Scoliosis in children with myelomeningocele

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In a survey of 132 children with myelomeningocele, the prevalence and progression of scoliosis as well as the results of scoliosis treatment and the effects of that treatment were studied. In a cross-sectional clinical and radiological investigation it was established that scoliosis, defined as a curvature of 10 degrees or more, occurred in 69% of these children. This incidence varied depending on the level of the dysraphism: with thoracic levels 94% of the children had scoliosis while with sacral levels only 20% had scoliosis. The ambulatory status of the patients was correlated to the occurrence of scoliosis: 92% of non-ambulating patients and 38% of community ambulators had scoliosis.

In a 4.3 year longitudinal follow-up of 64 myelomeningocele patients with scoliosis, the average scoliosis progression was 4.5 degrees per year. The rate of progression was dependent of the size of the curve, the age of the patient and also the ambulatory status of the patient. The fastest yearly progression, 7.1 degrees, occurred in children 11–15 years old. In 54% of patients with scoliosis over 40 degrees, there was a progression of more than 5 degrees per year.

Treatment of scoliosis with Boston braces was started in 21 children. If the curvature was 45 degrees or less, treatment was successful in arresting progression and even succeeded in correcting the scoliosis in 11 of 12 patients followed more than 2 years after end of brace treatment. In patients with scoliosis larger than 45 degrees, the brace had a temporary effect in slowing down the progression before surgery was performed. The children's motor activities and activities of daily life were unaffected by the treatment. In no patient who was community or household ambulator was the ambulation capacity altered, although 30% of the children acquired hip flexion contractures after treatment. In 14 children operated for scoliosis with an average follow-up of 3.4 years after surgery, there was an impaired motor ability in all but one compared with their preoperative status. In 7 children hip flexion contractures increased and 8 children lost some ambulation capacity.

These studies show that scoliosis occurs commonly, in 69%, in patients with myelomeningocele. Without treatment, most spinal curves will progress. Treatment with braces is associated with few complications and prevents progression provided the scoliosis is less than 45 degrees at start of treatment. In severe scoliosis, surgical correction may lead to impaired motor function. It is recommended, that these children are screened for scoliosis already at age 7 so that early treatment can be instituted if necessary.