

Poster 33

CASE SERIES REPORT OF ATYPICAL LUMBAR SCHEUERMANN'S DISEASE TREATED WITH BRACES AND PHYSIOTHERAPEUTIC SPECIFIC EXERCISES

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Introduction

In adolescents, the prevalence of Scheuermann's Disease (SCHD) varies from 0.4% to 10%, while there are no studies about the precise prevalence of Atypical Lumbar type SCHD (ALSD). ALSD could cause back pain, poor posture, stiffness increase, and reduced flexibility. The gap of knowledge about ALSD could be explained by the high percentage of not diagnosed or misdiagnosed cases.

Objective (s)

This study aims to retrospectively review all the patients with exclusive ALSD in treatment in our Institute to analyse their clinical characteristics, describe the treatments performed, related results and their determinants in terms of pain and vertebral deformation.

Study Design

Case series report

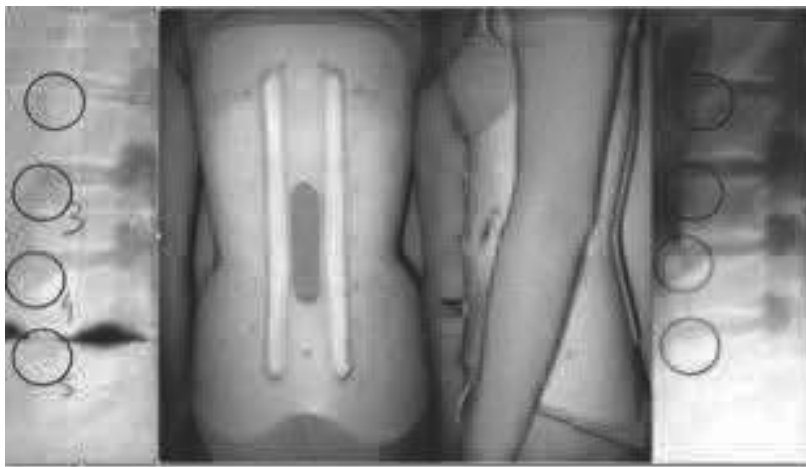
Methods

We searched our electronic clinical charts and included all children under age 18 prospectively diagnosed with ALSD. Our Institute is a tertiary outpatient facility specialized in spinal disorders conservative treatment during growth. According to the treatment, we divided participants into two groups: subjects who performed specific stabilization exercises only, and participants who wore a full-time (20 to 23 hours/day) Lapadula monovalve lordotizing brace (always with stabilization exercises). Due to the scarce knowledge about treatment efficacy, choices for bracing or exercises were driven mostly by physicians' expertise and patients' values in a shared decision making process. We collected clinical (*SRS-22 questionnaire, lumbar and thoracic stiffness, angle of trunk rotation degrees, height of the hump, scoliosis and hyperkyphosis stiffness, neurological signs,*) and x-ray data (*European Risser sign, spinal curvatures magnitude, kyphosis and lordosis Cobb angle, wedging angle of vertebrae with Scheuermann's Disease*). We considered the end of treatment according to prescription or achievement of European Risser 3 sign. To evaluate treatment effectiveness, all measurements were taken before and after treatment, with treatment conclusion defined as no estimated further risk of progression.

Results

Abstracts

Out of 11891 children, 435 had SCHD (3.6% - 56.3% males), of which 47 (10.8%) had ALSD (55.3% males). 50% ALSD presented with pain (SRS scale: 3.2 ± 0.5 , function 3.9 ± 0.4) since an average of 7.2 ± 2.7 months. Twelve (7 males, age 13 ± 2) completed 30 ± 25 months of treatment (5 still in treatment, 16 second opinion, 8 dropout, 6 incomplete radiographs): 7 exercises, 5 bracing. At start, braced patients had more SCHD vertebrae (3 with 7.4° wedging vs 2 and 7.7° , respectively). At 6 months follow-up we observed pain resolution (average 3.8 ± 0.2) apart 1 braced and 2 exercises needing 12 months. Pain recurrences: none in bracing, 3 in exercises. On average, in brace the wedging angle reduced by 3° (range $3-10^\circ$) and progressed 1.6° ($8-12^\circ$) in the exercises group. The figure shows the brace and SCHD vertebrae improvement in one patient after 12 months of treatment.



Conclusion and significance

Bracing and exercises can effectively treat pain due to ALSD. Contrarily to exercises, brace treatment improves lumbar vertebral body growth and pain control.