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Posterior arch defects

Hearty congratulations to the authors for their publication on posterior arch defects (Selvam NP, Hansen M, Kashtwari D. Incidental findings of posterior arch defects of the atlas in orthodontic patients: a case series. Am J Orthod Dentofacial Orthop 2020;158:35-9). It was noteworthy that they recognized that the orthodontist might be the first to see, recognize, and report such findings, being the first to take cephalometric films to identify such anomalies. Highlighting the clinical significance of these entities, the authors' stated primary goal was well done, as well as pointing out how "the diagnosis of these defects could lead to a major lifestyle change." That is a correct assessment.

As doctors of orthodontics, we all attended courses in anatomy and physiology, and thus, should be very familiar with structures of the head and neck areas. Nevertheless, it is rather rare to see the recognition of cervical pathologies included in the diagnosis of our patients. Again, my congratulations to the authors and to the instructors who them to recognize these pathologies.

I do have a concern that was not mentioned in the article. The vertebral arteries, left and right, arise from the subclavian arteries and course upward through the outer lateral extremities of the transverse process of each cervical vertebra. At the upper extreme of the first cervical vertebra, these turn medially and upward, entering the foramen magnum, where they run anteriorly to join with the internal carotid to form the circle of Willis. Disturbance of any cervical vertebral structures can disrupt vascular supply to the internal cranium.[1] This results in anoxia to the brain. Varying degrees of headache are the customary disturbing result. Did the patients report cephalgia? Did the patients complain of cervicalgia?

The absence of the posterior arch of the first cervical artery would seemingly, or undoubtedly, alter the blood flow to the brain and dura mater, but no reference to this was made in the article. It would be most interesting to hear whether this was noted and reported in some part of these patients' records. What was the immediate complaint, if any, for these patients?

The authors did point out that these patients may be more prone to spinal cord injuries and should be cautioned to avoid contact sports. This being true, I am wondering what the authors' council is when straightening or reverse curve of the cervical spine is noted (kyphosis, also now referred to as "text-neck")? This was also noted in the cephalometric films displayed in your article. This is very common now in our cell phone, video gaming world.

Guzay's quadrant theorem[2] displays that the center of rotation of the mandible is between the first and second cervical vertebra. Did the absence of the posterior arch of the first cervical vertebra alter the function of the mandible in any way? This might be a substance for a future article. Please keep them coming. It was a pleasure to see the study of orthodontics expanded beyond teeth to the anatomic areas observable in our films that are also so important to the health of our patients.

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