What’s New with the Lapidus Procedure
(TMT Fusion with Modified McBride)

John G. Anderson, M.D.
Professor, Michigan State University College of Human Medicine
Chairman, Spectrum Health Department of Orthopaedic Surgery
Co-director, Grand Rapids Orthopaedic Foot and Ankle Fellowship
Grand Rapids, MI

Introduction
• Bunion: from Greek word bounion (turnip)
• Enlargement of the area at the base of the great toe
• Hallux Valgus: lateral deviation of great toe
• Bunion pain comes from pressure against shoe
• Other sources of pain
  – Malreduced sesamoids
  – 2nd transfer metatarsalgia
  – Arch pain

Surgical Treatment of Hallux Valgus
• Soft tissue only
• Soft tissue with:
  – Distal osteotomy
  – Proximal osteotomy
  – Proximal fusion

Why the discrepancy in opinions?
• Trained that way
• Surgeon preference
• Easier
• Quicker recovery
• Smaller incision
• Earlier weightbearing

Pitfalls of Bunion Surgery
• Elevation of 1st ray
• Shortening of 1st ray
  – Transfer lesions
  – Crossover toe
  – 2nd MTP synovitis
• Inadequate IMA correction
• Recurrence

**Anatomy of the 1st TMT Joint**
- Uniplanar Joint
- No inherent bony stability
- No 1-2 intermetatarsal ligament
- May have proximal lateral facet articulating with 2nd MT base
- Prone to excessive mobility in coronal and sagittal planes

Pathoanatomy – what is wrong?
- 1st metatarsal deviates into varus (deformity originates at 1st TMT)
- Attenuated medial capsule
- Sesamoids malreduced but tethered by transverse metatarsal ligament
- Tight lateral capsule
- Hallux drifts laterally
- Medial column incompetence

Pathoanatomy – what isn’t wrong
- 1st metatarsal bone is NOT crooked
- A bump did not “grow”
- This is not a uniplanar deformity

Lapidus procedure for Hallux Valgus

**Rationale**
- Corrects deformity where it originates
- Addresses sagittal and coronal plane deformity
  - Think of as an arch reconstruction!
- Less likely to shorten first ray or lead to transfer lesions
- Powerful means of correcting even most severe deformities
- Reliable results
- Early weightbearing now possible

**Operative Technique**

**Incisions**
- Two incisions
  - 1st TMT to 1st web space
  - Medial over 1st MTP
• Elevate capsule and expose subchondral bone
• Contour 1st TMT
• Drill subchondral bone with 2-0 drill

TMT preparation
• Evaluate 1st TMT orientation
  – Oblique vs. horizontal
• Possibly resect lateral corner of medial cuneiform or lateral metaphyseal flare of 1st MT

Lateral release
• Dissect on lateral side of 1st MTP to release transverse MT ligament and adductor attachment to fibular sesamoid
• Longitudinal capsulotomy between sesamoid and MT head--allow 1st MT head to reduce over sesmoids
• Preserve adductor attachment to proximal phalanx
• Manipulation of 1st MTP

Medial capsulorrhaphy
• Resect redundant capsule
• Do not overresect medial eminence (reduction of metatarsus varus reduces medial prominence)

1st TMT Reduction
  Reduce IMA: Need to correct
  – Varus at TMT
  – Elevation

• Compression screws or plate
• Need starting hole to avoid dorsal bridge breakout
• Spot weld bone graft
• Screws across intercuneiform and 1-2 intermetatarsal space used to reduce recurrence and address intercuneiform instability

After care
• Sutures out at two weeks
• SLC or boot PWB on heel x 8 weeks
• Progress WBAT at 8 weeks
• Newer protocol early WBAT on heel at 2 weeks
• Usually in shoe at 10-12 weeks

Complications
  Overcorrection
    Avoid negative 1-2 IM angle
Nonunion: 4% with modern technique
Undercorrection
Can be minimized with good technique
Beware of intercuneiform instability
Intermetatarsal-intercuneiform screws minimize this complication

Lapidus Summary
• Powerful procedure
• Multiplanar hallux/medial column correction
• Predictably good results
• Low nonunion rate (4%)
• Low recurrence rate (1-2%)
• Not just a bunion operation
  – Restores medial arch stability
  – Reduced incidence of transfer lesions
  – Think of as an arch reconstruction!
  – Newer fixation methods allowing for early weightbearing and faster recoveries

Bibliography


