

Outcomes and Management for Ballistic Traumatic Arthrotomies in Children

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INTRODUCTION:

In the pediatric population, septic arthritis can be devastating to articular cartilage and requires emergent surgical intervention. For prevention, traumatic arthrotomies (TAs) are treated with operative irrigation and debridement (I&D). However, recent data suggests that ballistic TAs secondary to gunshot wounds (GSWs) may not require formal I&D in adult populations. No study has been published regarding treatment strategies for these injuries among children. This study aims to evaluate if operative I&D is necessary for the treatment of pediatric ballistic TAs and the frequency of post-injury joint infections.

METHODS:

A retrospective cohort study was conducted on pediatric patients with ballistic traumatic arthrotomies involving the shoulder, elbow, wrist, hand, hip, knee, ankle, and/or foot. Inclusion criteria included one month or greater follow up and age 0-17. Data included patient demographics, imaging, operative interventions, duration of antibiotic administration, and follow up infections. Outcome Measures included rates of infection and septic arthritis in those who received operative vs. nonoperative management.

RESULTS: 57 cases of ballistic TA (50 subjects) were retrospectively reviewed over 8 years (figure 1). 31 out of 57 joints (54.4%) underwent formal operative I&D with or without fixation while 26 joints (45.6%) did not receive a formal washout. All patients received at least one dose of intravenous antibiotics. 11 joints (19.2%) were also treated with an oral antibiotic regimen on discharge. No joint infections were documented between either group, regardless of treatment. Mean follow-up duration was 10.8 months (range 1-56 months).

DISCUSSION AND CONCLUSION: Our findings suggest that prompt antibiotic administration is highly effective in preventing joint infections among TAs secondary to GSW in the pediatric population. Formal operative I&D is not necessary unless otherwise indicated for fracture fixation or removal of intra-articular foreign bodies.

