

VERTEBROBASILAR ANATOMY AND CLINICAL IMPLICATIONS: PRELIMINARY STUDY



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INTRODUCTION

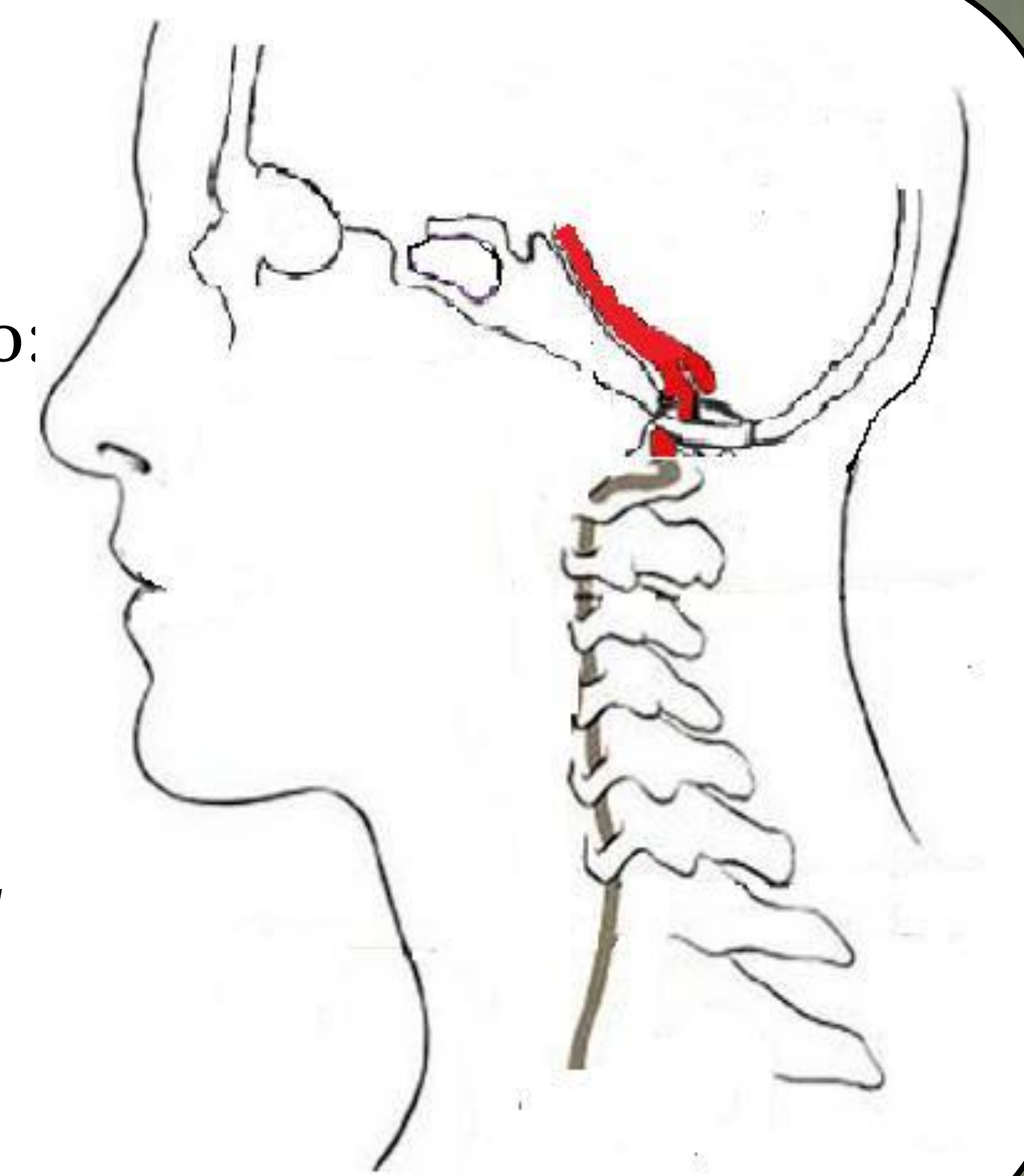
The vertebrobasilar complex consists of paired vertebral artery and unpaired basilar artery arranged in a rather variable geometric configuration. Its spatial arrangement would probably influence the physiological properties of its blood flow. The vertebrobasilar complex is located on the internal skull base sloping in a rostrad direction away from the foramen magnum. This makes its accessibility during dissection as well as in imaging rather complicated and hard to obtain. Consequently, the anatomical knowledge of this area features some gaps.

PURPOSE

A pilot assessment to initiate an extensive anatomical analysis of the vertebrobasilar complex.

MATERIALS & METHODS

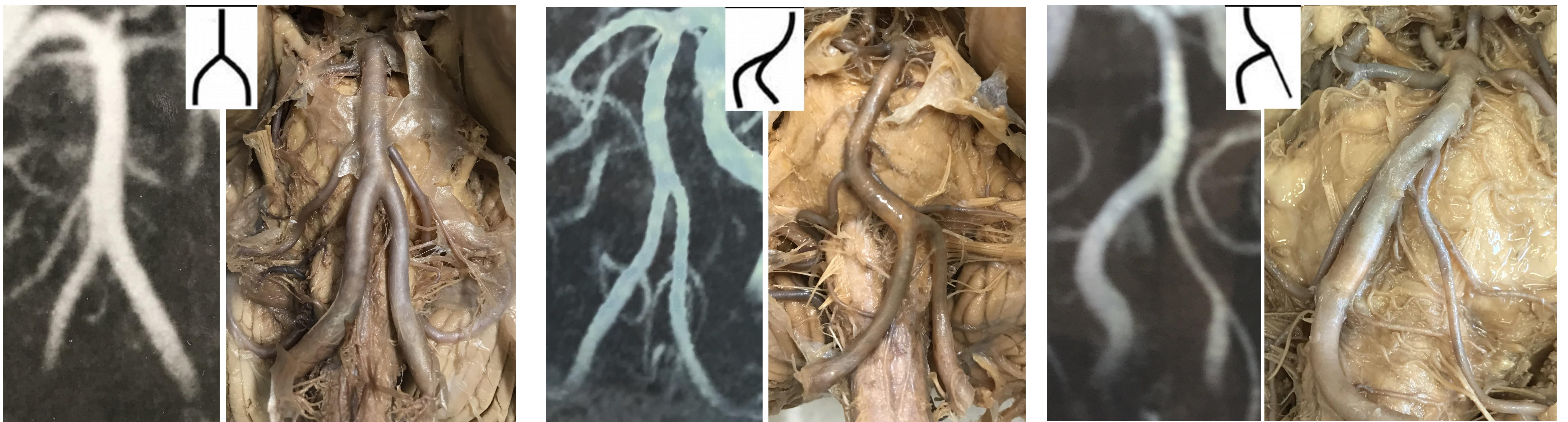
- 1) Scoping review was conducted to survey the vertebrobasilar complex configuration. The suggested configuration found in the literature was used as a reference to evaluate a collective samples of 110:
 - Six retrospective vertebrobasilar complex angiography
 - Eight cadaveric brain vertebrobasilar complex
 - 96 vertebrobasilar complex samples found in the literature
- 2) The vertebrobasilar complex was classified into three categories based on its shape as follows:
 - Tuning fork type – two equal vertebral arteries forming a symmetrical confluence at the basilar artery origin
 - Walking type – two equal vertebral arteries bending in the same direction before the confluence at the basilar artery origin
 - Lambda type – one dominant vertebral artery and the other one smaller and forming a pseudo T-junction



RESULTS & DISCUSSION

Result of the scoping review:

- Only two collected articles investigating the vertebrobasilar complex geometrics.
- Configuration on retrospective angiographs.
- No cadaveric study of the vertebrobasilar complex geometric configuration was found in the literature.



Tuning fork (23/110)

Walking (22/110)

Lambda (65/110).

- Majority of the vertebrobasilar complexes (Lambda type – 59.09%) showed asymmetrical form of the vertebral artery accompanied by a curved basilar artery.
- In the Walking type, the basilar artery took a counter-curved direction to that of the vertebral artery.
- Only 20.91% (Tuning fork type) showed symmetrical non-curved vessels.
- The remaining 79.09% exhibited configurations that seem to be a consequence of vascular remodelling changes associated with the blood flow dynamics.

CONCLUSIONS

The anatomical-physiological relationship of this varying geometric configuration needs to be investigated further. The vertebrobasilar complex geometric anatomy, although known, has not yet been classified into a practical types.

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Oct.2020



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