



Dissection technique of the posterior neck and vertebral arteries

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Posterior neck

1. Should be done after the routine autopsy.

If a special dissection of the anterior neck is performed, the posterior neck dissection should be performed afterwards.

2. The goal of dissection;

- to determine if haemorrhages are present in the subcutis and muscles
- to examine the ligaments of the upper neck

The posterior neck dissection precedes removal of the vertebral arteries.

However, removal of the vertebral arteries is not performed after every posterior neck dissection.

3. The body should be placed prone and elevated (elevating the chest such that the neck appears slightly flexed) prior to dissection.

4. Like the anterior neck, the posterior neck can be gravitationally drained of blood.

However, prior autopsy is usually adequate to decompress the veins of the posterior neck.

5. An inverted "T"-shaped incision is done along the nape of the neck.

6. The lower horizontal portion of the inverted "T"-shaped incision extends from shoulder to shoulder over the scapulae and passes over the spinous process of the 7th cervical vertebra.

7. The vertical portion of the inverted "T"-shaped incision extends along the midline from the occiput to the spinous process of the 7th cervical vertebra.

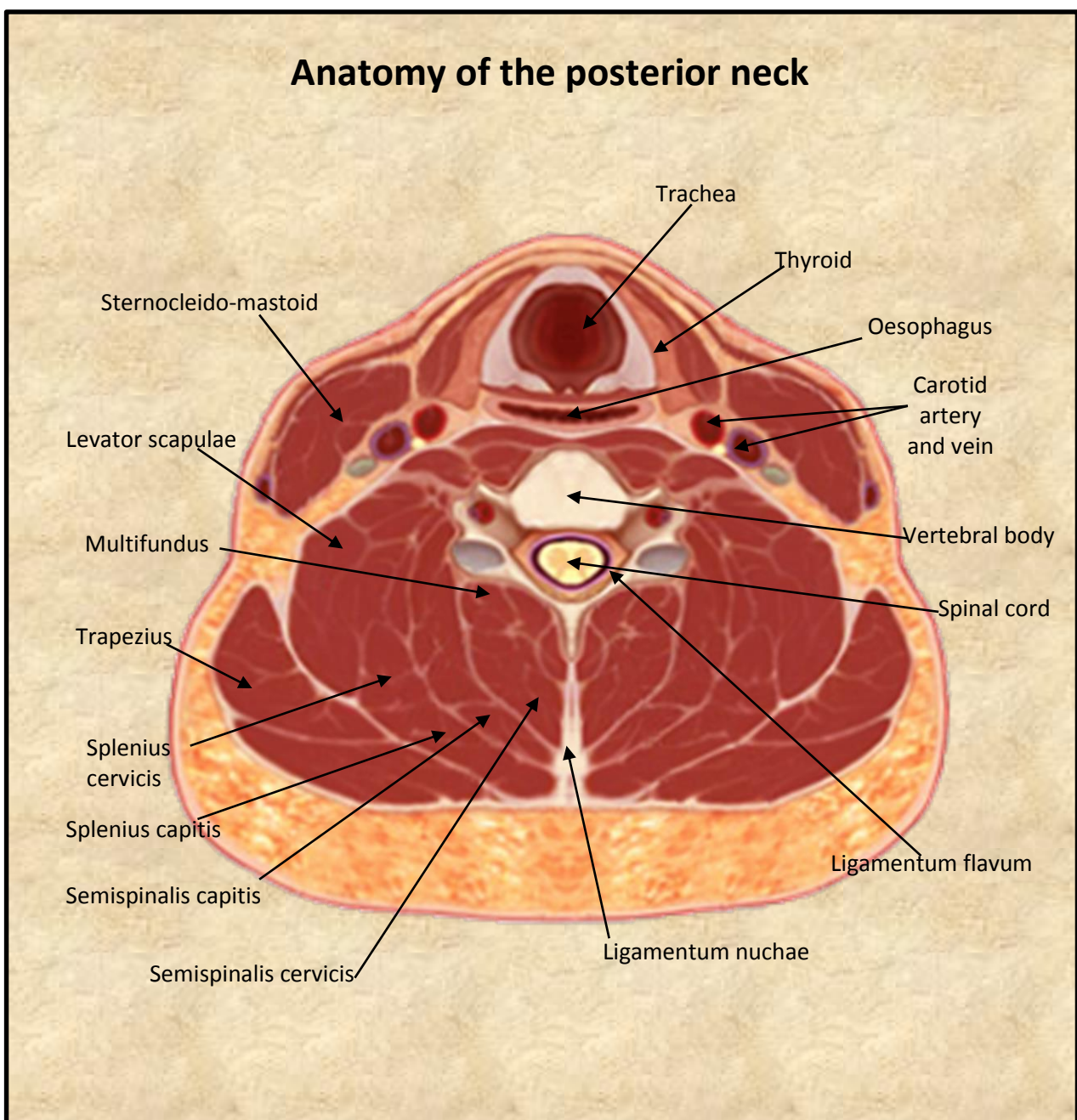


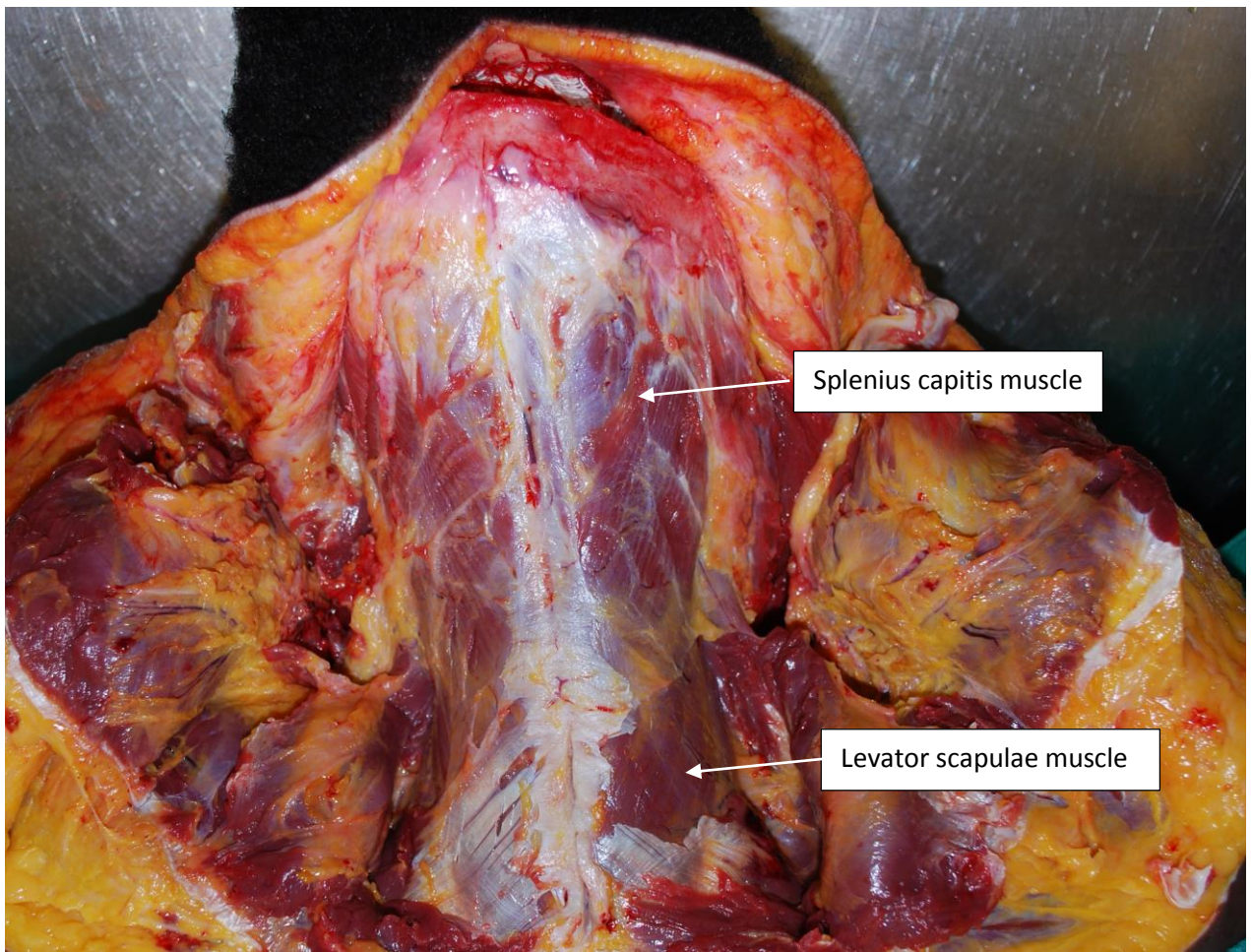
8. The skin is reflected laterally such that two large flaps are created and the trapezius muscles will be visible.



Trapezius muscle

9. Muscles of the posterior neck are more numerous with complicated anatomical courses. Dissection is using the following muscular groupings: superficial, intermediate, deep paraspinal, and deep subcapital



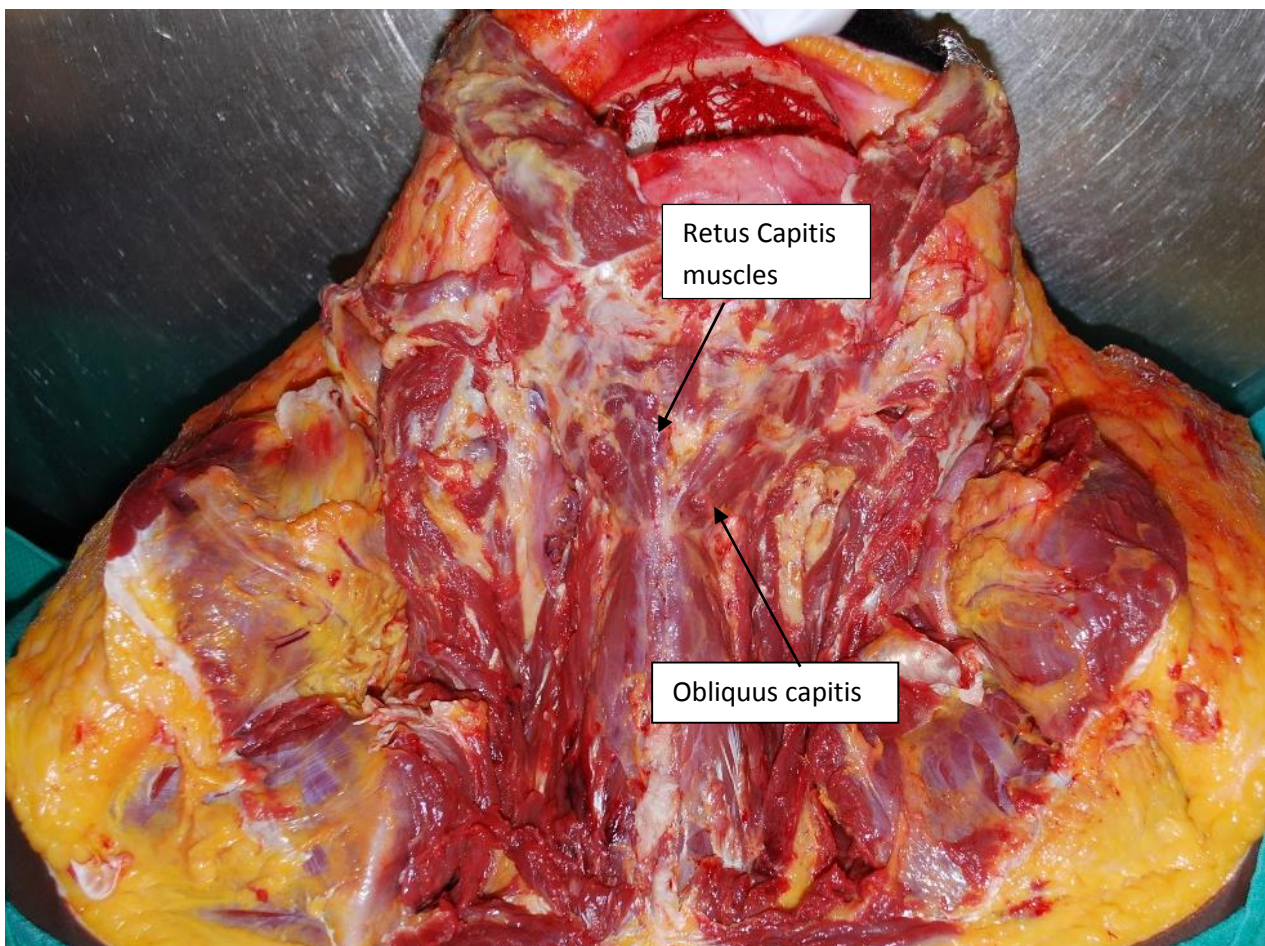


Splenius capitis muscle

Levator scapulae muscle

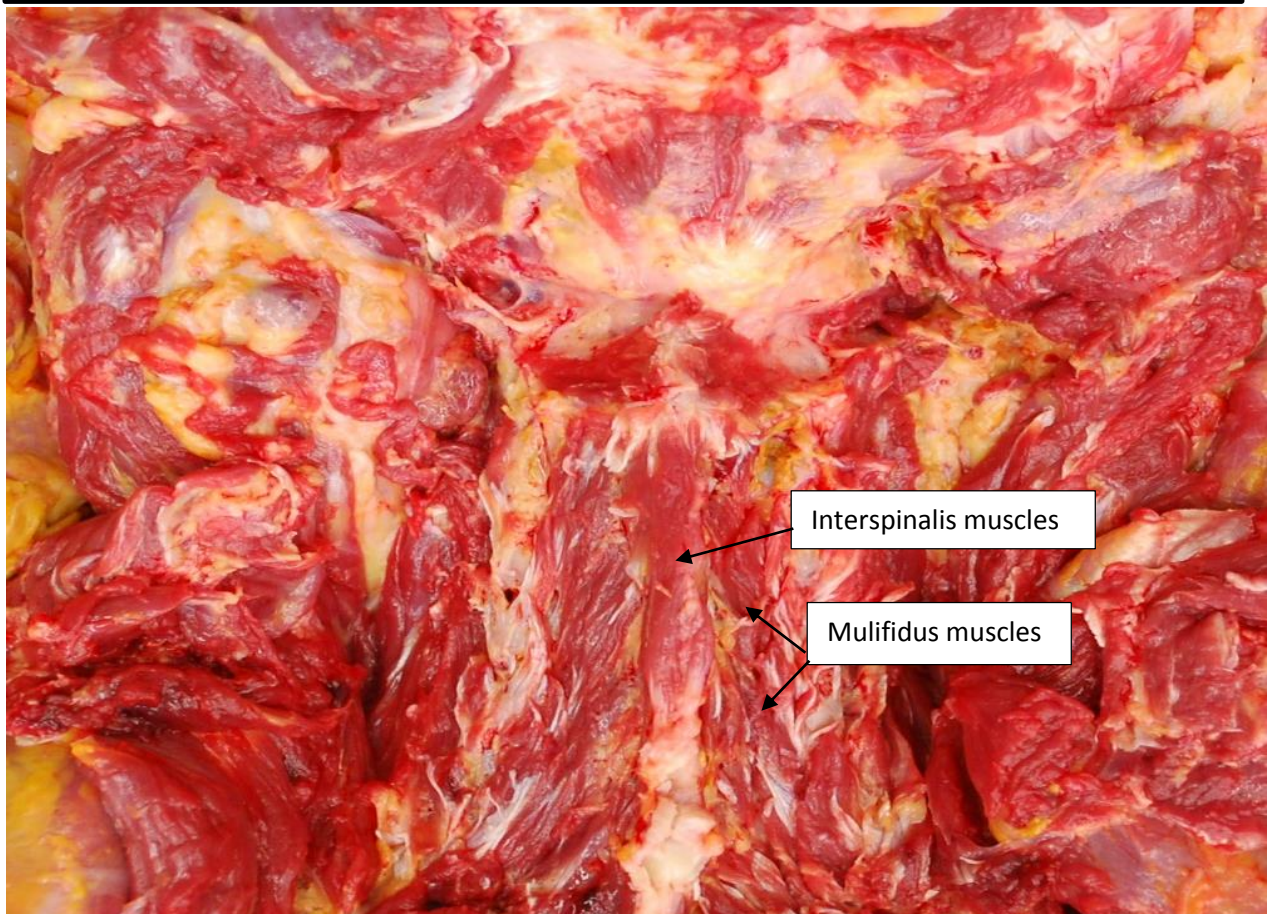
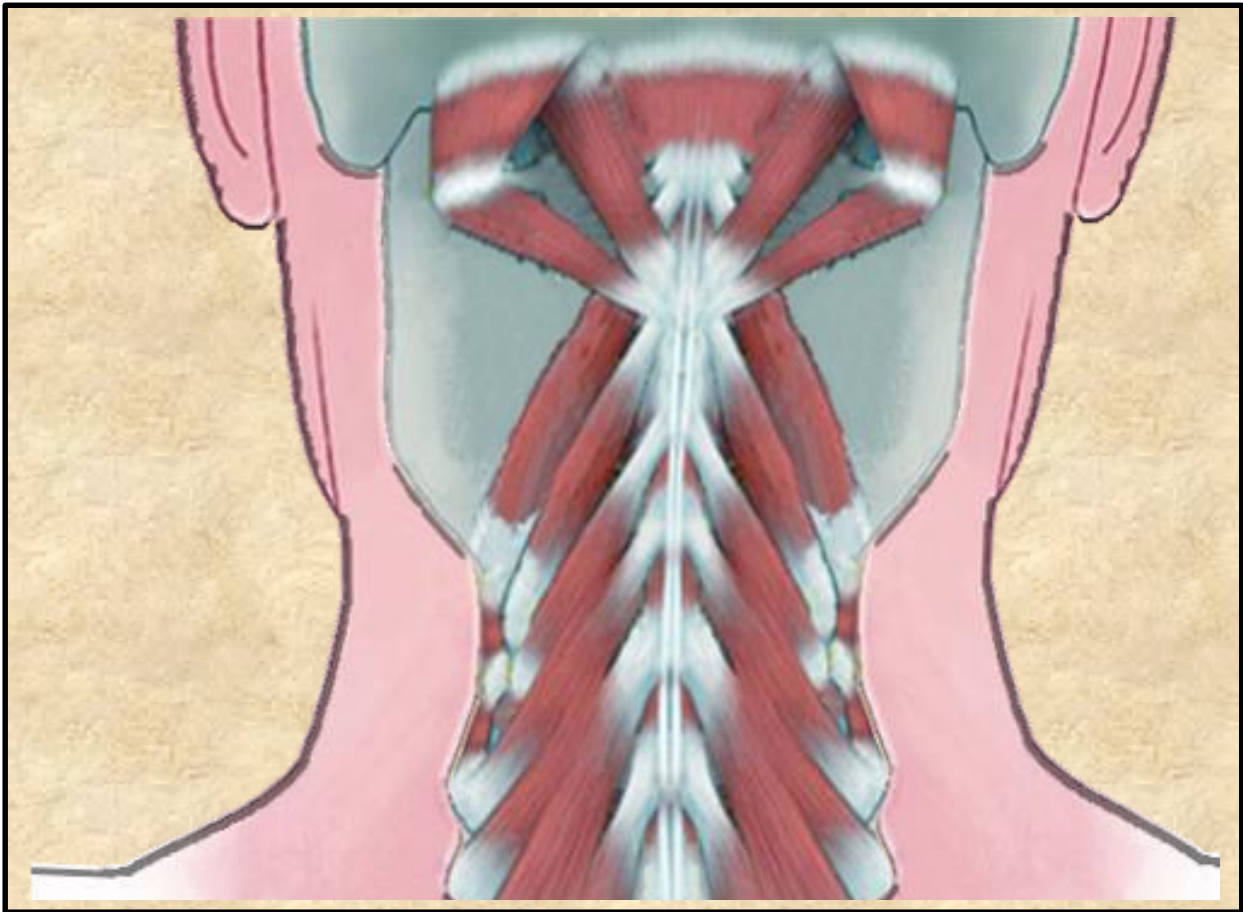
10. Elevate the superficial and intermediate muscles in layers.

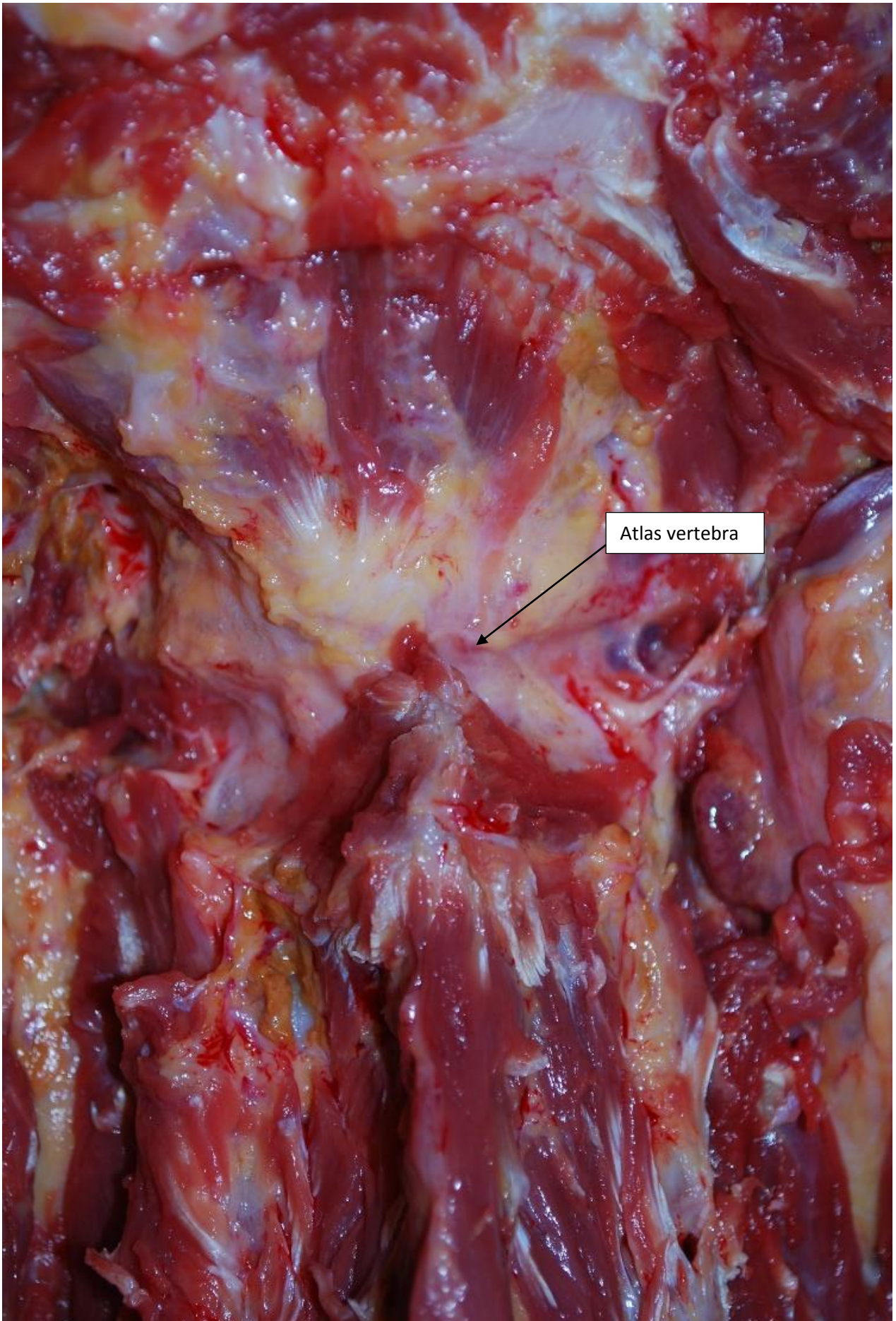
11. It is critical to keep the dissection field wide at all levels, otherwise the deep dissection field will be too narrow to examine the upper neck ligaments.





12. Once the superficial and intermediate muscles are elevated, the deep paraspinal muscle on the surface of the cervical spine will remain, along with the deep subcapital muscles.



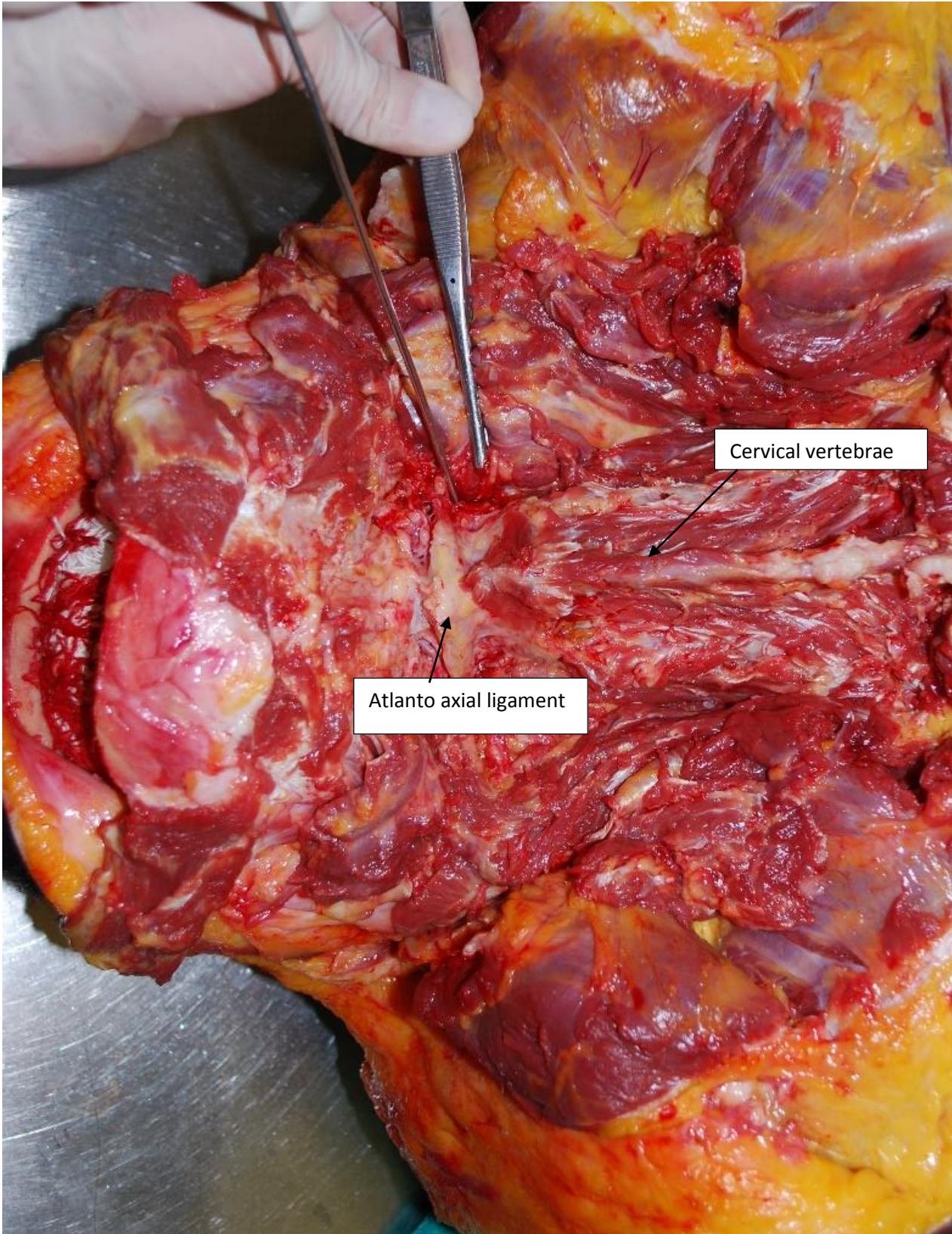


Atlas vertebra

13. Dissect the deep paraspinal and subcapital muscles by cutting the muscles from the surface of the vertebrae

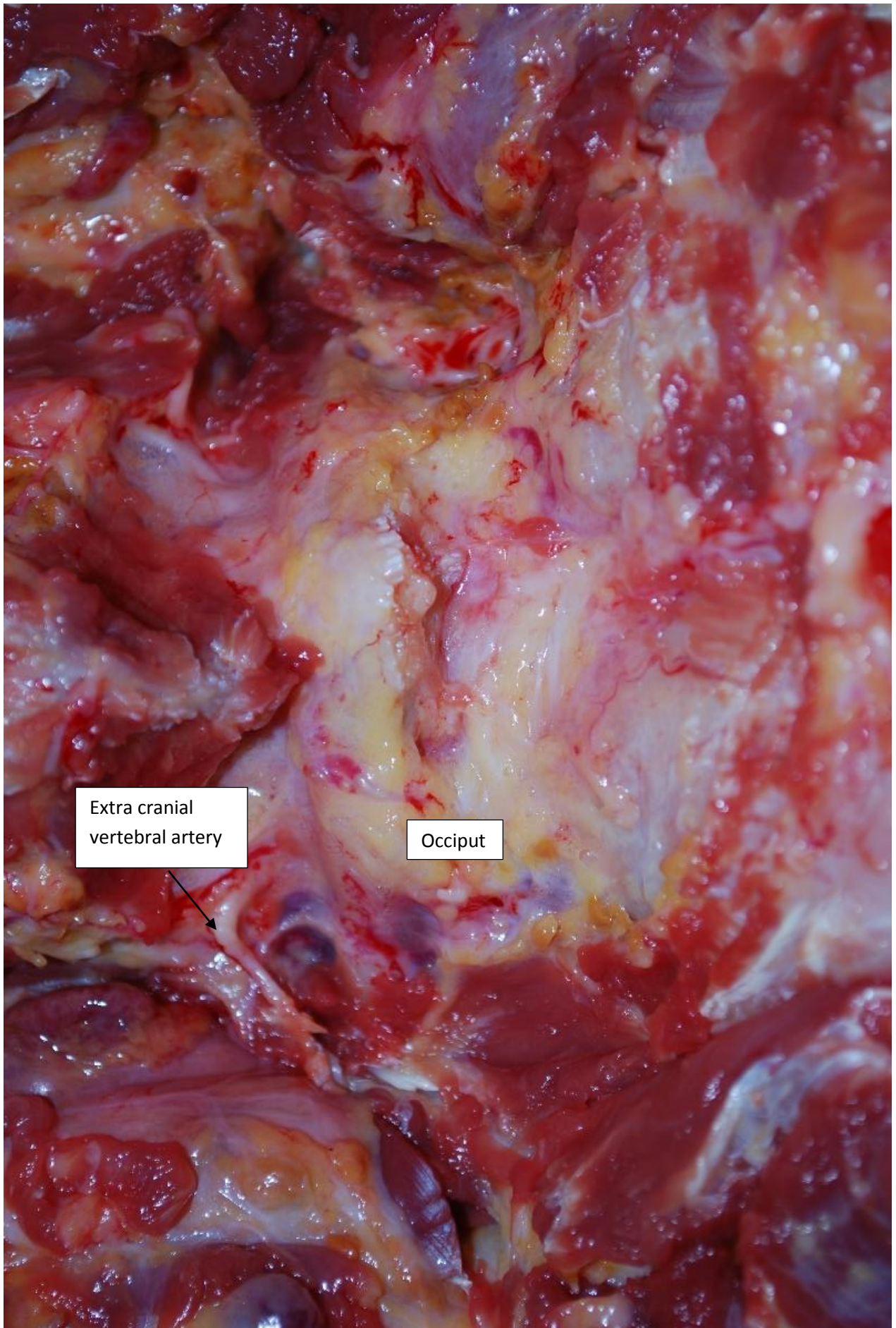
14. Since the deep subcapital muscles insert onto the spinous processes of the atlas and axis. This dissection will reveal;

- the deep cervical spinal ligaments
- dorsal surfaces of the cervical vertebrae
- the transitional segment of the extracranial vertebral artery.



Cervical vertebrae

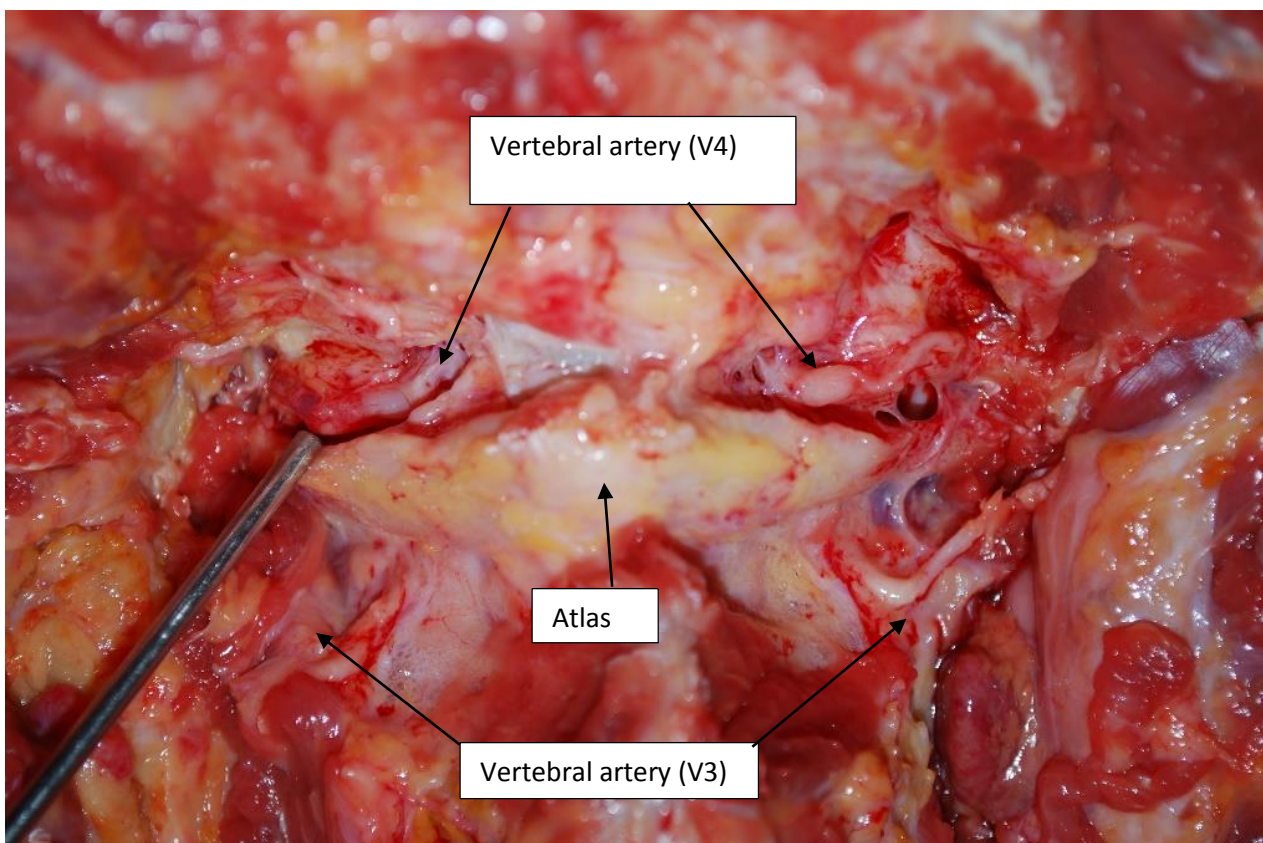
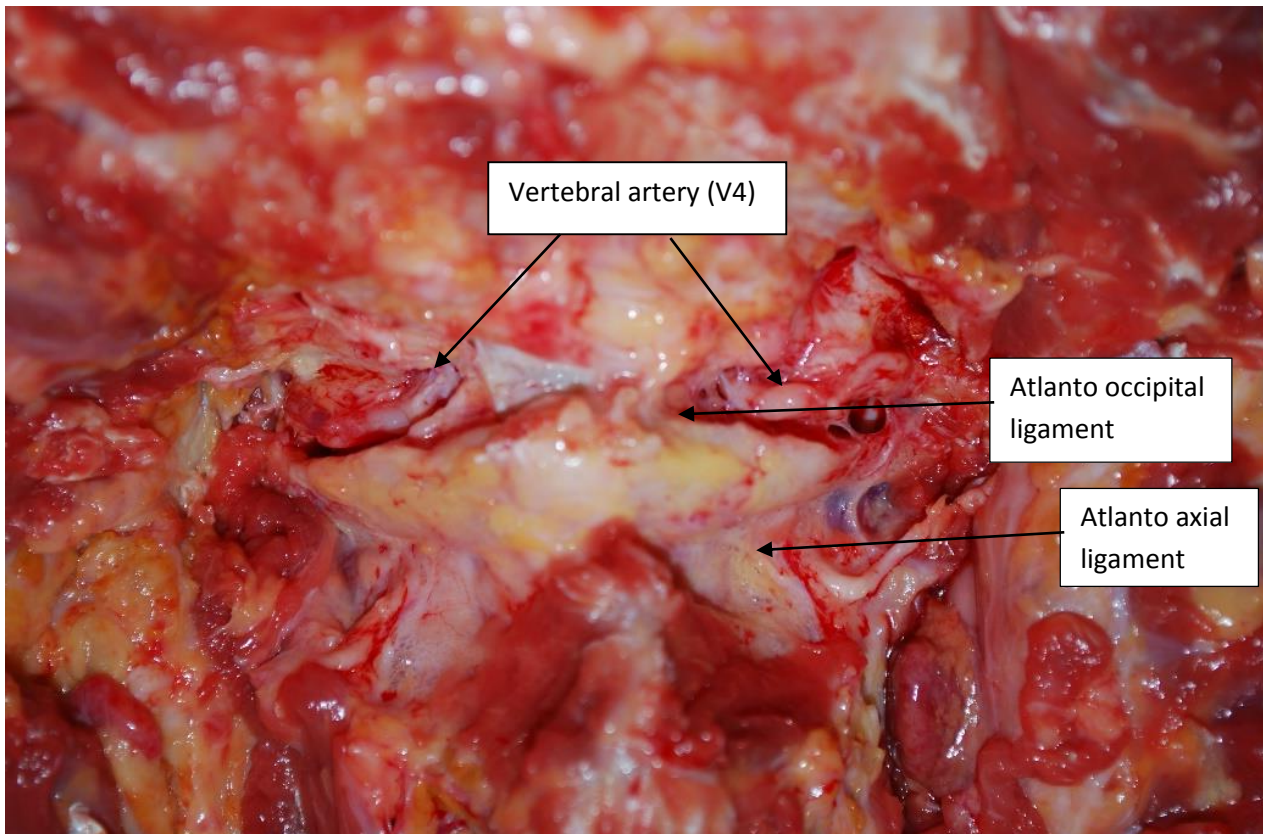
Atlanto axial ligament

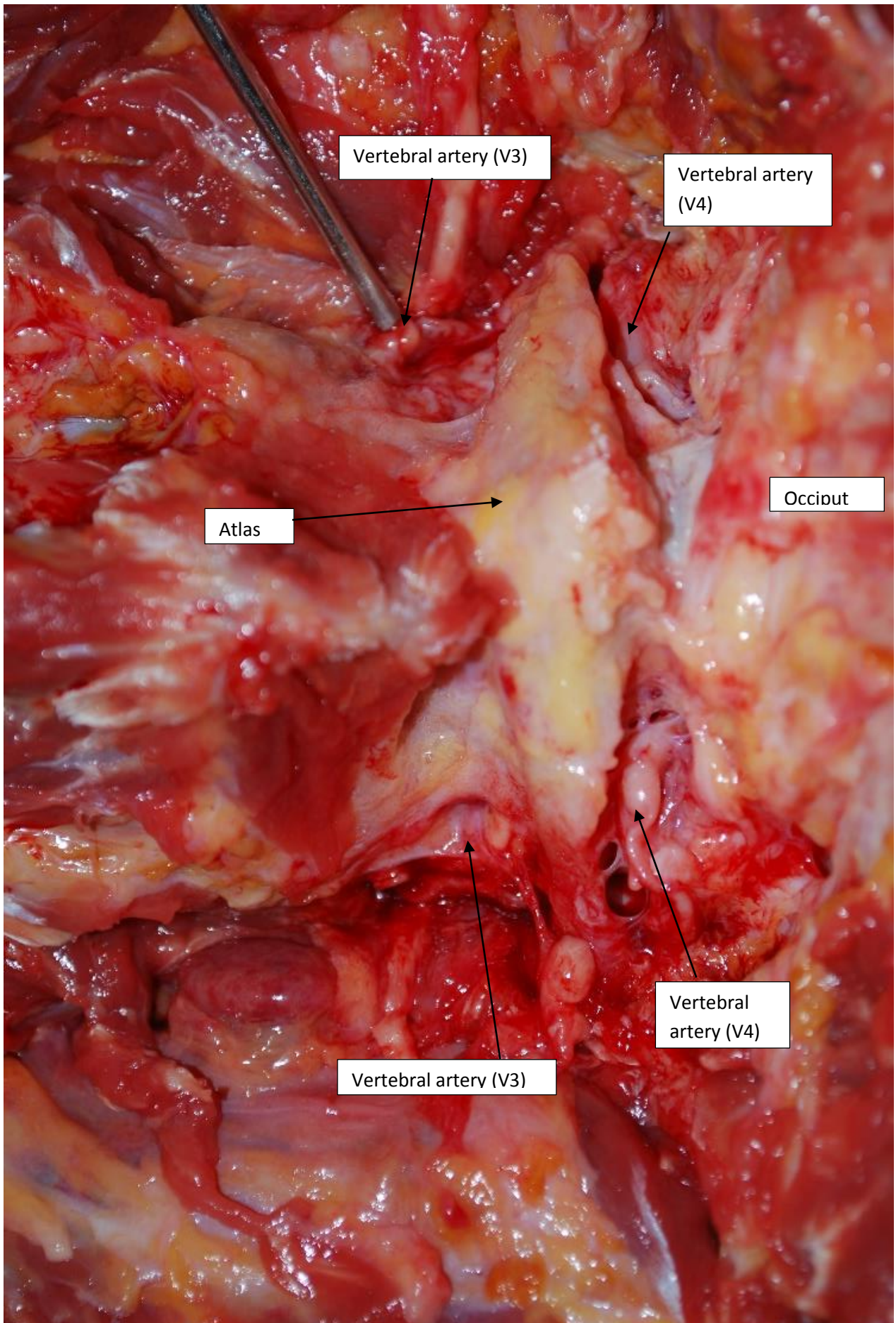


Extra cranial
vertebral artery

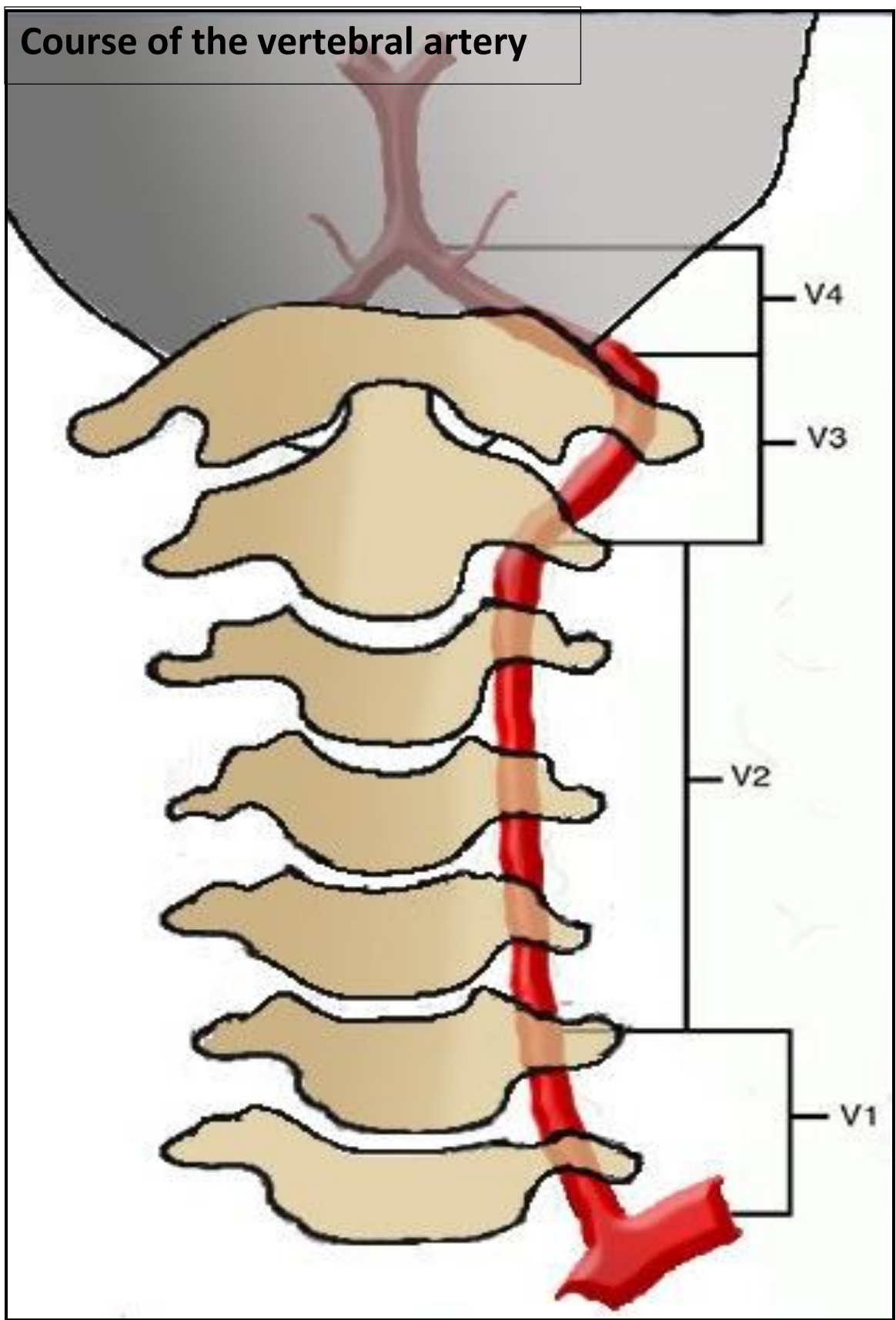
Occiput

15. The atlanto-occipital and atlanto-axial ligaments can be easily identified and assessed for integrity and hemorrhage.





16. If indicated, the vertebral arteries and the cervical spinal cord can be removed.



Removal of the vertebral arteries

The two most common methods

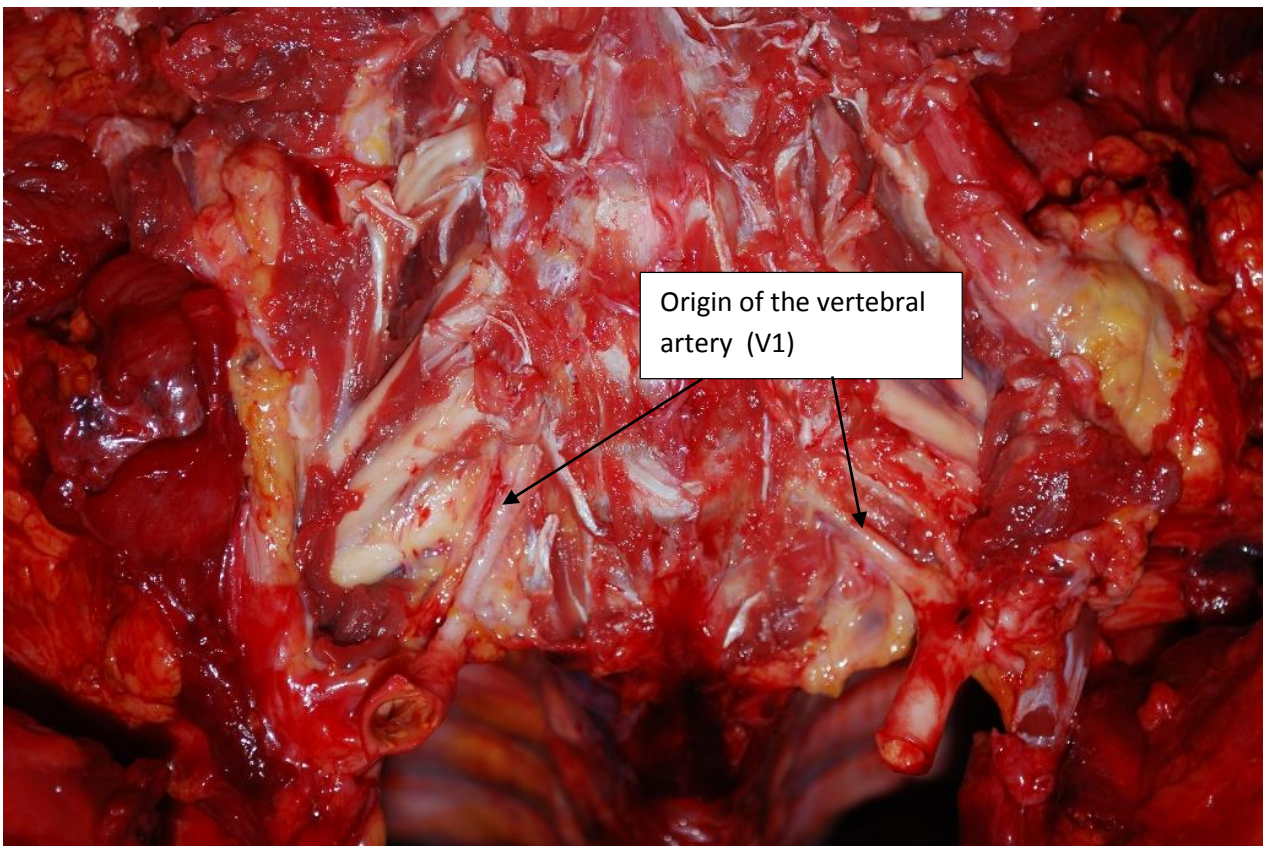
- En bloc excision of the base of skull and cervical spine
- segmental excision of the vertebral arteries.

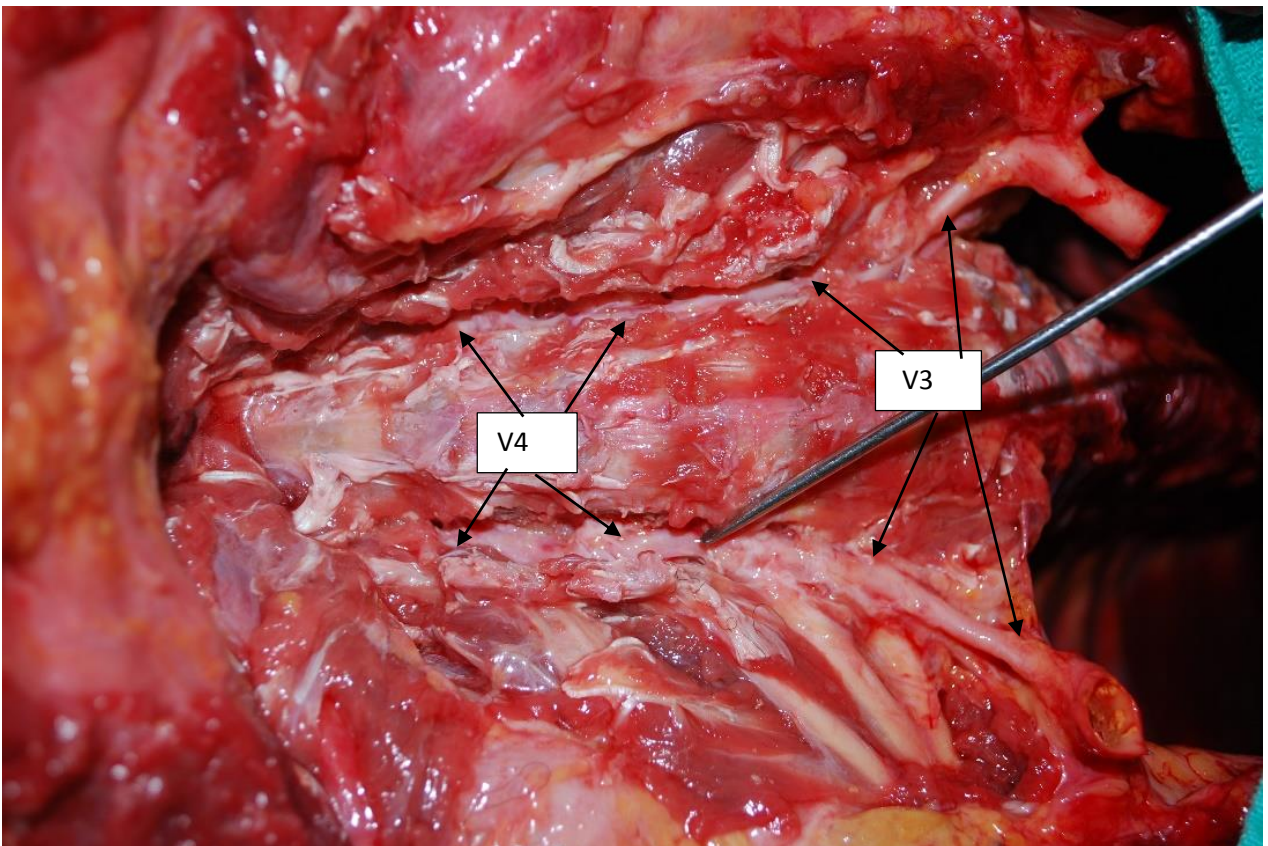
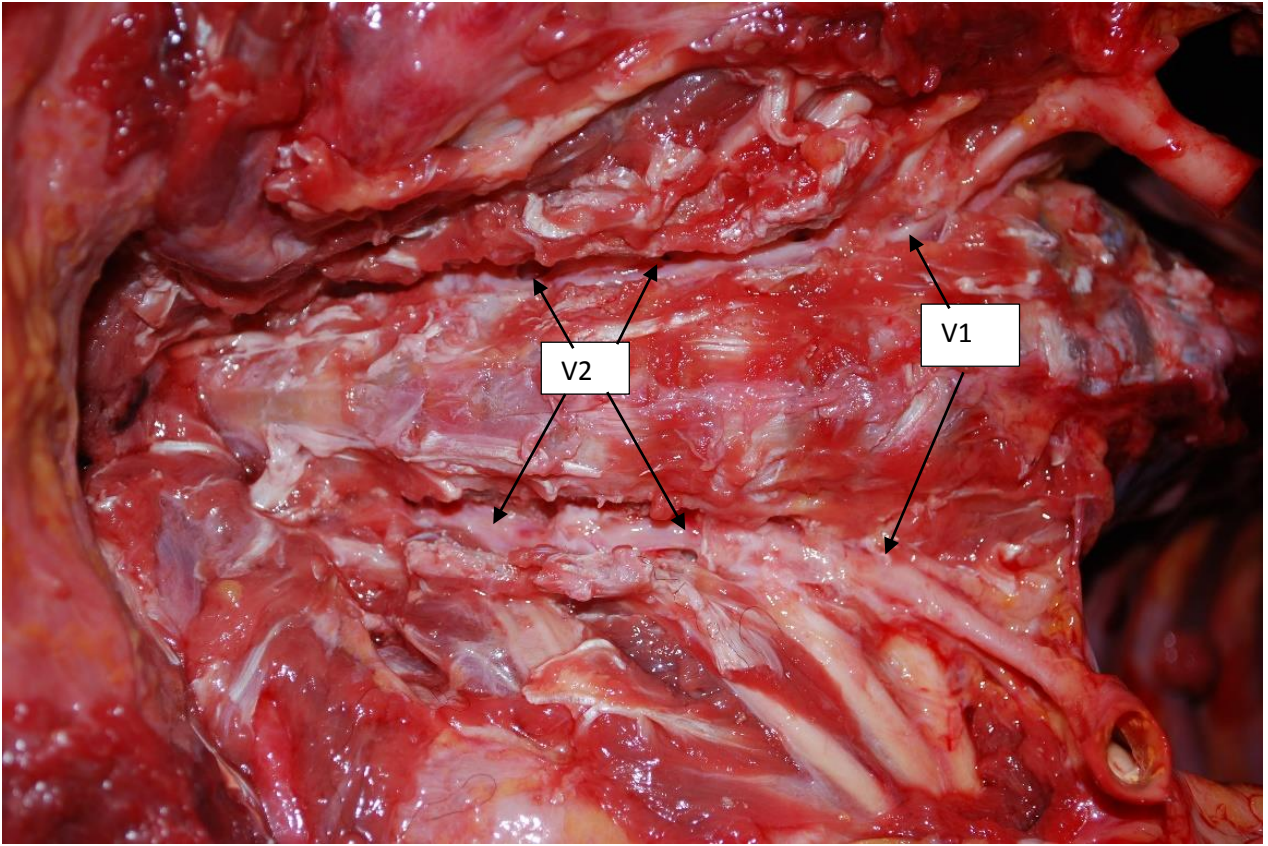
(However, it is recommended that the vertebral arteries be removed segmentally ('piecemeal'), rather than excising the entire cervical spine and base of the skull en bloc for decalcification)

The segments to be excised include:

1. Distal intracranial (present at the base of the brain, after brain removal);
2. Proximal intracranial (need to be excised from the foramen magnum once brain is removed); **V4.**
3. Transitional or distal extracranial segment after the artery emerges from the cervical spine (the roof of the transverse foramen of the atlas should be excised with the Stryker saw to remove this segment); **V3**

4. The intraosseous extracranial segment (the roof of the transverse foramen of the C2-C5/6 should be excised with the Stryker saw to remove this segment); **V2**
5. The point of origin of the extracranial segment at the subclavian arteries. **V1**





17. Artefactual hemorrhages are often present;

- in the deep posterior-lateral neck muscles if a special anterior neck dissection was performed.
- near the mastoid at the terminal of the scalp incision used to remove the brain. It is important not to over-interpret such findings.

18. Each layer of the posterior neck dissection should be photographed in the same plane, including orientation and close-up images. Injuries should be photographed with a scale.

19. Record in the autopsy report that a special dissection of the posterior neck was performed. Indicate the skin incisions used.