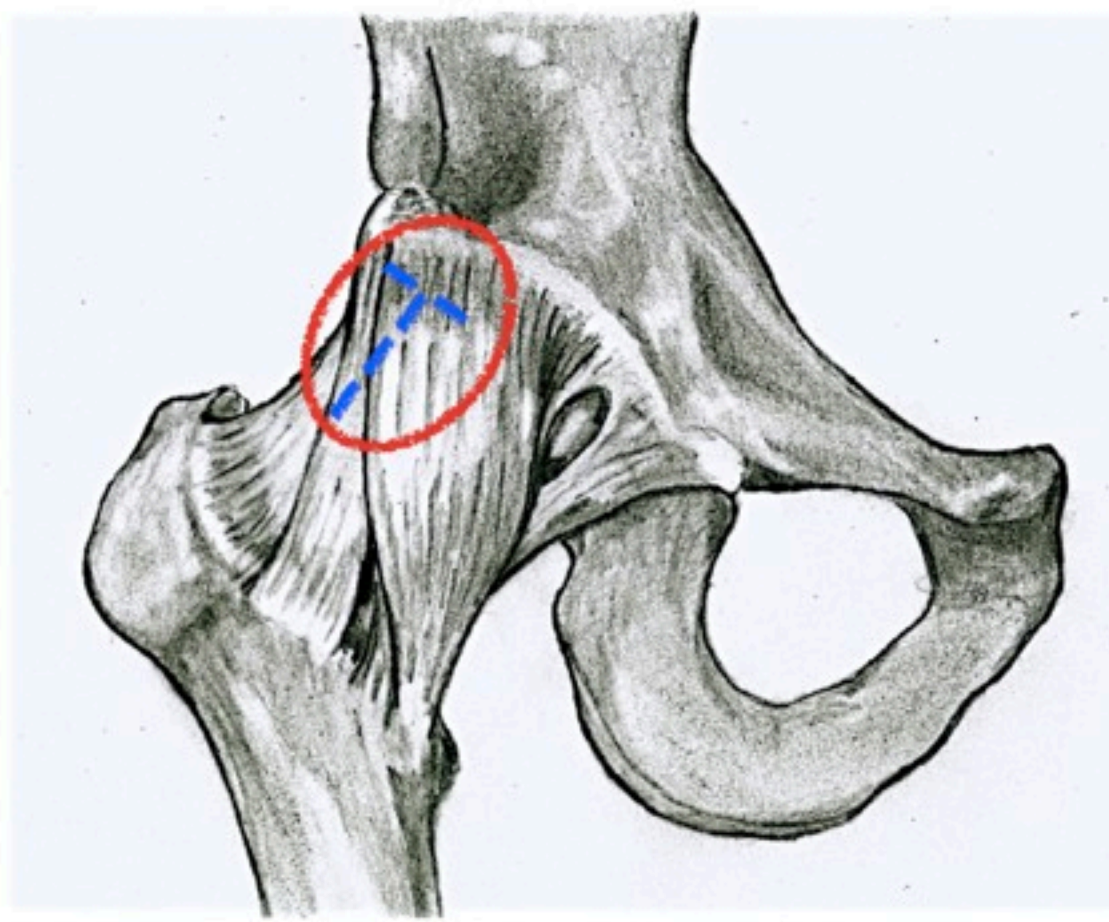
- técnica out-inside: más lateral





capsulotomía:

- respetar estructuras del espacio pericapsular
- técnica out-inside: más lateral
- longitudinal, trasnversal, en “T” o en “L” invertida



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