ANKLE ARTHRODESIS

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DISCLOSURES

∅ 3B: BESPA, INC. (CONSULTANT)
∅ EXTREMITY MEDICAL, INC.

ANKLE ARTHRITIS
∅ POST-TRAUMATIC MOST COMMON
∅ YOUNGER / MORE ACTIVE
∅ RISK OF ADJACENT JOINT / COMPENSATORY ARTHRITIS
∅ MUST PRESERVE OPTION OF LATE CONVERSION TO ARTHROPLASTY
HISTORICAL PERSPECTIVES

- 10-40% NONUNION RATE
- DESTABILIZING TECHNIQUES / EXCESSIVE BONE RESECTION
- PRIMITIVE FIXATION

FIBULAR RESECTION

- LOSS OF LATERAL BUTTRESS
- LATE VALGUS DRIFT
- NO OPTION FOR LATE CONVERSION TO TAR

BOX-CUT TALUS RESECTION

- LOSS OF HEIGHT
- LOSS OF CONGRUITY
- NO OPTION FOR LATE CONVERSION TO TAR
MEDIAL MALLEOLAR RESECTION
Ø LOSS OF MEDIAL BUTTRESS
Ø POTENTIAL COMPROMISE TALUS VASCULARITY
Ø NO OPTION FOR LATE CONVERSION TO TAR

STILL THE GOLD STANDARD
Ø ~ 5% NONUNION RATE CURRENTLY
Ø ANATOMIC SURGICAL TECHNIQUES
Ø MODERN FIXATION TECHNIQUES

A C A T (HANSEN)
Ø HOLT, ET AL. CORR 268, 1991
Ø PRESERVE BONY ANATOMY THRU MINIMAL BONE RESECTION
Ø MAXIMIZE INHERENT STABILITY / MINIMAL LIMB SHORTENING
Ø PRESERVE MALLEOLI / PRESERVE VASCULARITY
METICULOUS JOINT PREP

PRESERVE SUBCHONDRAL PLATE

A C A T (HANSEN)

Ø MULTIPLANAR SCREW FIXATION
SCREWS OUTSIDE THE PRIMARY PLANE OF ANKLE MOTION

ANTERIOR PLATE AUGMENTATION

Ø SANDERS 1995

Ø ORIGINALLY INTENDED AS A NEUTRALIZATION DEVICE

Ø MORE CONSISTENT UNION

BIOMECHANICAL RIGIDITY

Ø TARKIN, ET AL. FAI 28, 2007

Ø SIGNIFICANTLY MORE RIGID IN DORSIFLEXION-PLANTARFLEXION & TORSION THAN SCREWS ALONE

Ø SIGNIFICANTLY LESS MOTION IN ALL PLANES COMPARED TO SCREWS ALONE
TARKIN, ET AL. FAI 28, 2007
0 TENSION BAND: RESIST PLANTARFLEXION
0 BUTTRESS: RESIST DORSIFLEXION
0 NEUTRALIZATION: RESIST TORSION

TAMPA TECHNIQUE
0 CLARE MP, FOOT & ANKLE CLIN 16, 2011
0 MULTIPLANAR SCREW FIXATION / ANTERIOR PLATE AUGMENTATION
0 COUNTERS FORCES WHICH COULD LEAD TO FAILURE OF MULTIPLANAR SCREWS
0 500+ FUSIONS / 96% UNION RATE

CORONAL PLANE DEFORMITY
HINDFOOT ARTHRODESIS

SOFT TISSUE BALANCING
- POSTERIOR CAPSULAR RELEASE
- GASTROC / ACHILLES
- P BREVIS
- PTT / PMR

NEUTRAL (X 3) POSITION
- CORONAL
- SAGITTAL
- AXIAL
MUST ADDRESS ANTERIOR TRANSLATION OF TALUS

MAY NEED FIBULAR OSTEOTOMY

MAY NEED FIBULAR OSTEOTOMY
ANATOMIC ANTERIOR PLATE
∅ MULTIPLANAR FIXATION
∅ UNIFORM COMPRESSION
∅ FUSION GRAFT WINDOW
∅ FASTER / MORE EFFICIENT
∅ UTILITARIAN DEVICE

"ALL-ANTERIOR TAMPA TECHNIQUE"

CASE EXAMPLE
∅ 58F 8 YRS POST OPEN ANKLE FX
O-PHYTE REMOVAL CRITICAL
∅ PREVENT T-N IMPINGEMENT /
SECONDARY EQUINUS
POSITIONING

PROVISIONAL PLACEMENT
∅ NEUTRAL (X 3) ALIGNMENT

TALUS FIXATION
∅ MEDIAL / LATERAL TAB SCREWS
∅ ADD’L CORRECTION / COMPRESSION
**ADD'L CORONAL OR SAGITTAL CORRECTION / COMPRESSION**
- Threaded Reduction Device
- Hintermann Type Compressor
- Axial Compression Thru Plate
- Large Clamp

**HOME RUN SCREW**
- Uniform Compression

**PROXIMAL FIXATION**
- Multiple Locking Options
SHEAR-STRAIN RELIEF GRAFT

∅ INDUCE SPOT-WELD AT INTERFACE

∅ HANSEN, 2000

CASE EXAMPLE: 3.5 MO POSTOP

∅ FULL WB / REGULAR SHOE / NO PAIN

POST-OPERATIVE PROTOCOL

∅ SPLINT/CAST IMMOBILIZATION

∅ NON-WEIGHTBEARING 10-12 WEEKS

∅ ECASA 81MG Q DAY UNTIL WB

∅ FRACTURE BOOT / PROGRESSIVE WB

∅ TRANSITION TO REGULAR SHOEWEAR
SUMMARY

0 ACAT: PRESERVE FIBULA / SC PLATE
0 METICULOUS JOINT PREPARATION
0 NEUTRAL X 3 POSITION
0 MULTIPLANAR FIXATION / ANATOMIC ANTERIOR PLATE

REFERENCES

0 HOLT, ET AL. CORR 268, 1991
0 TARKIN, ET AL. FAI 28, 2007
0 CLARE & SANDERS, F & A CLIN 16, 2011