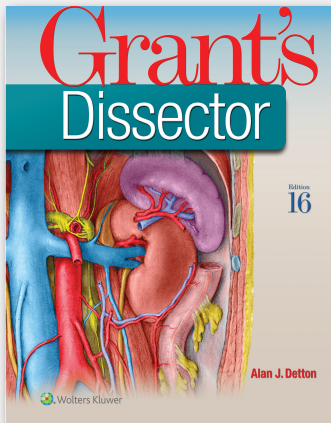


Grant's Dissector

Sixteenth Edition

NEW!



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Guidance for Today's Anatomy Lab

Grant's Dissector, now revised to meet the needs of today's gross anatomy dissection courses, remains the go-to guide. This classic manual provides step-by-step dissection procedures with the instruction and anatomical detail needed to recognize important relationships revealed through dissection.

Each chapter is consistently organized beginning with a *Dissection Overview*, followed by detailed *Dissection Instructions*, and concluding with a *Dissection Follow-up*.

New to this Edition

- Newly revised for **easy-to-follow consistency** throughout each chapter.
- *Dissection Overviews* now include **numbered, step-by-step instructions** to guide the student through relevant surface anatomy and osteology.
- Each step in the *Dissection Instructions* has been carefully reworded to **clarify and improve the dissection experience**.
- **More than 30 new summary tables** provide an excellent review resource and make the dissection instruction steps more task-oriented and concise.
- *Dissection Follow-up* sections now contain a **numbered list of tasks** to perform following the dissection.
- **Revised abdominal wall and head dissection instructions** offer effective new approaches to these complex anatomical regions.
- **More than 100 modified or brand-new illustrations** throughout provide visual guidance.
- **Conveniently cross-referenced** to *Grant's Atlas of Anatomy* and three other atlases for appropriate detailed illustrations or photographs for each dissection sequence.

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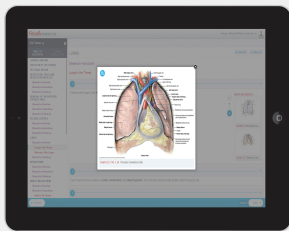
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SUBOCIPITAL REGION

Dissection Overview

The order of dissection will be as follows: The muscles that bound the suboccipital triangle will be identified. The contents of the suboccipital region (vertebral artery and suboccipital nerve) will be studied.

Skeleton of the Suboccipital Region

Refer to an articulated skeleton and identify the following skeletal features: [G 668; I 300; 301; N 10; R 32]

1. On the posterior aspect of the skull, identify the external occipital protuberance and the bilaterally located superior and inferior nuchal lines (FIG. 1.11).
2. Observe the relationship of the areas of muscle attachment between the nuchal lines and their proximity to the base of the skull and foramen magnum.
3. Observe that the atlas (C1) does not have a body and the axis (C2) has the dens, which is the body of C1 that became fused to C2 during development (FIG. 1.11).
4. On the atlas (C1), identify the posterior arch. Approximately at the midpoint of the arch, observe the posterior tubercle and note the atlas does not have a spinous process (FIG. 1.11). [G 9; I 7; N 19; R 194]
5. On the superior aspect of the posterior arch, identify the groove for the vertebral artery bilaterally and observe relationship to the transverse foramen on the transverse process.
6. On the axis (C2), identify the bifid spinous process, the transverse processes, and the transverse foramen (FIG. 1.11).

Dissection Instructions

Suboccipital Muscles [G 34; I 19; N 172; R 226]

The spinous process of C2 and the external occipital protuberance will be key landmarks for this dissection and should be used as points of reference for the suboccipital region.

1. Identify the spinous process of the axis (C2) using the superior extent of the semispinalis inferior muscle as a reference point (FIG. 1.12).
2. Identify and clean the semispinalis inferior muscle and observe that it forms the inferior boundary of the suboccipital triangle (FIG. 1.12).
3. Verify that the medial attachment of the obliquus capitis inferior muscle is the spinous process of the axis (C2), whereas its lateral attachment is the transverse process of the atlas (C1).
4. Follow the greater occipital nerve inferior to the inferior border of the obliquus capitis inferior muscle. Note that the greater occipital nerve (posterior ramus of C2) emerges between vertebrae C1 and C2.
5. Identify and clean the rectus capitis posterior major muscle, which forms the medial boundary of the suboccipital triangle (FIG. 1.12).
6. Confirm that the medial attachment of the rectus capitis posterior major muscle is the spinous process of the axis, whereas its lateral attachment is the inferior nuchal line of the occipital bone laterally.
7. Identify and clean the rectus capitis posterior minor muscle (FIG. 1.12).
8. Confirm that the inferior attachment of the rectus capitis posterior minor muscle is the posterior tubercle of the atlas (C1), whereas its superior attachment is the inferior nuchal line of the occipital bone (FIG. 1.12).
9. Identify and clean the obliquus capitis superior muscle, which forms the lateral boundary of the suboccipital triangle (FIG. 1.12).
10. Confirm that the inferior attachment of the obliquus capitis superior muscle is the transverse process atlas and its superior attachment is the occipital condyle between the lateral aspect of the superior and inferior nuchal lines.
11. Review the attachments and actions of the suboccipital muscles (see TABLE 1.3).

Contents of the Suboccipital Triangle [I 19; N 172; R 226]

1. On one side, identify and clean the contents of suboccipital triangle, namely the suboccipital nerve and the vertebral artery (FIG. 1.12) [I 41; I 317; R 385]. Do not deep any of the veins for within the suboccipital region.
2. Observe that the suboccipital nerve (posterior root of C1) emerges between the occipital bone and atlas (C1 vertebra). Note that the suboccipital nerve supplies motor innervation to all the muscles of the suboccipital region and is the only posterior ramus cervical spinal nerve that has no cutaneous distribution.

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FIGURE 1.12 Suboccipital region.

3. Deep within the suboccipital triangle, identify and clean the vertebral artery superior to the posterior arch of C1. Do not follow the vertebral artery at this point in the dissection; rather, use an illustration to study the course of the vertebral artery through the neck and into the skull. [G 40; 41; I 13; 20; N 137; R 170]
4. If the vertebral artery is not visible, cut the obliquus capitis superior muscle from its attachment on the lateral inferior nuchal line on one side of the body only and reflect it laterally.

Dissection Follow-up

1. Review the locations and actions of the transversospinales muscles.
2. Review the locations and actions of the suboccipital muscles.
3. Review the distribution of the branches of a thoracic posterior ramus and compare the thoracic pattern to the distribution of the posterior rami of spinal nerves C1–C3.

TABLE 1.3 Suboccipital Muscles				
Muscle	Medial Attachments	Lateral Attachments	Actions	Innervation
Rectus capitis posterior major	SP of C2 (axis)	Lateral inferior nuchal line of occipital bone	Extends head and rotates face to same side	
Rectus capitis posterior minor	Posterior tubercle of C1 (atlas)	Medial inferior nuchal line of occipital bone	Extends head	Posterior ramus C1
Obliquus capitis superior	TP of C1 (atlas) (inferior attachment)	Between lateral aspect of superior and inferior nuchal lines of occipital bone (superior attachment)	Extends head	
Obliquus capitis inferior	SP of C2 (axis)	TP of C1 (atlas)	Rotates face to same side	

Abbreviations: C, cervical vertebrae; SP, spinous process; TP, transverse process.

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