

# Posterolateral neck dissection

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This type of neck dissection consists of removal of the suboccipital and retroauricular lymph node groups and of nodal regions II, III, IV, and V (Figure 1).<sup>1</sup>

## Indications

A posterolateral neck dissection is indicated in the treatment of melanomas, squamous cell carcinomas, or other skin tumors with metastatic potential, such as the Merkel cell carcinomas, that originate in the posterior and posterolateral aspects of the neck and the scalp,<sup>2</sup> because of the pattern of lymphatic drainage of these cutaneous areas (Figure 2).

## Operative technique

When a unilateral dissection is to be performed, the patient is placed in a near-lateral decubitus position with the help of a "bean bag." The neck is extended and the head turned toward the opposite side. A foam doughnut or a horseshoe headrest is used to stabilize the head. When a bilateral dissection is to be performed, the patient is placed on the operating table in the prone position, and the neck is slightly flexed.

The preferred incision is a "hockey stick" incision that extends from the nuchal line to ~1 inch above the clavicle; the vertical portion of the incision is placed about halfway between the posterior border of the sternocleidomastoid muscle and the anterior border of the trapezius (Figure 3).

A posterior skin flap is elevated up to the posterior midline of the neck. The thickness of this flap is paramount in this operation. A flap that is too thick can include the superficial suboccipital lymph nodes and thus defeat the

purpose of the operation. A flap that is too thin is likely to necrose. An anterior flap is elevated to the level of the anterior border of the sternocleidomastoid muscle.

The spinal accessory nerve should be preserved if the location of the primary tumor in the skin or the location and extent of the nodal metastases do not preclude it. The nerve is superficially located in the mid posterior triangle of the neck and can be injured during the elevation of the flaps. If the nerve is to be preserved, it is identified early in the dissection and exposed throughout its course in the neck (Figure 4).

The dissection begins posteriorly. The fibroadipose tissue that contains the suboccipital lymph nodes is located superficially and deep to the upper third of the trapezius muscle. Some surgeons describe lymph nodes deep to the splenius capitis muscle, along the deep portion of the occipital artery, and advocate resecting the upper portion of the splenius to ensure their removal. Most surgeons, however, do not include the splenius in the resection and carry the dissection in a plane immediately superficial to this muscle. Identification of this plane is easily accomplished "from below" by incising the trapezius muscle obliquely, starting from a point in the anterior border of the muscle (located approximately at the junction of the upper and middle thirds of it) and continuing upward and backward toward the posterior midline of the neck at the nuchal line (Figure 5).

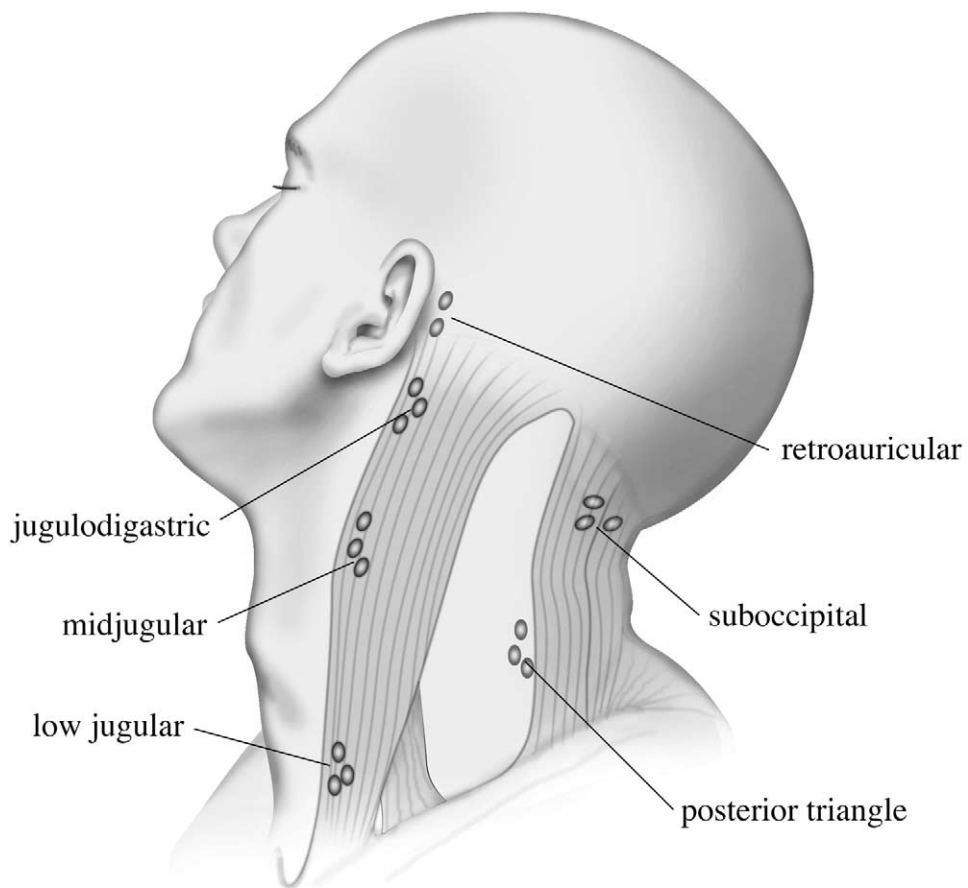
The specimen is then dissected forward off the splenius capitis. In doing so, the superior insertion of the trapezius is incised.

As the dissection is continued forward, the retroauricular lymph node is included in the specimen, and the superior insertion of the sternocleidomastoid muscle is incised near the mastoid process (Figure 6). In the depth, the plane of dissection changes from the splenius capitis to the levator scapulae. When the specimen is freed enough, it is brought forward under the spinal accessory nerve, if it is being preserved (Figure 7).

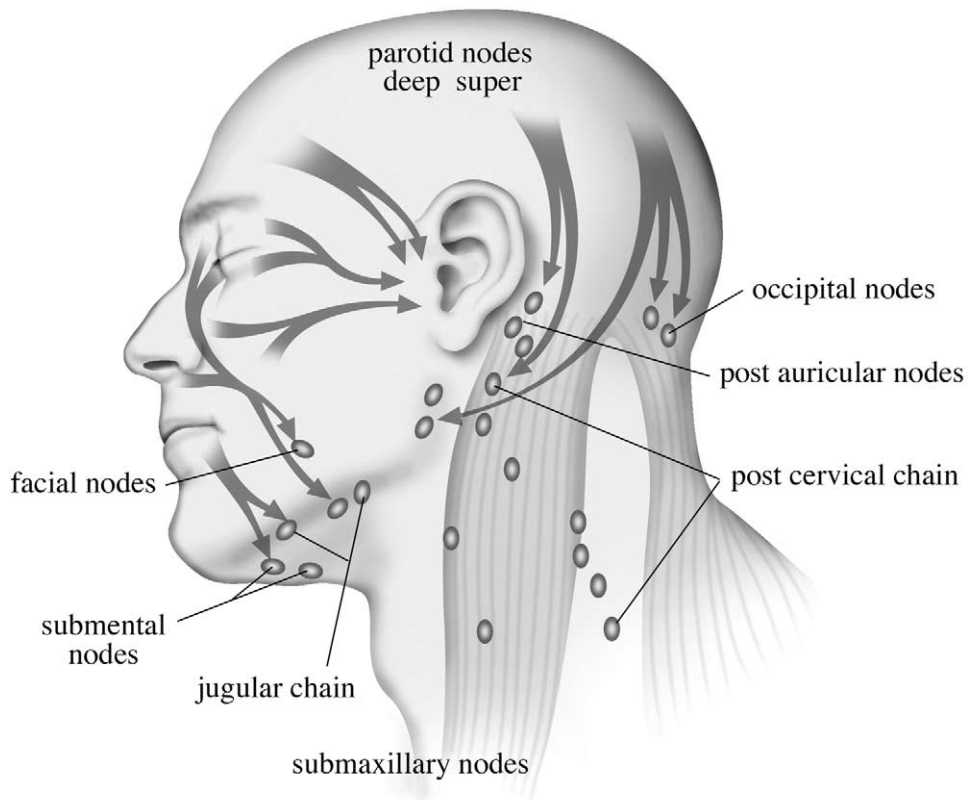
The remainder of the operation is performed in a manner similar to the radical and modified radical neck dissections

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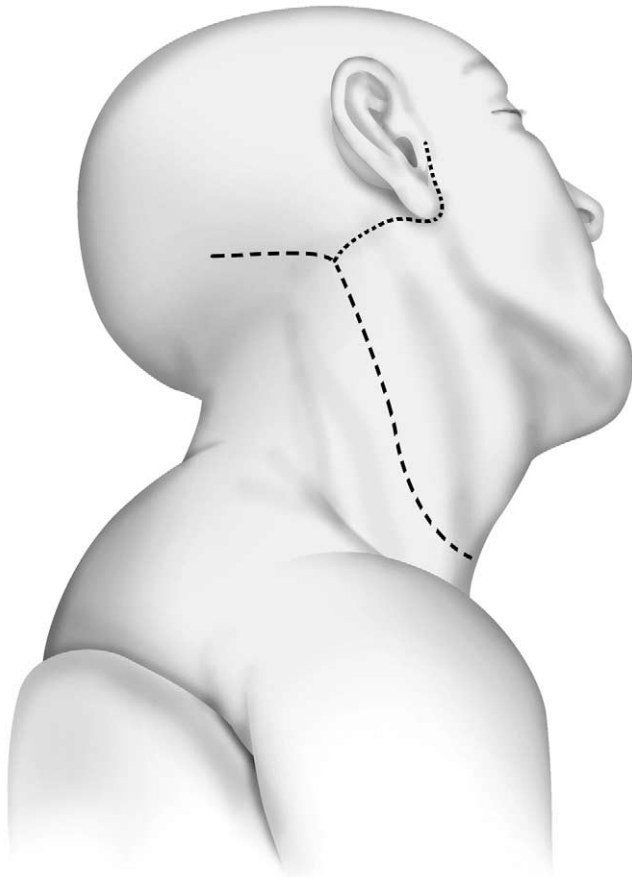
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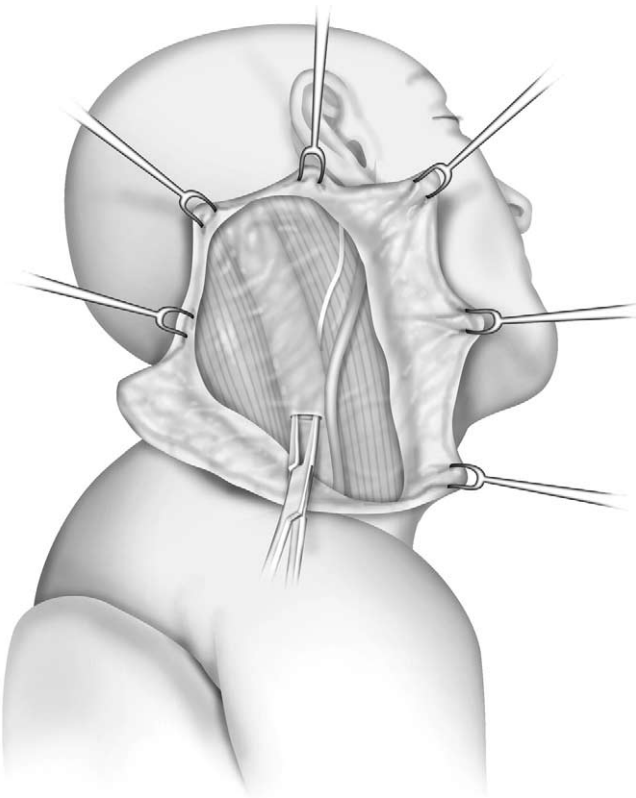
**Figure 1** Lymph node groups removed in a posterolateral neck dissection.



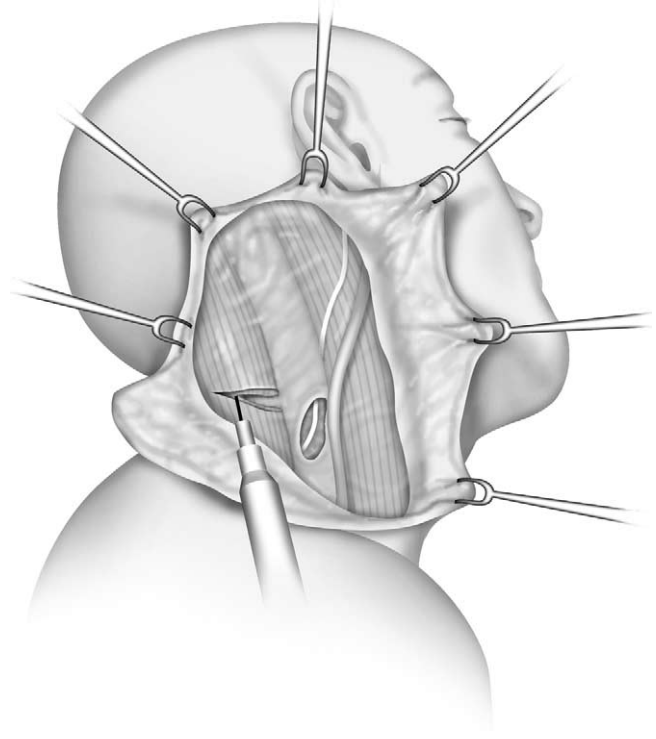
**Figure 2** Lymphatic drainage of scalp and facial skin.



**Figure 3** Preferred incision for a unilateral posterolateral neck dissection.



**Figure 4** Exposure and dissection of the XI nerve.



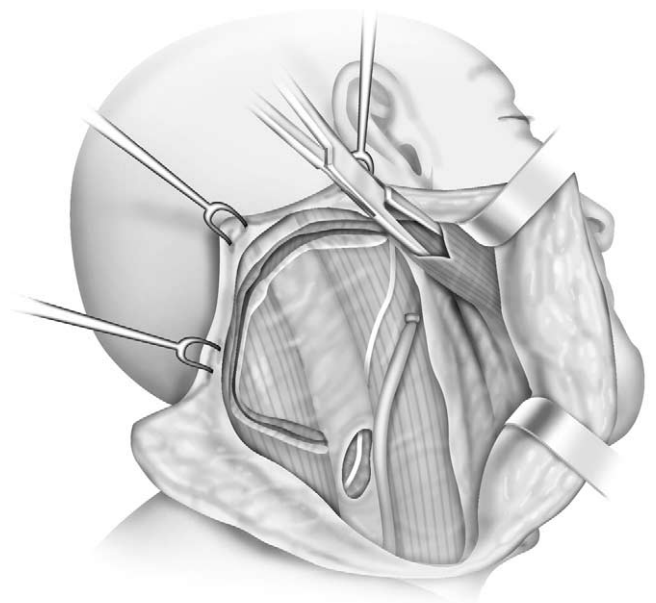
**Figure 5** Incision of the trapezius muscle.

that are described in other articles in this issue (Figure 8). Depending on the characteristics of the tumor in the neck, it is often possible to preserve the internal jugular vein. The completed dissection is shown in Figure 9.

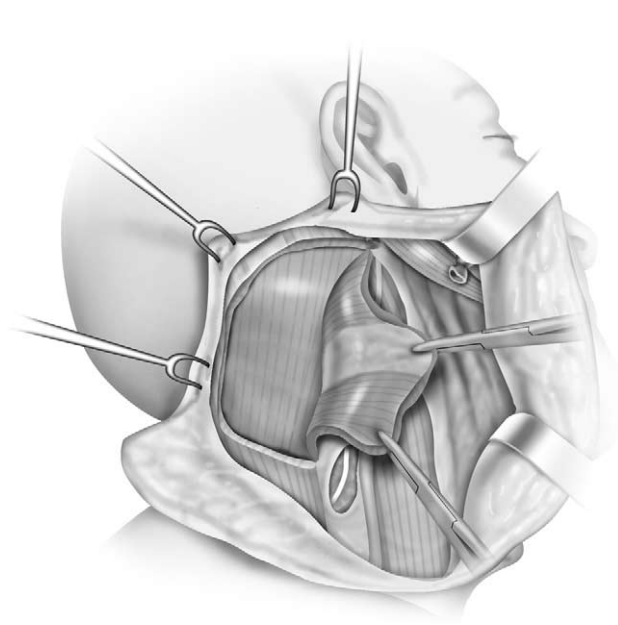
A final important step that must be taken by the surgeon is to orient the surgical specimen for the pathologist.

### Complications and postoperative care

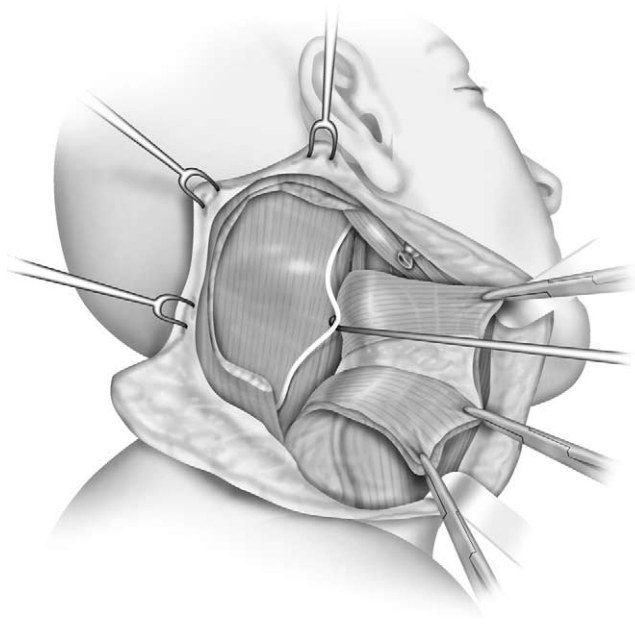
Postoperative hematoma usually occurs within the first few hours. Evacuation of clots and control of the bleeding vessel



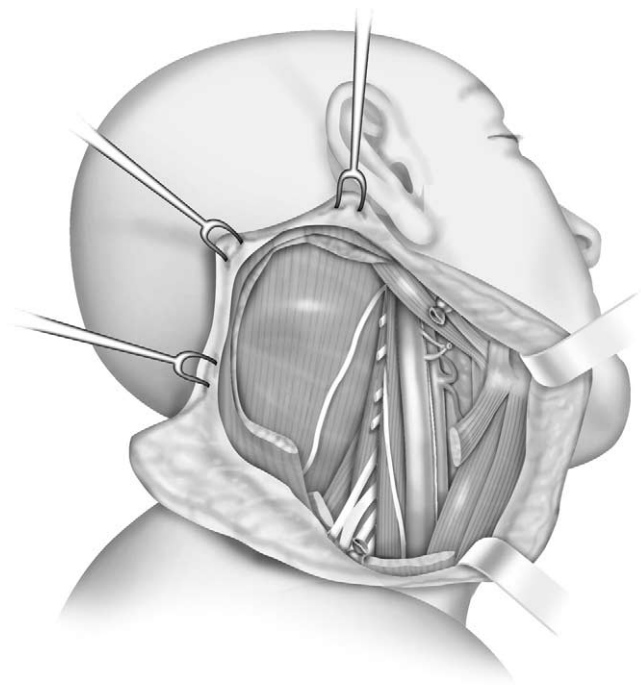
**Figure 6** Superior incision dividing the occipital artery and the sternocleidomastoid muscle.



**Figure 7** Dissecting the specimen off of the splenius capitis muscle.



**Figure 8** Specimen has been brought forward and downward, under the XI nerve.



**Figure 9** Completed posterolateral neck dissection, XI nerve is preserved.

are best accomplished in the operating room with a sterile technique.

Postoperative seromas are common. If small, they are aspirated; if they are large or difficult to control with aspiration, a suction drain is inserted in a sterile fashion.

Preserving the spinal accessory nerve does not ensure adequate postoperative function of the trapezius. Careful handling of the nerve during surgery, avoiding undue traction and stretching, is essential to minimize postoperative dysfunction. This is twice as important when the operation is done on both sides simultaneously. Postoperative shoulder rehabilitation exercises should be instituted as soon as any dysfunction becomes apparent.

## References

1. Medina JE: Modified neck dissection, in Shockley WW, Pillsbury HC (eds): *The Neck: Diagnosis and Surgery*. St. Louis, MO, Mosby, 1994, pp 551-572
2. Goepfert H, Jesse RH, Ballantyne AJ: Posterolateral neck dissection. *Arch Otolaryngol* 106:618-620, 1980