ISAKOS CONGRESS 2025 | MUNICH GERMANY June 8–11

Fresh allograft transplantation in patients with large femoral osteochondral defects – A case series of a single center study

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Faculty Disclosure Information

- Nothing to disclosure.

Background

ALLOGRAFTS. WHEN INDICATED?

**“ulcerated cartilage is troublesome thing…
once it is destroyed it is not repaired…”**

- (Hunter – 1743)

“no instances in which a lost portion of cartilage has been restored, or a wounded portion repaired with new and well formed cartilage”

(Paget – 1853)

Background

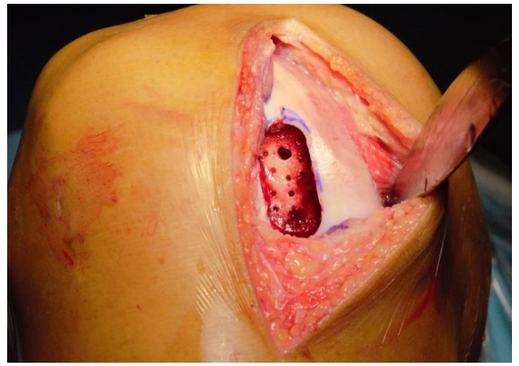
OSTEOCHONDRAL ALLOGRAFT TRANSPLANTATION: ADVANTAGES[1]

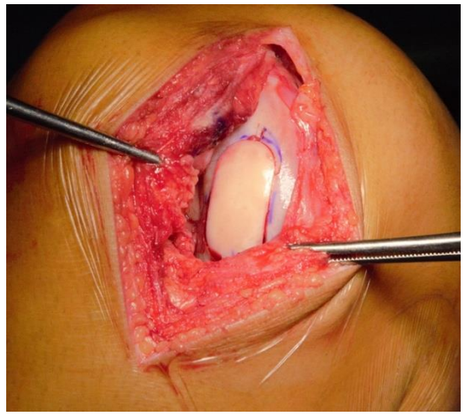
- Transfer of mature hyaline cartilagem
- Is not limited by size of the defect
- Can be used to treat uncontained lesions
- Outcome not affected by prior microfracture or other procedures that disrupt the subchondral bone
- Bone-to-bone healing, with no need to wait for cartilage maturation

Background

OSTEOCHONDRAL ALLOGRAFT TRANSPLANTATION: DISADVANTAGES[1]

- Lack of graft availability
- Logistically difficult to undertake due to
  procurement procedure and expiration date
- Limited revision options for early graft failure
  with bone loss
- Potential for disease transmission





Background

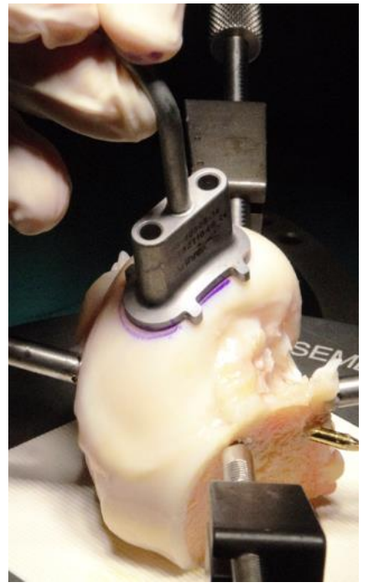
ALLOGRAFT: PROCESSING, STORAGE AND BIOLOGY[2,3,4]

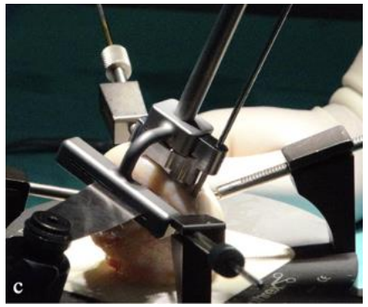
Allograft preservation and storage methods

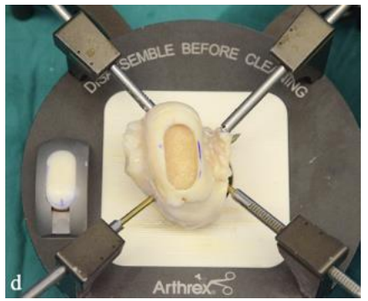
	Fresh	Frozen	Cryopreserved
Storage temperature	4ºC	-80ºC	Liquid nitrogen or -80ºC
Storage conditions	Stored in media	No storage media	Stored in cryopreservants (glycerol or dimethylsulfoxide)
Chondrocyte survivorship	30-80%	<5%	20-70%
Immunogenicity	Higher	Low	Low
Advantages	Cell viability	Fully hydrated Long shelf life	Cell viability Maintains biomechanical properties Long shelf life
Disadvantages	Complex logistics Limited shelf life	Thaw time Needs validated freezer Shipping costs	Liquid nitrogen tanks to store on site Shipping costs

Hypothesis

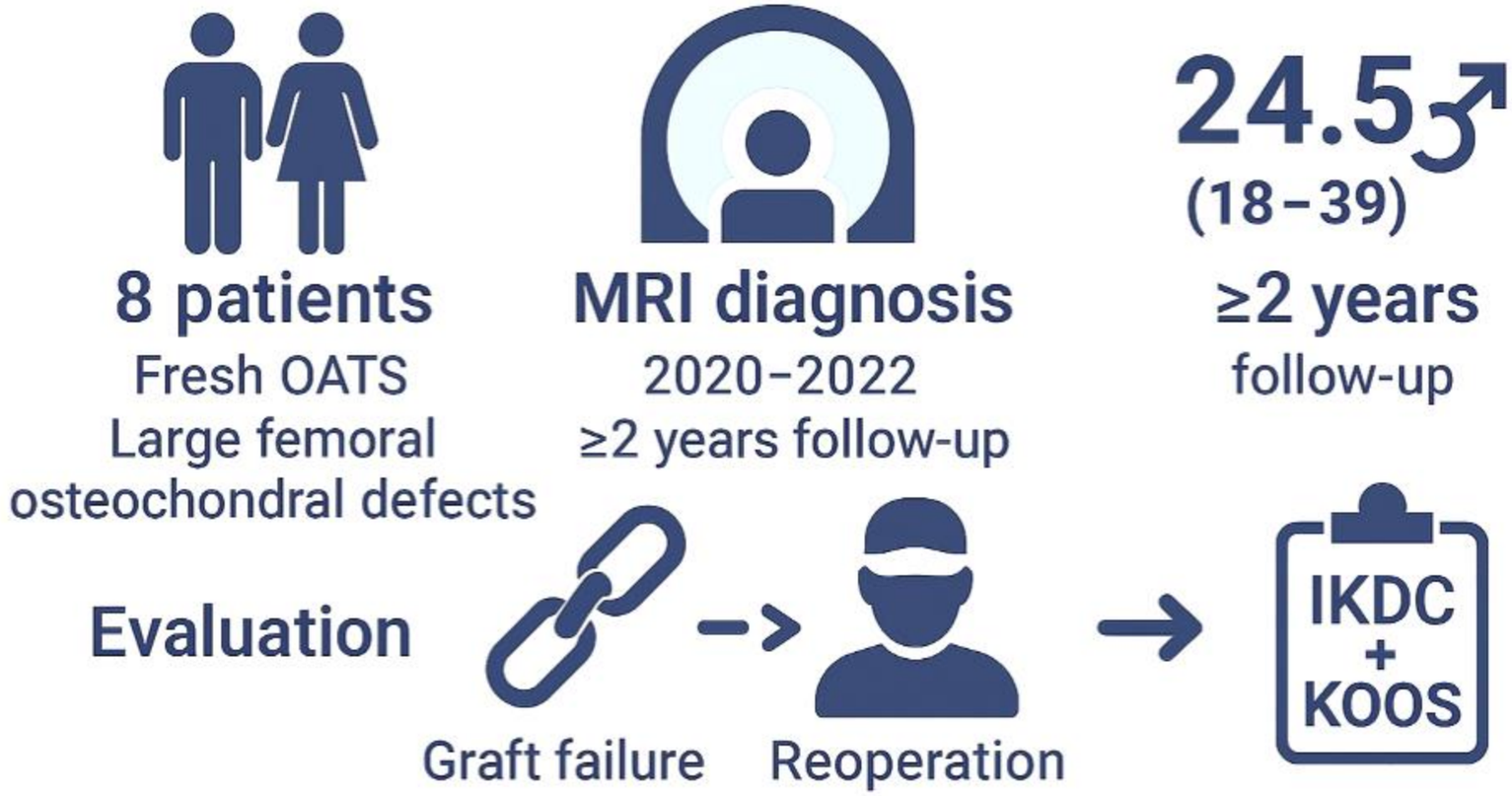
- **This case series** presents patients with large femoral osteochondral defects, who failed conservative treatments and underwent **fresh OATS** using:
  - Fresh allografts processed and stored by our bone bank team
  - Press-fit single plug technique (BioUni, Arthrex, Naples, FL)
- **Fresh OCA** is a successful method for treating large osteochondral defects, providing **good functional outcomes**.





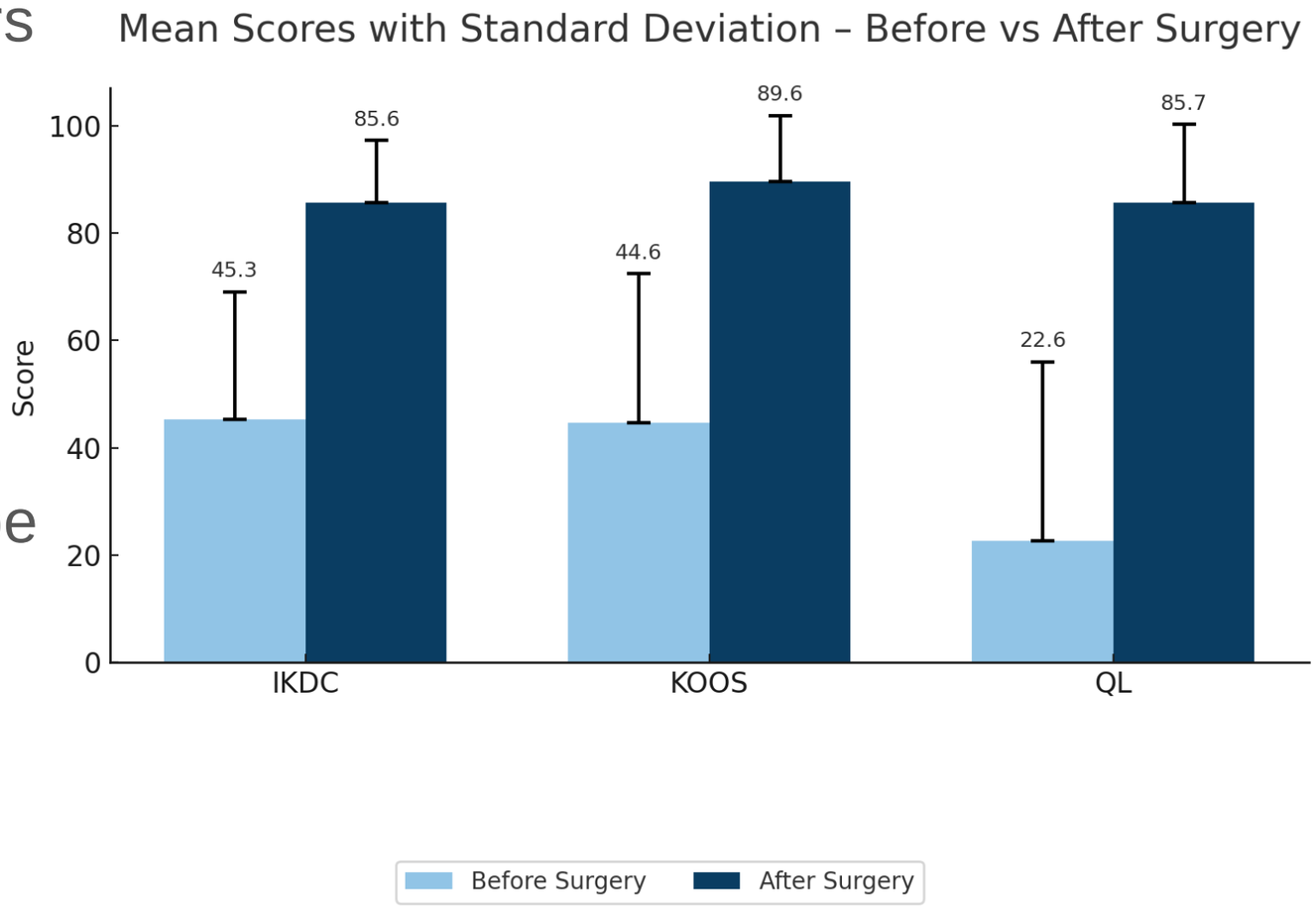


Methods


8 patients
Fresh OATS
Large femoral
osteochondral defects
MRI diagnosis
2020–2022
≥2 years follow-up
24.5♂
(18–39)
≥2 years
follow-up
Evaluation
Graft failure
Reoperation
IKDC
+
KOOS

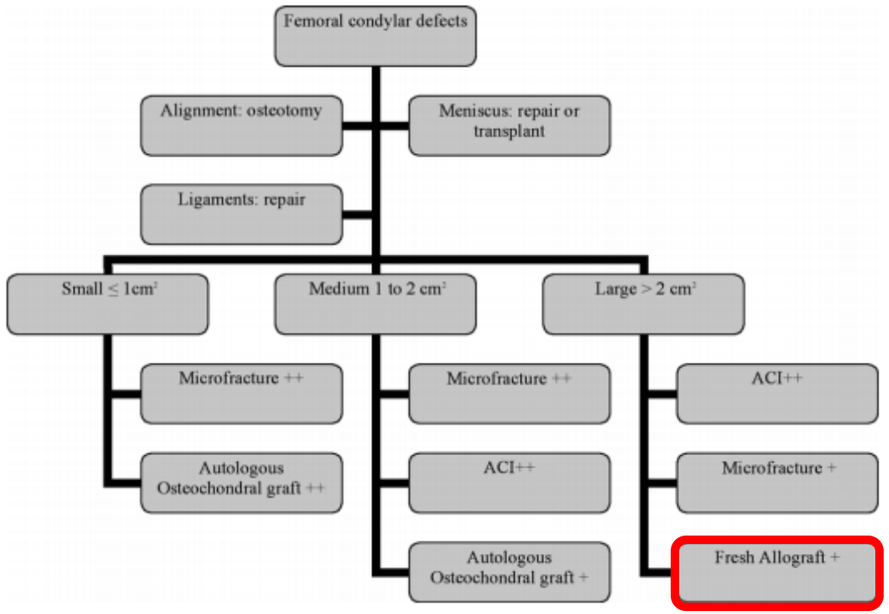
Results

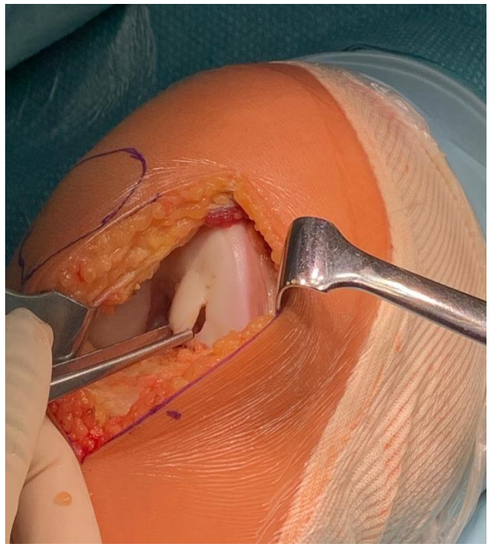
- Median follow up: 2 years (2.0 – 4.5)
- 1 patient presented with arthrofibrosis
- All patients reported to be satisfied with the outcomes of OATS



Discussion

TREATMENT ALGORITHM FOR OSTEOCONDRAL DEFECTS[5]



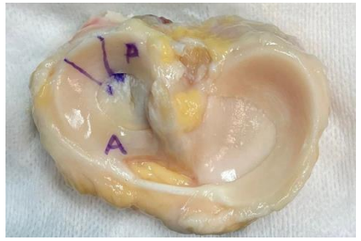


Discussion

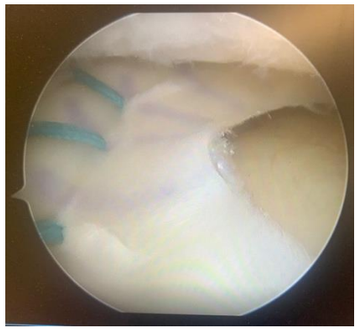
TREATMENT ALGORITHM FOR OSTEOCONDRAL DEFECTS: CHUC

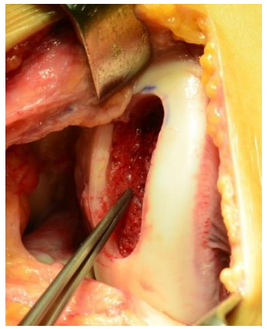
Alignment

Ligament Stability

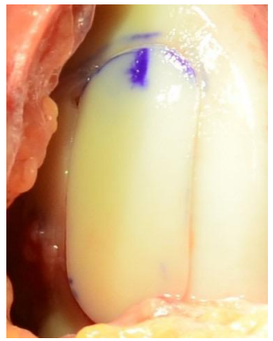


Meniscus





Cartilage



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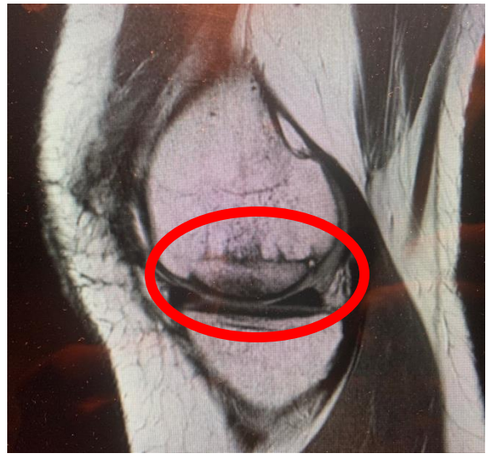
Conclusion

- **Highly effective option** for large, unstable lesions in active patients
- **No graft failures at 2–4 years** follow-up
- **Significant functional improvement and high satisfaction rate**
- Entire grafting process **in-house**

6

MONTHS



References

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