The Pediatric Elbow: Focus on Capitellar OCD

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Financial Disclosures

We have no disclosures

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Osteochondritis Dissecans

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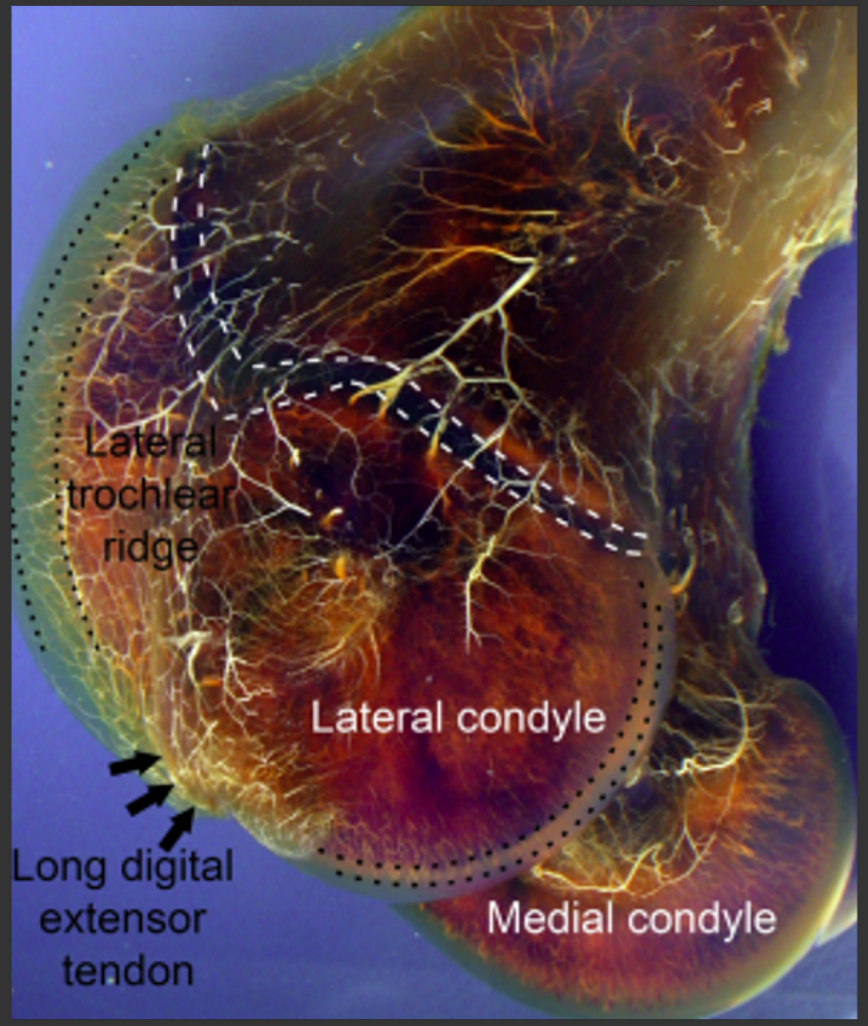
Juvenile osteochondritis dissecans of the knee is a result of failure of the blood supply to growth cartilage and osteochondrosis☆

K. Olstad †*, K.G. Shea ‡, P.C. Cannamela ‡, J.D. Polousky §, S. Ekman ||, B. Ytrehus ¶, C.S. Carlson #

Osteoarthritis and Cartilage 2018



- "Growth cartilage" different that articular cartilage
- Growth cartilage has temporary blood supply that runs within "cartilage canals"
- As individual matures canals fill with cartilage ("chondrification") then ossification
  - During this time if the midportion of vessel incorporate first, blood supply can fail leading to ischemic chondronecrosis

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Elbow OCD

- Pitchers/racket sports/gymnasts
- 11-15 years old
- Multifactorial
  - Overuse
  - Genetic predisposition
  - Tenuous end artery blood supply

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Osteochondritis Dissecans (OCD) lesion of capitellum

- **General approach:**
  - Conservative treatment - Rest, PT
    - 3-6 months?
  - Fail conservative → elbow arthroscopy

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Osteochondritis Dissecans

Table I. Different classification systems for osteochondritis dissecans (OCD)

Plain radiographs; Berndt and Hardy[13]		MRI; Dipaola et al[14]		Arthroscopy; Guhl[15]	
Stage 1	Small area, compression subchondral bone	Type I	Thickening of articular cartilage, but no break	Type I	Softening and irregularity of cartilage but no fragment
Stage 2	Partially detached OCD fragment	Type II	Breached articular cartilage, low signal rim behind fragment indicating attachment	Type II	Breached articular cartilage, with the fragment not displaceable
Stage 3	Fully detached OCD fragment, still in underlying crater	Type III	Breached articular cartilage, with high signal T2 changes behind fragment suggesting fluid around lesion	Type III	Definable fragment, partially attached but displaceable (flap lesion)
Stage 4	Complete detachment/ loose body	Type IV	Loose body and defect of articular surface	Type IV	Loose body and defect of articular surface

Jones et. al. *Bone and Joint Journal, 2016*

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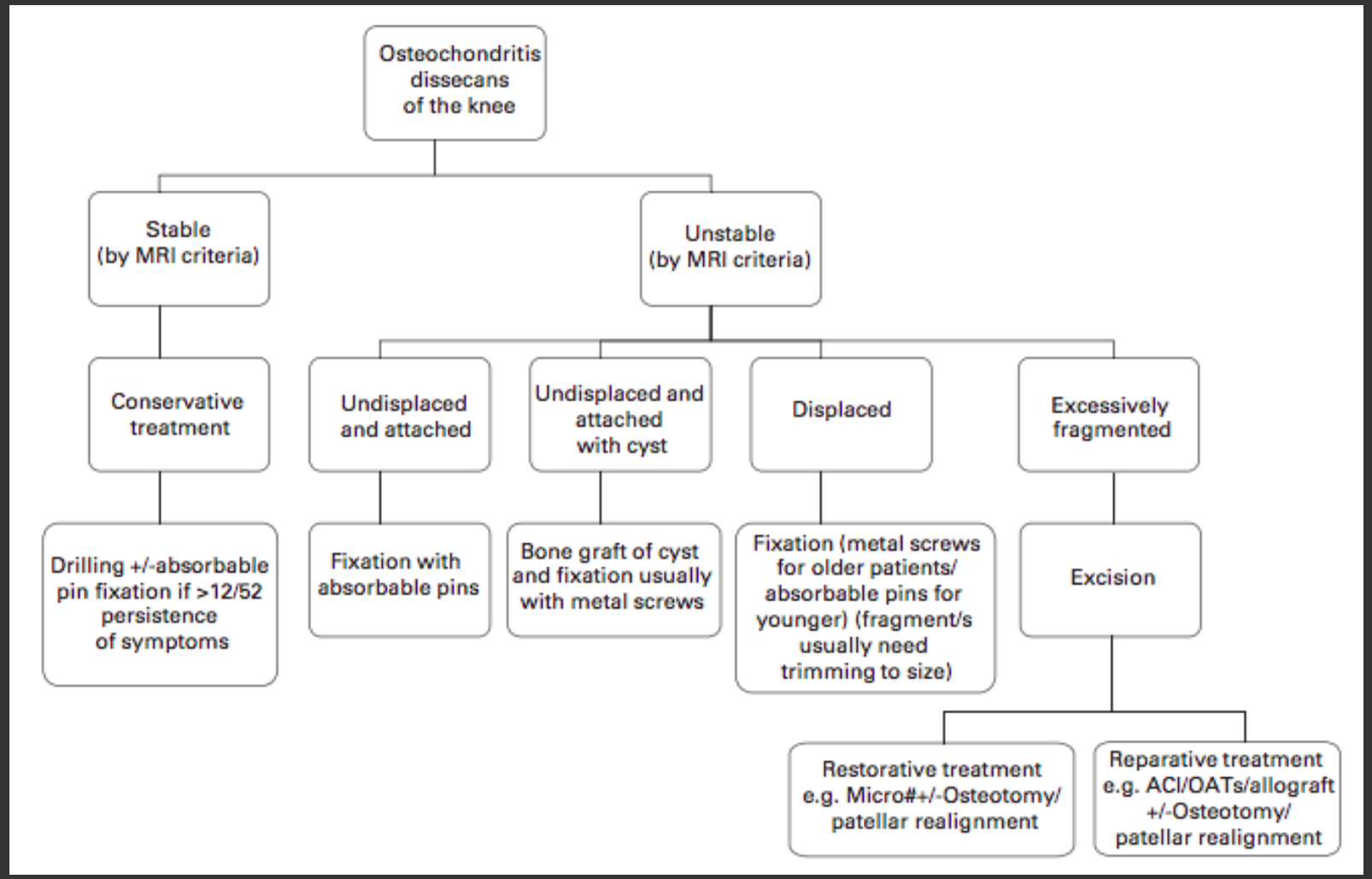
Osteochondritis Dissecans



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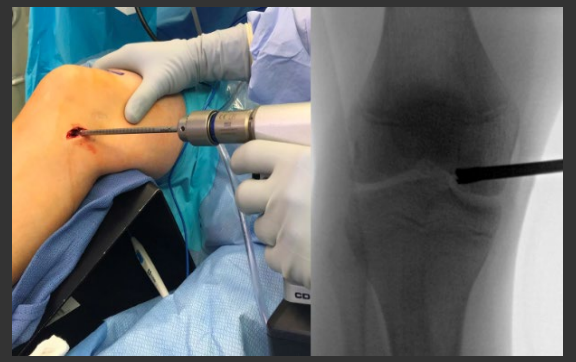
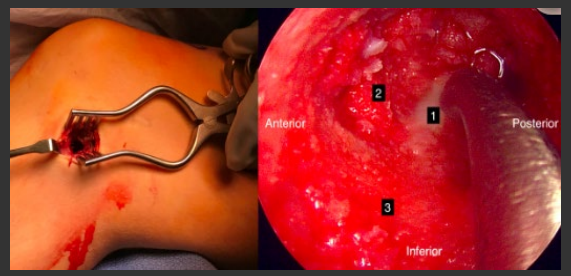
Retroarticular Core Decompression





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Knee OCD drilling - Outcomes

- Gunton, et. Al. Drilling JOCD: retro- or transarticular? *CORR* 2013.
- No clear differences
  - Transarticular – 91% radiographic healing at 4.5 months
  - Retroarticular – 86% radiographic healing at 5.6 months

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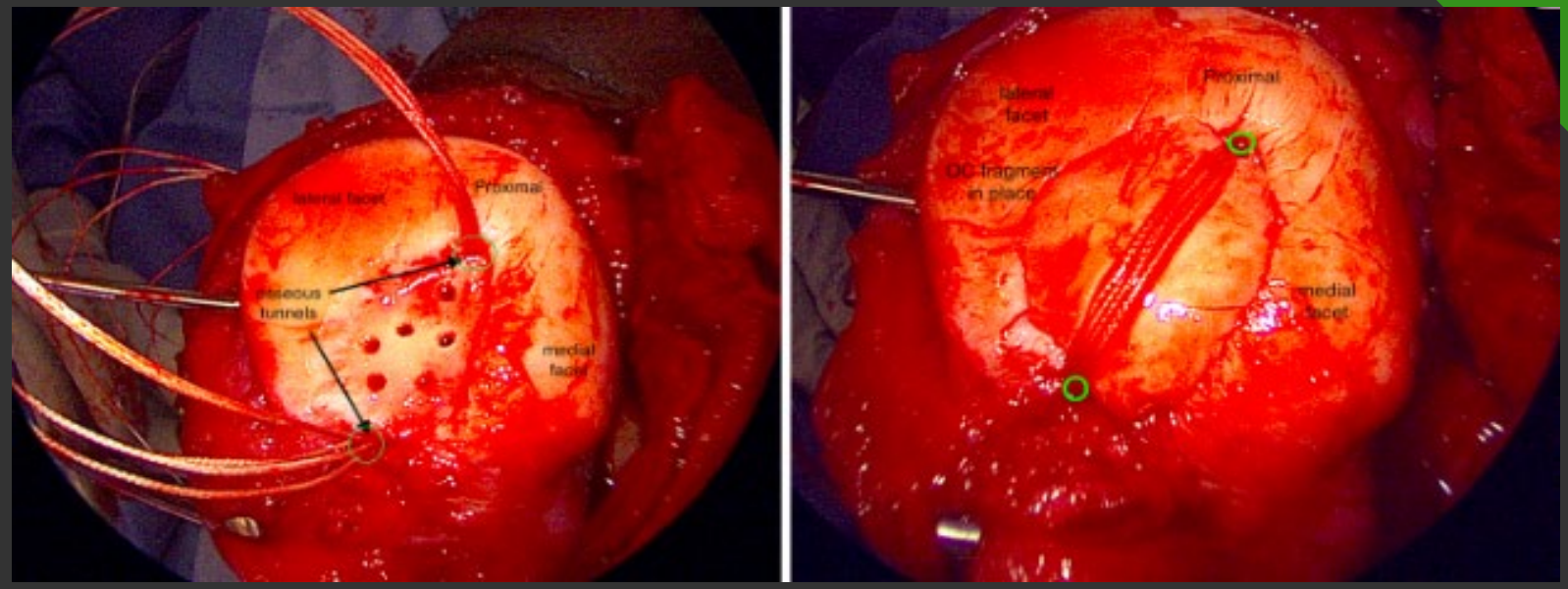
OCD Fixation – Suture Anchors



Pace, et. Al. *Arthroscopic Techniques, 2020.*

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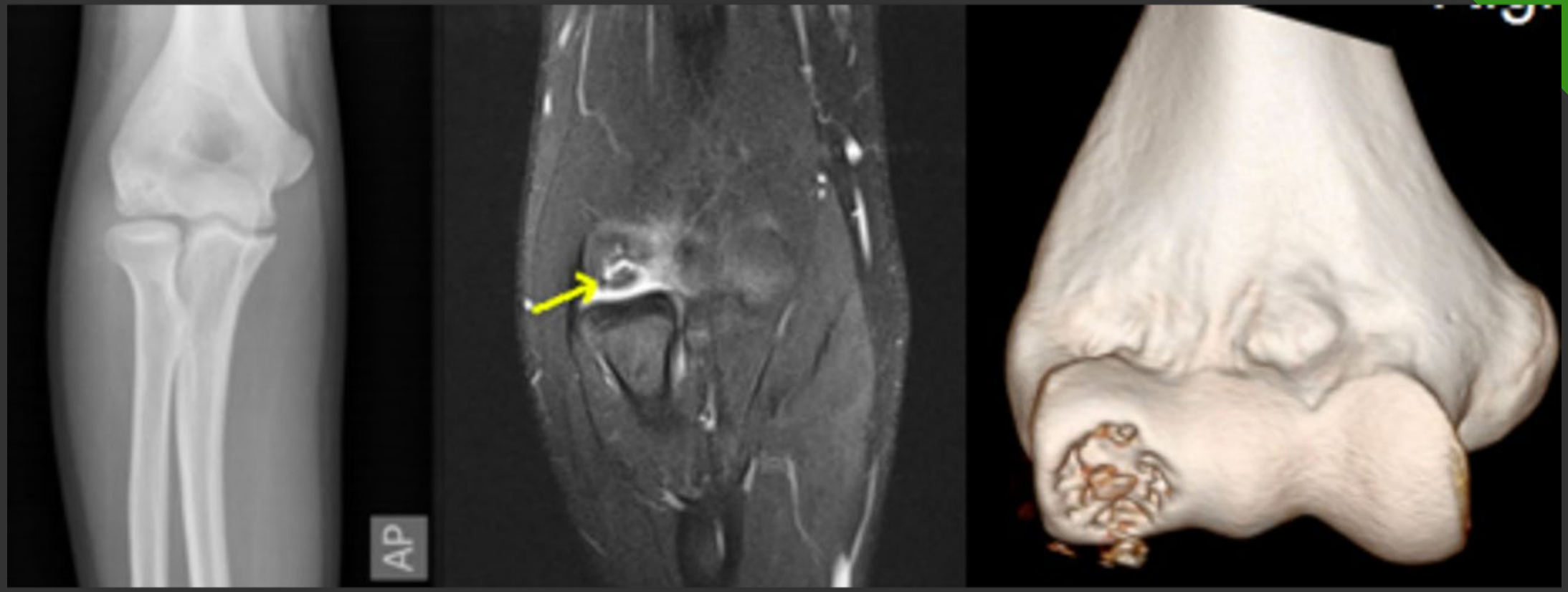

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Osteochondritis Dissecans of the Humeral Capitellum in Young Athletes

Comparison Between Baseball Players and Gymnasts

Shiro Kajiyama,* MD, Satoshi Muroi,† RPT, Hiroyuki Sugaya,†‡ MD, Norimasa Takahashi,† MD, Keisuke Matsuki,† MD, Nobuaki Kawai,† MD, and Makoto Osaki,* MD

Investigation performed at the Shoulder & Elbow Center, Funabashi Orthopaedic Hospital, Funabashi, Chiba, Japan

OJSM
2017

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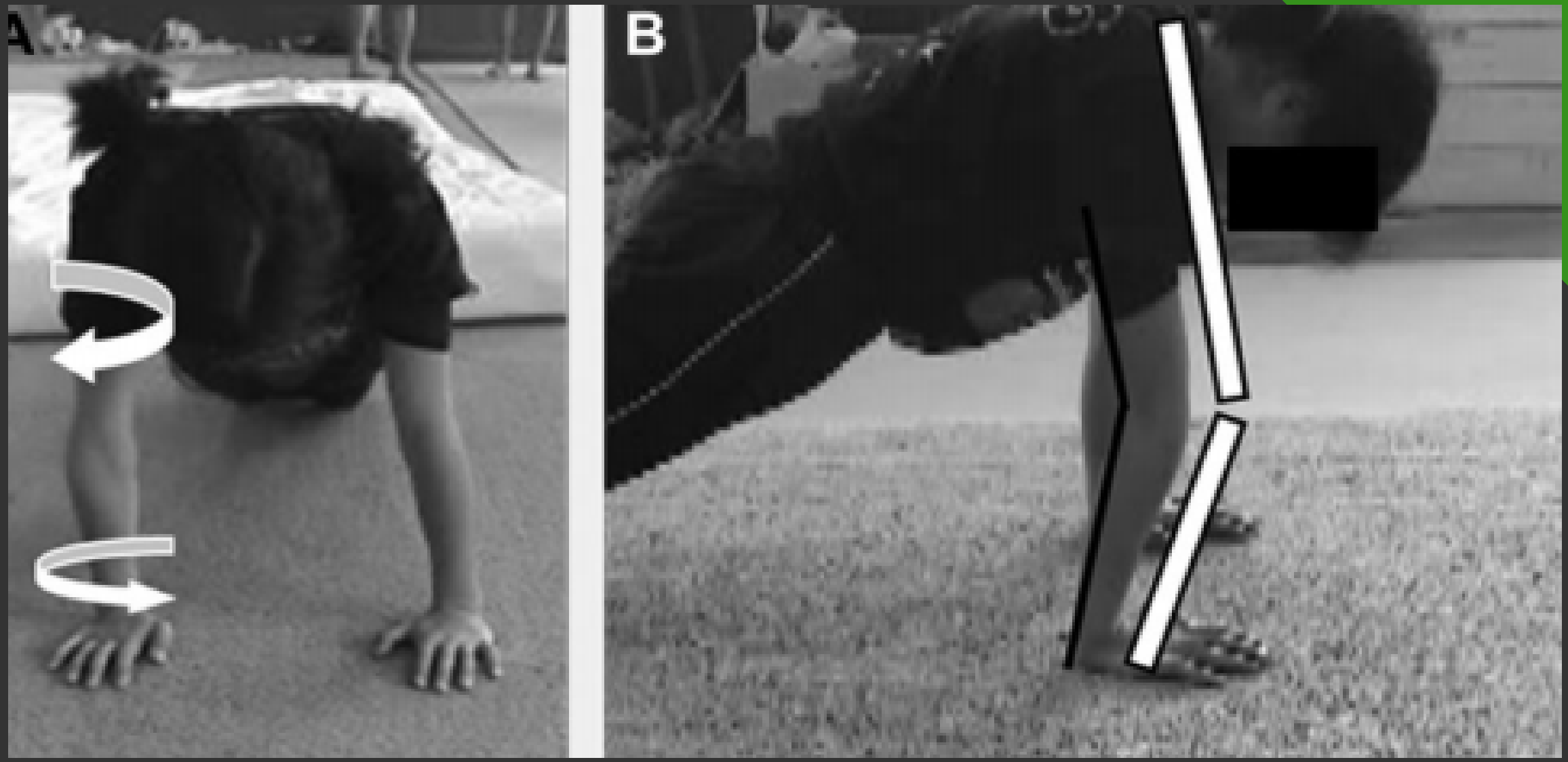

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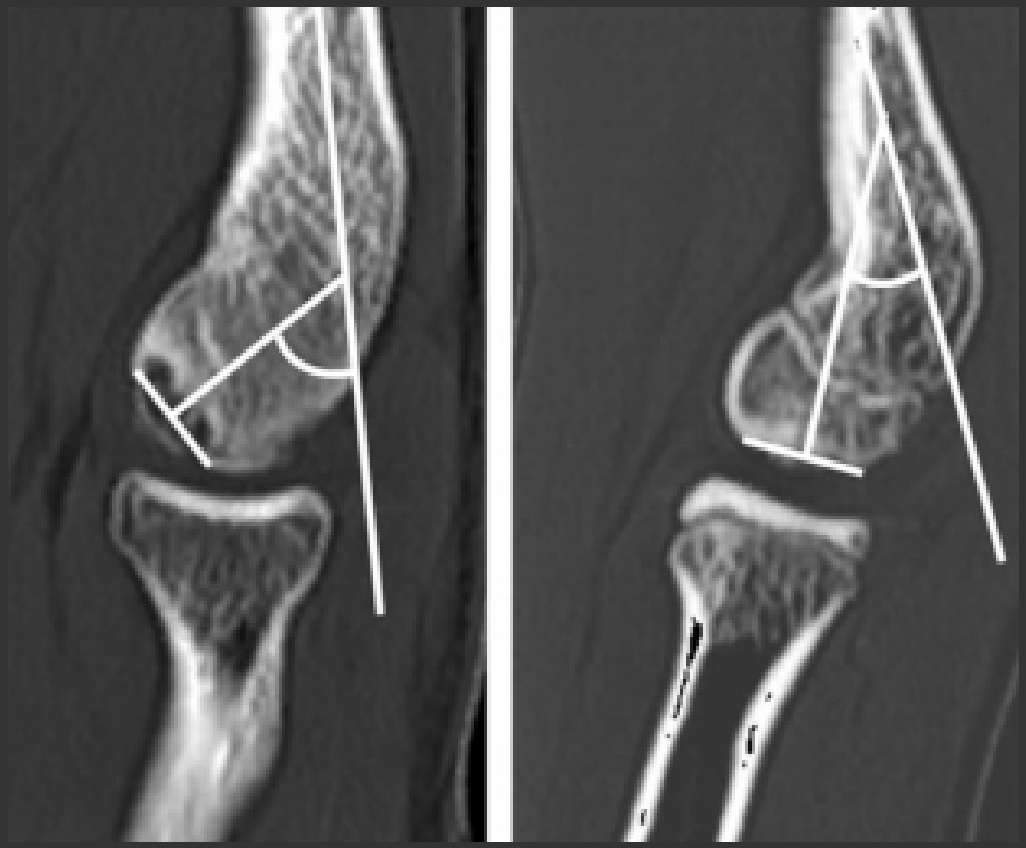

Thrower

Gymnast

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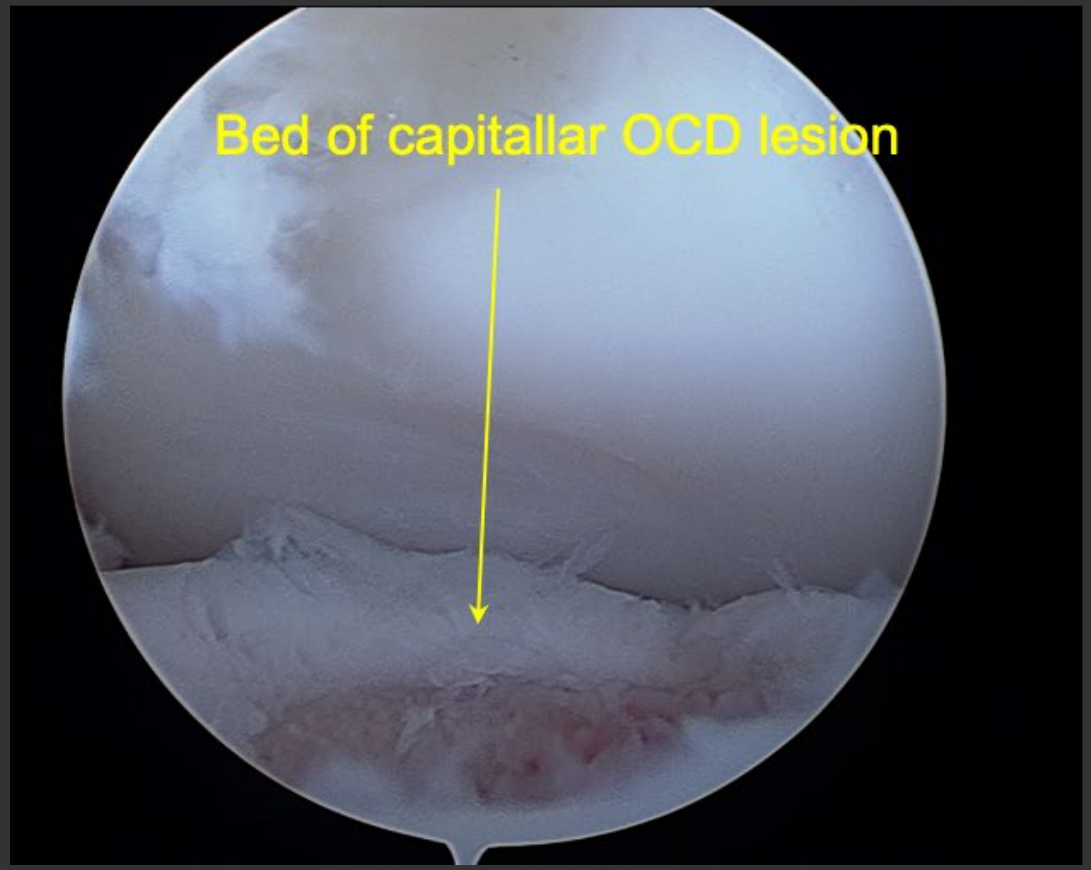
Case example – Elbow OCD



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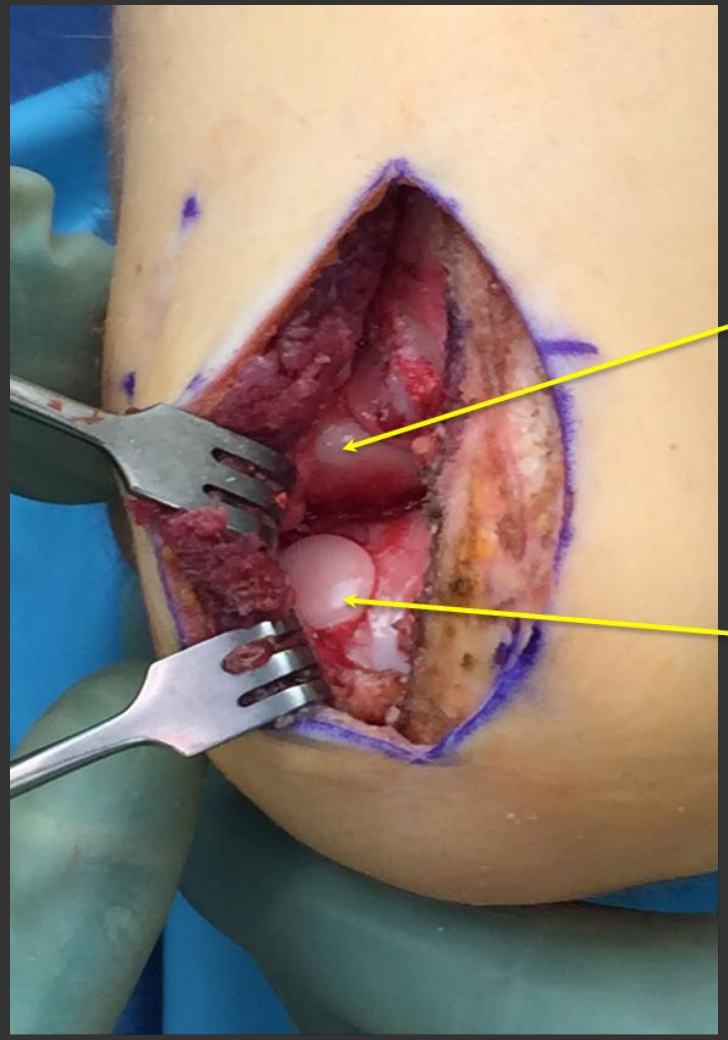
OATS – Osteochondral Allograft (or autograft) Transplant



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Post Surgical Rehabilitation Guidelines

- 0-2 weeks – splint
- 2-6 weeks – hinged brace, Gentle ROM
- 6-12 weeks – Full ROM, minimal resistance
  - MRI at 3 months
    - Progressive resistance 3-6 months
  - Repeat MRI at 6 months
    - Interval throwing/gymnastics program

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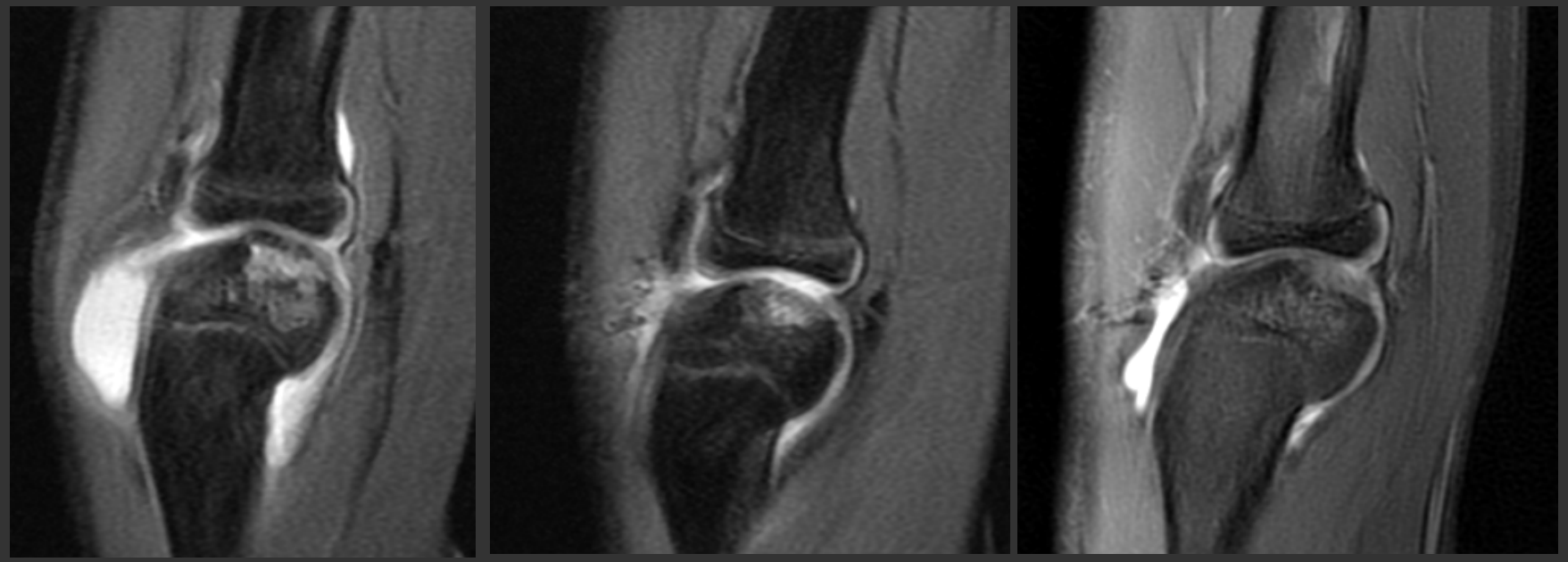
13yoF – Level 9 gymnast



Pre op

3 months post op

6 months post op

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Elbow capitellar OCD - Outcomes

- Elbow arthroscopy, debridement - *Matsuura, et. Al. Arthrosopy, 2020.*
  - 87% return to baseball
  - Only 20% pitchers returned
- OATS (taken from knee) - *Logli, et. Al. Arthroscopy, 2020.*
  - 446 elbows – 62-100% return to sport
  - Revision surgery up to 20%

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