ISAKOS CONGRESS 2025 | MUNICH GERMANY June 8–11

New Treatment Algorithm for Unstable, Unsalvageable Osteochondritis Dissecans of Knee

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Disclosure

None to disclose

Introduction

- Osteochondritis dissecans (OCD) is a condition affecting the osteochondral unit, leading to the separation of subchondral bone, sometimes accompanied by articular cartilage involvement and instability.
- The current treatment approach is based on factors like skeletal maturity, lesion stability, and potential for salvage.
- Due to the relatively infrequent occurrence of OCD in the knee, there is no universally accepted treatment method.
- Existing literature does not factor in lesion size, accessibility (location), or congruity when considering treatment options.
- This study offers a new treatment algorithm for unstable, unsalvageable lesions, taking into account size, accessibility, and congruity, and explores the use of a novel xenogeneic cartilage scaffold.

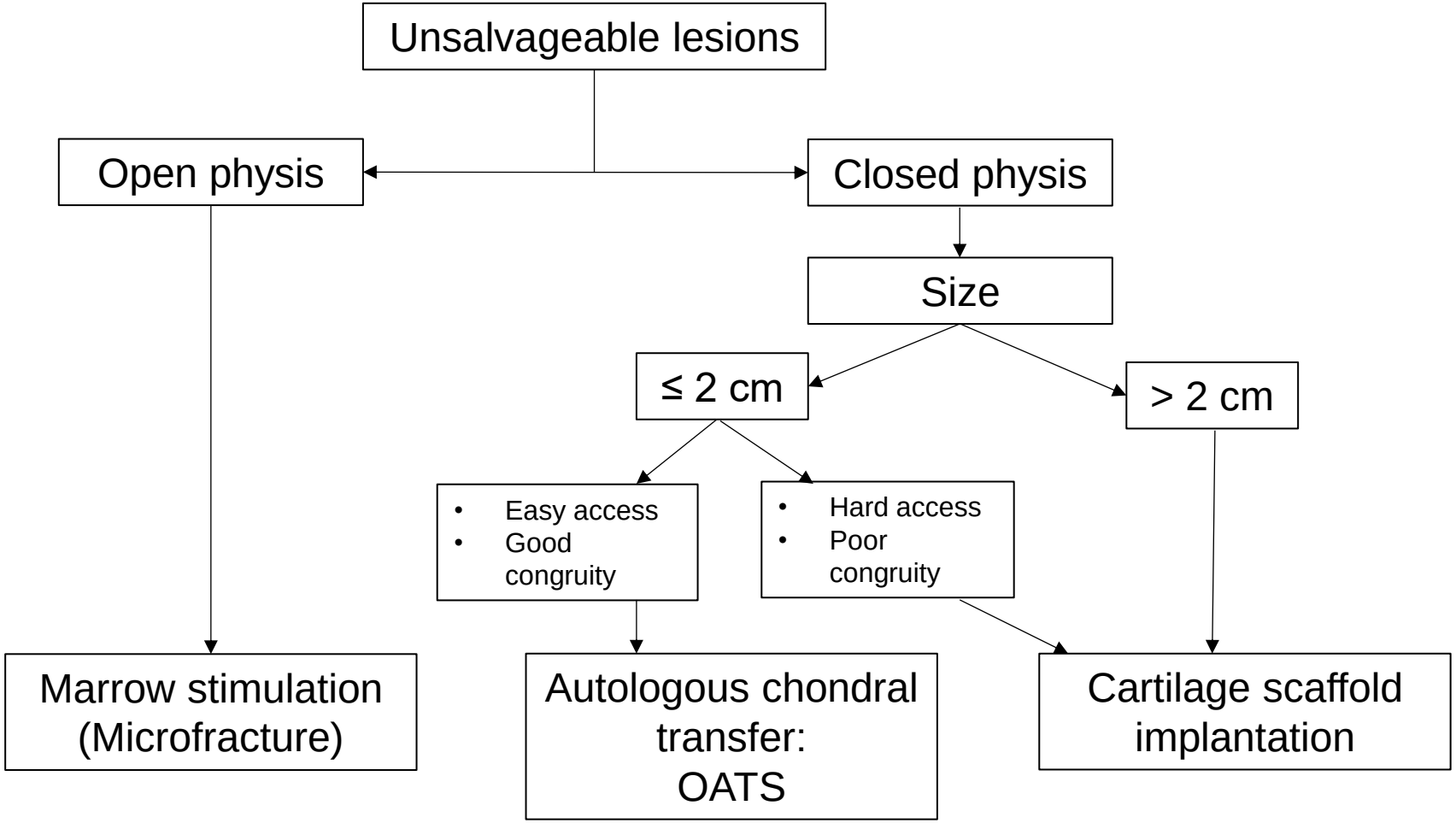
Methods

- This study presents a case series of 12 patients with unstable, unsalvageable osteochondritis dissecans (OCD) lesions, selected from a total of 16 OCD patients treated between 2019-2024.
- All 12 patients presented with delayed symptoms of pain and impingement after unsuccessful conservative treatment. Treatment approaches were tailored based on lesion characteristics. Marrow stimulation (microfracture) was performed in three patients with open physes.

- Autologous chondral transfer was performed in four patients with closed physes, lesions smaller than 2 centimeters, and good accessibility and congruity.
- Xenogeneic bovine cartilage scaffold implantation was performed in the remaining five skeletally matured patients with lesions larger than 2 centimeters, difficult access, and poor congruity.
- Functional outcomes were evaluated using the Lysholm score. Magnetic Resonance Imaging (MRI) was performed to assess the healing of the lesion and the MOCART score. Post-treatment complications were also monitored and evaluated.

UNSALVAGEABLE LESIONS:

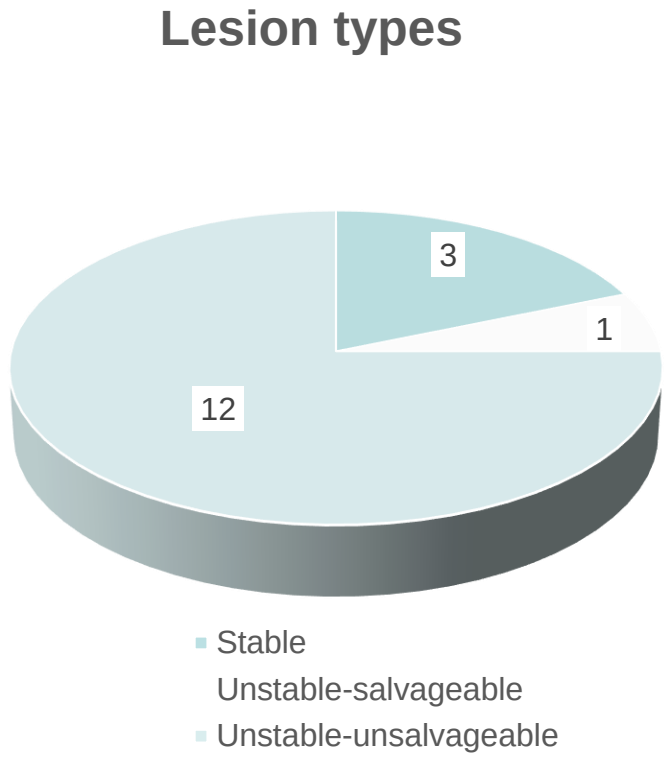
OUR TREATMENT ALGORITHM



Results:

Unsalvageable Lesions

- **16 patients** (2018-2024)
  - 3 stable
  - 1 unstable-salvageable
  - 12 unstable-unsalvageable
- **Stable lesion**: minimal symptoms, accidental findings
- **Unstable-salvageable**: “narrow window period”
- **Unstable-unsalvageable**:
  - Late presentation or neglected
  - Referred after failed conservative
  - Seeking helps when:
    - Impingement (12/12)
    - Pain (9/12)



Results

A significant improvement was observed in the average Lysholm score, increasing from 54 to 90.

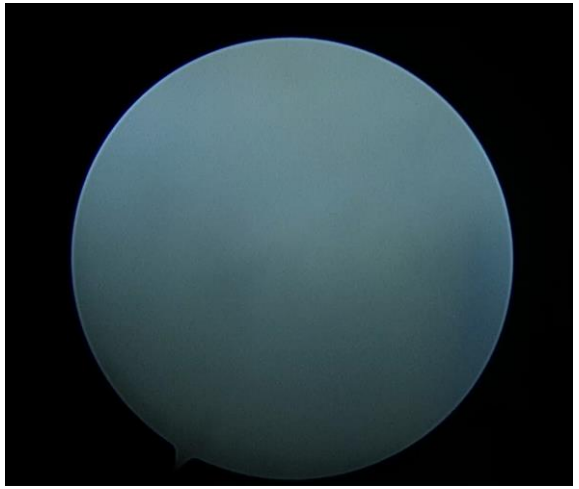
Additionally, there was a significant reduction in the average lesion size and a notable improvement in the mean radiographic score.

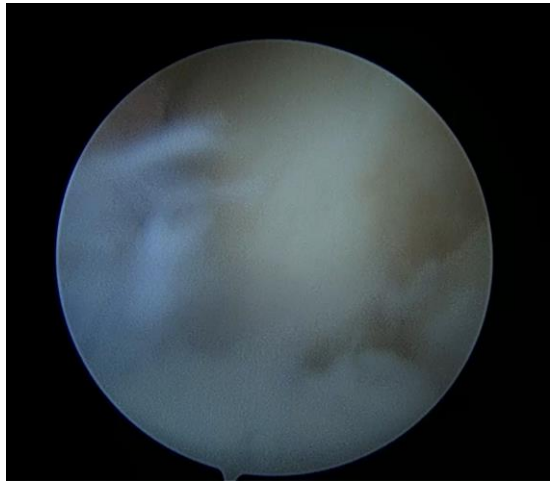
Radiographic evidence of healing was seen in all patients within an average of 5.2 months after the drilling procedure (ranging from 3 to 10 months).

No complications were apparent during the follow-up period.

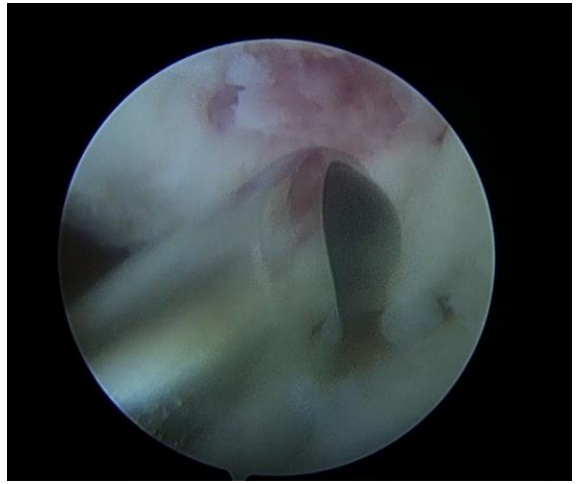
In open physis: marrow stimulation (microfracture)

A 5-year-old boy, unable to fully extend and flex his right knee



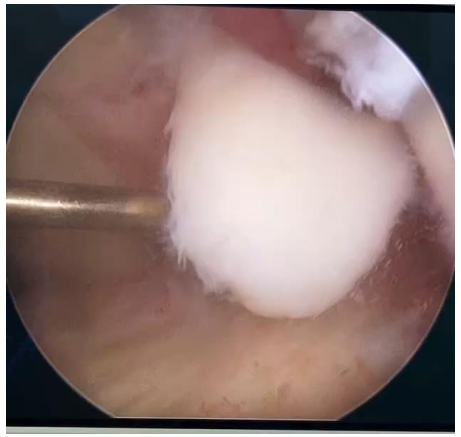


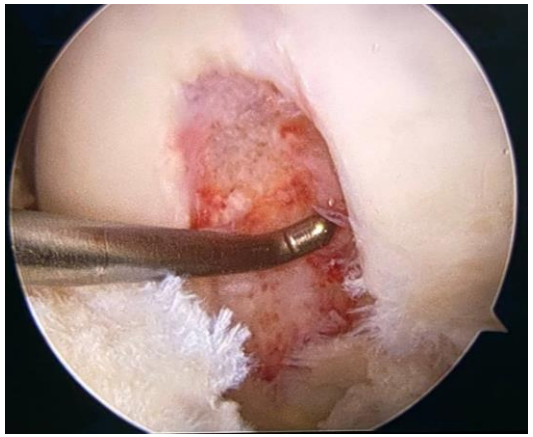
Open physis
Small-joint scope
Fragmented, rounded
Impingement of fragments



Removal of fragments
Marrow stimulation → microfracture

A 20-y.o man, impinged and painful knee





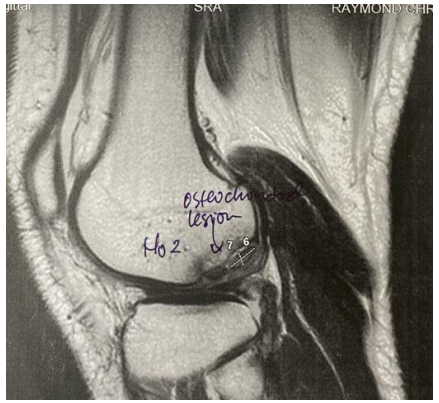
Loose fragments
Fragmented
15 x 7 mm lesion

2 plugs

Debridement & marrow stimulation

Plug harvesting

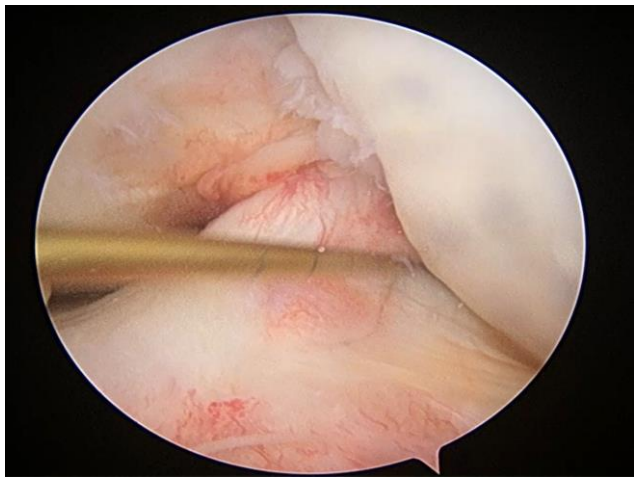
A 19-y.o man, impinged and painful



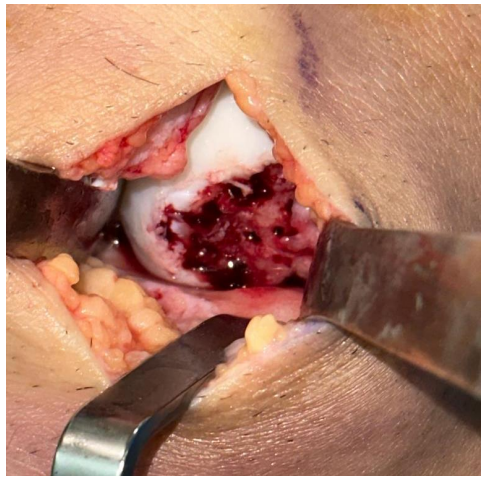
On MRI:

Fragment #1: 1.9 x 0.8 x 0.8 cm
Fragment #2: 1 x 0.9 x 0.5 cm
Posterior weight bearing surface

→ Unstable, large lesion
Hard to reach
Surface congruity

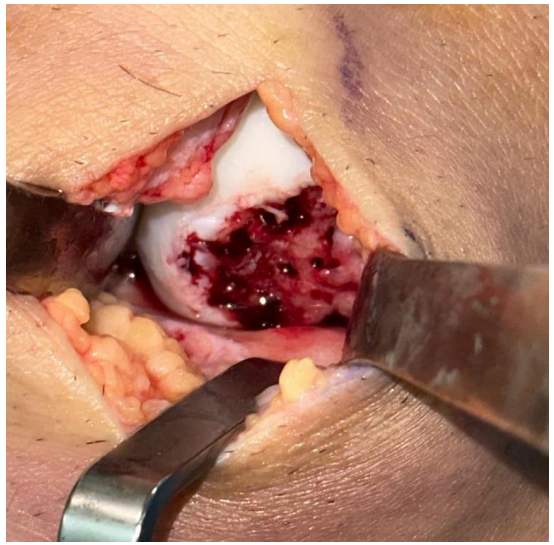


Large lesion
Posterior of lateral condyle

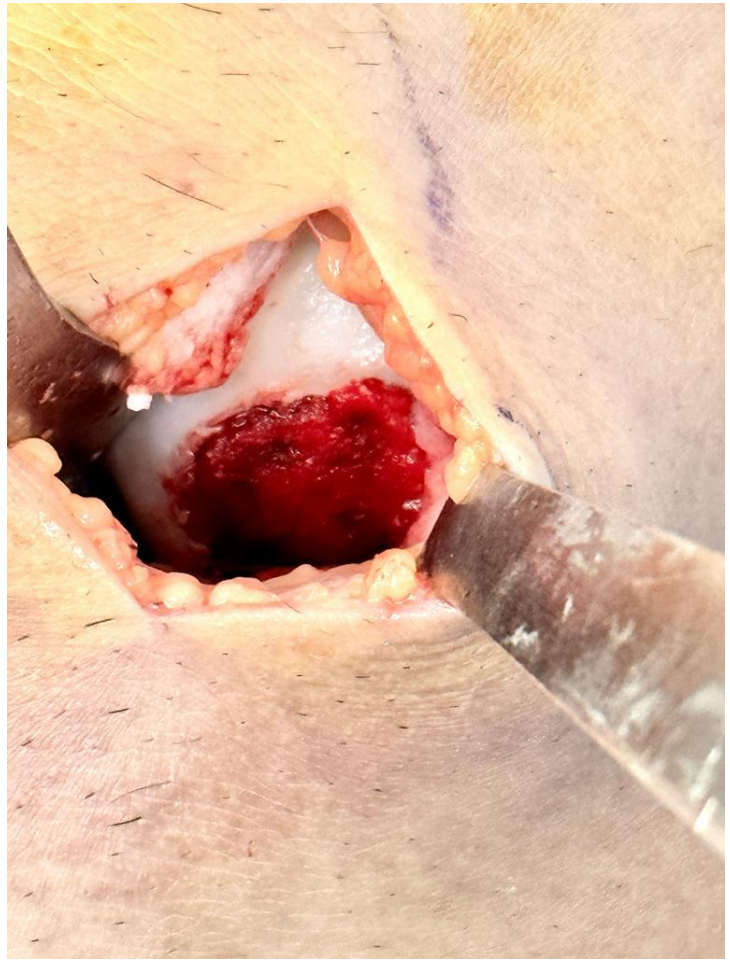


Loose fragment
Unsalvageable

Bovine cartilage scaffold + PRP



Fibrin glue



Conclusion

Treatment algorithms for unsalvageable OCD should include not only skeletal maturity but also lesion size, accessibility, and congruity.

The use of alternative cartilage scaffolds should be considered in patients with skeletal maturity who have large lesions that are difficult to access and have poor congruity.

Reference

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