

# **SUBOCCIPITAL TRIANGLE**

# Suboccipital Triangle

*Between the Obliqui and the Rectus capitis posterior major is the **suboccipital triangle**.*

*It is bounded,*

- Above and medially, by the Rectus capitis posterior major*
- Above and laterally, by the Obliquus capitis superior*
- Below and laterally, by the Obliquus capitis inferior.*

*It is covered by a layer of dense fibro-fatty tissue, situated beneath the Semispinalis capitis.*

*Floor is formed by the posterior occipito-atlantal membrane, and the posterior arch of the atlas.*

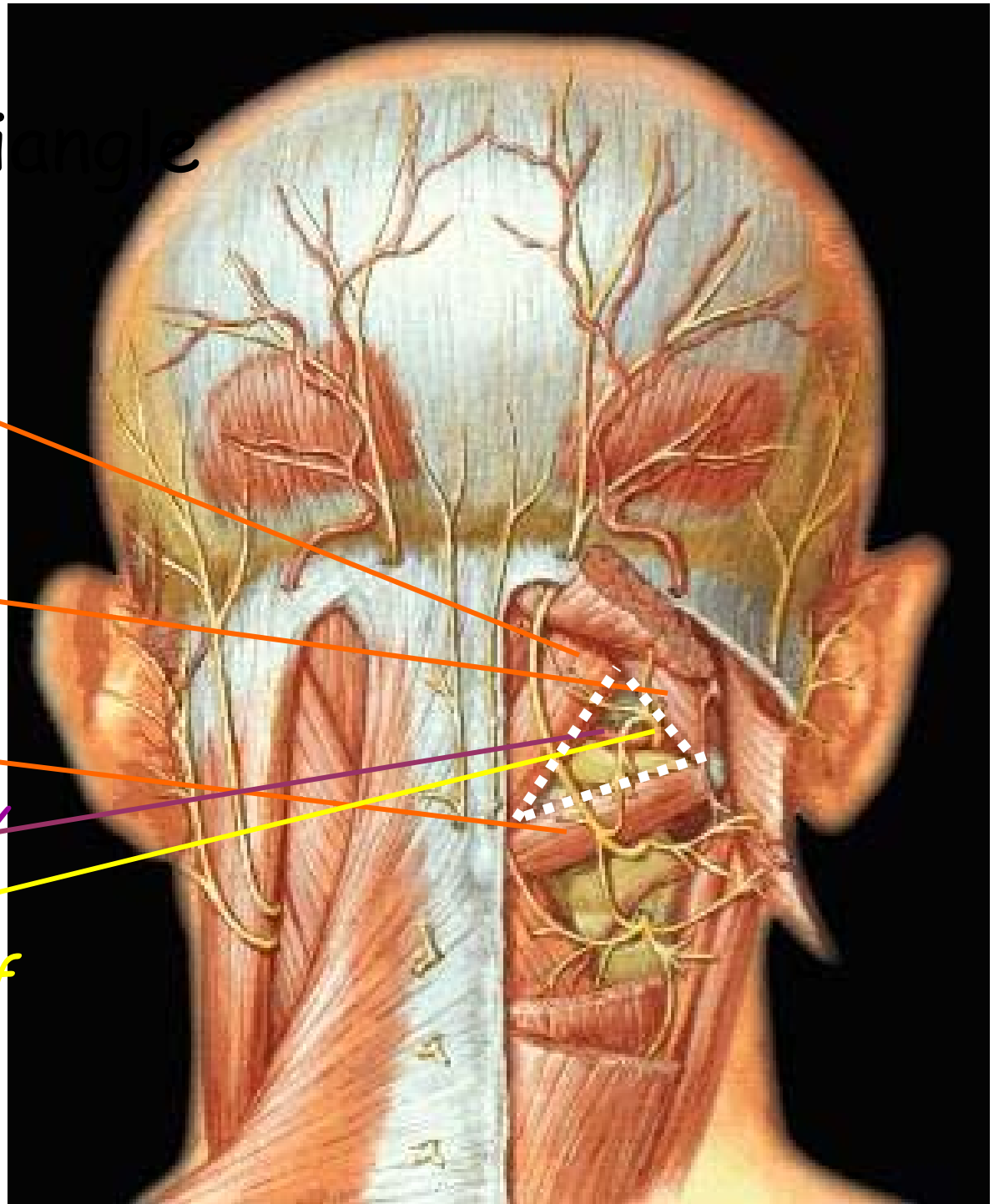
*In the deep groove on the upper surface of the posterior arch of the atlas are the*

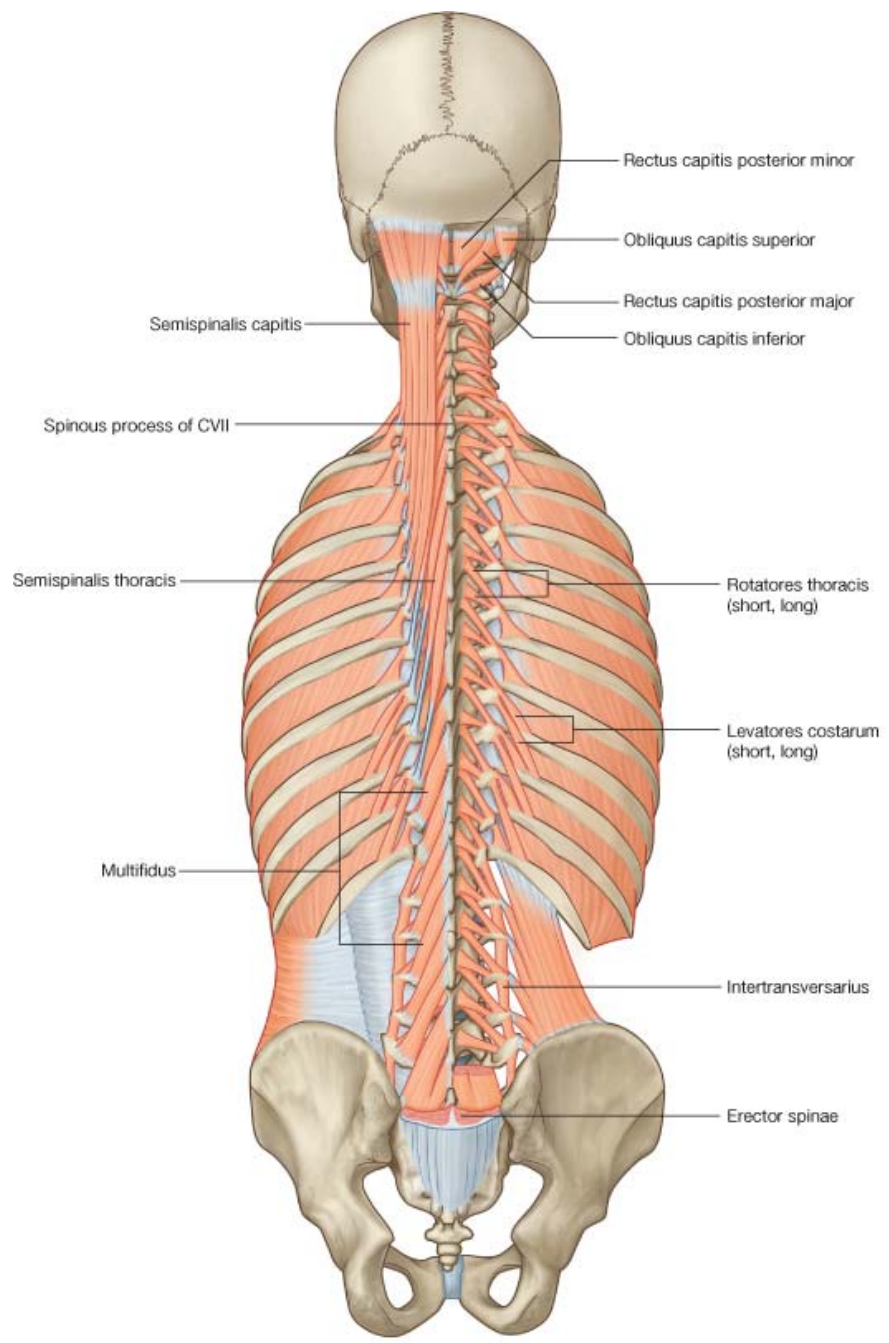
- *vertebral artery*
- *the first cervical or suboccipital nerve.*

*The deep muscles of the back and the suboccipital muscles are supplied by the posterior primary divisions of the spinal nerves.*

# Suboccipital Triangle

- *Rectus Capitis Posterior Major*
- *Superior Rectus Oblique*
- *Inferior Rectus Oblique*
- *Vertebral Artery*
- *Suboccipital N (Dorsal Ramus Of C1)*



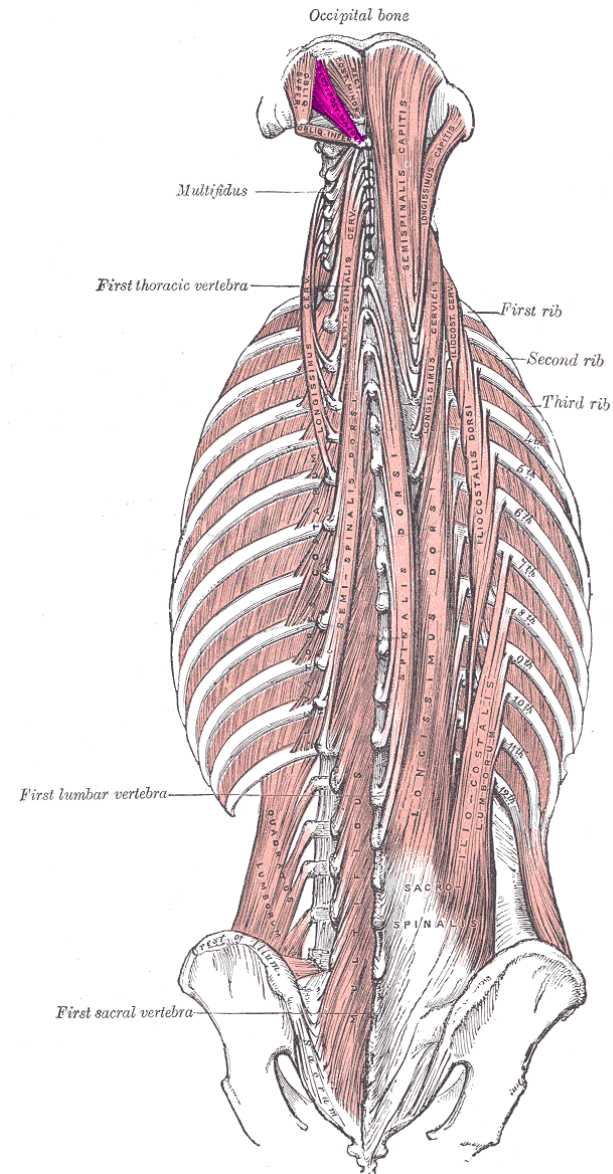


# Rectus capitis posterior major

*Arises by a pointed tendon from the spinous process of the axis, and, becoming broader as it ascends*

*Inserted into the lateral part of the inferior nuchal line of the occipital bone and the surface of the bone immediately below the line.*

*As the muscles of the two sides pass upward and lateralward, they leave between them a triangular space, in which the Recti capitis posterior minor are seen.*



# Rectus capitis posterior minor

*Arises by a narrow pointed tendon from the tubercle on the posterior arch of the atlas, and, widening as it ascends*

*Inserted into the medial part of the inferior nuchal line of the occipital bone and the surface between it and the foramen magnum.*

# Obliquus capitis inferior

*the larger of the two Oblique muscles*

*Arises - from the apex of the spinous process of the axis, and passes laterally and slightly upward*

*insertion - into the lower and back part of the transverse process of the atlas.*



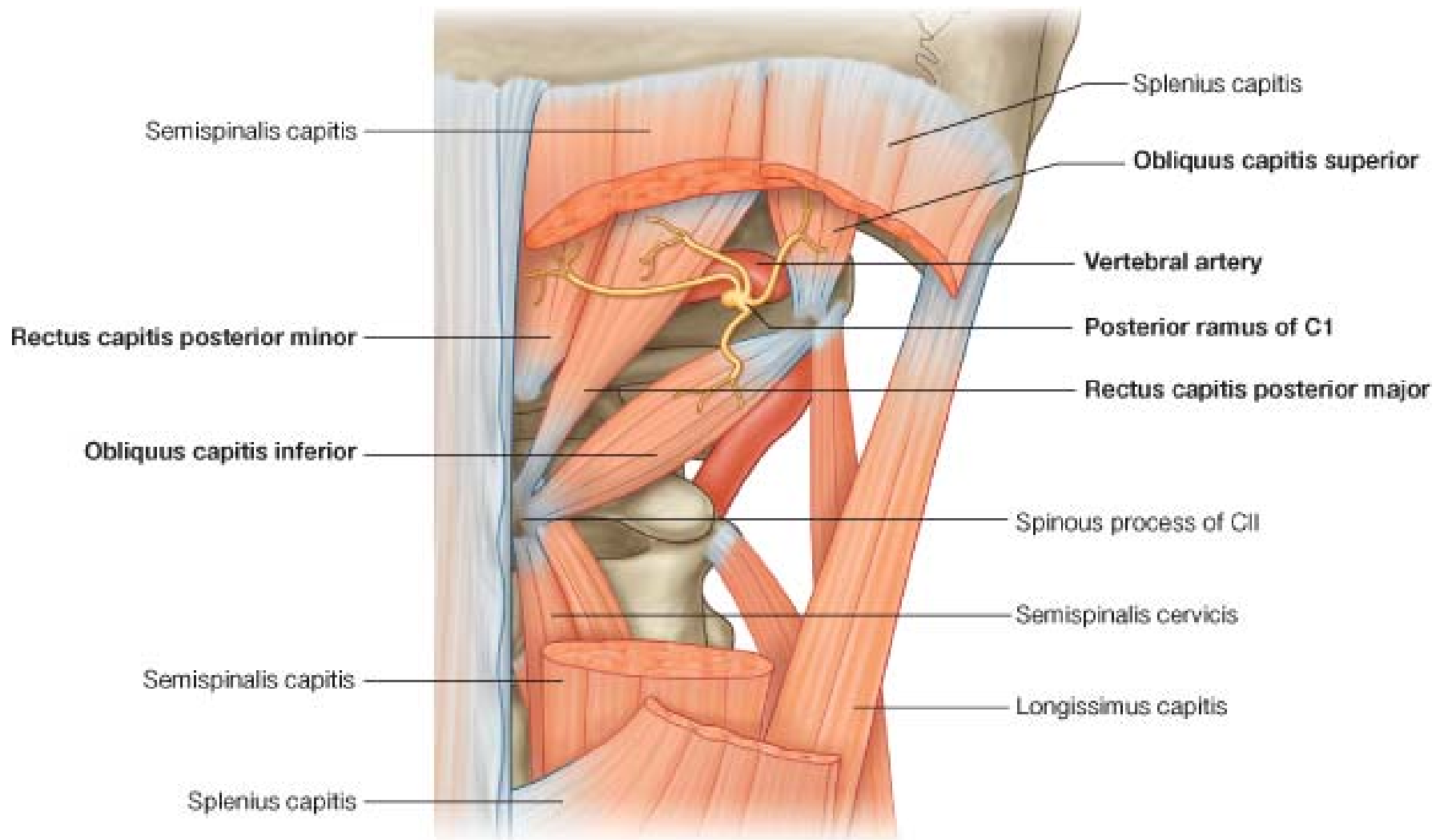
# Obliquus capitis superior

*narrow below, wide and expanded above,*

*Arises by tendinous fibers from the upper surface of the transverse process of the atlas, joining with the insertion of the obliquus capitis inferior.*

*It passes upward and medially*

*Inserted into the occipital bone, between the superior and inferior nuchal lines, lateral to the Semispinalis capitis.*



Semispinalis capitis

Splenius capitis

Obliquus capitis superior

Vertebral artery

Rectus capitis posterior minor

Posterior ramus of C1

Rectus capitis posterior major

Obliquus capitis inferior

Spinous process of C1

Semispinalis cervicis

Semispinalis capitis

Longissimus capitis

Splenius capitis

*The Rectus capitis posterior major, owing to its obliquity, rotates the skull, with the atlas, around the odontoid process, turning the face to the same side.*

*The Obliquus capitis superior draws the head backward and to its own side. The Obliquus inferior rotates the atlas, and with it the skull, around the odontoid process, turning the face to the same side.*

# Vertebral artery

*They arise, one on each side of the body, then enter deep to the transverse process of the level of the 6th cervical vertebrae (C6)*

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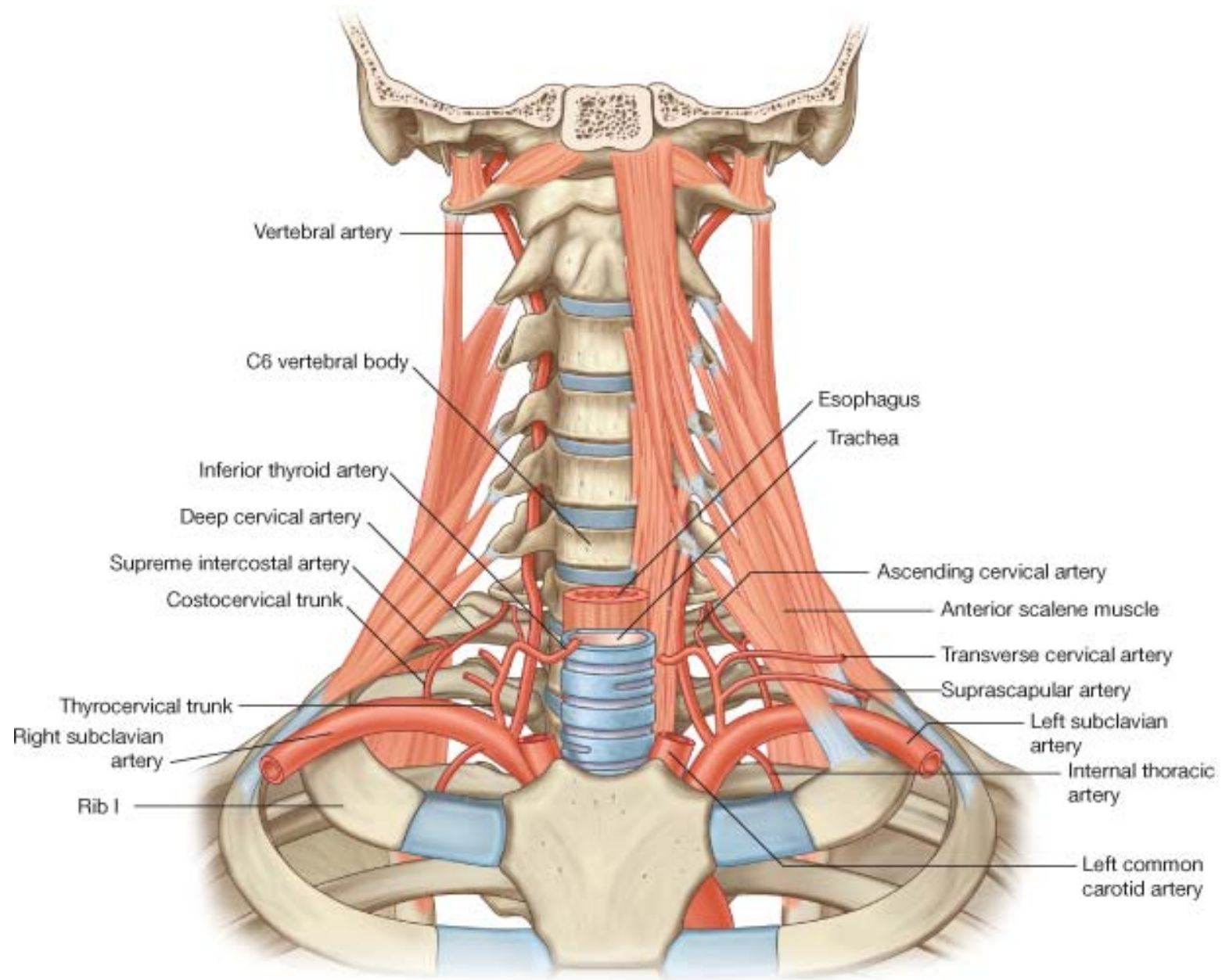
*It then proceeds superiorly, in the transverse foramen (foramen transversarium) of each cervical vertebrae until C1*

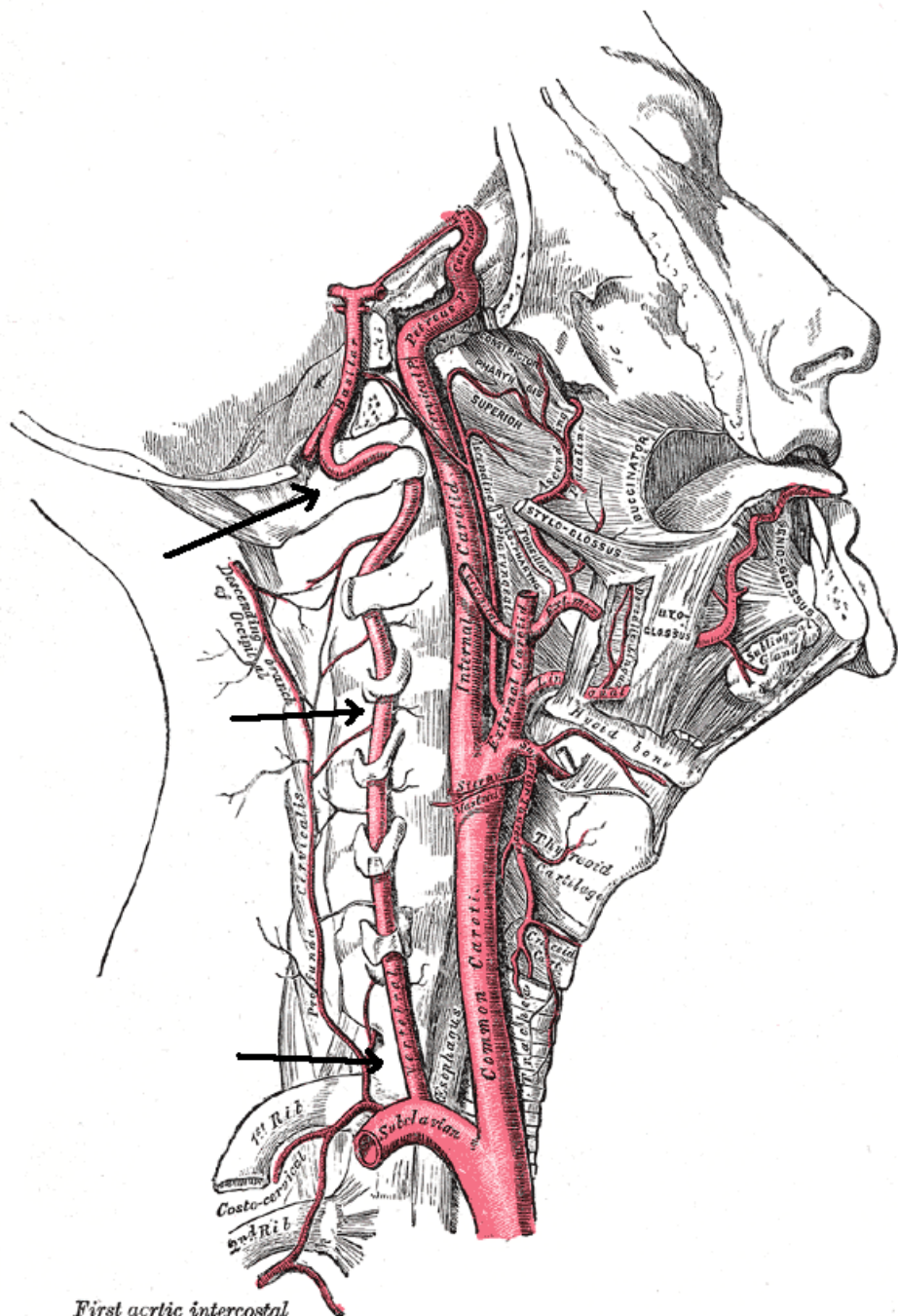
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*This path is largely parallel to, but distinct from, the route of the carotid artery ascending through the neck*

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*At the C1 level the vertebral arteries travel across the posterior arch of the atlas before entering the foramen magnum.*





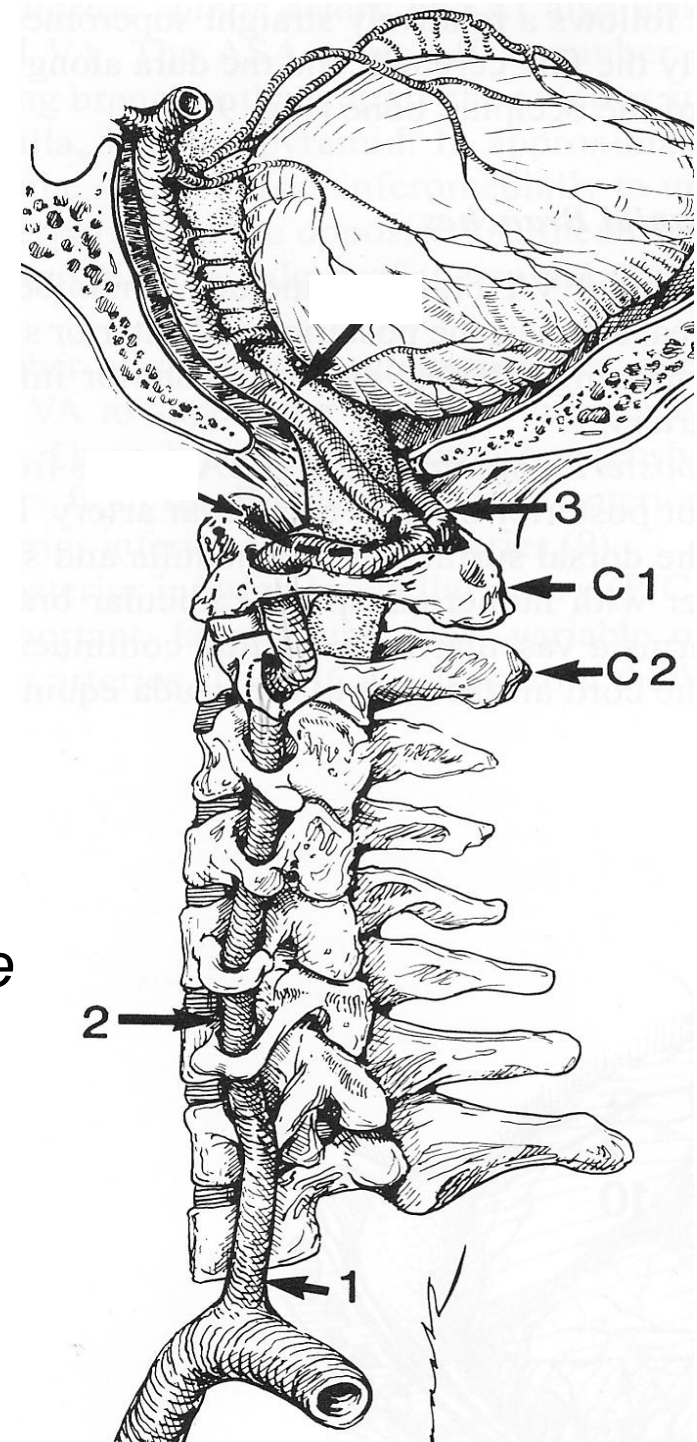
First aortic intercostal

The **extradural** part consists of 3 segments:

**V1** origin at subclavian a → lowest transverse foramen (usually **C6**)

**V2** ascending in foramen of the transverse processes of C6→C1

**V3** passes medially behind lateral mass of C1 and across the groove on the upper surface of the lateral part of the posterior arch of the atlas; then foramen magnum → dura



*V3: passes medially behind lateral mass of C1 and across the groove on the upper surface of the lateral part of the posterior arch of the atlas; then foramen magnum → dura*

*Partially covered by atlantooccipital membrane, rectus capitis, and is surrounded by a venous plexus made up of anastomoses from deep cervical and epidural veins.*

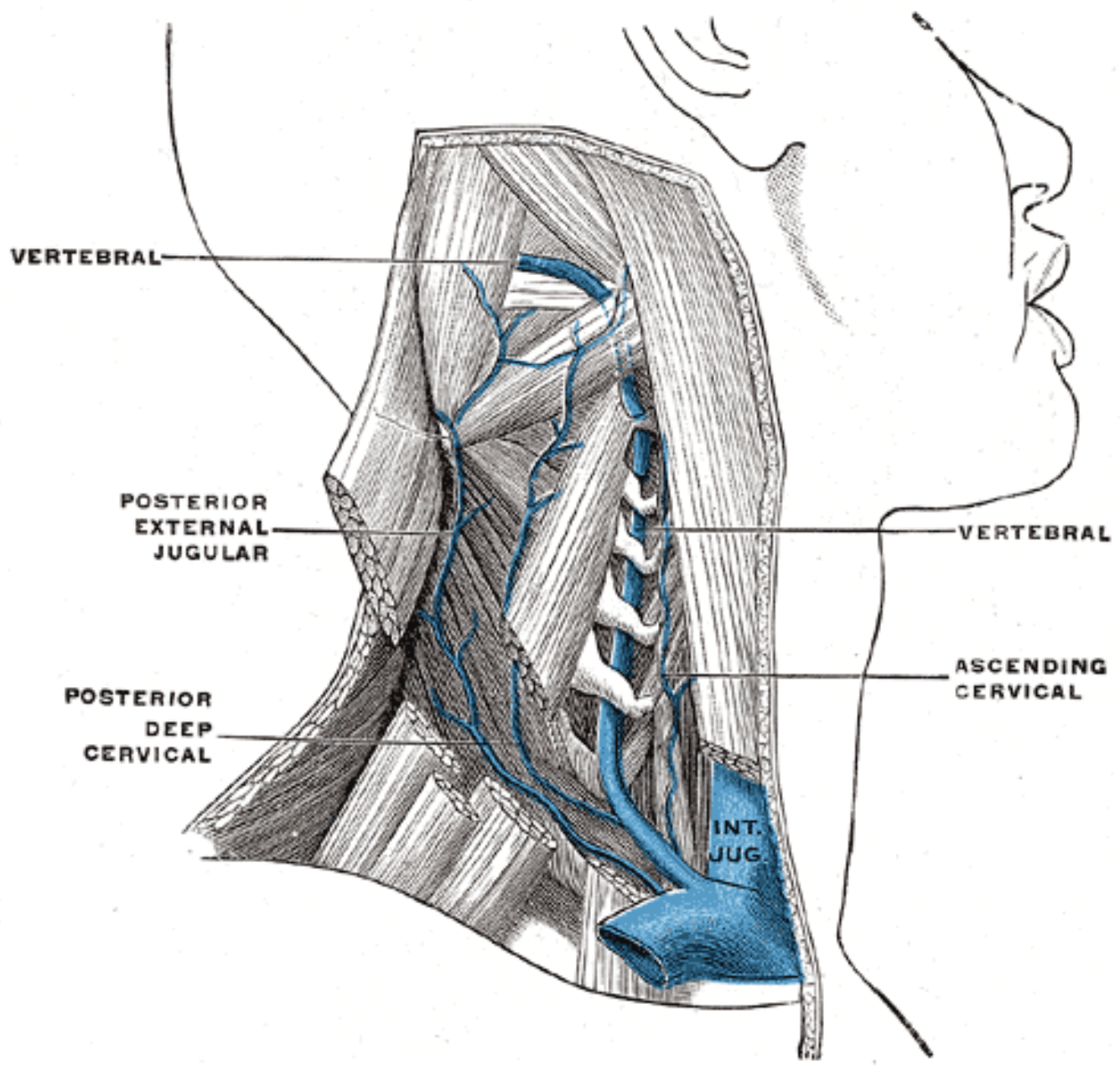




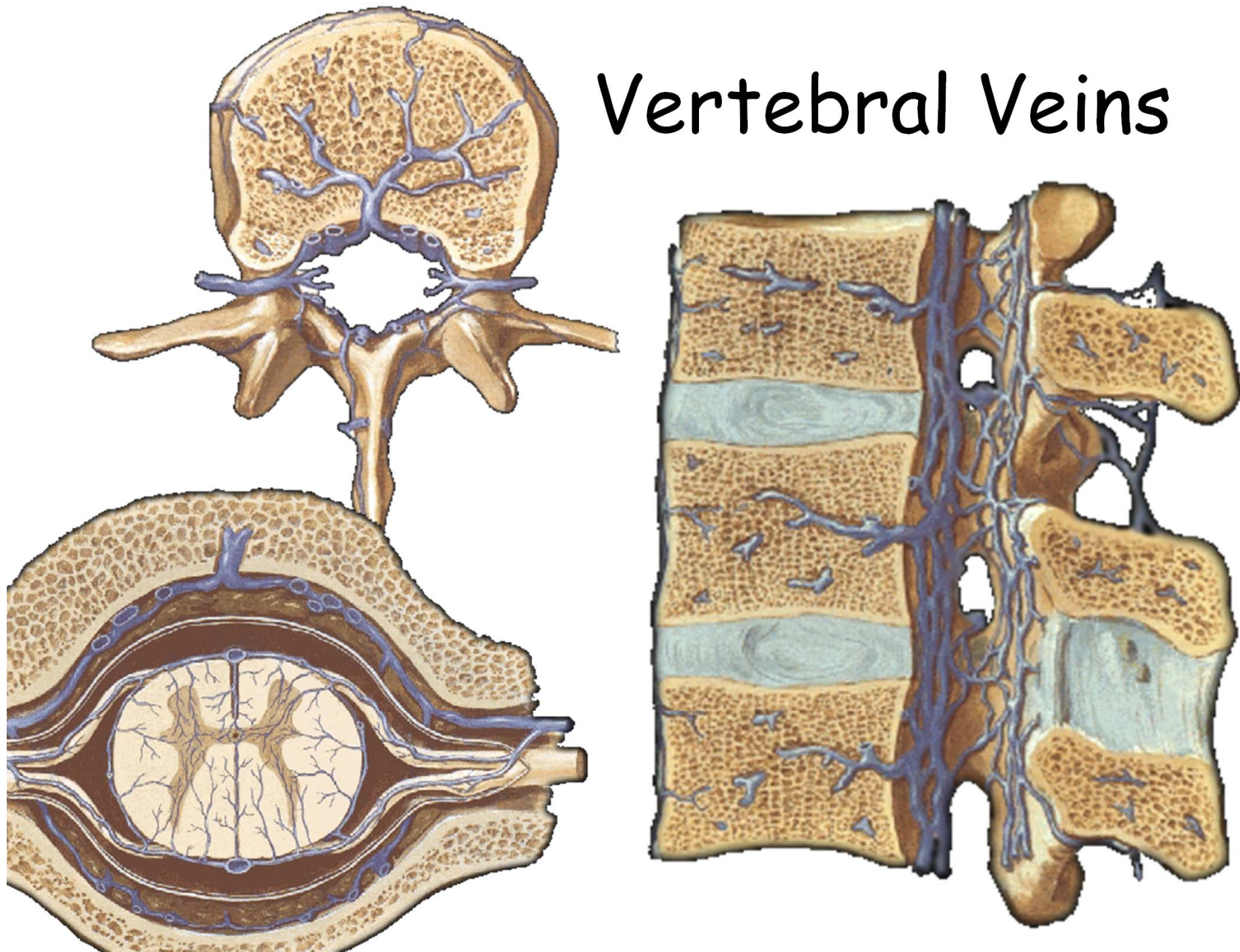
- *Ascends through foramen transversaria*
- *Accompanied by vertebral veins and sympathetic plexus fibers from cervicothoracic ganglion*
- *Medial to intertransverse muscles*
- *Lateral bend at atlas*
- *Curve back on superior surface of atlas*
- *At transverses articular process, dorsal arch of atlas, rostral to dorsal ramus of 1<sup>st</sup> cervical nerve*

# VERTEBRAL VEIN

- *In the suboccipital triangle, many small tributaries from internal vertebral venous plexus join small veins to form vertebral vein*
- *This vein enters the foramen in atlantal transverse process and forms a plexus around vertebral artery descending through successive transverse foramen.*
- *Vertebral vein descends*
  - behind internal jugular vein*
  - in front of first part of subclavian artery*

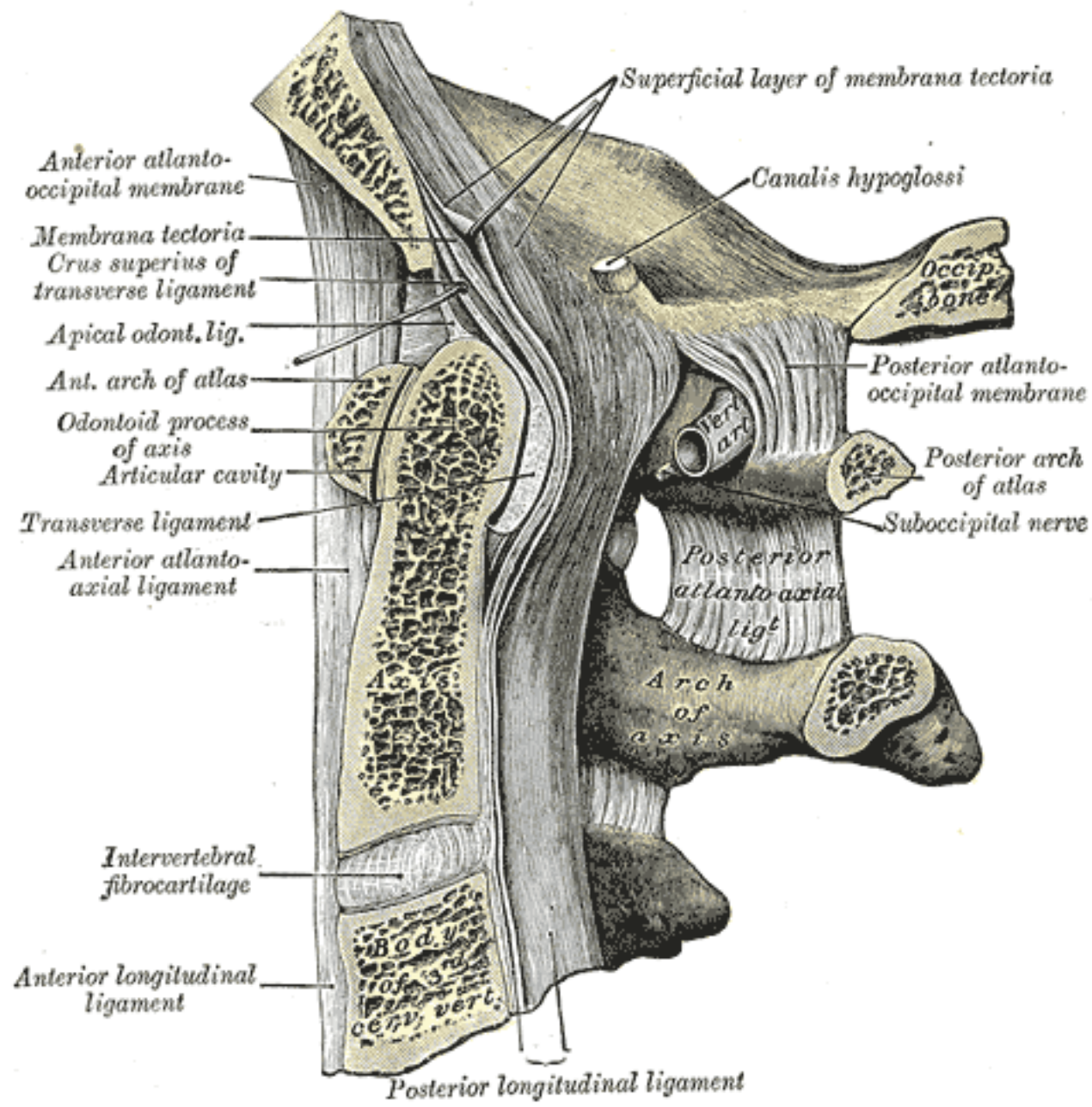


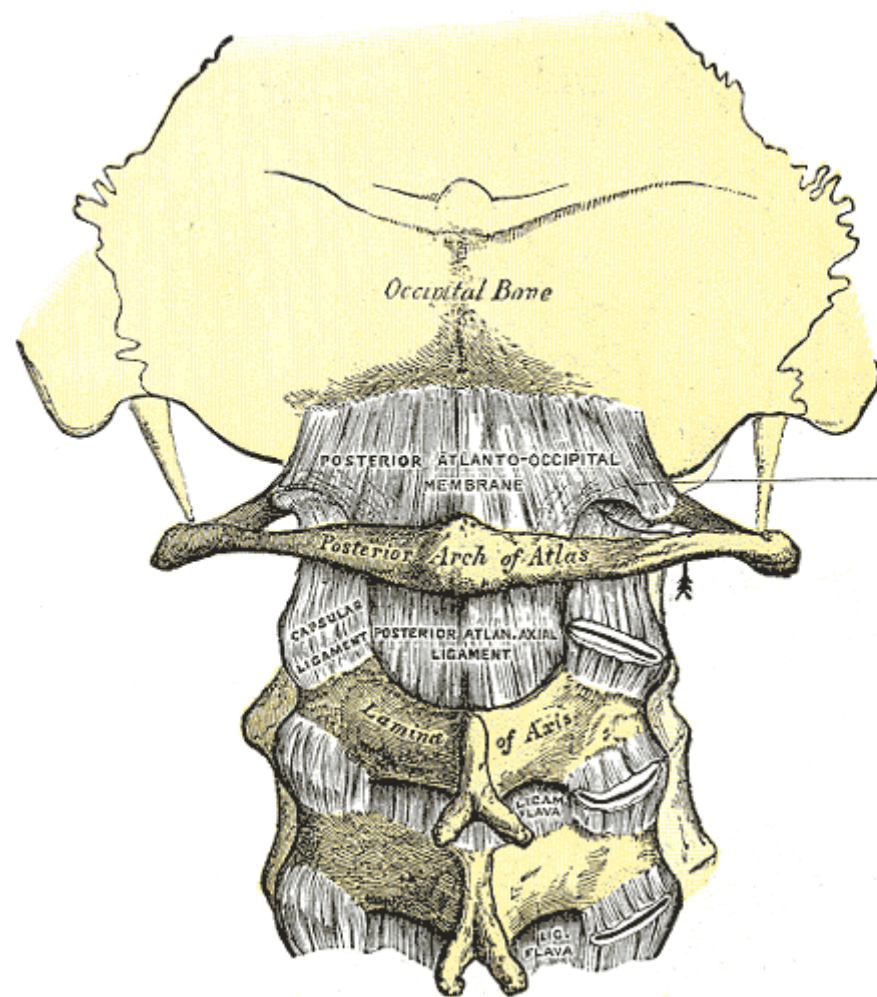
# Vertebral Veins



# Suboccipital nerve

- *The first spinal nerve, i.e the dorsal ramus of first cervical nerve, larger than its ventral ramus*
- *Emerges*
  - superior to posterior atlantal arch*
  - inferior to vertebral artery*
- *Then enters suboccipital triangle*





*Occipital Bone*

POSTERIOR ATLANTO-OCCIPITAL  
MEMBRANE

*Posterior Arch of Atlas*

CAPSULAR  
LIGAMENT

POSTERIOR ATLAN. AXIAL  
LIGAMENT

*Lamina  
of Axis*

LIGAM.  
FLAVA

LIG.  
FLAVA

*Arch for passage of  
vertebral artery  
and first cervical  
nerve*

- *It supplies muscles around the suboccipital triangle including the recti capitis posterior major, obliquus capitis superior, recti capitis posterior minor, obliquus capitis inferior and semispinalis capitis.*
- *A filament from branch to inferior oblique joins second dorsal ramus*
- *It occasionally has a cutaneous branch which accompanies lesser occipital artery to the scalp, connecting with greater and lesser occipital nerves.*