

Femoroacetabular Impingement of the Hip and Associated Chondrolabral Defect



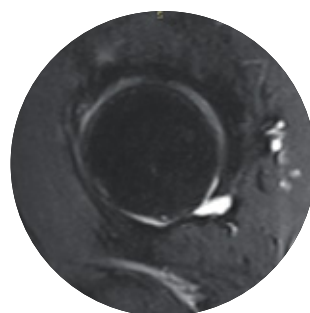
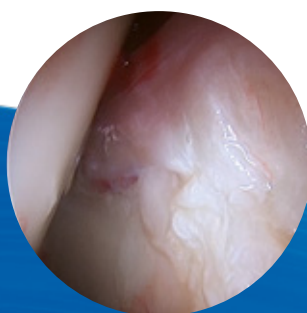
Dr. Carlomagno Cárdenas Nylander

Dr. Carlomagno Cárdenas Nylander provides state of the art hip surgery in Barcelona, Spain. He is an experienced hip joint preservation surgeon with a specialization in arthroscopy, performing hundreds of procedures annually. He helped to develop the direct mini anterior approach for the treatment of femoroacetabular impingement of the hip and transitioned in 2010 to full hip arthroscopy. Furthermore, he is offering minimally invasive techniques such as the transartorial periacetabular osteotomy, surgical hip dislocation for complex deformity and femoral osteotomies.

He is a pioneer in innovative approaches to the hip joint. Further, he is frequently involved in teaching soft tissue-preserving hip procedures in anatomical labs, which allow for faster recovery after joint replacement surgery. Dr. Cárdenas Nylander is a member of several scientific medical societies and participates and presents at several conferences annually.

Memberships

- > ISHA
- > ESSKA
- > AEA
- > SEROD
- > SECOT
- > SCCOT
- > ACMCB
- > SVCOT



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Clinical Problem

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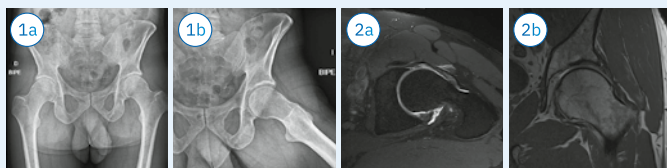
Femoroacetabular impingement (FAI) syndrome is often an underlying cause for the development of hip osteoarthritis. Cam prevalence has been reported to range from 5 to 75 % and affects approx. 47 % of the population in Europe. A greater alpha angle is associated with cartilage defects and labral tears; these conditions lead to variable symptoms and make the joint prone to hip OA.

Clinical Scenario

A 45 years old active male, complaining about left groin pain, inability to practice sports, limited and painful internal rotation of the hip, FABER+, six months duration of symptoms, and failed conservative therapy. The clinical diagnosis of femoroacetabular impingement syndrome is suspected.

Pre-operative Imaging

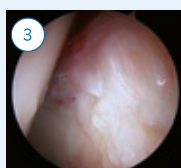
A standing AP pelvis showing a lateral bump of the femoral head (Fig 1a), joint line preserved with sclerosis, and no signs of advanced degenerative joint disease are present. Dunn's axial view shows a loss of femoral head neck ratio and convexity of the head neck transition compatible with Cam Morphology (Fig 1b). The MRI demonstrates a labral tear and mild chondral fragmentation at the level of the chondrolabral junction (Fig 2a/2b).



Lateral bump Dunn's axial view Labral tear and chondral defect

Intraoperative Assessment

The arthroscopic view of the left hip joint shows frayed chondral tissue that affects 30 % of the weight bearing area (Fig 3). The AMIC® Chondro-Gide® one step procedure is the practical choice for this clinical scenario.

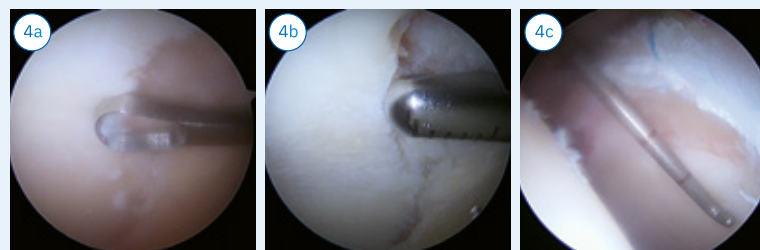


Frayed chondral tissue

Treatment

Treatment

Cam decompression and labral repair are mandatory steps for successfully treating femoroacetabular impingement. Labral repair and refixation create a peripheral containment to stabilize the Chondro-Gide® membrane. Cam deformity correction creates an impingement free joint that protects the repaired chondrolabral junction. The affected area is debrided with a curette, removing all the damaged cartilage (Fig 4a); a curved shaver blade regularizes the margins of the defect (Fig 4b) and the size is measured with a calibrated arthroscopic probe (Fig 4c) in order to trim an adequate size of the Chondro-Gide® membrane.



Debridement

Debridement

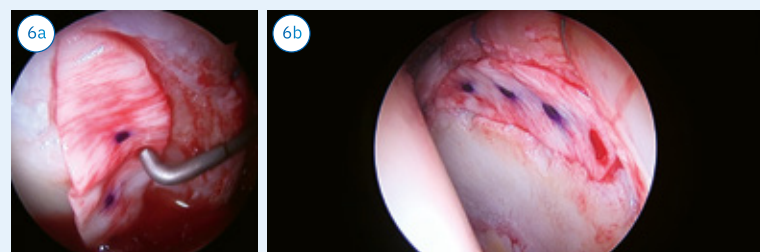
Defect measurement

A bone marrow stimulation technique (micro abrasion) is applied to the subchondral bone (Fig 5a); the joint is aspirated and dried and the prepared defect is ready for membrane implantation.



Micro abrasion

The Chondro-Gide® membrane is marked on the smooth, dense upper side, as the rough side must face the bone on the prepared defect site. The membrane is placed through a cannula and the position is adjusted using the probe or any other slim tool for micro adjustments (Fig 6a); as soon as the Chondro-Gide® is in place filling the acetabular defect (Fig 6b), the hip distraction can be released.



Chondro-Gide® implantation

Implanted and fixed Chondro-Gide®

Follow-Up

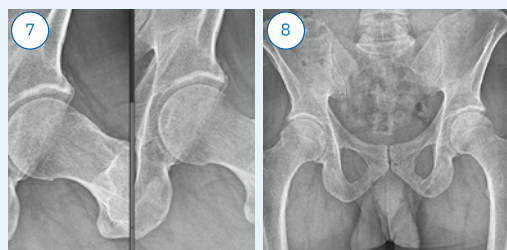
References

Postoperative Protocol

The patient uses crutches for partial weight bearing for 4 to 6 weeks. Physiotherapy may be started as soon as possible, the length of physiotherapy is tailored to every patient. In general, 12 weeks of progressive, supervised therapy is needed.

Deformity Correction Check

Post-op Dunn's x-rays show a smooth concave head neck transition (Fig 7), and the AP pelvis view shows lateral bump correction (Fig 8). An impingement free hip is necessary to avoid intra-articular problems at mid to long term.

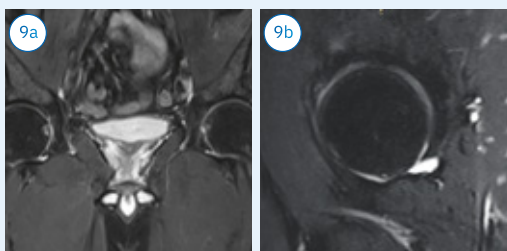


Post-op Dunns's x-ray

Bump correction

Results and Postoperative Imaging

At 1.5 years follow up, the patient is satisfied with the procedure, ROM improved for flexion and internal rotation. The patient returned to sports, and Non-Arthritic Hip Score improved significantly from 55 pre-op to 87.5 post-op. The control MRI shows a preserved joint line and no progression to OA of the hip (Fig 9a/9b).



MRI of preserved joint line and no signs of OA

Conclusion

Primary hip arthroscopy for patients with FAI and focal chondral defects may benefit from the AMIC® Chondro-Gide® procedure. Chondral treatment should be coupled with bony correction and labral seal restitution as an ideal therapeutic strategy.

Dickenson EJ, Wall PDH, Hutchinson CE, Griffin DR. The prevalence of cam hip morphology in a general population sample. *Osteoarthritis and Cartilage*. 2019;27(3):444-448.

Heerey J, Kemp J, Agricola R, et al. Cam morphology is associated with MRI defined cartilage defects and labral tears: a case control study of 237 young adult football players with and without hip and groin pain . *BMJ Open Sport Exerc Med*. 2021;7(4):e001199.

de Girolamo L, Jannelli E, Fioruzzi A, Fontana A. Acetabular chondral lesions associated with femoroacetabular impingement treated by autologous matrix induced chondrogenesis or microfracture: a comparative study at 8 year follow up. *Arthroscopy: The Journal of Arthroscopic & Related Surgery*. 2018;34(11):3012-3023.



For further information:
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Materials Used

- > Chondro-Gide® membrane 20 × 30 mm
- > Conmed Hip Arthroscopy set
- > Conmed Paradigm™ Tactile Access Kit and EZ Switch™ Portal
- > Conmed PressFT® Flex Suture Anchors
- > Conmed Pre-Bent Lanza® Tapered Specialty Shaver Blade
- > Conmed Signature Series™ Blades and Burs, the Signature Series
- > Conmed Paradigm™ Curved Knot Pusher and Hook Blade
- > Smith and Nephew Werewolf® flow 50° coblation®
- > Stryker NanoPass® reach crescent

Recent Publications

Wang CK, Cohen D, Kay J, Almasri M, Simunovic N, Cardenas Nylander C, Ranawat AS, Ayeni OR. The effect of femoral and acetabular version on outcomes following hip arthroscopy: a systematic review. *Journal of Bone and Joint Surgery: American Volume* 2022;104(27):283.

Gómez EM, Cardenas C, Astarita E, et al. Labral reconstruction with tendon allograft: histological findings show revascularization at 8 weeks from implantation. *J Hip Preserv Surg.* 2017;4(1):74-79.

Moya E, Natera LG, Cardenas C, Astarita E, Bellotti V, Ribas M. Reconstruction of Massive Posterior Nonrepairable Acetabular Labral Tears With Peroneus Brevis Tendon Allograft: Arthroscopy Assisted Mini Open Approach. *Arthrosc Tech.* 2016;5(5):e1015-e1022.