It's All About That Bass:

Possible Instrument-Related Scoliosis and Axial Spine Pain in a Young Musician

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Case report

A 19-year-old female musician presented with several years of diffuse cervical, thoracic, and lumbar spine pain, with acute worsening five weeks before evaluation. She had played upright bass since adolescence.

Symptoms were exacerbated by playing, which required prolonged standing, asymmetric positioning, and sustained upper-extremity elevation. Sitting and lumbar extension worsened pain, while standing provided partial relief.

She denied prior scoliosis, trauma, neurologic disease, or rheumatologic disorders. She denied radicular symptoms, weakness, gait disturbance, bowel or bladder dysfunction, or constitutional symptoms.

Examination

Examination demonstrated normal strength, sensation, and reflexes. Diffuse cervical, thoracic, and lumbar paraspinal tenderness was present with positive bilateral facet loading maneuvers. Mild levoscoliosis was appreciated on forward bend testing, while spinal range of motion remained preserved.

Imaging

Total-spine radiographs demonstrated mild upper thoracic and lower lumbar levocurvature with mid-thoracic dextrocurvature, reversal of cervical lordosis, and early multilevel thoracic degenerative disc disease. No significant sagittal listhesis, leg length discrepancy, or disc space loss was identified.

Management

Prior treatment with ibuprofen and cyclobenzaprine provided minimal benefit. The patient was treated with physical therapy and conservative medical management.

CLINICAL TAKEAWAY

Instrument ergonomics may be an overlooked contributor to axial spine pain in young musicians

Assess playing posture, asymmetric loading, and instrument fit.

Sustained arm elevation and prolonged postural strain may contribute to maladaptive spinal mechanics, particularly during adolescent growth.

This case supports a possible biomechanical contribution to pain. Causation of scoliosis cannot be definitively established.

Introduction

Musculoskeletal pain syndromes are common among musicians due to repetitive movements, prolonged static postures, and asymmetric loading.[1-3,5] Upright bass performance requires sustained arm elevation, trunk rotation, and uneven weight distribution, potentially creating chronic spinal stress.

While overuse injuries in musicians are well described, the relationship between instrument ergonomics, spinal curvature development, and chronic axial pain remains incompletely understood.

Discussion

The patient’s curvature abnormalities, reversal of cervical lordosis, and pain provocation during performance support a biomechanical contribution.

During adolescence, the patient experienced substantial linear growth while continuing to play the same instrument. It is possible that she effectively outgrew the instrument, resulting in progressively maladaptive playing mechanics and altered spinal positioning over time.

Multidisciplinary treatment approaches including physical therapy focused on postural correction, core stabilization, ergonomic instrument modification, activity modification, and pain management strategies may be beneficial.[4]

References

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Materials and Methods: This case report contains no patient-identifiable information and is exempt from IRB review in accordance with NYU institutional policy. Informed consent for publication of case report was obtained from the patient. All protected health information has been de-identified.