



“Six Point Anterior Fixation” for Sub-axial Cervical Spine Injury in the Pediatric Population: - A Technical Note

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Introduction

Management of pediatric cervical spine injuries has been either conservative treatment or surgical instrumentation. The anterior cervical discectomy with fusion, posterior fixation, or a combination of both approaches have been the standard surgical techniques for treating CSI’s.

To maximize the mechanical advantage of an anterior approach alone, particularly the interactions between the graft and the vertebral bodies, we developed a “six point anterior fixation” technique. We report this technique in five consecutive pediatric patients with cervical spine injuries.

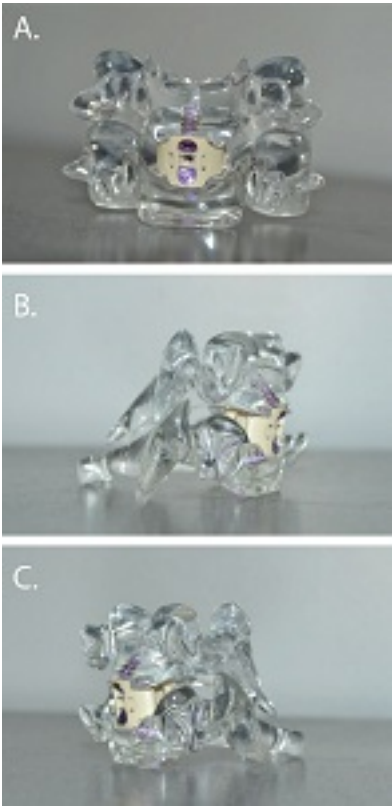
Methods

Through a retrospective review of traumatic CSI’s from 6/2012 through 1/2015 requiring surgical intervention, five pediatric CSI’s are identified. Age from 14 to 18 years old with the average age being 15. Four of the patients underwent surgical treatment at C5-6 and 1 patient at C6-7 using the “six point anterior fixation” technique alone. In addition to the traditional anterior plate, screw, and graft construct (fig 1), this technique comprises the additional fixation of the graft to the vertebral bodies with screws (fig 2).

Results

All five patients presented with no neurological deficits. Four patients have been followed at 3 and 6 months and one patient was evaluated at 3 and 10 months. Each patient had cervical x-rays that demonstrated stable hardware placement and no other radiographic complications. Physical assessments demonstrated no neurological deficits.

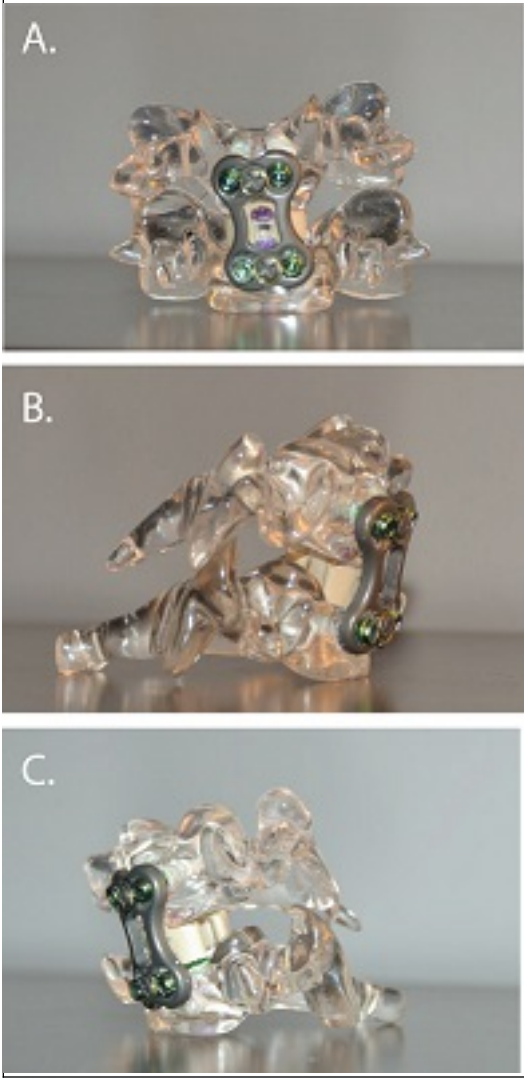
Figure 1



Conclusions

There is a high degree of variability when treating CSI’s. Managing these patients requires a unique set of clinical and surgical expertise. Stand-alone anterior approach is a versatile surgical technique. The use of this “six point anterior fixation” technique maximizes the mechanical advantage of an anterior-short-segment instrumentation approach. This technique may minimize the potential need for a long -segment posterior or an anterior-posterior combined approach in pediatric CSI patients.

Figure 2



Learning Objectives

By the conclusion of this session, participants should be able to: 1)Identify the six point fixation technique as a safe viable option for treatment of pediatric cervical spine injuries

References

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