

Failed Talar Osteochondral Lesions Treatment

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Disclosures

NONE

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Goals

- Promote Discussion
- Learn from Each Other
- What is the problem ?
- What I do

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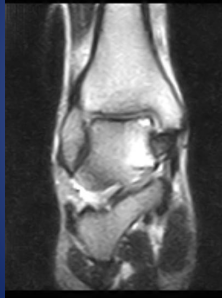
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### Medial OCL



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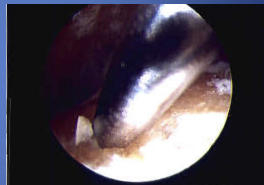
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### Bone Marrow Stimulation(BMS)

- Drilling
- Micro fracture



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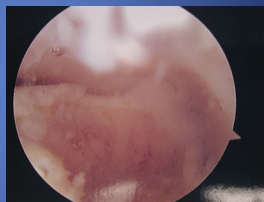
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### BMS Goals

- Promote precursor cells and cytokines , form fibrin clot resulting in fibrocartilage
- Fibrocartilage has inferior mechanical properties
- Degrades with time



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### Evaluating BMS

- Retrospective
- Under powered
- Variable outcome measures
- Limited follow up
- Literature inadequate to assess outcome
  - Hannon et al Bone Joint 2014

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### BMS results

- 85% G&E results →2 yr FU
  - Murawski et al, JBJS 2013
- AOFAS 88/100: 8-20 yr fu
  - van Bergen et al, JBJS 2013
- 82 pts avg 10yr fu, 42% pain free, 23% activity related pain
  - Polat et al KSSTA 2016

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### BMS Failures

- 97% of lesions > 15mm failed
  - Chuckpaiwong et al Arthroscopy 2008
- Failure if lesions >150mm squared
  - Choi et al AJSM 2009
- Increased risk if shoulder lesion
  - Choi et al AJSM 2013

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### Options

- Replacement techniques  
Autologous or allograft
- Biological Augmentation
  - PRP
  - Bone Marrow Aspirate

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### Autologous Osteochondral Transfer

- Literature is supportive
- But short f/u and limited clinical fu
- Flynn et al FAI 2016
- Fraser et al KSSTA 2016
- Fransa et al AJSM 2011
- Elliott et al FAI 2016



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### AOT

- Post op cysts
- Need for osteotomy
- Incongruent grafts
- Donor site morbidity
  - 5-50%

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### Autologous chondrocyte Transplantation

- 2 stage cell based procedure
- Harvest healthy cartilage for chondrocyte cultures the implanted into defect
- Hyaline-like repair tissue



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### Autologous chondrocyte Transplantation

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| <b>ACI</b> <ul style="list-style-type: none"><li>• 89.9% clinical success rate<br/>213 pts meta-analysis<br/>– Niemeyer et al KSSTA 2012</li><li>• No better than microfracture or AOT<br/>– Gobbi et al 2006 Arthros</li><li>• Problems- 2 stage, cost, graft hypertrophy &amp; durability</li></ul> | <b>MACI</b> <ul style="list-style-type: none"><li>• Improved clinical and histologic out comes</li><li>• 19pts , 2 yr fu<br/>– Aurich et al AJSM 2011<br/>– Giannini et al AJSM 2008</li></ul> |
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### Particulated Juvenile Cartilage

- 24 ankles,
- 125 ± 75mm2
- 14 failed BMS
- G&E results 12/13 lesions 10-15mm  
– Coetzee et al FAI 2013



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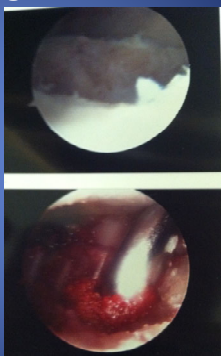
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### Biocartilage + PRP

- Another extracellular allograft matrix scaffold
- No clinic studies
- Cheaper
- Longer shelf life



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### BMS + Bone Marrow Aspirate

- Similar clinical results at about 4 yrs to BMS alone but better MRI results at 2 yr visit
- Hannon et al Arthroscopy 2016

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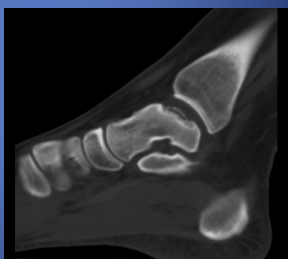
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### What to do with large OCL

- >1.5 cm in diameter or >150mm<sup>2</sup>
- Shoulder Lesions
- Large Subchondral Cysts



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### Large OCL

- Failure of Arthroscopic management
- Failed open procedures  
Other autografts or allograft transfers

Majority of these patients younger under 40-50y/o

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### Bulk Allografts

- large bulk allografts can be used to treat these lesions
- Focus is on medial lesions which are most common



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### Allografts

Fresh Allograft Tissue likely better chondrocyte viability

VS

Fresh Frozen Allograft tissue

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### Allografts

- Contact your preferred Tissue bank about need
- Does insurance approve surgery
- FDA approved banks, use guidelines of American Assoc. of Tissue Banks
- Either you or the tissue bank sizes the talus  
Plain Xrays  
CT scans

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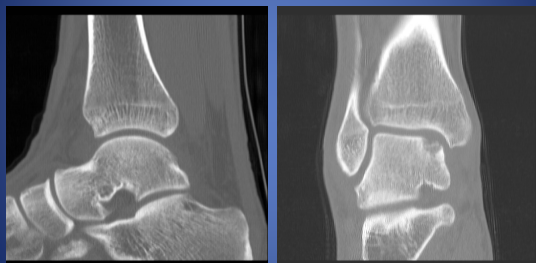
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### Sizing Talus CT scan



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### Fresh Allografts

- Harvested within 24hrs of death
- 10-14 days of testing
- You may not get graft for 2 + weeks
- Recommended you use graft within 4 weeks of death for maximal viability of chondrocytes

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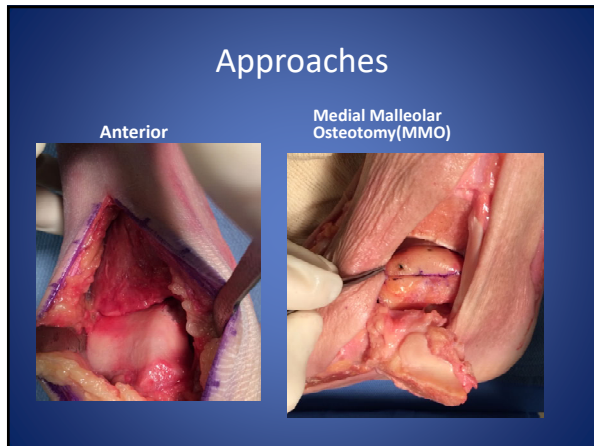
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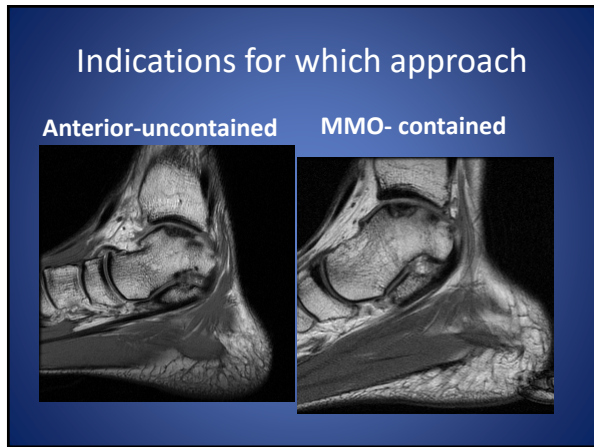
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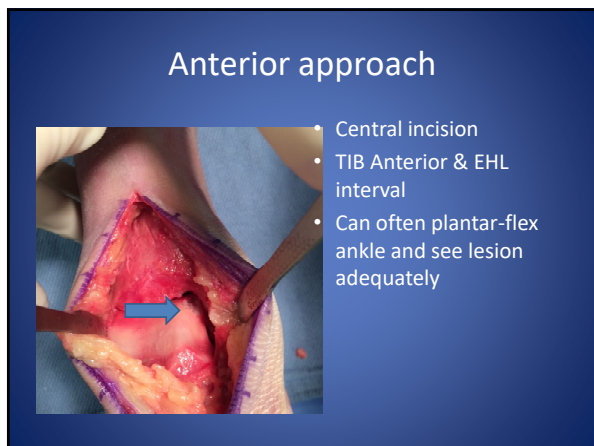
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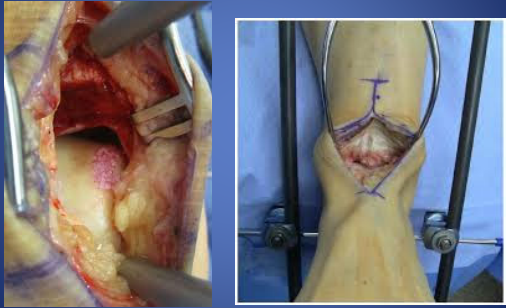
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### Distraction Devices



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### Resection



- Use fluoroscopic images as a guide
- Use micro sagittal or reciprocating saw
- Plan to resect 1-2 mm margin
- At least 1-2 cm below dome

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### Resection



- Depth of resection limited by Talar neck
- Remove all posterior bone

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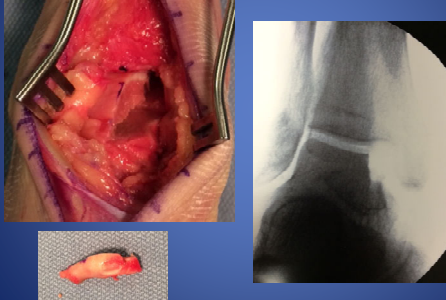
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Bone graft any deep cysts



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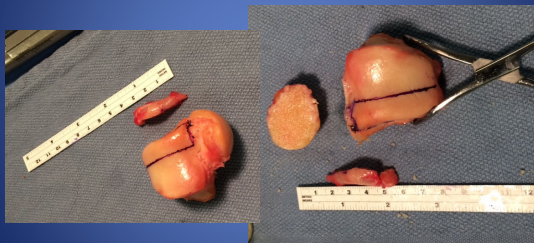
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Prepare allograft  
measure carefully



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Place allograft – check fit



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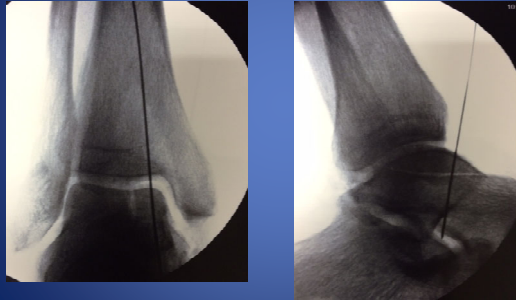
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### Check fit and pin



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### Screw fixation



- 1.5, 2.0, 2.5 screws
- Headless or countersink
- ? Absorbable pins due to lack of compression

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### Check with C ARM



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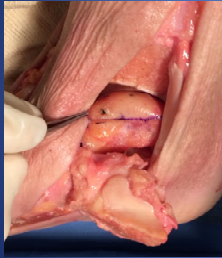
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### Medial Malleolar Osteotomy (MMO)



- Can be used for all shoulder lesions
- Excellent exposure
- Eases screw placement

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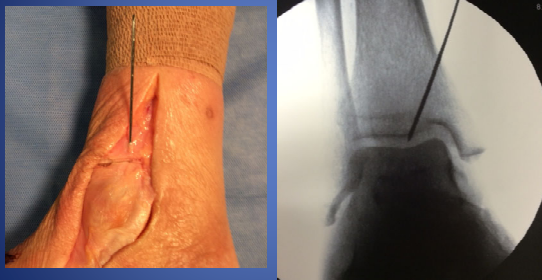
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### Oblique Osteotomy



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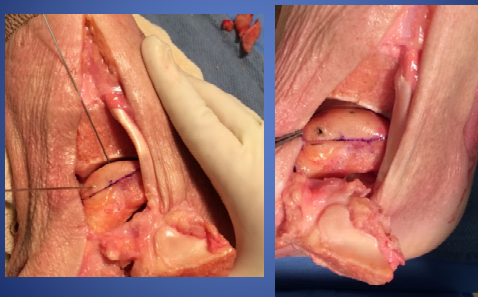
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### Exposure & Screw placement



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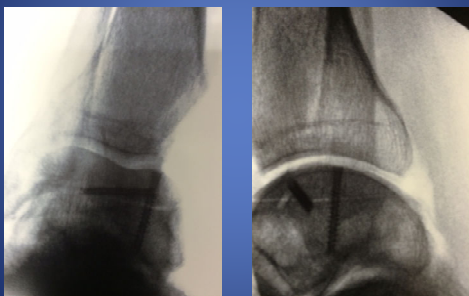
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### Screw placement



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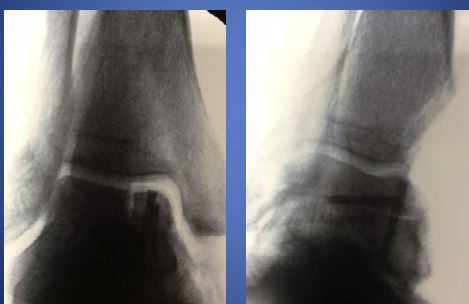
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### Horizontal screw adds compression



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### Post op

- Splint X2 weeks
- Cast x 4 more weeks
- WBAT at 10 weeks
- CAM boot & ROM
- 10 wks full PT
- Cutting activities 4 mos
- Full activity 6 months

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### Outcomes

- Gross et al- 9 pts, 3 pts needed fusion
- Raikin et al- 15 pts- 11 G&E
- Gortz et al- 12 pts, 80% functional grafts
- Hahn et al- 13 pts -100% graft incorporation
- El Rashidy et al- 38 pts, 4 failed grafts
- Adams et al- 6 pts, all improved
- Haene et al -17 pts, 3 failures,

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### Problems

- Graft incorporation, 60-80%,
- Subsidence, 100%
- Multiple fu procedures
- AT Best 60 -80% good results



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### Recommendations

- Expensive procedure
- Can have excellent results
- But can be fraught with complications
- Use as last resort in healthier patients

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Thank You



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