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Do Concomitant Chondral Procedures Impact Patient Outcomes Following Arthroscopic Treatment of Femoroacetabular Impingement in Patients with Large Cartilage Lesions?

Jie Ma, MES; Ivan Wong, MD, MACM, FRCSC

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Disclosures

Ms. Jie Ma:

- Nothing to disclose.

Dr. Ivan Wong:

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- Smith and Nephew, DePuy Synthes Mitek Sports Medicine, Linvatec, Bioventus

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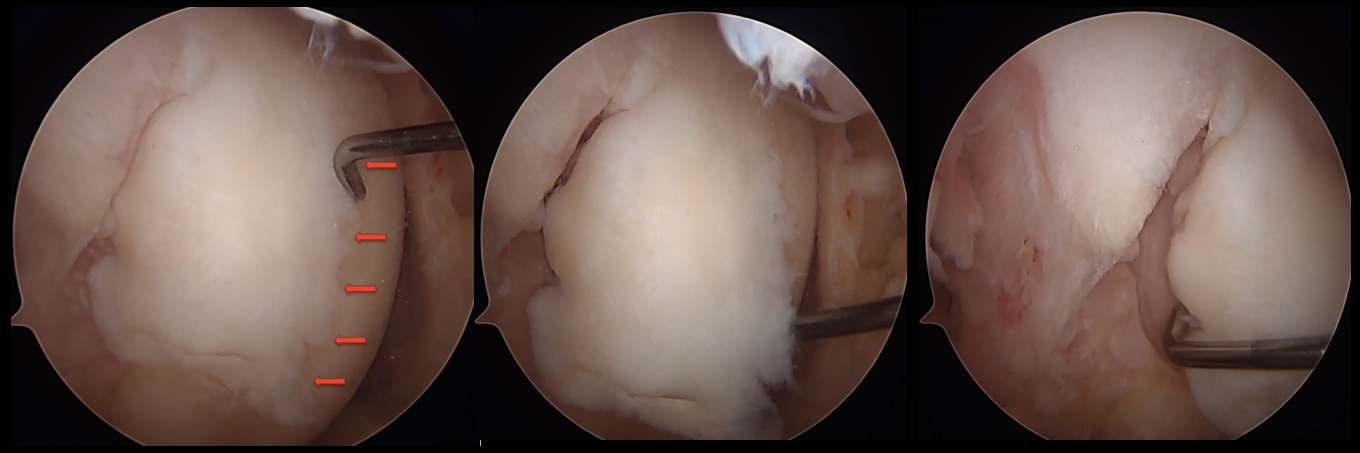
Acetabular Cartilage Defects (ACD) Are Commonly Found in Patients Treated with Hip Arthroscopy

ACDs:

- Are caused by Femoroacetabular Impingement (FAI) due to the repetitive abnormal contact between acetabulum and/or femoral head[1]
- Cause pain and functional limitations[2,3]
- May result in a high probability of osteoarthritis (OA) progression and the need for a THA due to limited capacity to self-repair if left untreated[2-4]



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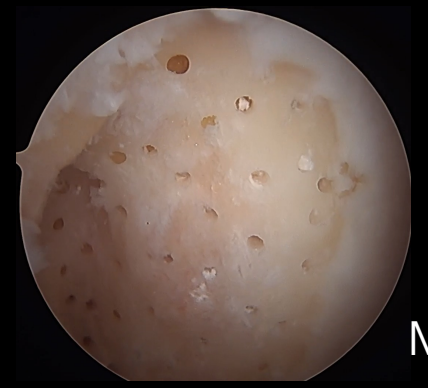
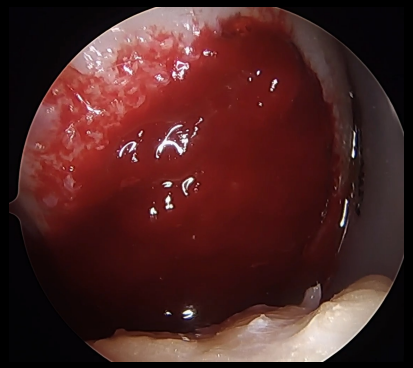
The Management of ACDs Remains A Challenge

Treatment Options:

- Microfracture (MF)
  - Gold standard for small chondral lesions (1-2 cm^2)[5,6]
  - Bone marrow stimulation technique that initiates a repair process
  - Drawbacks may limit the clinical benefits[7,8]
  - Long-term results seem to be less attractive[8]
- BST-CarGel (CG)
  - Injectable chitosan-based scaffold
  - was designed for use in combination with bone marrow stimulation techniques (e.g., MF) as it stabilizes resulting blood clots[9,10]
  - has better results than MF[9,11-13]



MF



CG

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The Impact of Concomitant Procedures on Patient Outcomes Is Still Unknown

- Surgical treatment of chondral lesions in the hip usually includes other concomitant procedures (e.g., hip arthroscopy for FAI)
  - These concomitant procedures = confounding factors in post-operative data analysis
  - This makes the clinical benefits and outcomes difficult to interpret

- In the literature, there is a knowledge gap in comparing the outcomes of chondral and non-chondral patients

Purpose

- To compare the clinical outcomes of patients who received treatment for FAI with no chondral procedures to those that received concomitant treatment for cartilage lesions.

Patient Selection

Initial Inclusion

Patients who underwent hip arthroscopy between 2012 and 2019 (n=1017)

Exclusion Criteria

Abductor repair; HO resection; subchondral cyst; <5yr follow-up; (n=34)

Patient Matching with 1:1 ratio

Age ± 5 years, BMI ± 5.5 kg/m2, and clinical follow-up ± 2 year

Finally Included in Analysis

Chondral: n=80

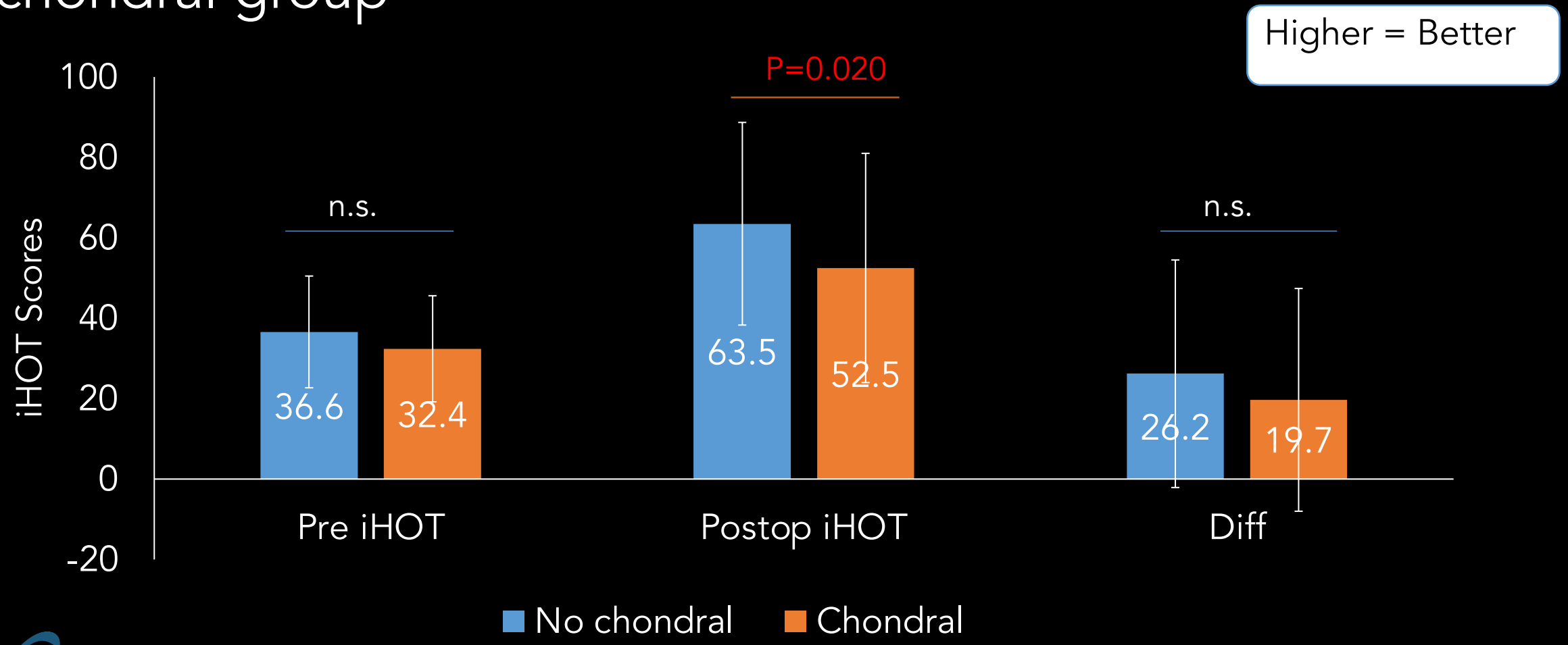
(31 MF and 49 CG)

Control: n=80

Demographics

Variables	No chondral procedures (N=80)	Chondral procedures (N=80)	P values
Age at Surgery, years	38.1±10.7	38.4±10.2	0.829
BMI, kg/m^2	26.6±4.3	26.7±4.6	0.896
Clinical follow-up, years	6.7±1.2	6.5±0.8	0.105
Revision, n (%)	4 (5.0%)	5 (6.3%)	1.000
Male, n (%)	56 (70%)	56 (70%)	1.000

Both groups improved following surgery, however the post-operative scores were significantly lower in the chondral group



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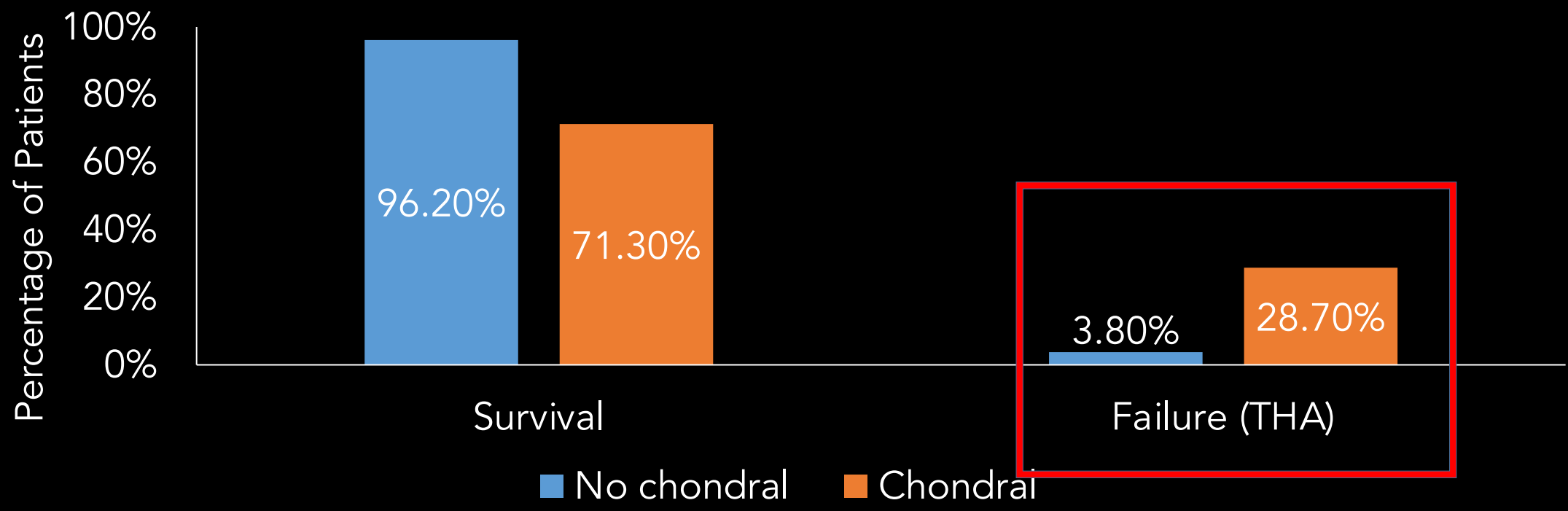
Chondral group had higher conversion to THA than the control group (p<0.001)



- MF made up most of the failure cases

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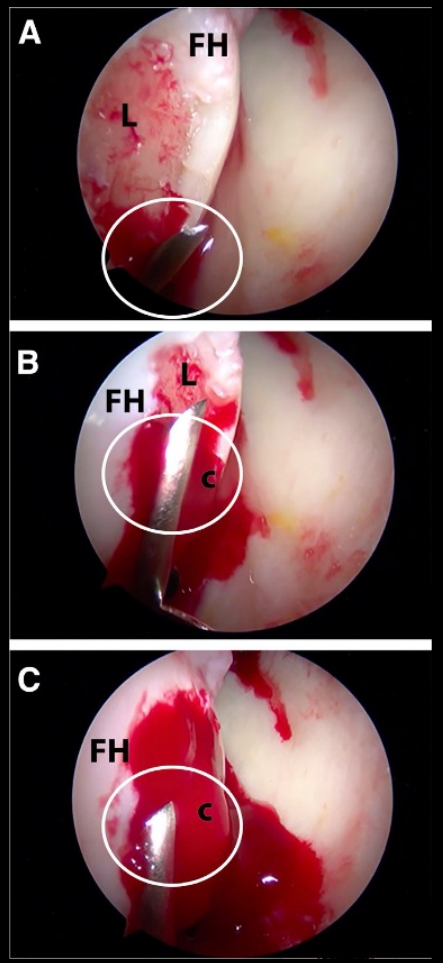
If Left Untreated, Cartilage Lesion May be Risk Factor for THA

- The significant improvements in patient-reported outcome (PRO) scores from preop to postop in control and CG groups have also been demonstrated in other studies[13,14]
- The conversion to THA in the control group (3.8%) is in the range of those reported in the literature[15]
- MF patients had the highest conversion rate to THA
  - Can probably be explained by the differences in cartilage quality.
    - Microfracture leads to unstable clots and creation of fibrotic tissue[4,15]
    - CarGel biopsies show better cell viability and distribution[15]
    - Post-operative cartilage quality: CG > MF[4,15]
  - Worse post-operative cartilage quality = larger unsuccessfully addressed chondral lesions = decreased joint space and higher likelihood of THA[16]



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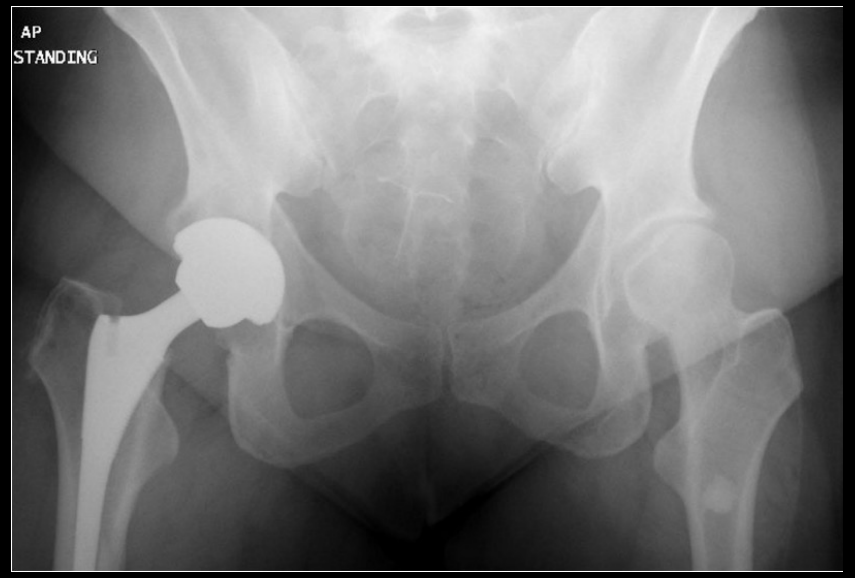
Summary

- Patients with concomitant chondral procedures have higher rates of THR post-operatively compared to patients without that had treatment for FAI.



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