SURGICAL APPROACHES TO FIRST RAY

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HALLUX ABDUCTOVALGUS DEFORMITY

Bunion Categories
- PASA Deformity only
- Mild HAV
- Moderate HAV
- Severe HAV
- Combined HAV

Typical Procedure Selection
- Capsule Tendon Balancing
- PASA Correcting
- Head Procedure
- Midshaft Procedure
- Proximal Procedure
- Arthrodesis
- Combination of above
PROCEDURES

Capsule Tendon Balancing
- Removes bump
- Derotates hallux
- Relocates sesamoid
  - Silver
  - McBride
  - Hiss

PASA Correcting
- 11 modifications
  - Reverdin
  - Peabody
  - Reverdin-Green
  - Reverdin-Laird
  - Reverdin-Todd
Head Procedures

- Most common
- Gives apparent IM correction
  - Austin/Chevron and modifications
  - Mitchell
  - Hohmann
  - Wilson
  - DRATO

Midshaft Procedures

- Performed in diaphysis or cortical bone
- Scarf or Z osteotomy
- Offset V
- Ludloff
- Mau
**PROCEDURES**

**Proximal Procedures**
- CBWO
- OBWO
- Crescentic
- Kotzenberg – Proximal Chevron
- Cotton

**Combination Procedures**
- Head osteotomy and Akin
- Midshaft osteotomy and Akin
- Logroscino (CBWO and Reverdin)
- Stamm (OBWO and Keller)
- Cotton and Head osteotomy
- Cotton, Head osteotomy, and Akin
- Lapidus and Akin
More than 130 methods have been described to treat bunions.

Consensus regarding best management has yet to be determined.

4.4 million patients visit physicians annually complaining of bunion deformity.

Recurrence can be as high as 25-75% due to inability to align joint.

- MIS
- Lapidus
MINIMALLY INVASIVE SURGERY

- Arthroscopy
- Percutaneous Procedures
- Minimum Incision Osteotomies

- Common concerns
  - Lack of stability
  - Unpredictable healing
  - Prominent metatarsals

- Benefits
  - Cosmetic incision
  - Minimal soft tissue/bone dissection
  - Low energy osteotomy
  - Shorter surgical time
  - Shorter recovery
  - Greater patient satisfaction
MIS STUDIES

- 1983 – New et al reported on percutaneous technique for HAV correction
- 1990 – Bosch et al first described minimally invasive distal metatarsal osteotomy with percutaneous technique
- 2010 – Enan et al performed study of 36 feet and found that due to less operative time and less surgical dissection there was no reports of
  - Recurrence
  - Nonunion/Malunion
  - Transfer Metatarsalgia
  - Avascular necrosis
  - Secondary Hallux varus
  - Deep infection
NEW METHOD OF LAPIDUS PROCEDURE

- Allows 3 plane correction and to fuse TMTJ in corrected anatomic alignment
- “Positioning” instrument to hold metatarsal in 3 planes before making bone cuts – freehand variability is removed
- Mizuno in 1956 first described frontal plane or pronation of first metatarsal
- Component in up to 85% of bunions
- Traditional osteotomies mainly provide transverse plane correction and unable to correct frontal plane
NEW METHOD OF LAPIIDUS

- Both an instrumentation and fixation systematic approach to bunion surgery
- Relies on “bipolar plating” to fuse in corrected position
- Hardware is low profile but highly stable construct and helps with fast return to WB post-op
- JFAS study by Dayton et al shows bipolar fixation is superior to plate and interfrag compression screw construct
CASE DISCUSSION ONE
CASE DISCUSSION ONE
CASE DISCUSSION TWO
CASE DISCUSSION TWO
FRONTAL PLANE CORRECTION NOTED ON SESAMOID AXIAL VIEW
HALLUX LIMITUS/RIGIDUS PROCEDURES

Joint Preservation
- Cheilectomy/Valenti
- Plantarflexory osteotomy
  - Watermann
  - Hohmann
  - Modified Austin (Youngswick)
- Proximal phalanx osteotomy
  - Moberg
  - Bonney-Kessel

Joint Destruction
- Resection arthroplasty (Keller)
- Arthrodesis
- Interpositional arthroplasty
- Hemi or total joint replacement
HALLUX RIGIDUS
HALLUX RIGIDUS
HALLUX LIMITUS/RIGIDUS

Procedure Selection

- Patient’s age
- Activity level
- Location of joint pain
- Severity of joint damage
- Patient expectations

Advancement in Surgical Management

- Improved osseous preparation
- Improved/more stable internal fixation for fusion
- New materials - synthetic cartilage implant
**Arthodesis**
- "Gold standard" to eliminate pain and allow more normal functional gait pattern
- Proven and predictable method
- Advances include:
  - Improved osseous preparation/equipment
  - Internal fixation for 1st MTPJ fusion
- Metallic resurfacing of metatarsal head shows promise as alternative to fusion

**New materials**
- Synthetic cartilage implant
- Gel-like implant that mimics quality and density of bone

**Steps for use:**
- Remove bone spurs
- 1cm drill hole in first metatarsal head
- Inject gel into the hole which expands to fill space and overflow acts as cap on joint
REFERENCES

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