

Isolated B1 Flexion-Distraction Injuries: To Operate or Not?

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INTRODUCTION: AOSpine B1 flexion-distraction injuries, classically referred to as bony Chance fractures, are commonly treated with operative fixation, as they have traditionally been considered unstable injuries. With the prospect of osseous healing and restoration of the posterior tension band complex, conservative management is appealing for some minimally displaced B1 fractures. However, there is a paucity of data in the literature regarding the conservative management of B1 injuries, with the last comparative study of operative to non-operatively management being published over 30 years ago. This study seeks to examine the outcomes of patients treated non-operatively versus surgically for B1 Chance Fractures to determine radiological outcomes and sequelae.

METHODS: After receiving IRB approval, we retrospectively reviewed patients at a single Level 1 trauma center over the past 18 years with AO Spine B1 injuries treated operatively or nonoperatively. Clinical and radiographic outcomes were assessed retrospectively and include degree of kyphosis, patient reported pain, return to work, and overall complications.

RESULTS SECTION: Initial kyphosis in the operative (n=14) versus nonoperative group (n=13) was 5° and 13°, respectively (p = .225). At first follow-up a significant difference in kyphosis existed, with -2.6° in the operative cohort, and 13.9° in the nonoperative cohort (p = .015). The change in kyphosis at first follow-up for the operative group was also significantly different (p = .029). At final follow-up the operative group (n=11) had a mean of -3.6° of kyphosis, compared to 12° in the non-operative (n=8) (p = .07). No significant differences between the cohorts were observed in complications (0% vs 0%, p=1), return to work time (20.5 vs 11.8 weeks, p=.193), and resolution of subjective back pain (16.5% vs 45.5%, p = .193). Zero patients treated nonoperatively eventually progressed to surgical intervention.

DISCUSSION: Conservative management of AO B1 transosseous flexion-distraction injuries is a safe treatment alternative to surgery, given overall radiographic stability seen in patients treated non-operatively. The initial kyphotic deformity is a consideration but should not deter surgeon's from offering conservative management as an option to a compliant patient. Patient factors such as likelihood of follow-up and location of injury should be factored into the surgeon's management decision.

SIGNIFICANCE/CLINICAL RELEVANCE: (1-2 sentences): This study is the first in nearly 30 years to examine the outcomes of AOSpine type B1 injuries and affirms previously-held notions regarding the efficacy and safety of non-operative management. We expand on previous work by demonstrating satisfactory outcomes regardless of initial kyphotic deformity, a novel finding.

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IMAGES AND TABLES:

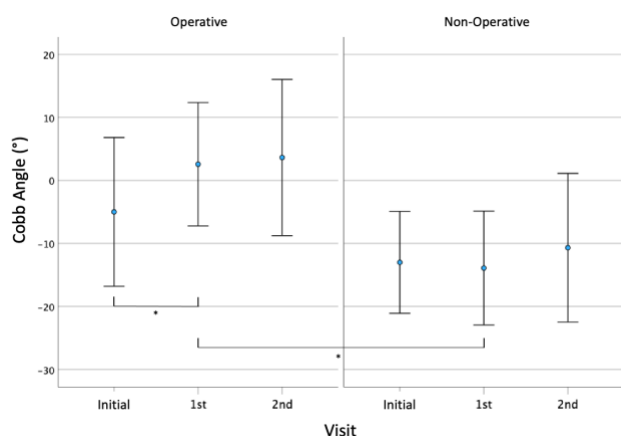


Figure 1. Comparison of Radiographic Outcomes

Mean ± standard deviation (Range). A negative value and negative change means kyphosis or the addition of kyphosis.