

SPORTS HIP 16

www.sportshipsurgery.org

@WarwickOrtho

SPEAKER NOTES

Oliver Marin-Pena

WARWICK orthopaedics

WARWICK orthopaedics

SPORTS INJURY CONFERENCES

SPORTS HIP 16

www.sportshipsurgery.org @WarwickOrtho

27TH & 28TH JUNE 2016

THE NATIONAL FOOTBALL CENTRE, ST GEORGE'S PARK

www.sports-surgery.org

COURSE CONVENOR



PROFESSOR DAMIAN GRIFFIN

PROFESSOR OF TRAUMA & ORTHOPAEDIC SURGERY

UNIVERSITY OF WARWICK

SPORTS HIP 2016 WAS SUPPORTED BY

Arthrex HELPING SURGEONS TREAT THEIR PATIENTS BETTER

DJO GLOBAL

bodyflow

stryker

Arthro Dynamik

Perform Part of Spire Healthcare

ÖSSUR

ZIMMER BIOMET Your progress. Our promise.

FUNCTION JIGSAW SPORTS INJURY MANAGEMENT

MicroPort Scientific Full Function. Faster.

SEMPRIS

Clinical Graphics See Beyond

Sybermedica

WARWICK orthopaedics
SPORTS INJURY CONFERENCES

SPORTS HIP 16

www.sportshipsurgery.org @WarwickOrtho

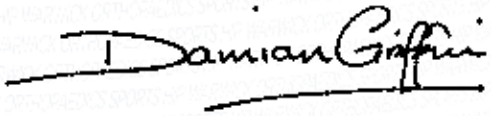
Dear Colleague,

The Sports Hip Conference will run again in 2018 as part of our portfolio of Sports Injury conferences. Some of you may have already attended the Sports Foot & Ankle, Sports Shoulder and and Sports Knee conferences. The dates for the next events will shortly be published on our website
www.sports-surgery.org

The key feature of these Sports Injury conferences is that we explore the latest ideas and most difficult problems in a relatively small group, guided by an expert international faculty.

Please do let us know if you have any thoughts about the meeting or any suggestions as to how we might develop it in the future.

With very best wishes.



PROFESSOR DAMIAN GRIFFIN
PROFESSOR OF TRAUMA & ORTHOPAEDIC SURGERY
UNIVERSITY OF WARWICK

WARWICK orthopaedics
SPORTS INJURY CONFERENCES
SPORTS HIP 16

Oliver Marin-Pena



Oliver Marin-Pena is general orthopaedic surgeon based at the Hospital Infanta Leonor in Madrid, Spain with a special interest in Arthritis, Arthroscopic Surgery, Deformity, Joint Replacement and Sports Medicine relating to the hip and knee. He is an International Affiliate Member of the American Academy of Orthopaedic Surgeons.

WARWICK orthopaedics
SPORTS INJURY CONFERENCES
SPORTS HIP 16

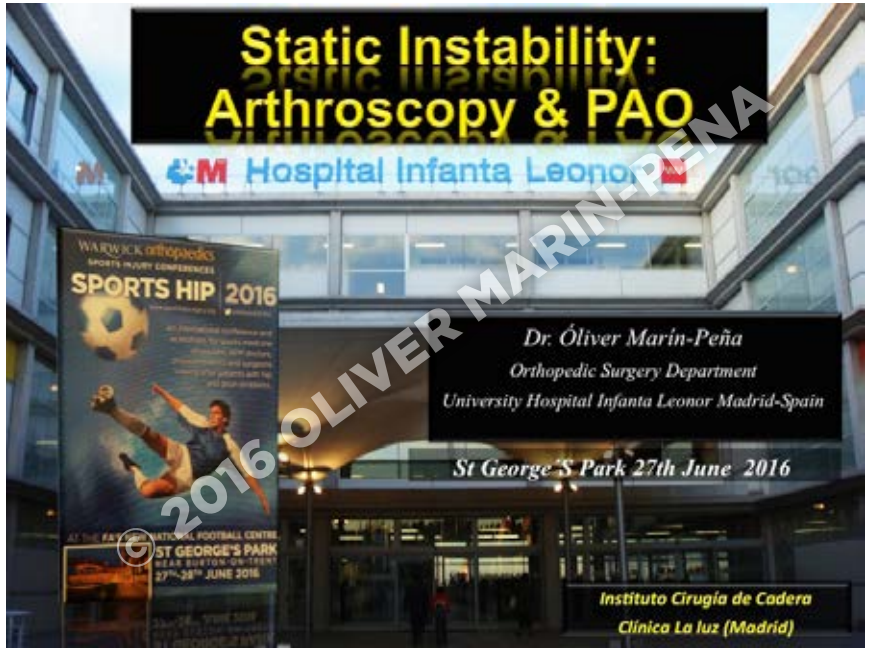
Session 1

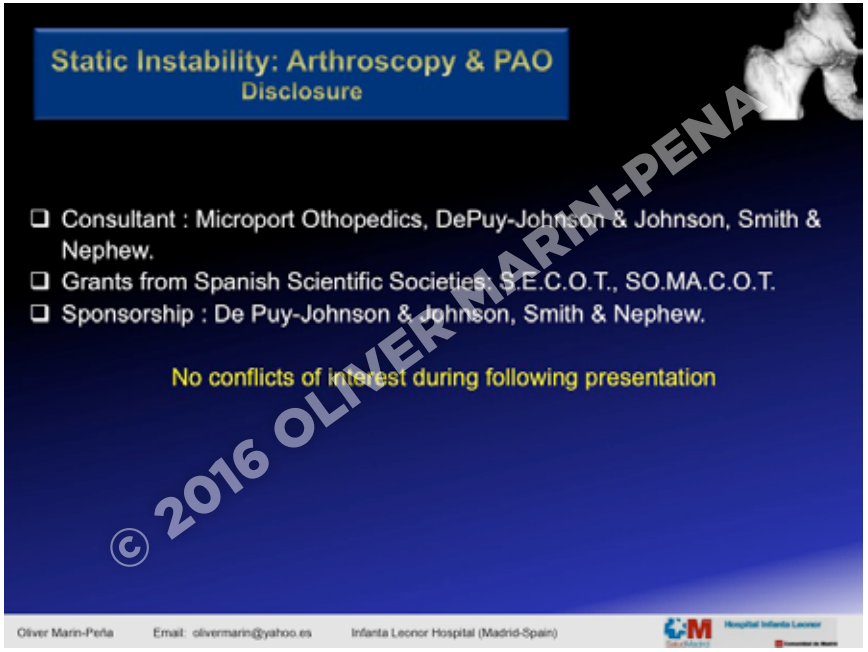
HIP INSTABILITY

Static instability: Arthroscopy or PAO?

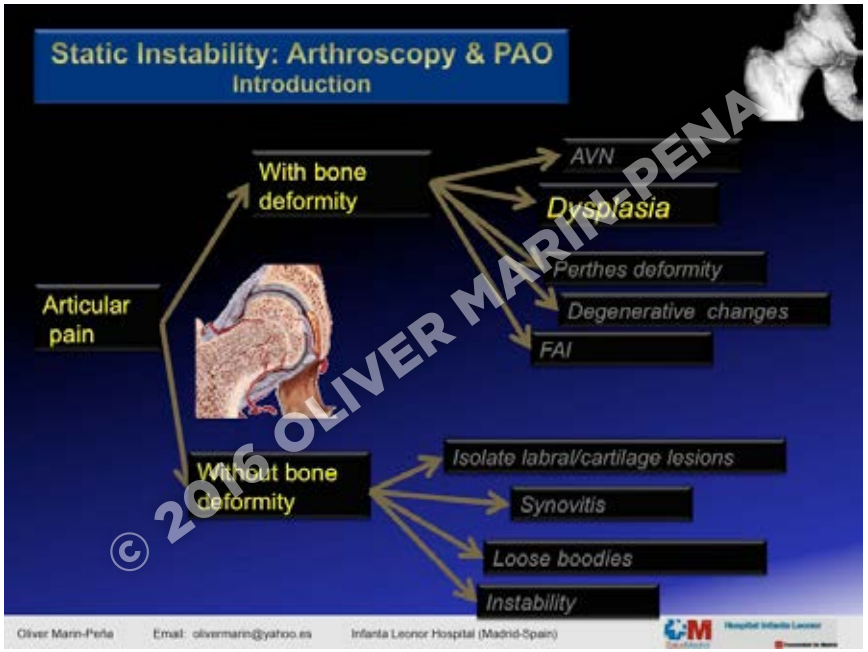
© Oliver Marin-Pena 2016.
Permission must be obtained from the author before using any part of this presentation.

CONTACT THE AUTHOR


Static Instability:
Arthroscopy & PAO
Hospital Infanta Leonor
SPORTS HIP 2016
Dr. Óliver Marín-Peña
Orthopedic Surgery Department
University Hospital Infanta Leonor Madrid-Spain
St George'S Park 27th June 2016
Instituto Cirugía de Cadera
Clínica La luz (Madrid)
© 2016 OLIVER MARIN-PENA

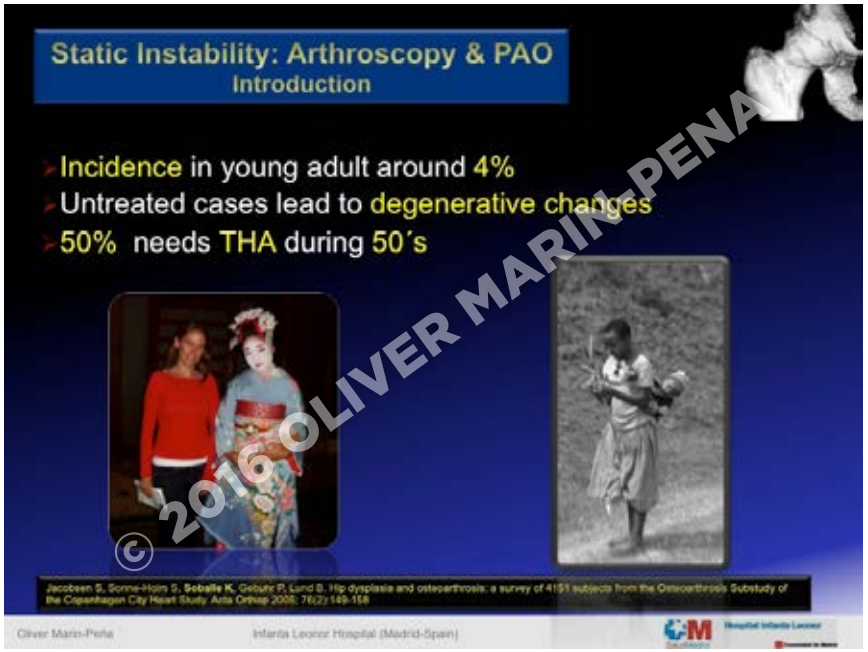

Static Instability: Arthroscopy & PAO
Disclosure
Consultant : Microport Othopedics, DePuy-Johnson & Johnson, Smith & Nephew.
Grants from Spanish Scientific Societies: S.E.C.O.T., SO.MA.C.O.T.
Sponsorship : De Puy-Johnson & Johnson, Smith & Nephew.
No conflicts of interest during following presentation
© 2016 OLIVER MARIN-PENA
Oliver Marin-Peña Email: olivermarin@yahoo.es Infanta Leonor Hospital (Madrid-Spain)


Introduction
© 2016 OLIVER MARIN-PENA
Oliver Marin-Peña Hospital Infanta Leonor (Madrid-Spain) E-mail: olivermarin@yahoo.es


Static Instability: Arthroscopy & PAO
Introduction
Articular pain
With bone deformity
AVN
Dysplasia
Perthes deformity
Degenerative changes
FAI
Without bone deformity
Isolate labral/cartilage lesions
Synovitis
Loose boodies
Instability
© 2016 OLIVER MARIN-PENA
Oliver Marin-Peña Email: olivermarin@yahoo.es Infanta Leonor Hospital (Madrid-Spain)


Static Instability: Arthroscopy & PAO
Introduction
Dysplasia from greek "dys" and "plassein" …abnormal shape
© 2016 OLIVER MARIN-PENA

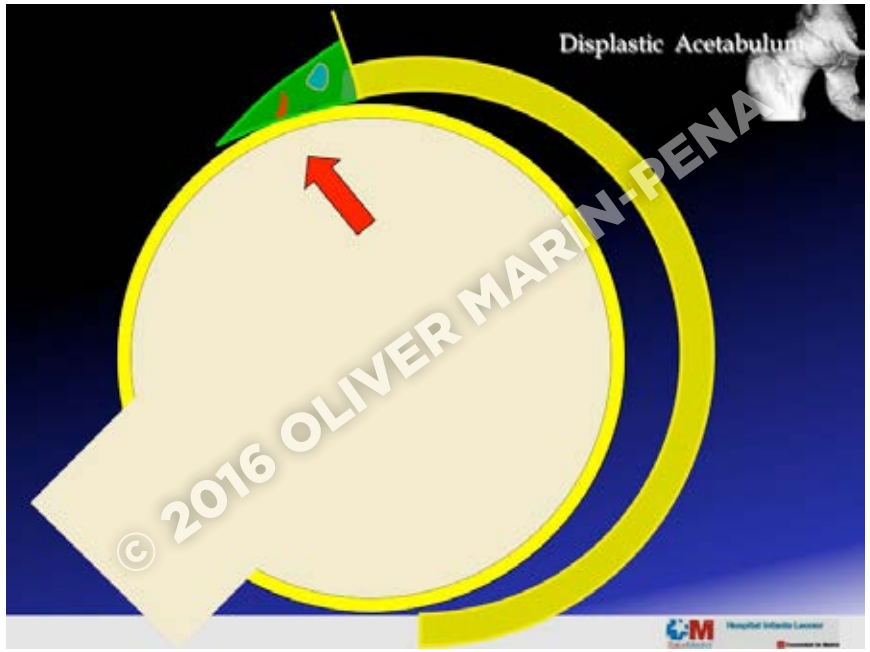

Static Instability: Arthroscopy & PAO
Introduction
Hip instability due to poor acetabular coverage. Li et al CORR 2003.
Evaluate femoral deformity .
© 2016 OLIVER MARIN-PENA
Oliver Marin-Peña Email: olivermarin@yahoo.es Infanta Leonor Hospital (Madrid-Spain)


Static Instability: Arthroscopy & PAO
Introduction
Incidence in young adult around 4%
Untreated cases lead to degenerative changes
50% needs THA during 50´s
© 2016 OLIVER MARIN-PENA
Oliver Marin-Peña Infanta Leonor Hospital (Madrid-Spain)

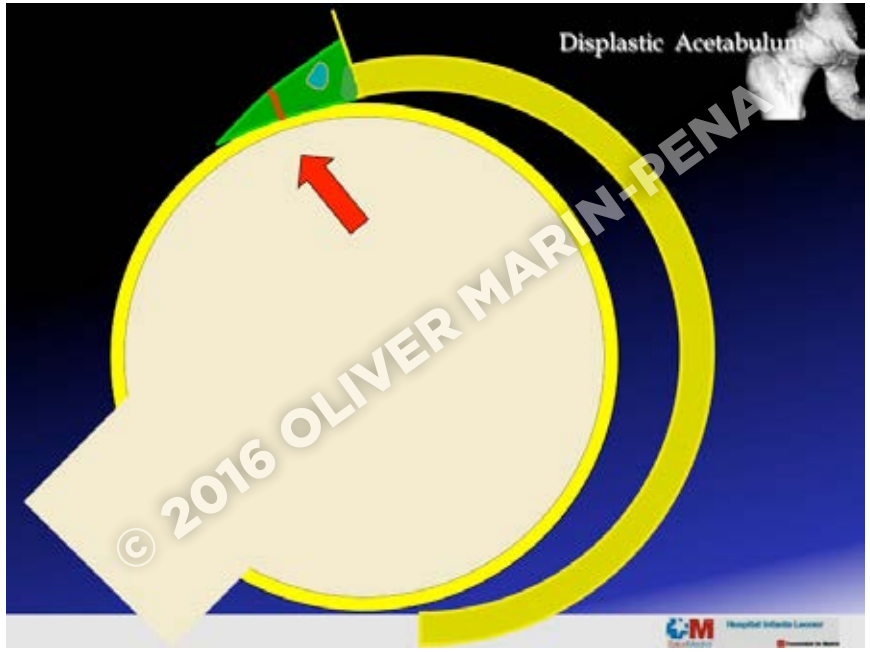

Displastic Acetabulum
© 2016 OLIVER MARIN-PENA

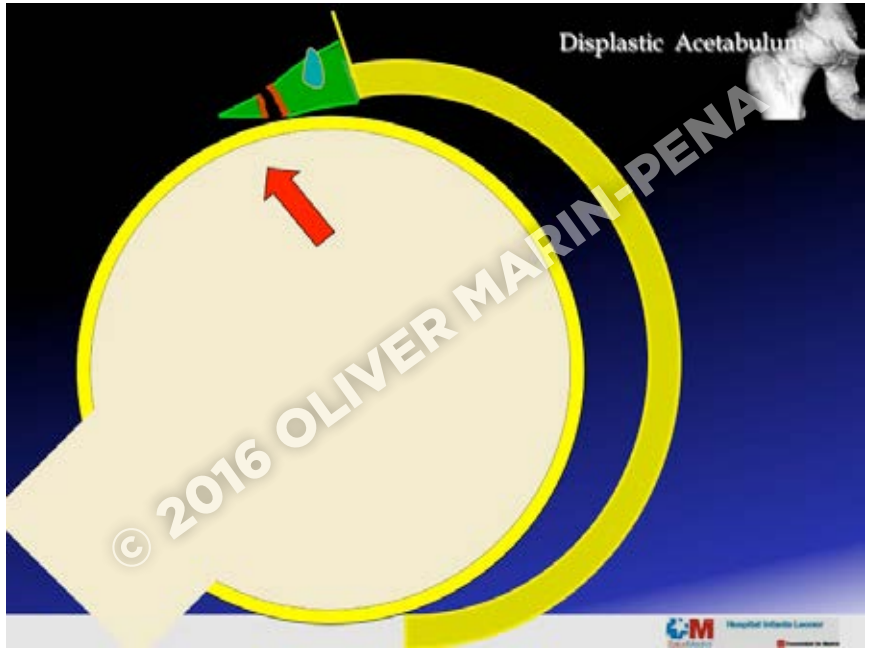

Displastic Acetabulum
© 2016 OLIVER MARIN-PENA

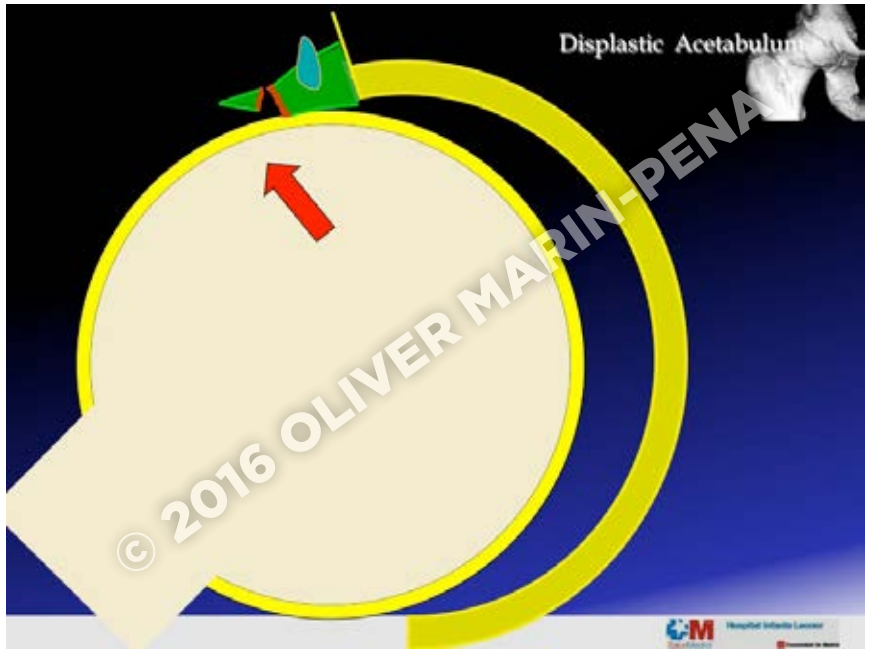

Displastic Acetabulum
© 2016 OLIVER MARIN-PENA


Displastic Acetabulum
© 2016 OLIVER MARIN-PENA


Displastic Acetabulum
© 2016 OLIVER MARIN-PENA


Displastic Acetabulum
© 2016 OLIVER MARIN-PENA


Displastic Acetabulum
© 2016 OLIVER MARIN-PENA


Displastic Acetabulum
© 2016 OLIVER MARIN-PENA


Clinical
Presentation
© 2016 OLIVER MARIN-PENA

Static Instability: Arthroscopy & PAO
Physical exam

- Young patient (under 50 years)
- Multiple diagnosis (tendonitis, bursitis, synovitis,...)



© 2016 OLIVER MARIN-PENA

Burnett RS, Della Rocca GJ, Prather H, Curry M, Maloney WJ, Clohisy JC (2006) . J Bone Joint Surg. 88-A:1448–1457

Static Instability: Arthroscopy & PAO
Physical exam

- Groin pain .....increase with exercise
- "C" type pain.
- Catching
- " sounds"



© 2016 OLIVER MARIN-PENA

Parvizi, J, Leunig M, Ganz R.. Femoroacetabular Impingement. J Am Acad Orthop Surg, Vol 15, No 9, September 2007, 561-570

Static Instability: Arthroscopy & PAO
Physical exam

- Non traumatic .
- Progressive pain.

.....but sometimes



© 2016 OLIVER MARIN-PENA

Static Instability: Arthroscopy & PAO
Physical exam

- Apprehension Test.
- FABER Test.
- "Rolling Test"





© 2016 OLIVER MARIN-PENA

Philippon M. Clinical presentation of femoroacetabular impingement. Knee Surg Sports Traumatol Arthrosc. 2007 Aug;15(8):1041-7.

Static Instability: Arthroscopy & PAO
Physical exam

- Apprehension Test.
- FABER Test.
-"Rolling Test"





© 2016 OLIVER MARIN-PENA

Philippon M. Clinical presentation of femoroacetabular impingement. Knee Surg Sports Traumatol Arthrosc. 2007 Aug;15(8):1041-7.

Static Instability: Arthroscopy & PAO
Physical exam

- Apprehension Test.
- FABER Test.
-"Rolling Test"
- "Dial Test"



© 2016 OLIVER MARIN-PENA

Philippon M. Clinical presentation of femoroacetabular impingement. Knee Surg Sports Traumatol Arthrosc. 2007 Aug;15(8):1041-7.

Static Instability: Arthroscopy & PAO
Physical exam

- Apprehension Test.
- FABER Test.
-"Rolling Test"
- "Dial Test"



© 2016 OLIVER MARIN-PENA

Philippon M. Clinical presentation of femoroacetabular impingement. Knee Surg Sports Traumatol Arthrosc. 2007 Aug;15(8):1041-7.

Static Instability: Arthroscopy & PAO
Physical exam

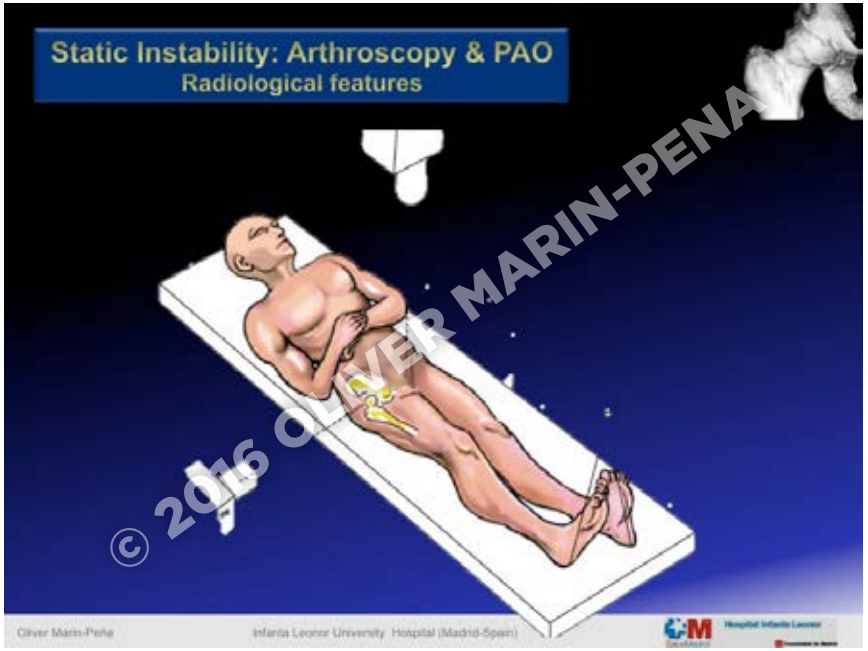
Peritrochanteric area
- Trochanteric pain
- External snapping hip

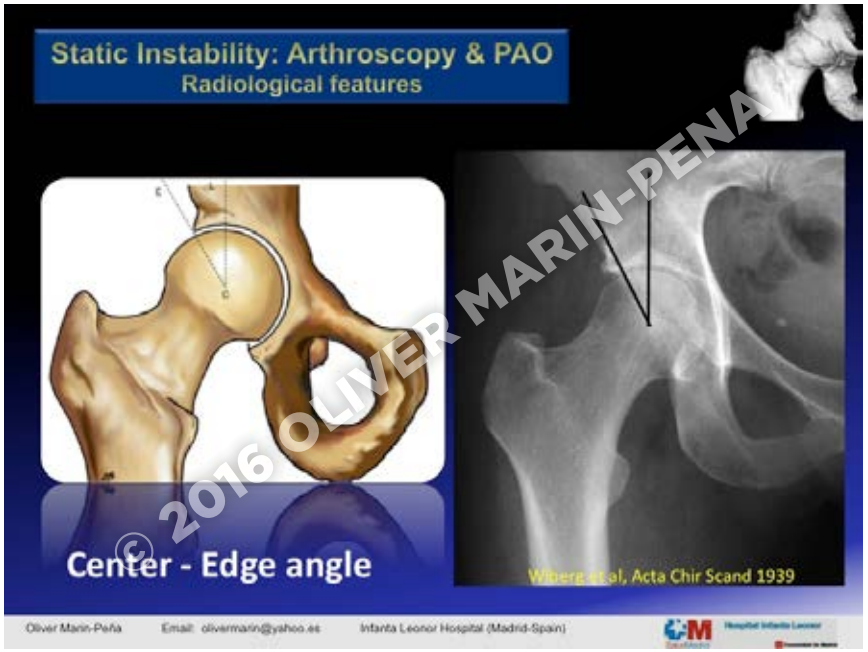


© 2016 OLIVER MARIN-PENA

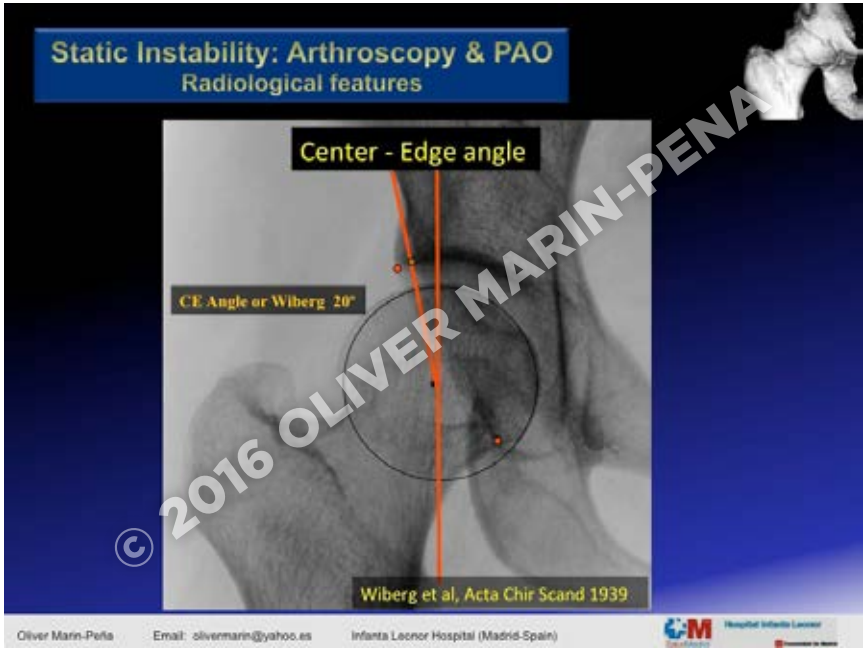
The Approach to the Evaluation and Surgical Treatment of Mechanical Hip Pain in the Young Patient. JG Skendzel, AE. Weber, JR. Ross, CM. Larson, M Leunig, RT. Kelly, A Beal. J Bone Joint Surg Am. 2013;95:e133(1-10)

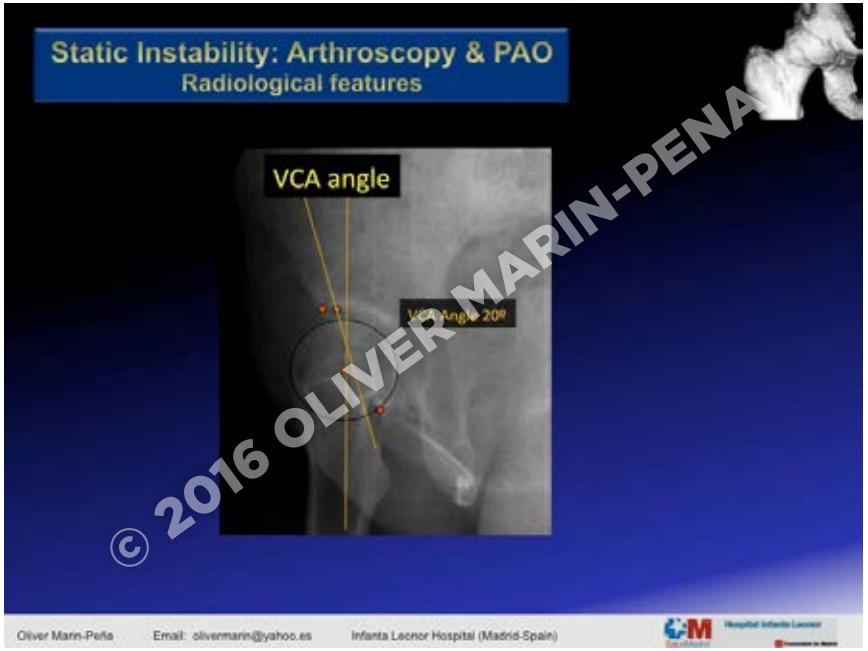

Radiological Features
© 2016 OLIVER MARIN-PENA
Oliver Marin-Peña
Hospital Infanta Leonor (Madrid-Spain)
E-mail: olivermarin@yahoo.es

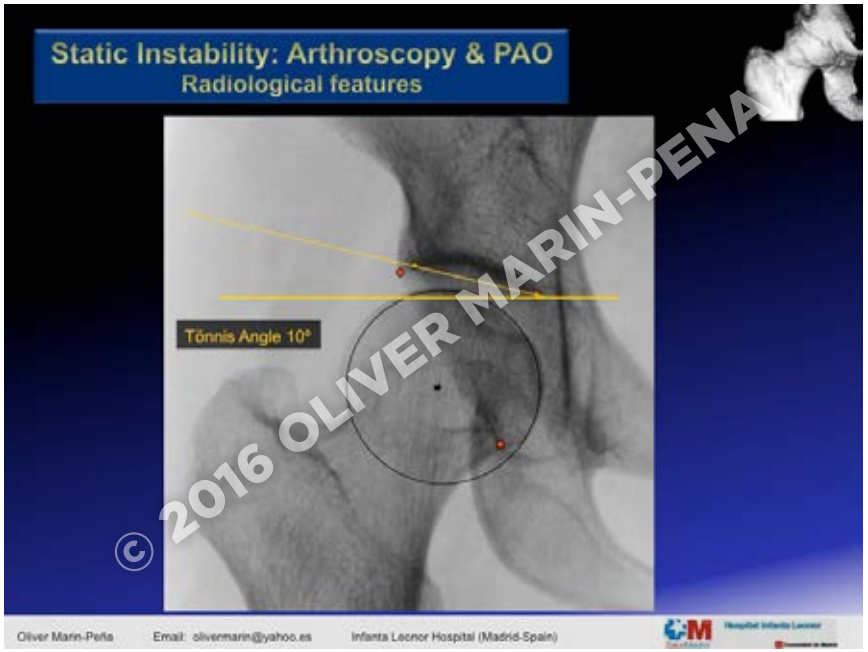

Static Instability: Arthroscopy & PAO
Radiological features
© 2016 OLIVER MARIN-PENA
Oliver Marin-Peña
Infanta Leonor University Hospital (Madrid-Spain)

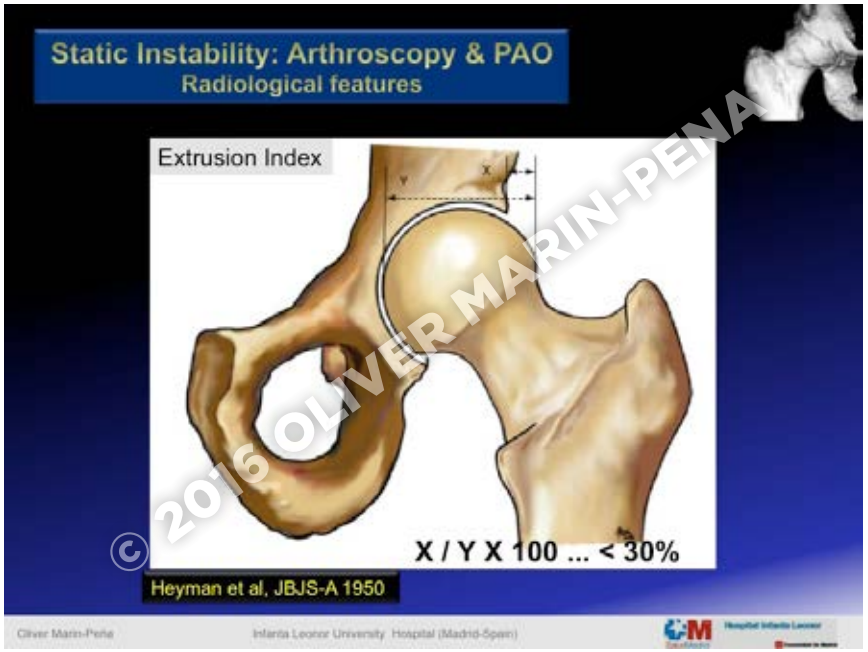

Static Instability: Arthroscopy & PAO
Radiological features
© 2016 OLIVER MARIN-PENA
Center - Edge angle
Wiberg et al, Acta Chir Scand 1939
Oliver Marin-Peña
Email: olivermarin@yahoo.es
Infanta Leonor Hospital (Madrid-Spain)

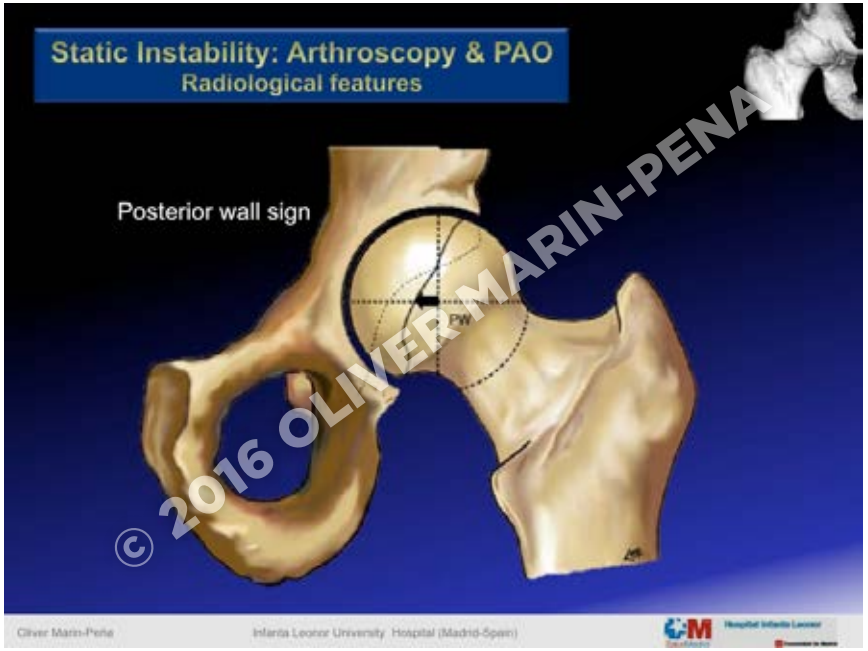

Static Instability: Arthroscopy & PAO
Radiological features
© 2016 OLIVER MARIN-PENA
Oliver Marin-Peña
Email: olivermarin@yahoo.es
Infanta Leonor Hospital (Madrid-Spain)

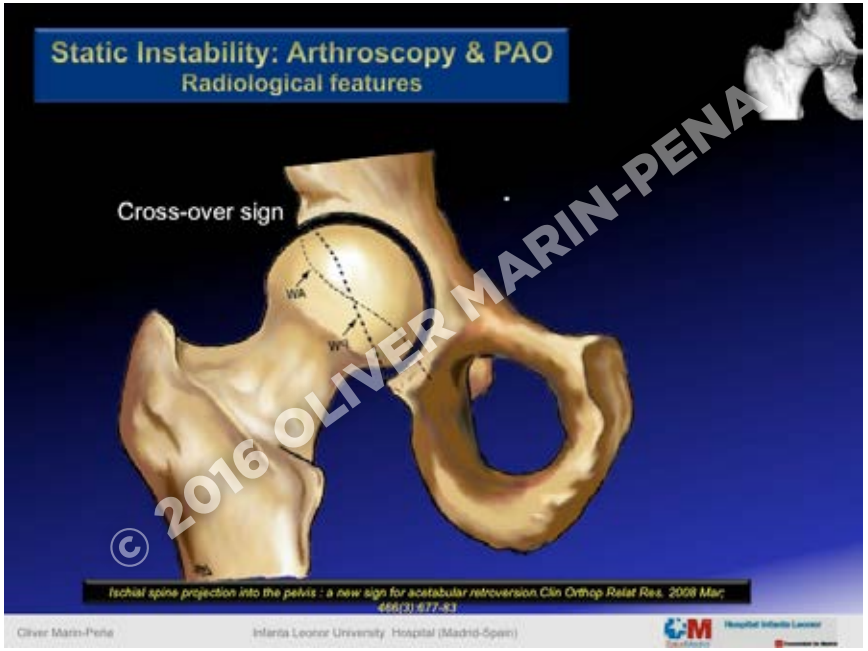

Static Instability: Arthroscopy & PAO
Radiological features
Center - Edge angle
CE Angle or Wiberg 20°
Wiberg et al, Acta Chir Scand 1939
© 2016 OLIVER MARIN-PENA
Oliver Marin-Peña
Email: olivermarin@yahoo.es
Infanta Leonor Hospital (Madrid-Spain)

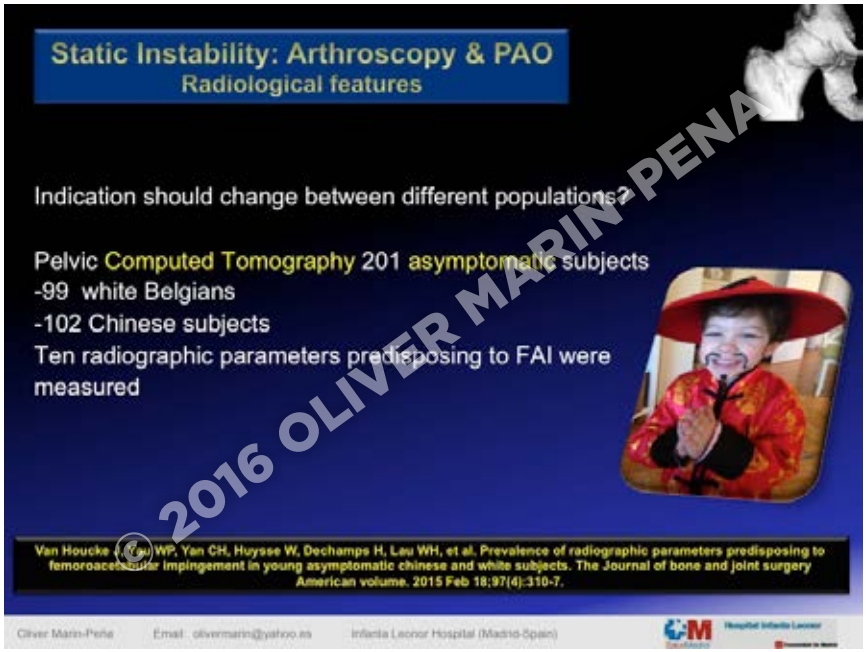

Static Instability: Arthroscopy & PAO
Radiological features
VCA angle
© 2016 OLIVER MARIN-PENA
Oliver Marin-Peña
Email: olivermarin@yahoo.es
Infanta Leonor Hospital (Madrid-Spain)

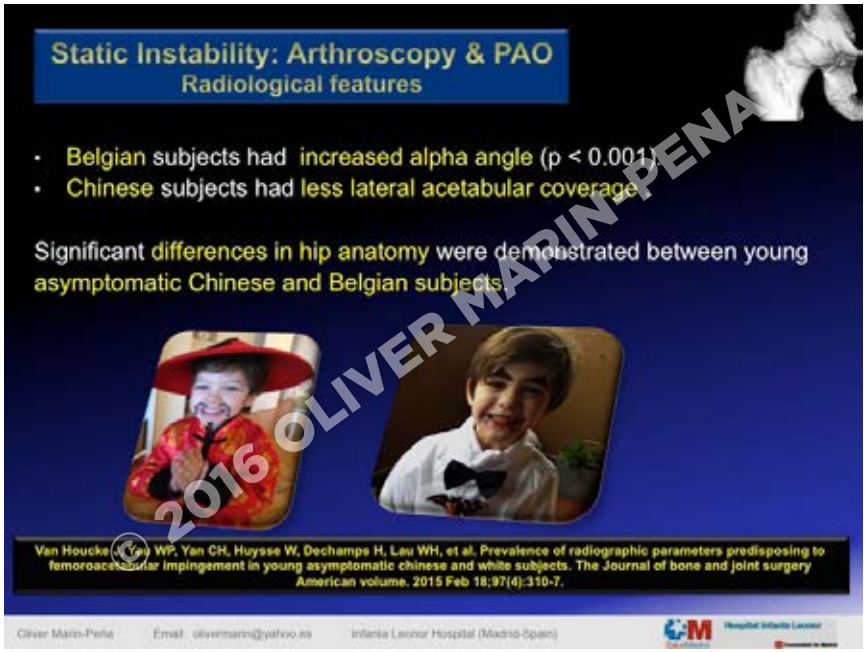

Static Instability: Arthroscopy & PAO
Radiological features
Tönnis Angle 10°
© 2016 OLIVER MARIN-PENA
Oliver Marin-Peña
Email: olivermarin@yahoo.es
Infanta Leonor Hospital (Madrid-Spain)


Static Instability: Arthroscopy & PAO
Radiological features
Extrusion Index
X / Y X 100 ... < 30%
Heyman et al, JBJS-A 1950
© 2016 OLIVER MARIN-PENA
Oliver Marin-Peña
Infanta Leonor University Hospital (Madrid-Spain)


Static Instability: Arthroscopy & PAO
Radiological features
Posterior wall sign
PW
© 2016 OLIVER MARIN-PENA
Oliver Marin-Peña
Infanta Leonor University Hospital (Madrid-Spain)


Static Instability: Arthroscopy & PAO
Radiological features
Cross-over sign
WA
WP
Ischial spine projection into the pelvis : a new sign for acetabular retroversion.Clin Orthop Relat Res. 2008 Mar; 466(3):677-83
© 2016 OLIVER MARIN-PENA
Oliver Marin-Peña
Infanta Leonor University Hospital (Madrid-Spain)


Static Instability: Arthroscopy & PAO
Radiological features
Indication should change between different populations?
Pelvic Computed Tomography 201 asymptomatic subjects
-99 white Belgians
-102 Chinese subjects
Ten radiographic parameters predisposing to FAI were measured
Van Houcke J, Yau WP, Yan CH, Huysse W, Dechamps H, Lau WH, et al. Prevalence of radiographic parameters predisposing to femoroacetabular impingement in young asymptomatic chinese and white subjects. The Journal of bone and joint surgery American volume. 2015 Feb 18;97(4):310-7.
© 2016 OLIVER MARIN-PENA
Oliver Marin-Peña
Email: olivermarin@yahoo.es
Infanta Leonor Hospital (Madrid-Spain)


Static Instability: Arthroscopy & PAO
Radiological features
Belgian subjects had increased alpha angle (p < 0.001)
Chinese subjects had less lateral acetabular coverage
Significant differences in hip anatomy were demonstrated between young asymptomatic Chinese and Belgian subjects
Van Houcke J, Yau WP, Yan CH, Huysse W, Dechamps H, Lau WH, et al. Prevalence of radiographic parameters predisposing to femoroacetabular impingement in young asymptomatic chinese and white subjects. The Journal of bone and joint surgery American volume. 2015 Feb 18;97(4):310-7.
© 2016 OLIVER MARIN-PENA
Oliver Marin-Peña
Email: olivermarin@yahoo.es
Infanta Leonor Hospital (Madrid-Spain)

Natural History of DDH

© 2016 OLIVER MARIN-PENA

Oliver Marin-Peña Hospital Infanta Leonor (Madrid-Spain) E-mail: olivermarin@yahoo.es

Static Instability: Arthroscopy & PAO
Natural History

1003 women underwent pelvis radiographs at years 2 and 20. Radiographic OA and the presence of a total hip replacement were then determined at 20 years.

Each degree reduction in LCE angle below 28 degrees was associated with an increase in risk of 13.0% for radiographic OA and 18% for total hip replacement.



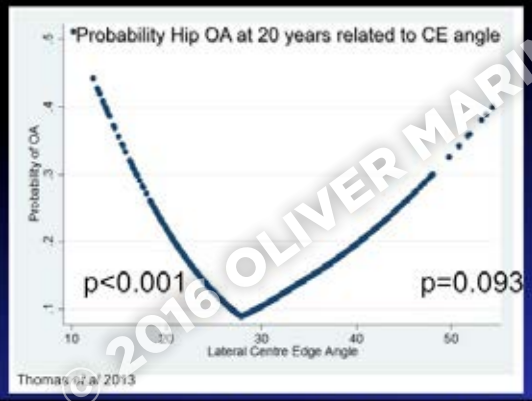
Thomas GE, Palmer AJ, Batra RN, Kiran A, Hart D, Spector T, et al. Subclinical deformities of the hip are significant predictors of radiographic osteoarthritis and joint replacement in women. A 20 year longitudinal cohort study. Osteoarthritis and cartilage / OARS, Osteoarthritis Research Society. 2014 Jul 15.

© 2016 OLIVER MARIN-PENA

Oliver Marin-Peña Email: olivermarin@yahoo.es Infanta Leonor Hospital (Madrid-Spain)

Static Instability: Arthroscopy & PAO
Natural History

Pincer deformity does not lead to osteoarthritis whereas acetabular dysplasia does



No relationship between increase CE angle and OA

Agricola R, Heijboer MP, Roze RH, Reijman M, Bierma-Zeinstra SM, Verhaar JA, et al. Pincer deformity does not lead to osteoarthritis of the hip whereas acetabular dysplasia does: acetabular coverage and development of osteoarthritis in a nationwide prospective cohort study (CHECK). Osteoarthritis and cartilage / OARS, Osteoarthritis Research Society. 2013.

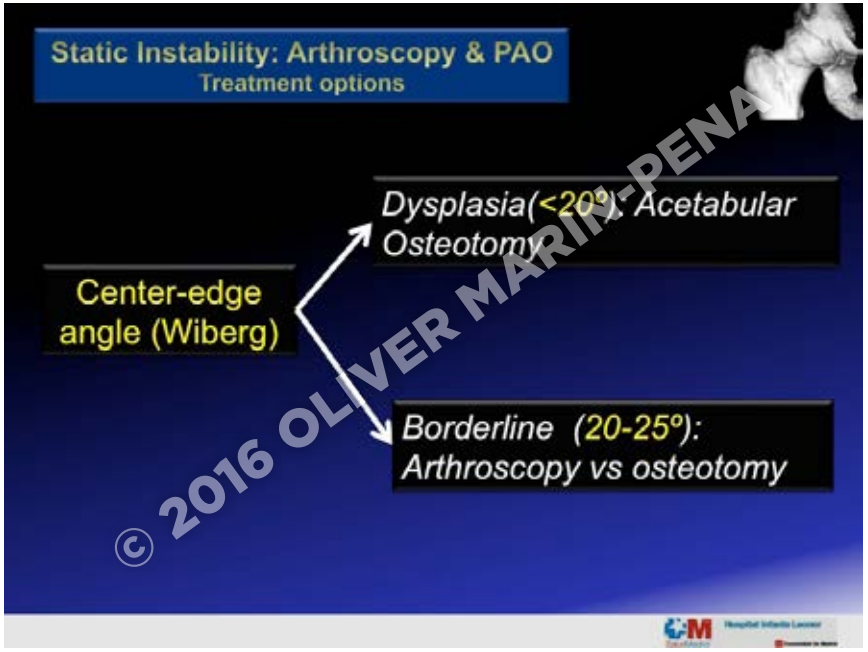
© 2016 OLIVER MARIN-PENA

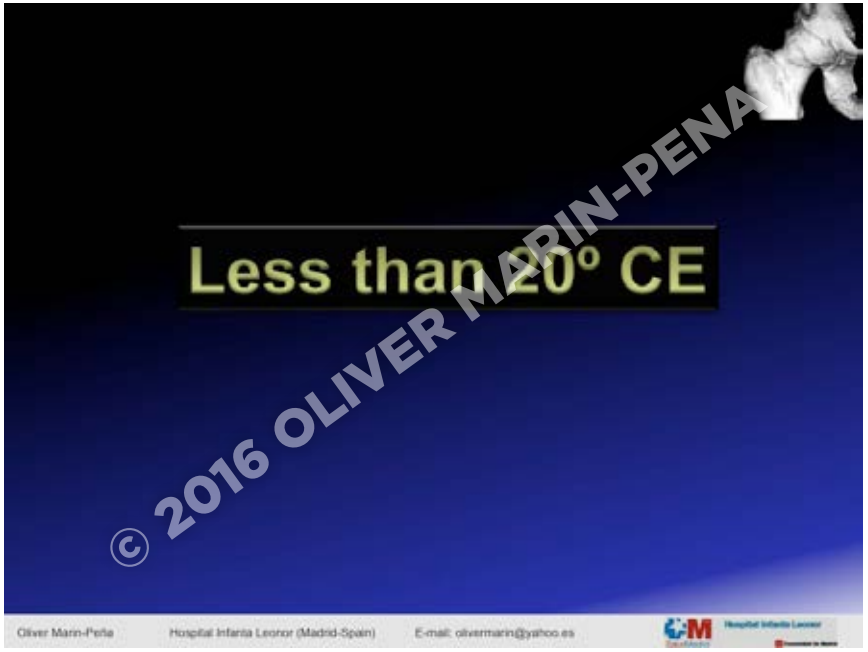
Oliver Marin-Peña Hospital Infanta Leonor (Madrid-Spain) E-mail: olivermarin@yahoo.es

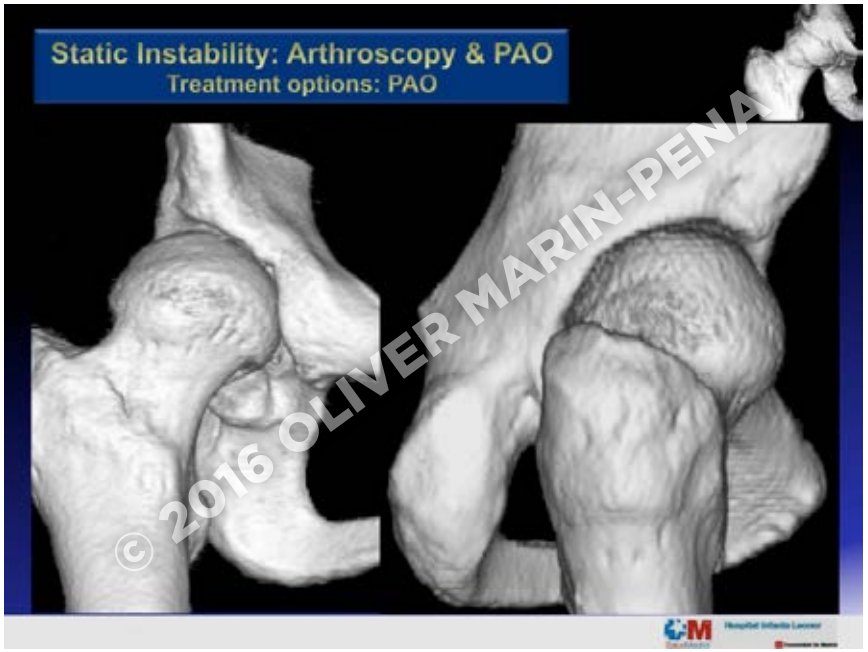
Treatment Options

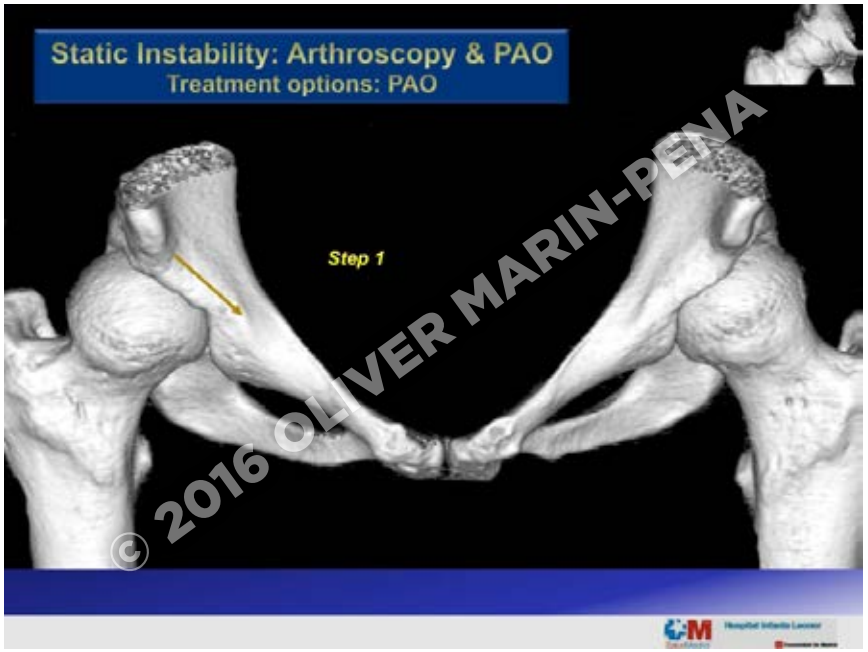
© 2016 OLIVER MARIN-PENA

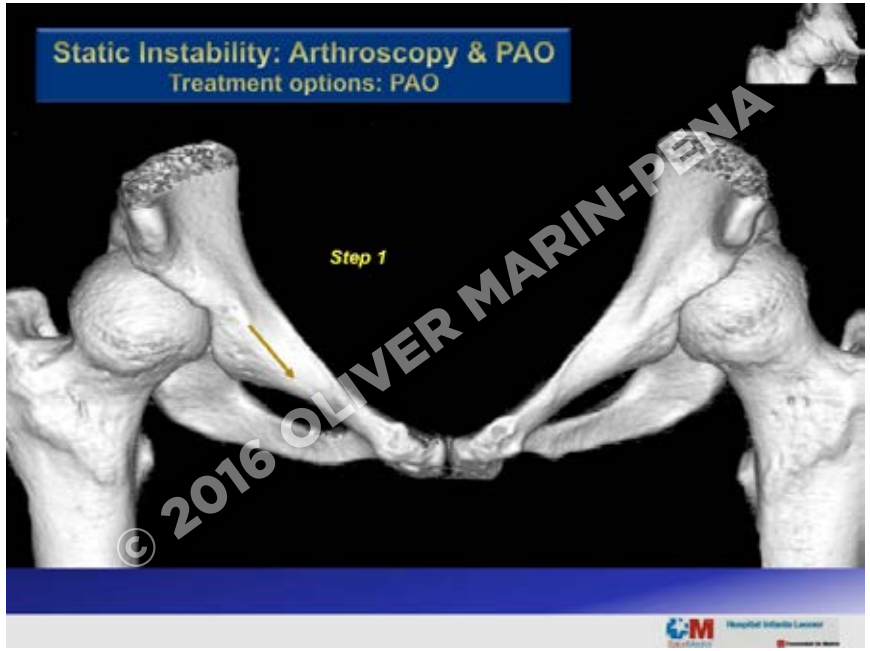
Oliver Marin-Peña Hospital Infanta Leonor (Madrid-Spain) E-mail: olivermarin@yahoo.es

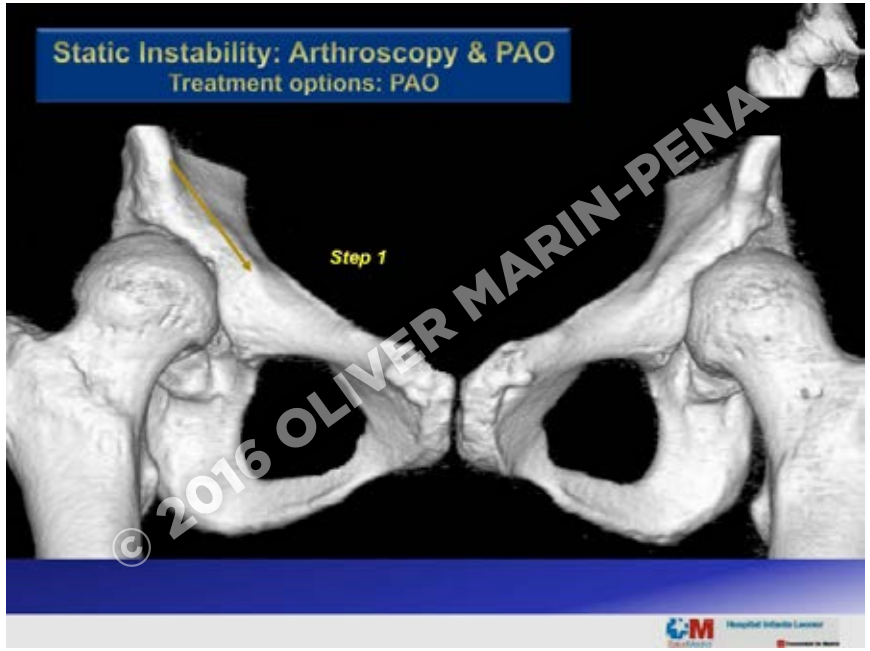

Static Instability: Arthroscopy & PAO
Treatment options
Center-edge angle (Wiberg)
Dysplasia(<20°): Acetabular Osteotomy
Borderline (20-25°): Arthroscopy vs osteotomy
© 2016 OLIVER MARIN-PENA

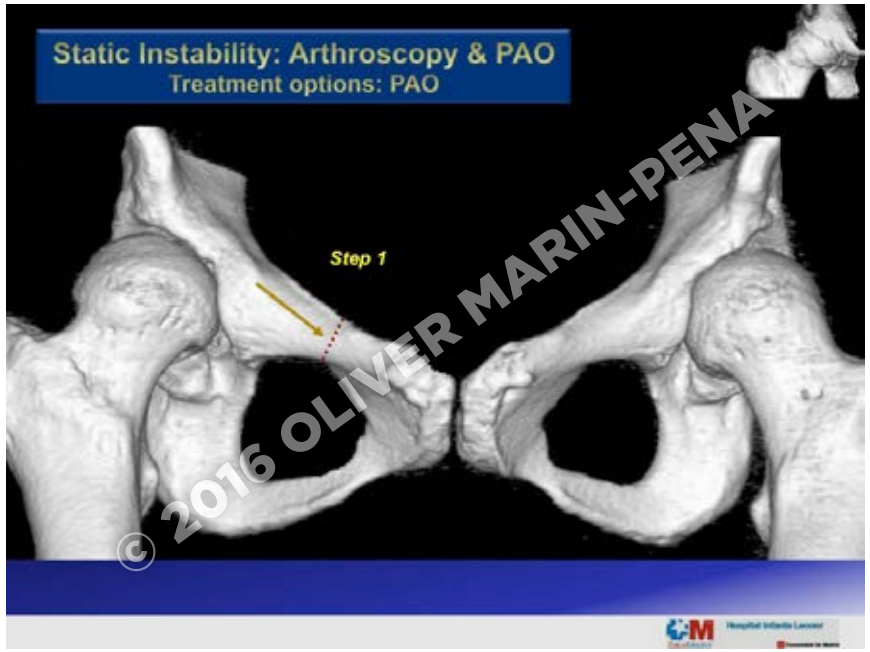

Less than 20° CE
© 2016 OLIVER MARIN-PENA
Oliver Marin-Peña
Hospital Infanta Leonor (Madrid-Spain)
E-mail: olivermarin@yahoo.es

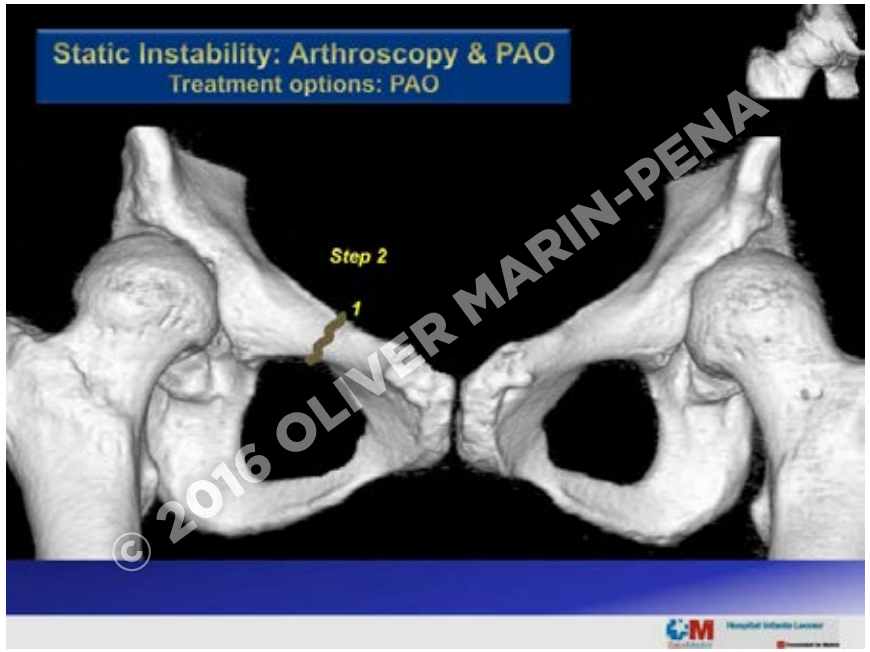

Static Instability: Arthroscopy & PAO
Treatment options: PAO
© 2016 OLIVER MARIN-PENA

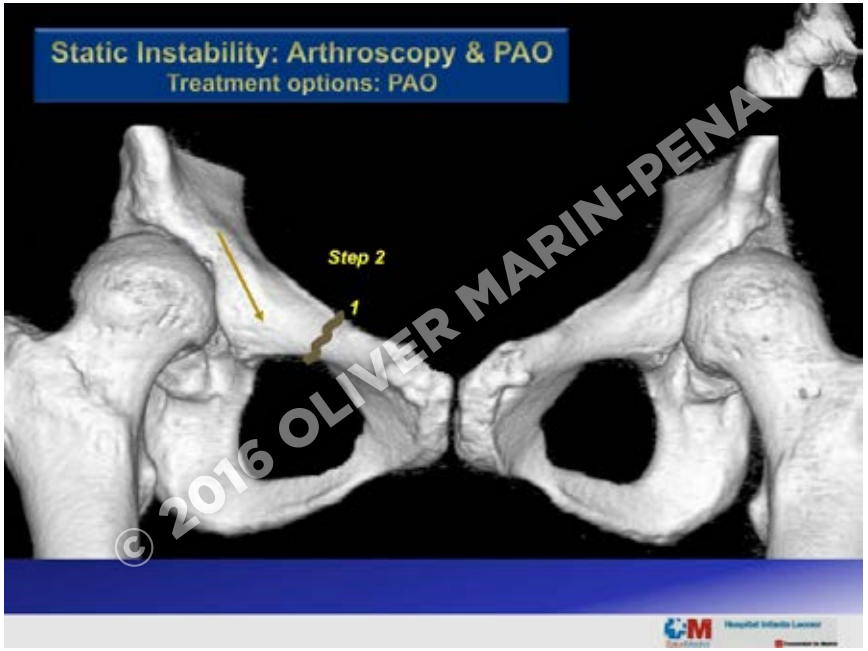

Static Instability: Arthroscopy & PAO
Treatment options: PAO
Step 1
© 2016 OLIVER MARIN-PENA

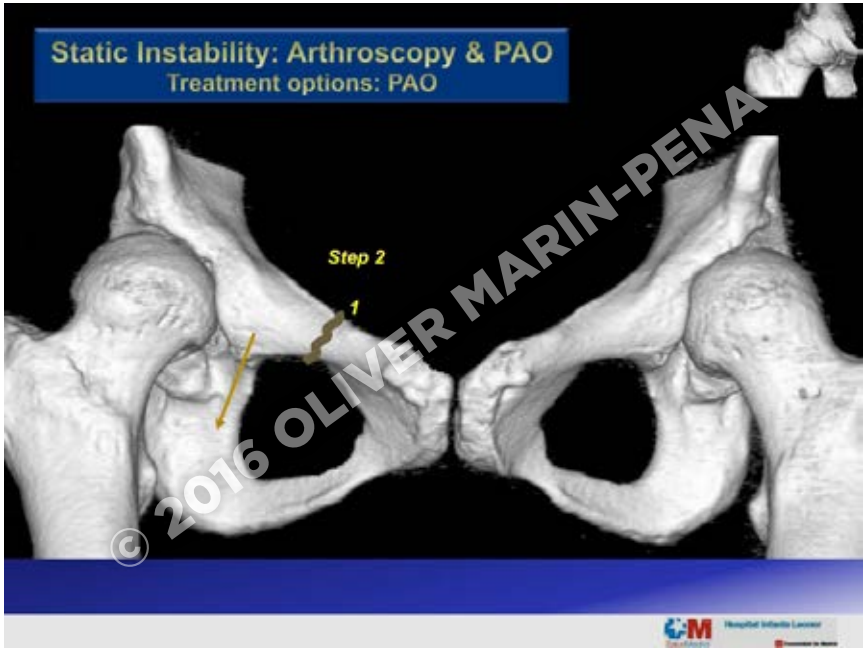

Static Instability: Arthroscopy & PAO
Treatment options: PAO
Step 1
© 2016 OLIVER MARIN-PENA

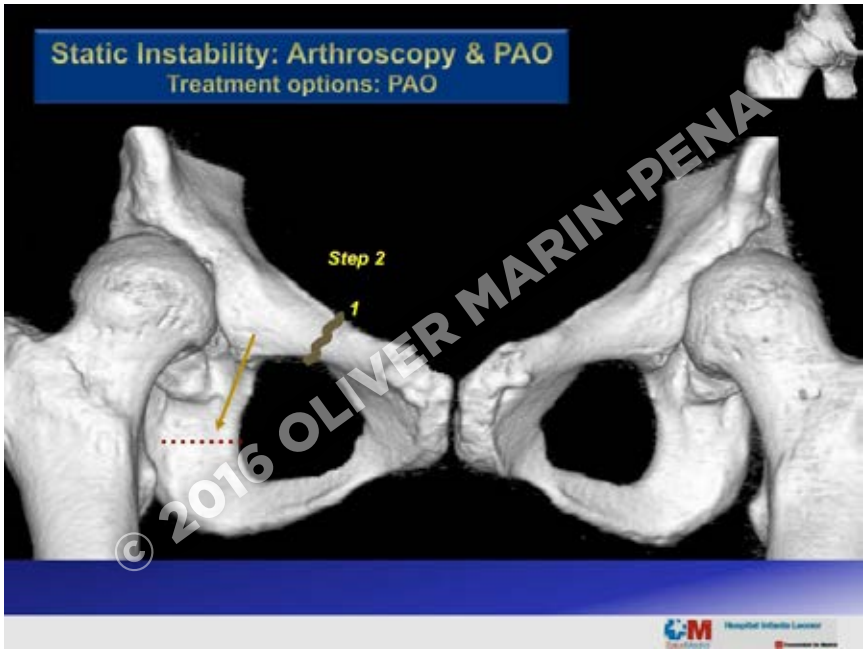

Static Instability: Arthroscopy & PAO
Treatment options: PAO
Step 1
© 2016 OLIVER MARIN-PENA


Static Instability: Arthroscopy & PAO
Treatment options: PAO
Step 1
© 2016 OLIVER MARIN-PENA


Static Instability: Arthroscopy & PAO
Treatment options: PAO
Step 2
1
© 2016 OLIVER MARIN-PENA


Static Instability: Arthroscopy & PAO
Treatment options: PAO
Step 2
1
© 2016 OLIVER MARIN-PENA


Static Instability: Arthroscopy & PAO
Treatment options: PAO
Step 2
1
© 2016 OLIVER MARIN-PENA

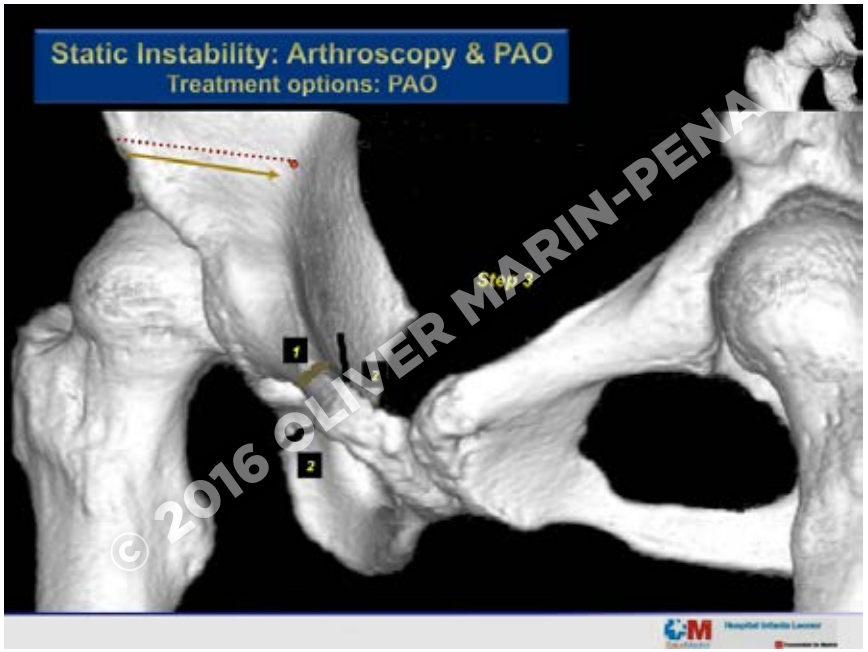

Static Instability: Arthroscopy & PAO
Treatment options: PAO
Step 2
1
© 2016 OLIVER MARIN-PENA

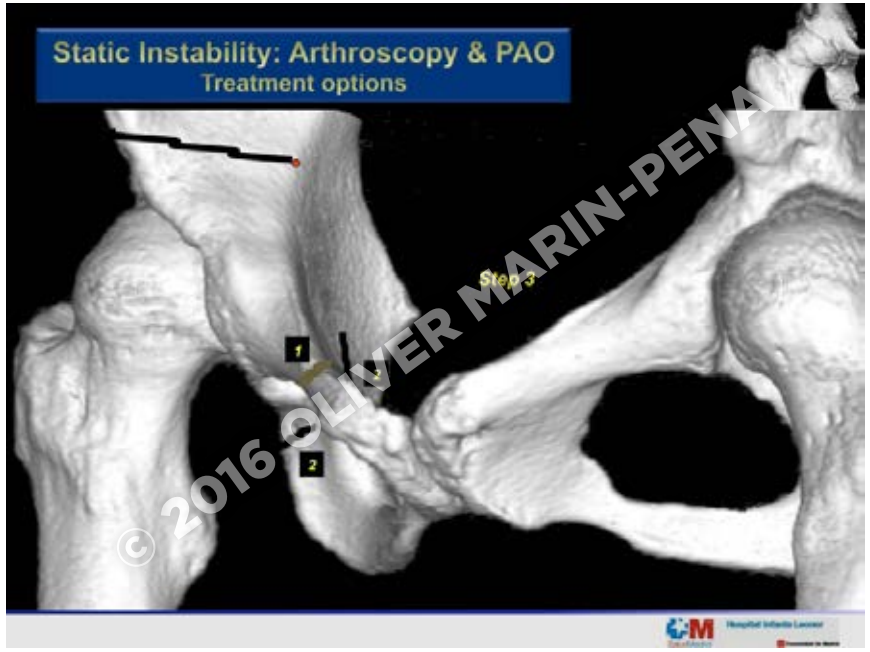

Static Instability: Arthroscopy & PAO
Treatment options: PAO
Step 2
© 2016 OLIVER MARIN-PENA

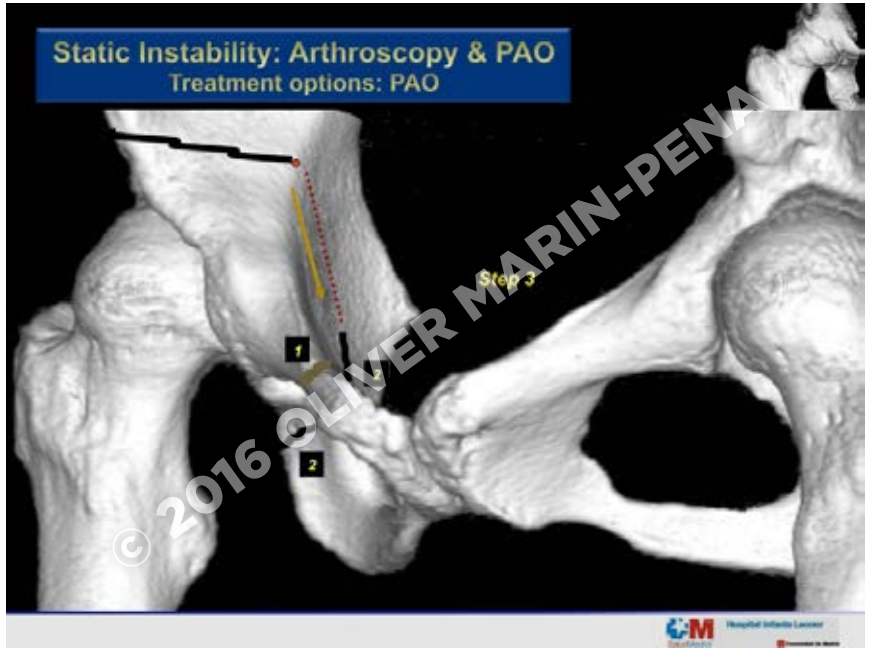

Static Instability: Arthroscopy & PAO
Treatment options: PAO
Step 2
© 2016 OLIVER MARIN-PENA

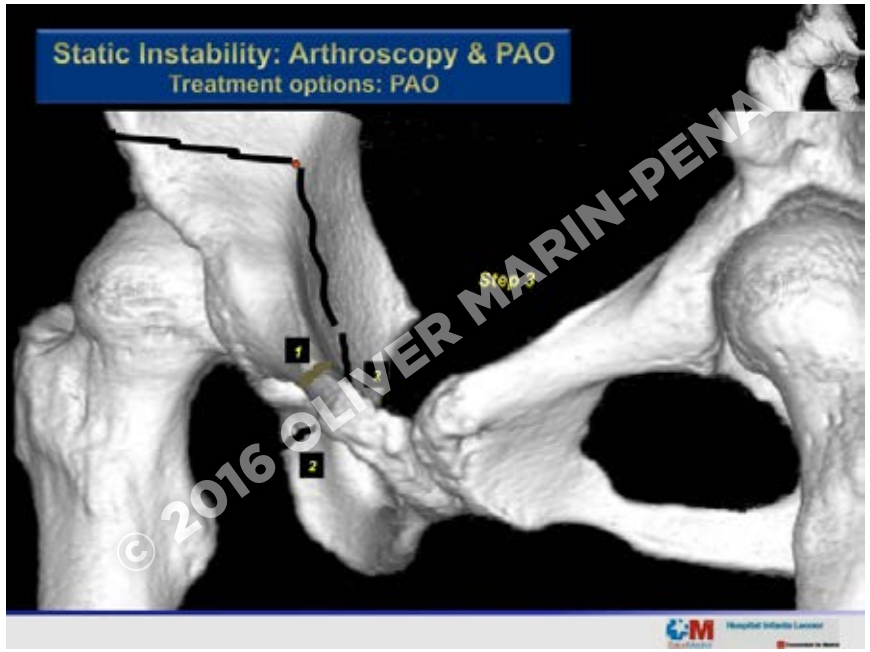

Static Instability: Arthroscopy & PAO
Treatment options: PAO
Step 2
© 2016 OLIVER MARIN-PENA

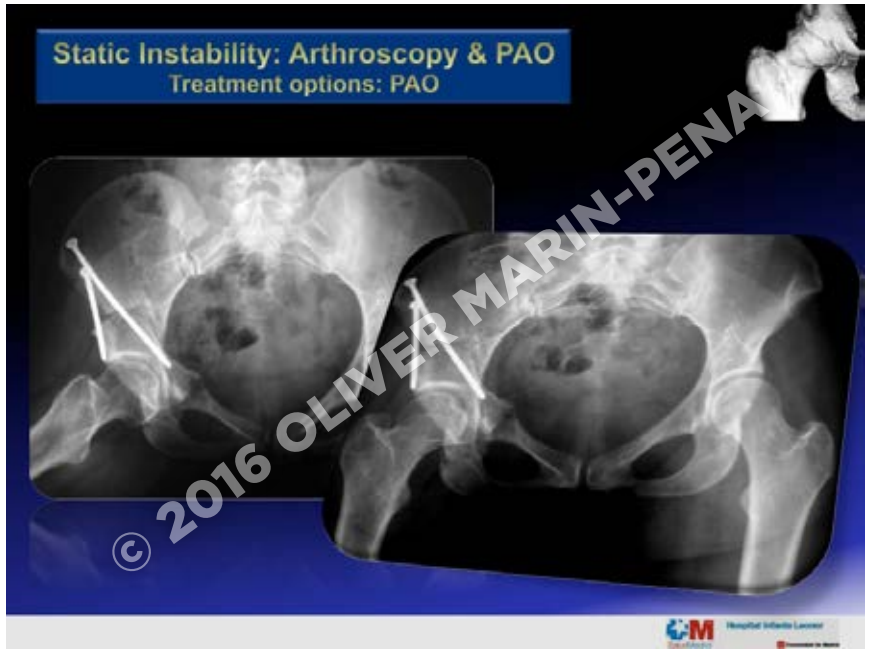

Static Instability: Arthroscopy & PAO
Treatment options: PAO
Step 3
1
2
© 2016 OLIVER MARIN-PENA

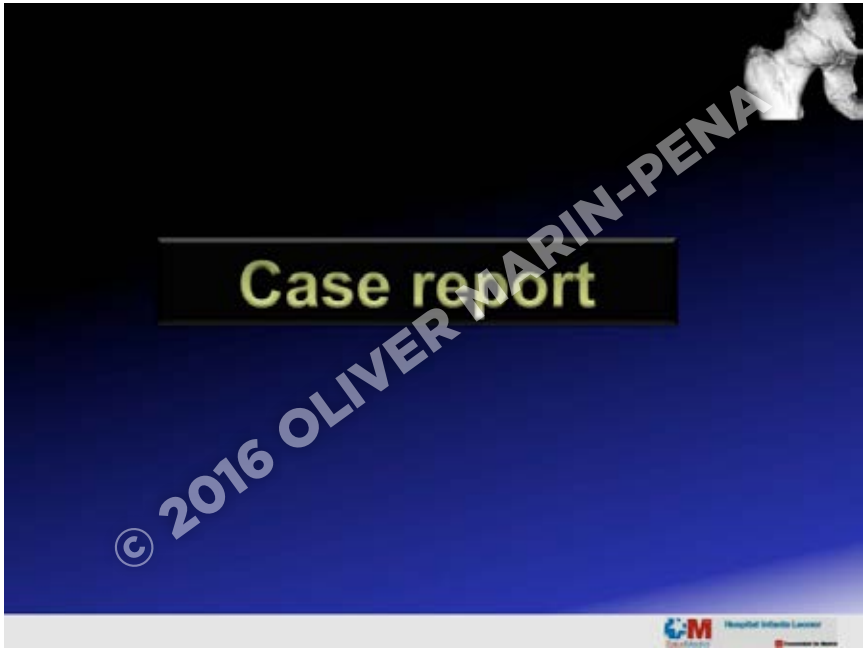

Static Instability: Arthroscopy & PAO
Treatment options: PAO
Step 3
1
2
© 2016 OLIVER MARIN-PENA

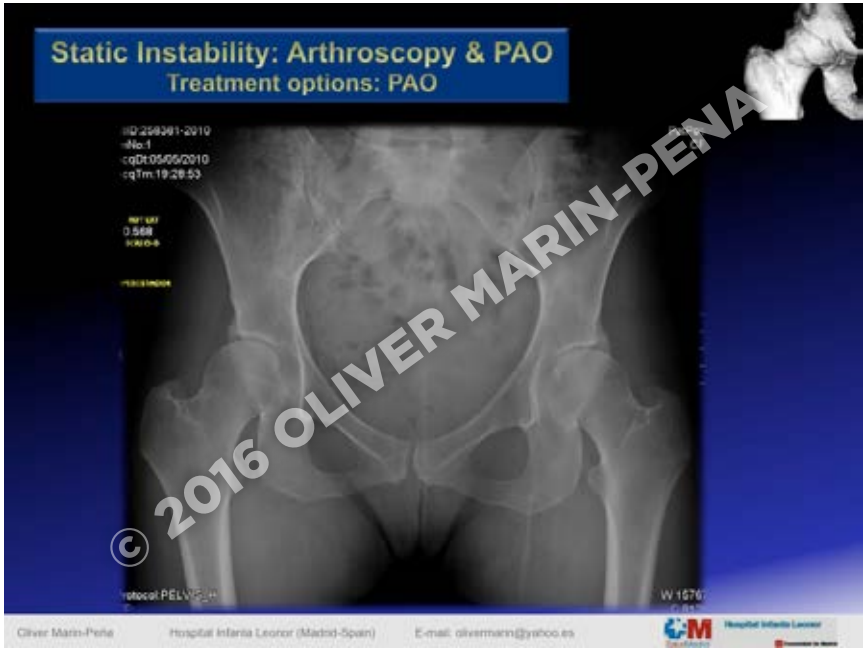

Static Instability: Arthroscopy & PAO
Treatment options
Step 3
1
2
© 2016 OLIVER MARIN-PENA

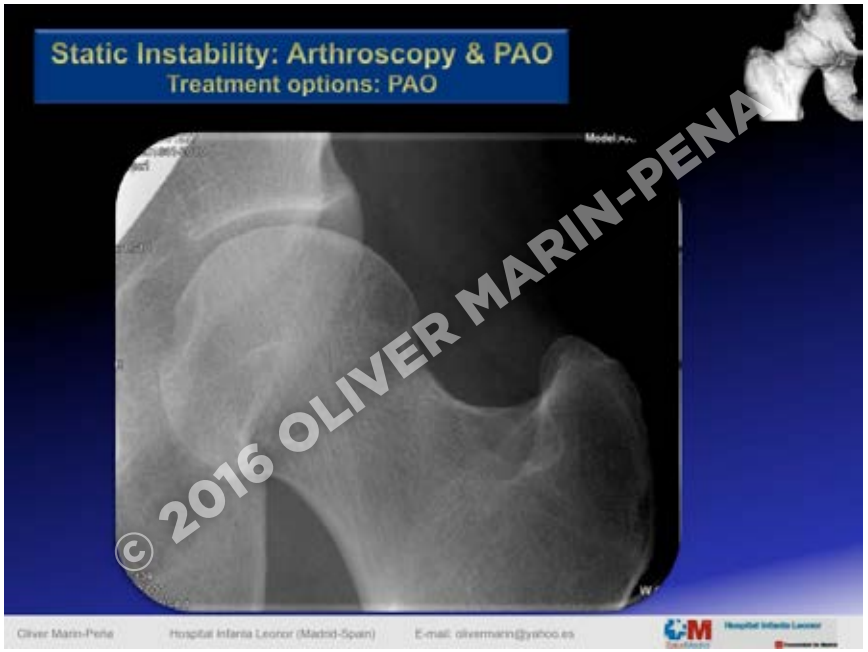

Static Instability: Arthroscopy & PAO
Treatment options: PAO
Step 3
1
2
© 2016 OLIVER MARIN-PENA

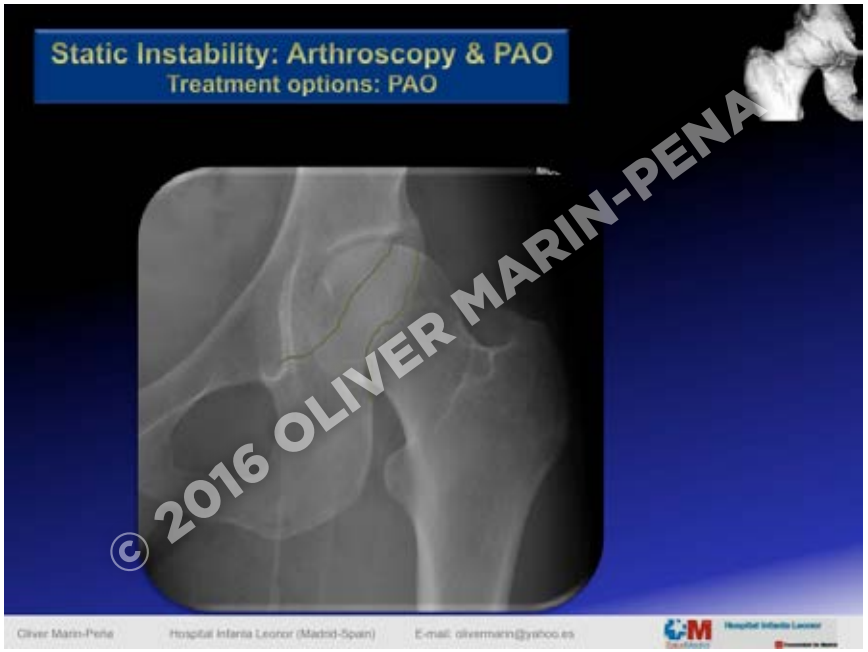

Static Instability: Arthroscopy & PAO
Treatment options: PAO
Step 3
1
2
© 2016 OLIVER MARIN-PENA

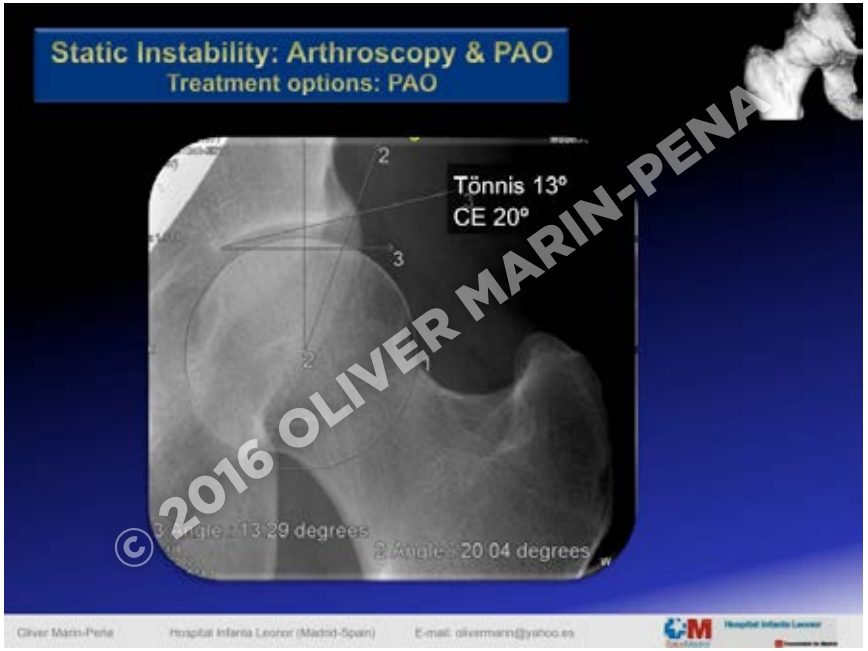

Static Instability: Arthroscopy & PAO
Treatment options: PAO
© 2016 OLIVER MARIN-PENA

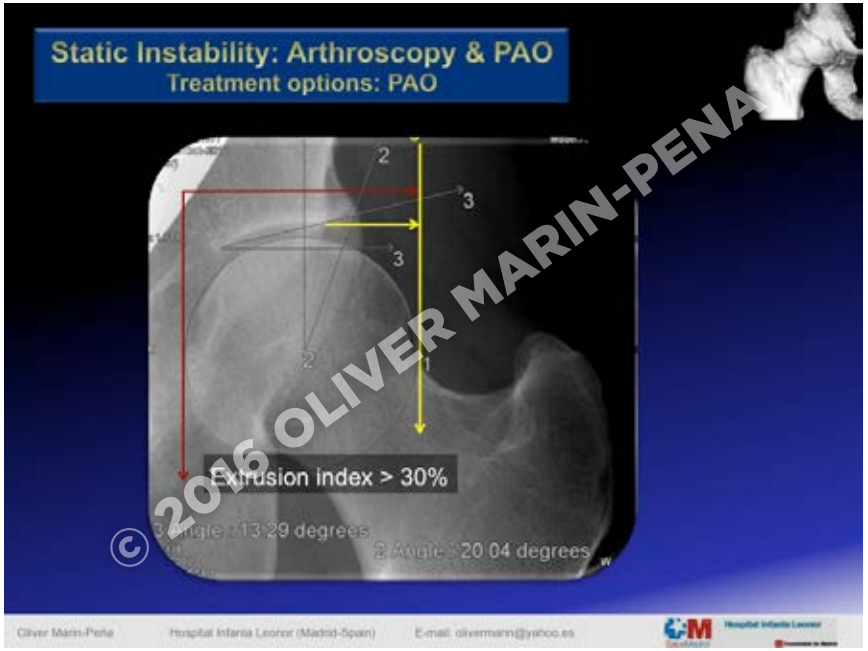

Case report
© 2016 OLIVER MARIN-PENA

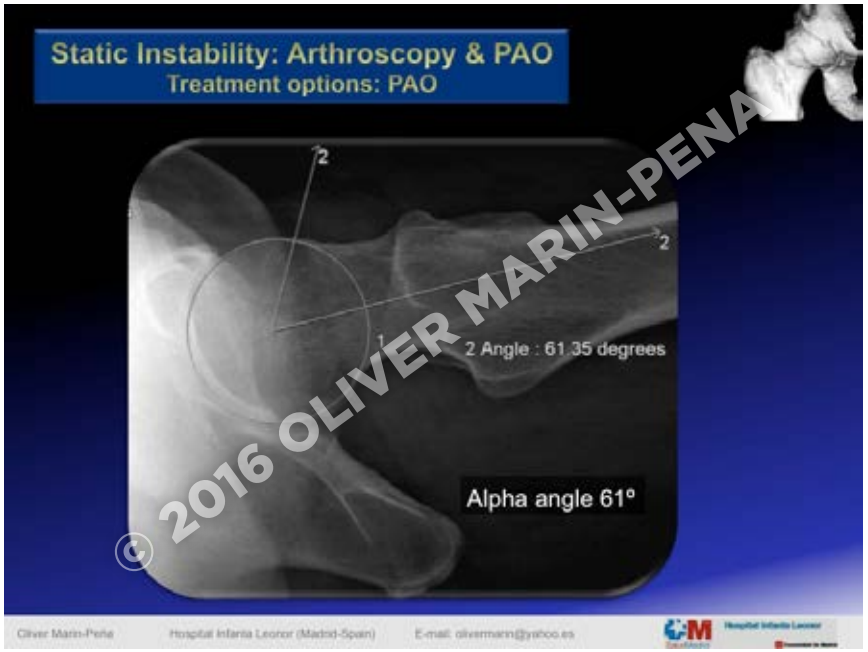

Static Instability: Arthroscopy & PAO
Treatment options: PAO
© 2016 OLIVER MARIN-PENA


Static Instability: Arthroscopy & PAO
Treatment options: PAO
© 2016 OLIVER MARIN-PENA

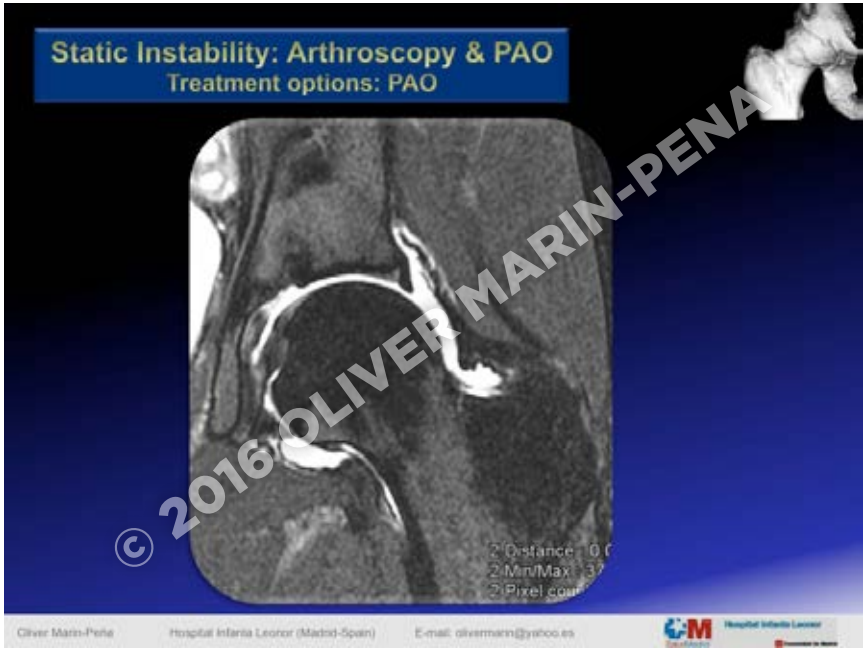

Static Instability: Arthroscopy & PAO
Treatment options: PAO
© 2016 OLIVER MARIN-PENA

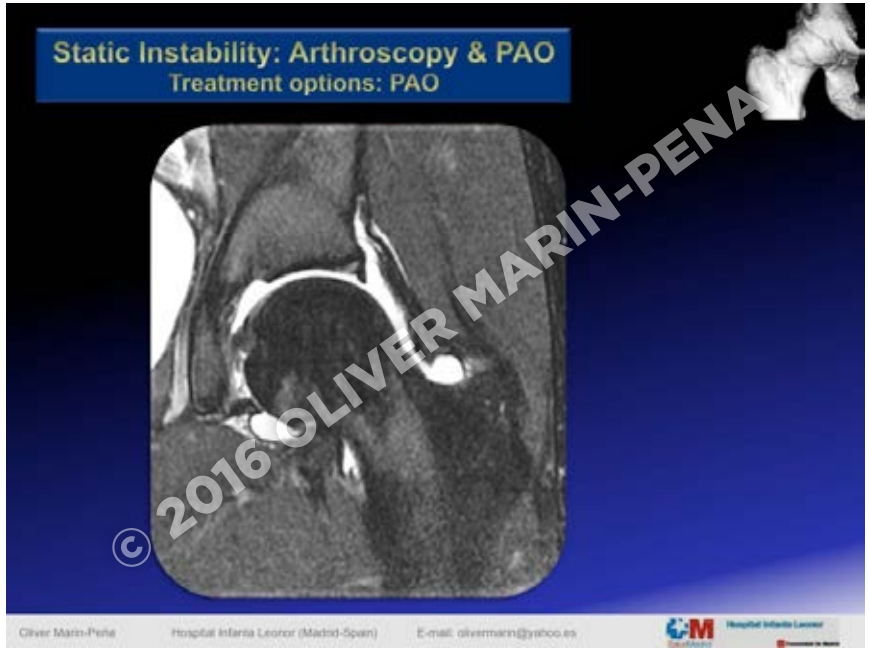

Static Instability: Arthroscopy & PAO
Treatment options: PAO
Tönnis 13º
CE 20º
© 2016 OLIVER MARIN-PENA


Static Instability: Arthroscopy & PAO
Treatment options: PAO
Extrusion index > 30%
© 2016 OLIVER MARIN-PENA

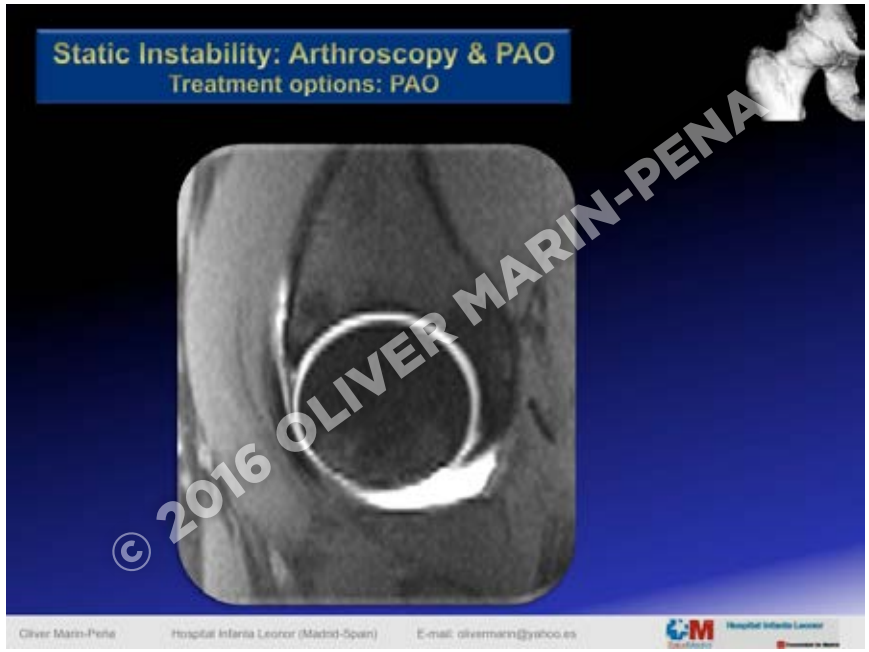

Static Instability: Arthroscopy & PAO
Treatment options: PAO
2 Angle : 61.35 degrees
Alpha angle 61º
© 2016 OLIVER MARIN-PENA


Static Instability: Arthroscopy & PAO
Treatment options: PAO
© 2016 OLIVER MARIN-PENA


Static Instability: Arthroscopy & PAO
Treatment options: PAO
© 2016 OLIVER MARIN-PENA
Oliver Marin-Peña
Hospital Infanta Leonor (Madrid-Spain)
E-mail: olivermarin@yahoo.es


Static Instability: Arthroscopy & PAO
Treatment options: PAO
© 2016 OLIVER MARIN-PENA
Oliver Marin-Peña
Hospital Infanta Leonor (Madrid-Spain)
E-mail: olivermarin@yahoo.es


Static Instability: Arthroscopy & PAO
Treatment options: PAO
© 2016 OLIVER MARIN-PENA
Oliver Marin-Peña
Hospital Infanta Leonor (Madrid-Spain)
E-mail: olivermarin@yahoo.es

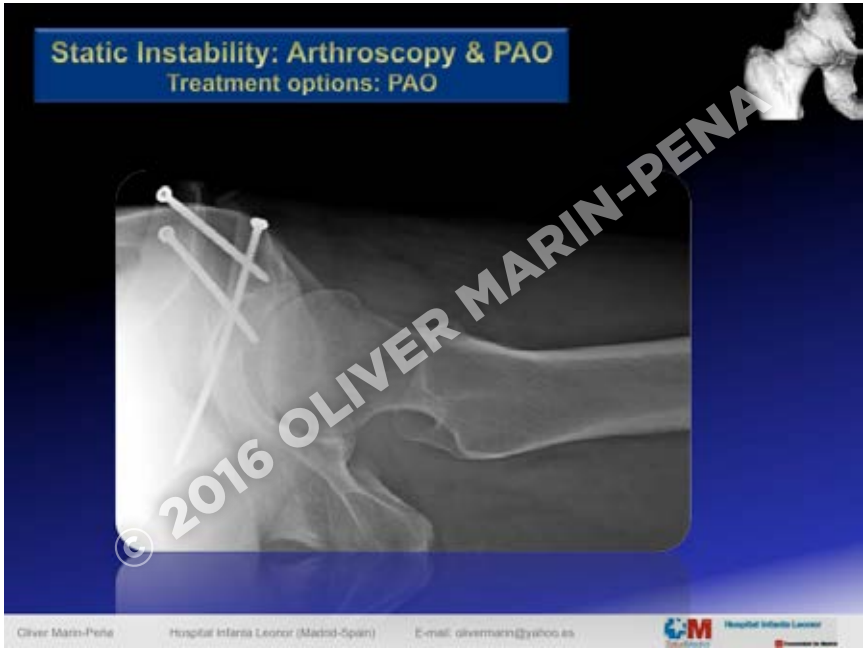

Static Instability: Arthroscopy & PAO
Treatment options: PAO
© 2016 OLIVER MARIN-PENA
Oliver Marin-Peña
Hospital Infanta Leonor (Madrid-Spain)
E-mail: olivermarin@yahoo.es

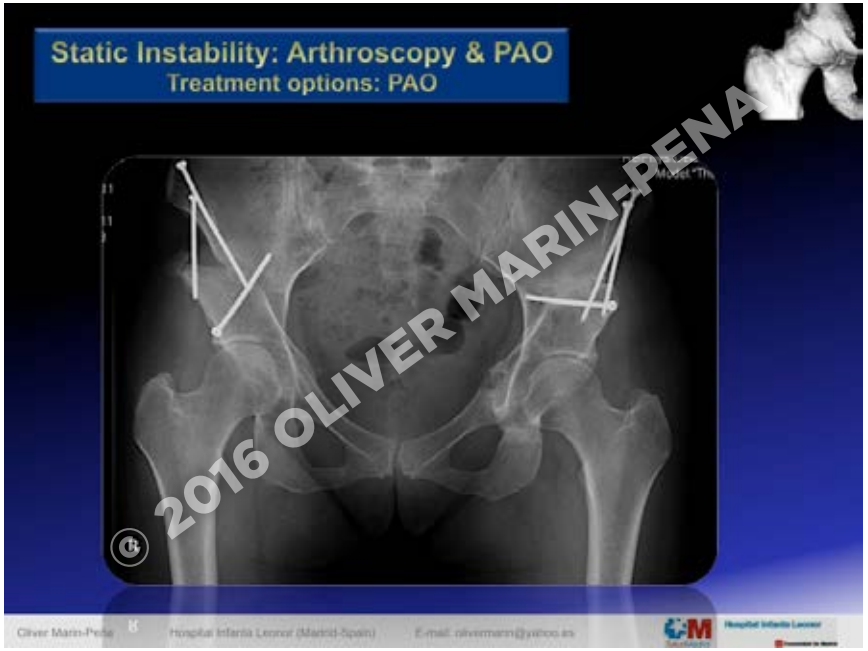

Static Instability: Arthroscopy & PAO
Treatment options: PAO
© 2016 OLIVER MARIN-PENA


Static Instability: Arthroscopy & PAO
Treatment options: PAO
© 2016 OLIVER MARIN-PENA


Static Instability: Arthroscopy & PAO
Treatment options: PAO
© 2016 OLIVER MARIN-PENA


Static Instability: Arthroscopy & PAO
Treatment options: PAO
© 2016 OLIVER MARIN-PENA


Static Instability: Arthroscopy & PAO
Treatment options: PAO
© 2016 OLIVER MARIN-PENA
Oliver Marin-Peña Hospital Infanta Leonor (Madrid-Spain) E-mail: olivermarin@yahoo.es


Static Instability: Arthroscopy & PAO
Treatment options: PAO
© 2016 OLIVER MARIN-PENA
Oliver Marin-Peña Hospital Infanta Leonor (Madrid-Spain) E-mail: olivermarin@yahoo.es


Between 20-25º
© 2016 OLIVER MARIN-PENA
Oliver Marin-Peña Hospital Infanta Leonor (Madrid-Spain) E-mail: olivermarin@yahoo.es


Static Instability: Arthroscopy & PAO
Treatment options: Arthroscopy
Role hip arthroscopy in DDH
✓ Loose bodies
✓ Repair labral disruption
Mc Carthy 20 cases at minimum 2 years follow up
85% improve clinical outcomes ..... But no correction of structural deformity
© 2016 OLIVER MARIN-PENA
McCarthy JC, Mason JB, Wardell SR: Hip arthroscopy for acetabular dysplasia: A pipe dream? Orthopedics 1998;21:977-979.

Static Instability: Arthroscopy & PAO
Treatment options: Arthroscopy



34 hip arthroscopy in DDH cases

- 24 NO improvement
- 14 decrease joint space
- 16 need new surgery (PAO 6, hip open surgery 7 , THA3)
- Cause for revision…..unnoticed structural deformity

Arthroscopy for labral tears in patients with DDH of the hip: a cautionary note. Journal of arthroplasty 24-6 Suppl 1 2009

© 2016 OLIVER MARIN-PENA

Static Instability: Arthroscopy & PAO
Treatment options: Arthroscopy

- 40 Professional dancers with hip dysplasia
- Labral debridement and femoral osteochondroplasty
- 73 % resume their sport activity at 7 months



Hip Arthroscopy in the Professional Dancer. Free Paper AAOS san Diego 2011

© 2016 OLIVER MARIN-PENA

Static Instability: Arthroscopy & PAO
Treatment options: Arthroscopy

Labral lesion 88%
Arthroscopic Labral repair + PAO
Good mid term results



Peri-acetabular rotational osteotomy with concomitant hip arthroscopy for treatment of hip dysplasia. Kim KI, Cho YJ, Ramteke AA, Yoo MC. J Bone Joint Surg Br. 2011 Jun;93(6):732-7.

© 2016 OLIVER MARIN-PENA

Static Instability: Arthroscopy & PAO
Treatment options: Arthroscopy

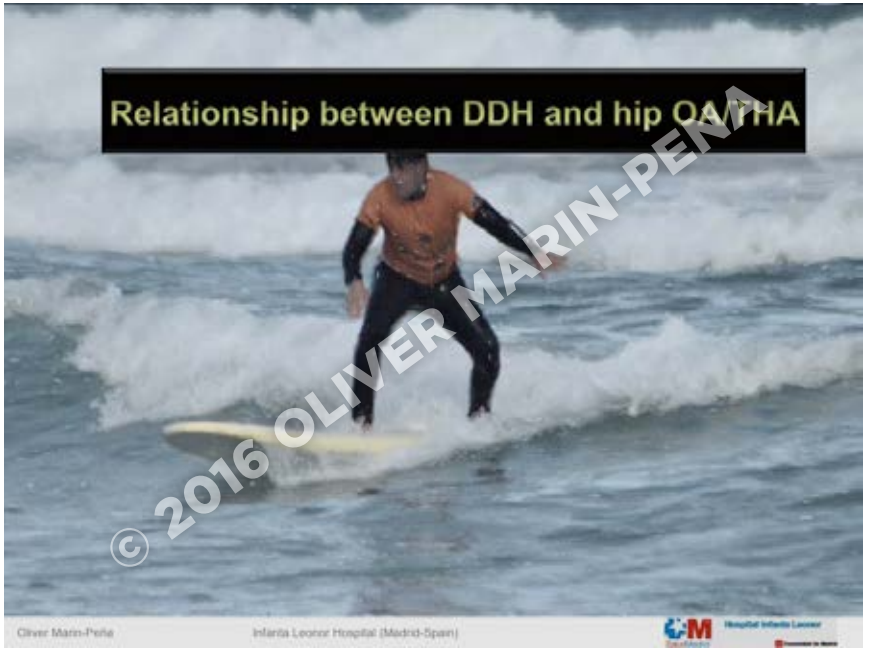


Systematic review:
-Most studies report good outcomes (Type IV studies)
-Labral lesions 77%
-Cartilage lesions: acetabular side (59-75%) , femoral (11-32%)
-Labral debridement ….67% reoperation at 2 years

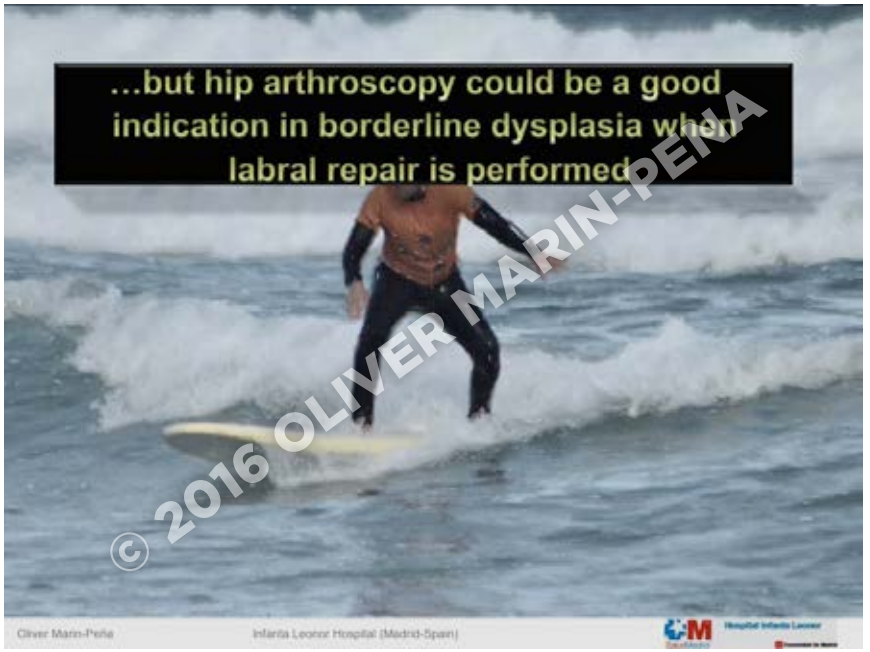
Jo S, Lee SH, Wang SI, Smith B, O'Donnell J. The role of arthroscopy in the dysplastic hip—a systematic review of the intra-articular findings, and the outcomes utilizing hip arthroscopic surgery. Journal of hip preservation surgery. 2016 January 9, 2016.

© 2016 OLIVER MARIN-PENA


Conclusions
© 2016 OLIVER MARIN-PENA


Relationship between DDH and hip OA/THA
© 2016 OLIVER MARIN-PENA
Oliver Marin-Peña
Infanta Leonor Hospital (Madrid-Spain)


Acetabular osteotomy should be the gold standard treatment in young symptomatic patient...
© 2016 OLIVER MARIN-PENA
Oliver Marin-Peña
Infanta Leonor Hospital (Madrid-Spain)


...but hip arthroscopy could be a good indication in borderline dysplasia when labral repair is performed
© 2016 OLIVER MARIN-PENA
Oliver Marin-Peña
Infanta Leonor Hospital (Madrid-Spain)







© 2016 OLIVER MARIN-PENA