

Failure of tension band plating: a case series

Abstract

Growth modulation with tension band plates (TBP) has been shown to be a very useful method for the treatment of angular deformities in growing children. Recently, we have observed cases of failure where the epiphyseal screw was drawn through the physis into the metaphysis. This study describes a series of children who developed this complication. Patients who developed TBP failure after operative treatment of lower limb angular deformities were identified from the databases at four institutions over a 5-year period. The medical records were reviewed to record demographics, primary diagnoses, details of the operative procedure, development of physeal arrest, and recurrence of the original deformity. Six patients (five girls) with nine implant failures were identified. The mean age of the children at the time of implant insertion was 7.2 years (range, 4–10 years). The primary diagnoses included hypophosphatemic rickets (n=7), congenital pseudoarthrosis of the tibia associated with neurofibromatosis 1 (n=1), and post-traumatic malunion after distal tibial fracture (n=1). Of the nine TBP that presented with the complication, four were inserted into the medial distal femur (one bilateral case), two into the medial proximal tibia (one bilateral case), two into the lateral distal tibia, and one into the medial distal tibia. None of these patients developed physeal growth arrest at the last follow-up as assessed on the latest radiographs. The use of TBP for guided growth in patients younger than 10 years old with rickets, neurofibromatosis, or other conditions that produce osteopenia leads to an increased risk for implant failure. In these cases, it is important to confirm that the epiphyseal screw has good purchase. Patients with these features should be monitored closely for early detection of this complication.