Pearls & Pitfalls of Lapidus Fusion

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I have no financial disclosures and will not discuss off label or investigative use of products or devices

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Relative Contra-indications to Lapidus

1. Short 1\textsuperscript{st} ray
2. 2\textsuperscript{nd} ray overload
3. High PASA
4. Osteoporosis
5. Inability to be NWB
Lapidus Myth: High Rate of Complications Compared to Distal Metatarsal Osteotomy
Reality: Complications from DMO are a Disaster
Lapidus Complications are Repairable

- Recurrent bunion?
- Dorsal bunion / elevatus
- Inter-cuneiform instability?
- Repeat Lapidus?
- Non-union
Preop and 10 Weeks Postop
Who is likely to get hallux varus after Lapidus?
Lapidus Non-union – 2004-2014
Open Joint Prep with MSC Allograft
Which bunions are hypermobile?
Transverse Plane Hypermobility (9233- B3)
Sagittal Plane Hypermobility (9234, B3)
Hypermobility Video  (T-50, 9148)
Hypermobility Video (T-50, 9149)
BWO for hypermobility?

- Document sagittal and/or transverse plane hypermobility
- Clinical and radiographic hypermobility
Need for Adjunctive Procedures

- Joint prep considerations
- Pre-existing lesser MPJ pathology
Isolate Dorsal Cutaneous Nerve
Leave Nerve Covered in Tissue
Standard Sesamoid Release but Leave Lateral Ligament Intact
Document DJD for Future Reference
(Why does my toe still hurt?)
Careful Lateral Exposure to Protect NV Structures
Preserve Inter-cuneiform Ligaments
Joint Prep Considerations
Ideal Location and Angle of Invasive Distractor
Distract for Full Joint Exposure (limited access to plantar joint)
Initial Joint Prep with Flexible Osteotome
Finish with Curette
Nip Lateral Flare at Base of Metatarsal
Plantar Distraction with Smooth Lamina

- Straight up and down
- Lateral only then medial only
- Tease plantar ligaments with osteotome
- Avoid bleeding from plantar or lateral
Prep Surface to Remove Subchondral Bone Plate
Final Suction
Before Drilling
Subchondral Drilling (2.0 mm drill bit vs. k-wire?)
Document Use of Autograft
Mark Distal Screw Starting Point at 2 cm
Create Trough for Acute Angle Guide Pin
Temporary Fixation

- Close to toe?
1st Pin Pearls (inline with 2nd met)
Aim Medial (wide bottom of medial cuneiform)
Aim at Bottom of Navicular Tuberosity
Angle of Pin (What is too far medial?)
1st and 2nd Metatarsal Alignment
2\textsuperscript{nd} Pin Inline with 1\textsuperscript{st} Metatarsal
Medial and Lateral Compression
Value of 0.062” k-wires vs. guide pins?
Starting Point of 2nd Pin
Angle of Insertion
(touching the tourniquet)
3.5 mm Drill for Near Cortex
Use Top Hat or 2.5 mm Drill Sleeve
2.5 mm Drill to Far Cortex
How long? (32-40mm)
Insert 3.5 mm Screw on Power
Compress Fusion Site & Tighten Screw
Concern about medial gap?
Drill 50 mm to Far Cortex (feel for far cortex)
Depth Gauge
(50 mm to far cortex, hook toward heel)
Insert 3.5 mm Cortical Screw
Final Tightening By Hand
Screw Considerations

• Why solid screws? (cortical screws, stronger)
• Low and high, medial and lateral compression
## Stainless Steel vs. Titanium

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<thead>
<tr>
<th>Titanium</th>
<th>Stainless Steel</th>
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<tr>
<td>• Less allergic response</td>
<td>• Greater tensile strength</td>
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<tr>
<td>• Superior tissue and bone adhesion</td>
<td>• Greater resistance to load-bearing stress</td>
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<td>• Both lead to decreased chance of infection</td>
<td>• Longer fatigue failure rate over time</td>
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<td>• Ideal for permanent fixation</td>
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<td>• Modulus of elasticity similar to cortical bone</td>
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Perren, Orthopedics 1989  
Disegi, Orthopedics 1989
Who needs a plate?

- Early WB
- Time and cost
- Higher risk of HWR
Wedge Resection Pearls

- Guide pin technique
- Cuneiform wedge osteotomy
- Expect shortening
Lapidus Osteotomy Pearls
Start with Medial to Lateral Transverse Wedge Resection
Finish Dorsal to Plantar with Long Blade
Follow Pins to Bottom of Joint
Comments / Questions?

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