Bone Transport with TSF

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Problems with classic Ilizarov frame

- Complicated frame application
  - Need to achieve alignment at surgery
  - Arched olive wire technique
- Poor control of transport fragment
- Docking difficulty
  - Mal-alignment
  - Poor bony contact
  - Require frame modification
- Deformity of lengthening regenerate
Infected rod, draining sinuses
equinus
Infected nonunion
3 cm LLD
5 cm defect
Retained hardware
flaps
Removal hardware
Resect dead bone
Square edges
Insert antibiotic beads
Rings first method
6 weeks later
Apply proximal ring
Establish mounting parameters
Perform proximal tibia osteotomy
Remove beads
Begin transport
Establish Mounting parameters
Mounting parameters: intraop stacking cubes
Virtual hinge
“global positioning”
Defined point
Relative to the
Reference ring
MCA
Open grade 3B
Bone loss
8 cm defect
Control each Segment separately
Fibula plating was already done - prefer not to have them.
Tibia-talar Arthrodesis and Simultaneous tibia lengthening

Bone transport for segmental tibia defect with osteomyelitis
Boat explosion

Needs 7.5 cm lengthening and tibio-talar fusion

Infected
Residual correction
Ilizarov rods
15 months

8 cm lengthening

Tibia
Diaphysis
To talus fusion
Bumper injury
Paramedic loading
Patient

Grade 3C
Vascular surgery
Flap coverage

1 year later with
Draining sequestrum
Not candidate for another flap
Trifocal Transport Of bone And Soft-tissue
Residual correction of recurvatum and long.
Apply spatial Struts
When there is room
To achieve Excellent alignment
He had an equinus contracture.
Simultaneous Treatment of Bone and Soft-tissue Defects With the Ilizarov Method

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Can the Ilizarov method be used to treat bone and soft-tissue defects simultaneously without the use of flap coverage?
Monofocal method
Bifocal method
Method

• 25 patients from multiple University Centers
• Not candidates for flap coverage
• Limb salvage undertaking in all cases
• Retrospective review
Defect size after debridement

- Bone defect: 9.7 cm
- (range 2-25)
- Soft-tissue defect: 5.8 cm
- (range 2-14)
Infections

• Bone infections in 10 patients
• Soft-tissue infections in 16 patients
Flap Coverage

- 2 patients had previous flap coverage which then had partial necrosis leading to a soft-tissue defect
Time to closure

- Frame compression: 17 weeks (range 5-39)
- Soft-tissue closure: 14.8 weeks (range 3-41)
Bone Healing

• Bony union: 24/25 patients
• Bone grafting of docking site in 12 patients
• 3 patients needed a secondary IM nail after frame removal to achieve union.
• One patient has stiff nonunion, is satisfied, and does not want additional treatment
Time in frame

• 41.5 weeks average (range 10-82)
Infection

- Infections were cleared in bone and soft-tissue and there were no recurrences
Lengthening at another site

- 11 patients
- Proximal tibia, middle tibia, fibula, femur
- 5.5 cm lengthening
- (range 2-11 cm)
- Final LLD: 1.4 cm (range 0-5)
Open femur fx
8 cm infected defect
6mos after injury
LLRS ASAMI-NA

- AAOS specialty day
  - March 13, 2004
  - San Francisco, CA

- Annual Meeting
  - July 23-25, 2004
  - Toronto, Canada
Thank You