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Neglected congenital muscular torticollis with atlantoaxial rotatory subluxation : a case report

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Introduction

Congenital muscular torticollis (CMT) is a common musculoskeletal condition in infancy caused by unilateral shortening or fibrosis of the sternocleidomastoid muscle, resulting in head tilt and limited cervical motion. Although most cases respond well to early conservative treatment, delayed or inadequate management may lead to persistent deformity and secondary musculoskeletal complications. Neglected CMT persisting into late childhood or adolescence may lead to progressive musculoskeletal complications, such as fixed cervical deformity, craniofacial asymmetry, compensatory scoliosis, and, rarely, secondary atlantoaxial rotatory subluxation (AARS). The coexistence of these deformities during growth presents significant diagnostic and therapeutic challenges.

Case report

A 12-year-old girl presented to a rehabilitation clinic with a persistent right-sided neck tilt since early childhood. She was born at 38 weeks of gestation with a birth weight of 2.8 kg and required incubator care for one month after birth. The patient had received nonstandard treatments, including herbal medication and acupuncture, for approximately four years without improvement. Physical examination revealed a fixed right neck tilt of approximately 30 degrees, tightness and hypertrophy of the right sternocleidomastoid muscle without a palpable mass, limited cervical range of motion, facial asymmetry, and postural imbalance suggestive of compensatory scoliosis. Ultrasonography demonstrated fibrotic thickening of the right sternocleidomastoid muscle measuring 0.97 cm, compared with 0.67 cm on the left side. Computed tomography and magnetic resonance imaging confirmed atlantoaxial rotatory subluxation without spinal cord compression or ligamentous injury. Ophthalmologic examination revealed no evidence of strabismus or other ocular abnormalities.

Based on clinical and radiologic findings, the patient was diagnosed with neglected congenital muscular torticollis with secondary atlantoaxial rotatory subluxation, craniofacial asymmetry, and compensatory scoliosis. An orthopedic consultation was obtained, and the patient underwent right-sided bipolar release of the sternocleidomastoid muscle. Postoperatively, she continued outpatient rehabilitation with a structured cervical stretching program. At postoperative day 30, improvement in neck alignment and cervical range of motion was observed without complications.

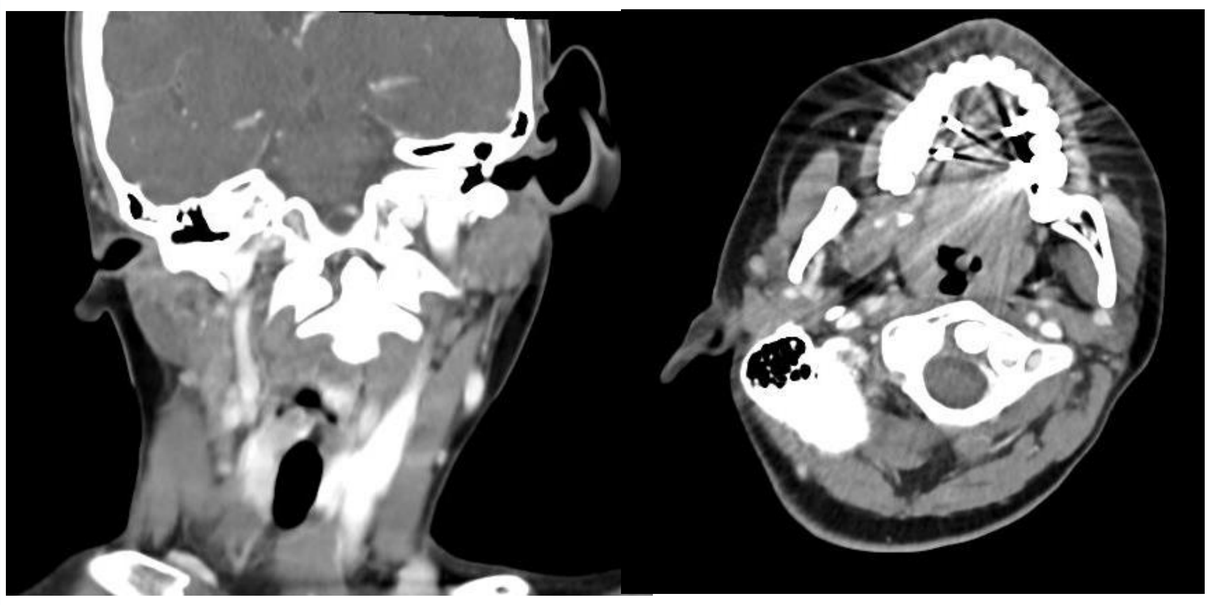

Fig. 1. Axial and coronal computed tomography images demonstrate rotational malalignment of the atlas and axis, consistent with atlantoaxial rotatory subluxation.

Fig. 2. Ultrasonography demonstrates asymmetric thickening of the right sternocleidomastoid muscle (0.97 cm) compared with the left side (0.67 cm), consistent with congenital muscular torticollis.

Conclusion

Neglected congenital muscular torticollis in adolescents may lead to progressive growth-related deformities, including craniofacial asymmetry, fixed cervical malalignment, compensatory scoliosis, and, in rare cases, atlantoaxial rotatory subluxation. Early recognition and timely intervention are crucial to prevent irreversible structural changes. Even with delayed treatment, surgical correction combined with structured rehabilitation can provide meaningful functional and cosmetic improvement, although long-term follow-up remains essential.