

Complex Ankle Arthrodesis Using the Ilizarov/TSF

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What was the question?

What is complex ankle arthrodesis? Can the Ilizarov/Taylor Spatial Frame be used to help achieve fusion in patients where other techniques have failed or are contraindicated?

How did you answer the question?

We reviewed 110 complex ankle arthrodesis cases performed by the senior author (SRR) at one center from 2002–2009 using the Ilizarov / Taylor spatial frame. Criteria for “complex” fusion included a history of ankle osteomyelitis, failed prior ankle fusion attempt, failed total ankle replacement, RA, Charcot ankle, tibiocalcaneal fusion, ankle angular deformity > 20 degrees, history of smoking >1ppd. The fusion rate was used as the primary outcome and each risk factor was analyzed. This study was approved by the institution IRB.

What are the results?

The overall fusion rate was 80%. Each subgroup was analyzed and found to have no significant difference in the fusion rate, except smokers. Smokers had a 50% fusion rate.

What are your conclusions?

Fusion rates for primary ankle fusions are in the high 90th %tile in most series. The fusion rates for most of our subgroups was 80%. This indicates that these groups are all complex cases that require special treatment. This treatment includes circular fixation. This data also suggests that further enhancement of healing with PTH, BMP, etc. could have a significant effect on the outcome of these challenged healers. Smoking is a relative contraindication to complex ankle fusion even with the aide of an external fixator as failure rates are very high.