P 1-90

Decompensation should be considered while managing AIS with bracing; a report of 2 cases

JeeYoung Kim[1*], Hyun dong Kim[1†], Nami Han[1], Mi ja Eom[1], Sang Hoon Jung[1], YunHo Kim[1], Hee Sung Nam[1]

Inje University Busan Paik Hospital, Department of Physical Medicine and Rehabilitation[1]

Introduction

Reduction of Cobb's angle is the most important factor estimating the prognosis of effect using orthosis. However, decompensation, one of other factors that could affect prognosis, was emphasized mainly in the cases of surgical treatment, and not studied with cases of orthosis treatment. This report compared two patients of adolescent idiopathic scoliosis (AIS). One had decompensation primarily and the other's decompensation occurred at first wear of orthosis.

Case report

Patient 1 experienced menarche 8 months ago. Tanner stage was Ⅱ, Risser stage was Ⅲ and height was 155.3cm. Initial X-ray presented double curve pattern, right thoracic and left thoracolumbar. The major curve was thoracolumbar curve and it was 35° of Cobb. Vertebral rotation was +2 by Nash-Moe technique. Decompensation was measured as 20mm to the left side. After wearing Boston Brace, in-brace X-ray represented the major curve reduced by 6°. Also decompensation was improved with 12 mm decrease. A change of pad position was done to reduce decompensation by placing thoracic pad 1 level upward and lumbar pad 1 level downward. After 5 months, follow up exam showed major curve decreased by 2°. Decompensation also decreased by 1.1mm. [Figure 1]

Patient 2 did not experienced menarche yet. Tanner stage was Ⅰ, Risser stage was Ⅰ and height was 146.7cm. Initial X-ray presented the same pattern of curve with patient 1. The major curve was thoracic curve and it was 35° of Cobb angle. Vertebral rotation was +1 by Nash-Moe technique. Decompensation was 1.2mm to the left side. After wearing Boston Brace, in-brace X-ray showed the major curve reduced by 16.5°. However, decompensation was aggravated with 4.3mm increase. A change of pad position was done to the brace. After 5 months, major curve increased by 15.5°. Decompensation also increased by 1.8mm. [Figure 2] More modification was done and this case is still on the treatment.

Conclusion

In case of patient 1, decompensation was observed initially, but we confirmed that Cobb's angle was decreased by correction of brace modification. In case of patient 2, decompensation was not observed initially, but Cobb's angle decreased and then increased again, because the decompensation occurred after wearing brace. [Table 1] By this report, we suggest that decompensation is important factor that must be considered in the manage of AIS using the orthosis. Our findings in these cases implies that

decompensation is also an important factor in treatment with orthsis, not only in patients with surgical treatment. Following up X-ray and checking decompensation can be an important predictive factor of scoliosis progression. An early modification of decompensation also can help patient's prognosis. This study has limitation that other factors except decompensation was not controlled

Table 1. Changes in parameters before and after treatment

	patient 1				patient2			
	Before treatment	Initial in-brace	After treatment	Chang of value	Before treatment	Initial in-brace	After treatment	Chang of value
Cobb's angle (°)	35	33	27	-8	35	18.5	34	-1
Decompensation(mm)	20	8	1.4	-18.6	1.2	5.5	7.3	+6.1

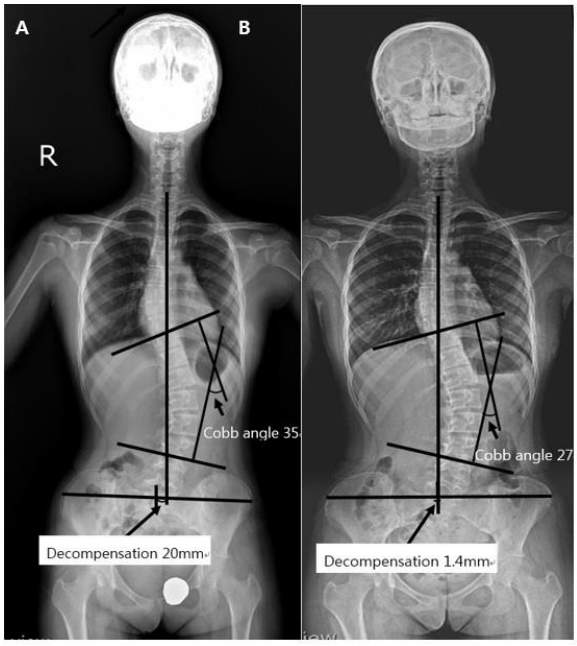

Fig 1. X-ray of patient 1. (A) Before brace (B) After 6 months Boston brace treatment

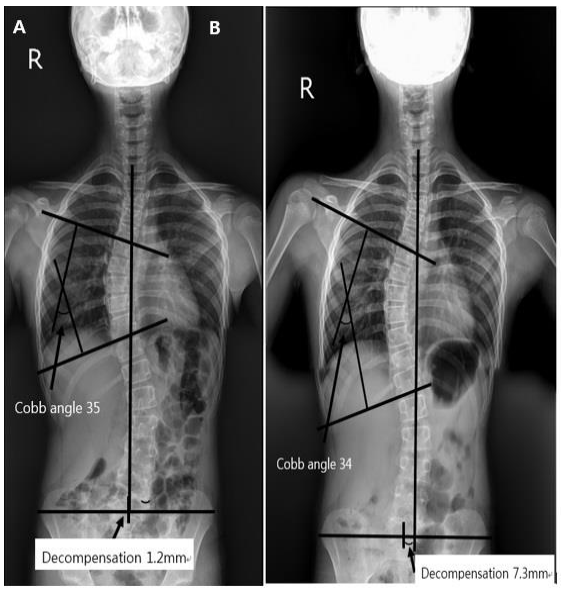

Fig 2. X-ray of patient 2. (A) Before brace (B) After 6 months Boston brace treatment