**Short Report:**

**Kimmerle Anomaly – An Important Anatomical Variation**

**Authors:**
Serghei Covantev, Department of Anatomy,
Natalia Mazuruc, Student, Department of Anatomy,
Olga Belic, Associate Professor, Department of Anatomy,
State University of Medicine and Pharmacy «Nicolae Testemitanu», 165, Stefan cel Mare si Sfant, Bd. MD-2004, Chisinau, Republic of Moldova.

**Address for Correspondence**
Serghei Covantev,
165, Stefan cel Mare si Sfant,
Bd. MD-2004, Chisinau,
Republic of Moldova.
E-mail: Kovantsev.s.d@gmail.com.

**Citation**

Abstract: The anatomy of the first vertebra, namely atlas, has significant clinical implications. One of the clinically significant anatomical variants is the presence of an arcuate foramen. Arcuate foramen of atlas is an ossification of the oblique atlanto-occipital ligament superior to the vertebral artery groove of the atlas. The vertebral artery, which passes under these bony projections, can be compressed along with the suboccipital nerve causing a variety of symptoms. We present a series of anatomical case reports from a collection of 50 atlases with their analysis and brief review of their clinical significance. This anomaly is an underestimated structure, which is important to take into account in case of patients with a headache, vertigo, shoulder and arm pain. Therefore, healthcare providers, including neurologists, neurosurgeons and vertebrologists should be aware of this clinically significant variation.

**Case Reports**
During the examination of 50 atlases, four cases of arcuate foramen were encountered: three partial arcuate foramen (6%; fig. 1) and a case of complete arcuate foramen (2%; fig. 2). The rest of the vertebra had a normal anatomy (92%; fig. 3). The vertebra with partial arcuate foramen had ossified projections of 5-9 mm (medium 7.1 mm). In the rare case of the complete arcuate foramen, there was a narrow foramen for the vertebral artery. The mean anteroposterior length of the atlas was 42.1±4.6 mm and the anteroposterior length of the vertebral canal was 38.2±3.7 mm. The mean transverse dimension of the vertebra was 53.2±3.8 mm and of the vertebral canal 42.2±4.9 mm. There was no statistical difference between the dimensions of the atlases with arcuate foramen compared to those without assessed by Student’s t-test (p>0.05).

**Fig 1: Partial arcuate foramen**
The arcuate foramen can be responsible for symptoms in 14-78% of cases and can be often overlooked by healthcare providers.

References