Scoliosis, Spinal Fusion, and Intrathecal Baclofen Pump Implantation

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KEYWORDS

• Scoliosis • Cerebral palsy • Spinal fusion • Intrathecal baclofen pump

KEY POINTS

- The incidence of scoliosis in patients with cerebral palsy is high, particularly in those with more involvement.
- Because of severe spasticity, many patients with cerebral palsy undergo intrathecal baclofen pump placement before, during, or after posterior spinal fusion.
- Despite high complications, it seems equally safe to place intrathecal baclofen pumps before, during, or after spinal fusion.

INTRODUCTION

Patients with cerebral palsy (CP) commonly develop scoliosis. The treatment of scoliosis in these patients can be different from treatment of the idiopathic scoliosis population. Management of the spinal deformity in CP can be challenging and often presents the surgeons and caregivers with many difficult decisions and obstacles. The approach to the care of these children should be multidisciplinary in order to optimize outcomes and decrease the frequent complications.

CEREBRAL PALSY AND SCOLIOSIS

The neuromuscular scoliosis that occurs in CP is typically a C-shaped curve that is often kyphoscoliotic and is associated with pelvic obliquity (**Fig. 1**). Children with CP have an increased risk of developing scoliosis compared with other patient populations.[1] Muscle weakness, truncal imbalance, and asymmetric tone in paraspinal muscles have long been implicated for the onset of scoliosis in CP, but there is little literature to support this theory.[2]

The authors have nothing to disclose.

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Phys Med Rehabil Clin N Am 26 (2015) 79–88
http://dx.doi.org/10.1016/j.pmr.2014.09.003 **pmr.theclinics.com**
1047-9651/15/$ – see front matter

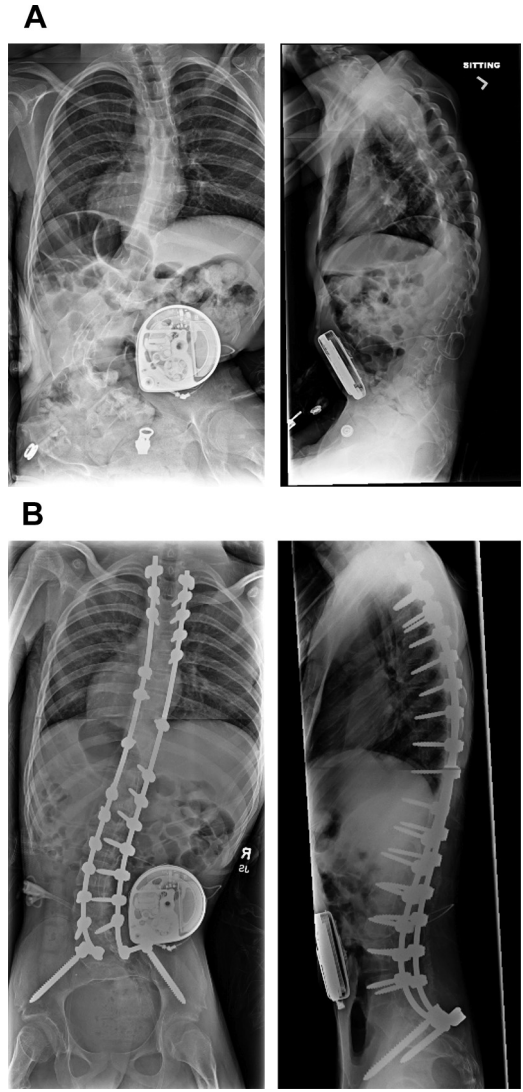

Fig. 1. (*A*) Anteroposterior/lateral radiographs of 14-year-old boy with scoliosis secondary to CP. The patient has undergone prior baclofen pump placement. (*B*) The patient has undergone correction of the scoliosis with a T2-pelvis fusion.

The prevalence of scoliosis in a total population of children with CP is nearly 30%.[3] Curves tend to begin at an earlier age than in idiopathic scoliosis.[4] They are more likely to progress even after the patient reaches skeletal maturity.[5] There is also an increased incidence of increased Gross Motor Function Classification System (GMFCS) level.[3] Children with GMFCS level IV and V CP have a 50% risk of moderate or severe scoliosis by the age of 18 years.[3]

Studies have found correlation between the size of the deformity and the decline in functional activities. Majd and colleagues[6] found an increased curve progression in patients with a decline in function compared with patients who were functionally