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CASE REPORT

Results of chiropractic scoliosis rehabilitation treatment at two years post-skeletal maturity in identical female twins

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Summary *Background:* Scoliosis treatment guidelines for non-operative management suggest that patients should be followed for two years beyond skeletal maturity to appropriately evaluate treatment effect. This report outlines the results of identical twin girls' treatment with chiropractic rehabilitation treatment at two years post skeletal maturity.
Findings: The twins participated in a treatment lasting two weeks, followed by home care maintenance and periodic follow-ups for they reached skeletal maturity. Two year follow up showed reduced Cobb angles of 19° and 15°, respectively.
Conclusion: Identical twin girls who were evaluated two years after skeletal maturity showed clinically significant improvements in Cobb angle measurements. Controlled, prospective study design for future patients treated in this manner will provide greater insight into how the treatment may have impacted the observed changes.

Introduction

Adolescent idiopathic scoliosis occurs in approximately 2–3% of the population (Negrini et al., 2012). The conventional treatment pathway for adolescent idiopathic scoliosis involves observation for curves below 20°, bracing for curves from 20 to 40°, and surgery above 40°–45°

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(Negrini et al., 2011). However, these values can vary widely (Dolan and Weinstein, 2007). Although bracing and surgery have remained the gold standard of treatment in the US, newer research is questioning the safety and effectiveness of their routine use (Weiss and Goodall, 2008). This has created a bigger focus on exercise methods for scoliosis (Weiss et al., 2006).

While earlier reviews have shown that manual therapy methods for scoliosis treatment, including chiropractic, were lacking (Romano and Negrini, 2008), more recent research is being published regarding the chiropractic treatment of scoliosis. Some of these studies evaluate manipulation-only as a treatment (Chen and Chiu, 2008; Tarola, 1994), others have reported results with manipulation plus bracing (Rowe et al., 2006), manipulation under anesthesia (Morningstar and Strauchman, 2010), manipulation plus postural education and heel lifts (Lantz and Chen, 2001), manipulation plus electric stimulation (Aspegren and Cox, 1987), and manipulation plus exercises for adult patients (Morningstar, 2011a,b; Blum, 2002). Weiss previously recommended that any non-surgical management strategy for adolescent idiopathic scoliosis should be conducted through two years post-skeletal maturity to evaluate treatment results (Weiss, 2012). Only one study to date has evaluated the ability of a chiropractic treatment to positively affect scoliosis over the course of adolescent growth through skeletal maturity (Morningstar, 2011a,b). More studies are needed to identify chiropractic's role in scoliosis management. This study reports the results of identical female twins who both had adolescent idiopathic scoliosis and were treated using a conservative chiropractic rehabilitation treatment. Both patients gave their written informed consent to have their data and demonstration photos published.

Case report

In 2009, at age 13, the twins were diagnosed with idiopathic scoliosis during a routine physical by their pediatrician. Both girls were negative for any comorbid conditions, and had no significant history of chronic disease. Both girls were well nourished, energetic, and pleasant adolescent females who happen to be diagnosed with idiopathic scoliosis. Both girls did list occasional back pain as a complaint and one also listed occasional shortness of breath. No treatment was recommended at that time other than a future annual visit. Follow-up routine visit with their pediatrician demonstrated significant progression visually which resulted in a radiographic assessment. This was evaluated by an orthopedic specialist who then recommended a rigid spinal orthosis for one twin (Patient B), which was not obtained, while fusion surgery was tentatively scheduled for December 2010 for the other (Patient A). Both girls were considered highly progressive. Both girls began menstruation at 13 years, 4 months.

Both girls were evaluated by the lead author (BD) on 05/10/2010 prior to engaging in an intensive chiropractic scoliosis program and home therapy. Standard spinal exam procedures demonstrated normal physiological ranges of motion both passively and actively. No functional deficits were observed in spinal ranges of motion, balance testing, hip and sacroiliac ranges of motion, or abdominal strength testing. Radiographic study at this time revealed a thoracolumbar dextroscoliosis of 47° from T7-L2 with a T10/T11 apex (Patient A), and a thoracolumbar levoscoliosis of 37° from T11-L4 with an apex of L1 (Patient B). These radiographs are shown in Fig. 1. Based upon this assessment, the parents and patients decided to proceed with a conservative chiropractic rehabilitation treatment.

Intervention and outcome

Given the degree of scoliosis, and its history of progression, a course of intensive short term chiropractic rehabilitation was initiated. This treatment included multiple daily office visits (three per day) for a total of 10 days (5 days per week for two consecutive weeks). During each office visit, the patient received motorized flexion distraction (shown in

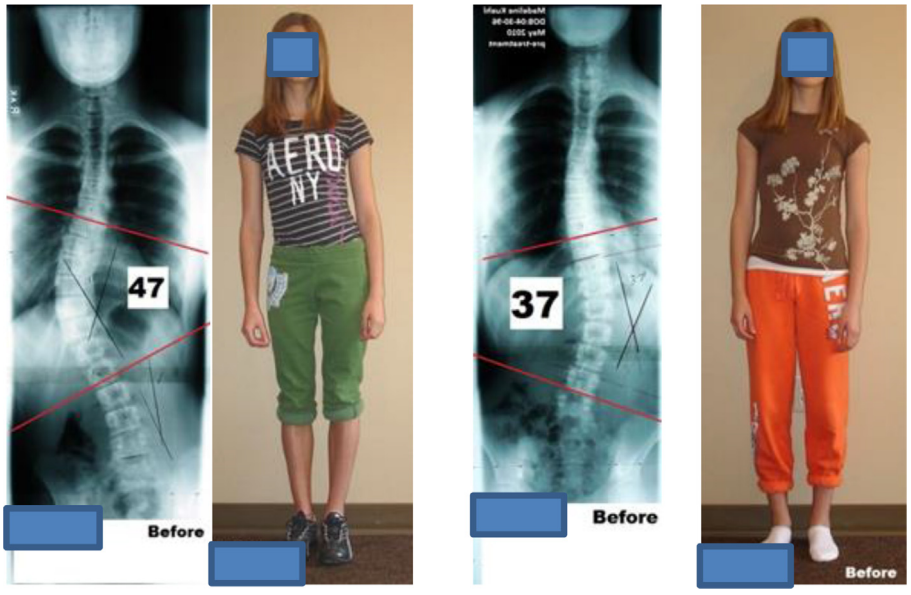

Figure 1 Radiographic Studies Prior to Treatment: (Pt A) —Thoracic 47° Cobb angle T7-L2 (Pt B) —Thoracolumbar 37° Cobb angle T11-L4.