

# **Modified neck dissection in differentiated thyroid carcinoma- with lateral neck disease**

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# Rationale

- If you have a proven lymph node metastases due to differentiated thyroid cancer in your neck, the best way for cure and for local control of the disease is to have some type of neck dissection.
- In general, for differentiated thyroid carcinoma lymph nodes in level 2,3,4,6,and 7 should be harvested.
- In case of significant metastases level 1 and 5 can be performed later on.
- A tailored approach according to the patients' oncologic need is done.
- “Berry picking” type of lymph node harvesting is not warranted since the recurrence rate after this type of surgery is substantially high.
  - Berry picking: Irregularly picking the lymph nodes up without doing a formal type of dissection

# Complications

- Neck dissection is not risk free
- If you have had previous neck surgery, your neck will be more hostile than others.
- Frozen neck is problem.
- In experienced hands, in much of re-do surgeries, the functional results are still good.
- There are several major vessels and important nerves in the area and a major lymphatic channel at both sides of your neck.
- You may have shoulder pain, ear pain, diaphragm elevation, fascial asymmetry, voice disturbances, hoarseness, swallowing difficulties
- All those may be injured inadvertently or sacrificed as a part of oncologic surgery if there have been an existing tumor invasion.
- Fortunately this is not a mortal surgery. The mortality is quite quite rare.
- Much of those complications resolves with in time even with expectant therapy.

# Radical neck dissection

## In Radical Neck Dissection

- Sternocleidomastoid muscle is also included to the anatomical elements which are taken away in modified neck dissection.
- After radical neck dissection you might even have a thinner neck but the functional results are still good.
- It is sometimes needed to perform bilateral dissection

Final result of (bilateral) right and left sided neck dissection several months after surgery



# Prognosis

- Prognosis is not bad even you have had some cancer cells with in your lymph nodes. But they should be eliminated.
- In differentiated thyroid cancers the mortality is very rare if the disease is handled appropriately.
- A central neck disease **SHOULD BE CONTROLLED** to what ever it takes because it is the worst thing to deal with.
- Most of the deaths occurs after an uncontrolled central neck disease.

# Surgery- Radiodine-T4

- After surgery, you might have some additional therapies such as
  - Hormone replacement therapy (T4) (inorder to decrease the level of THS to very very low levels) or
  - Radioiodine therapy (adjunctive to surgery- to kill the microscopic remnants) (side affects are very low- safety margins are very high)

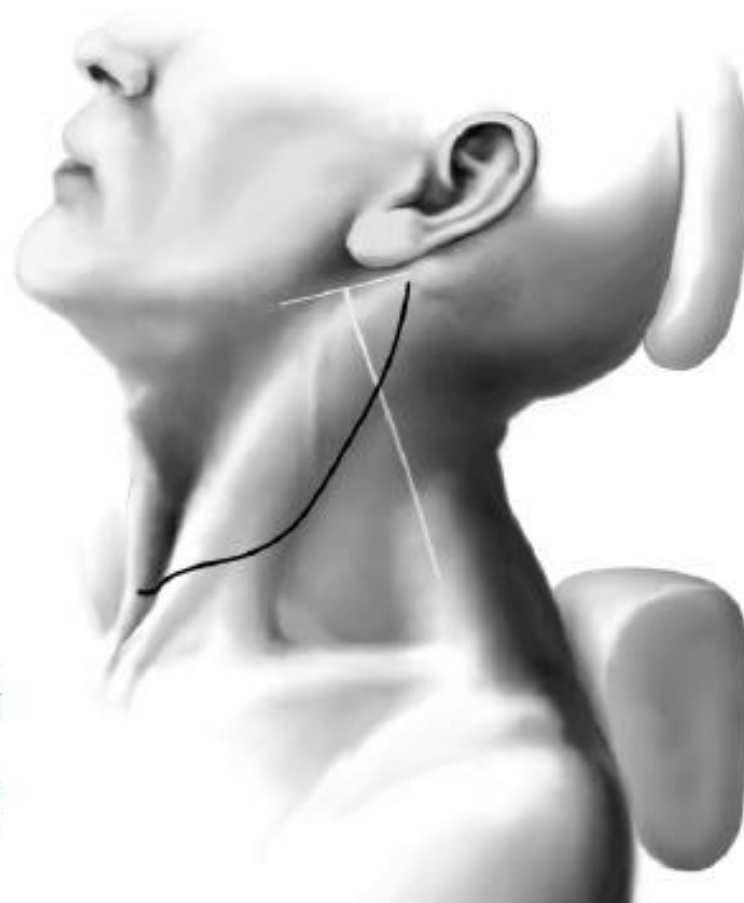
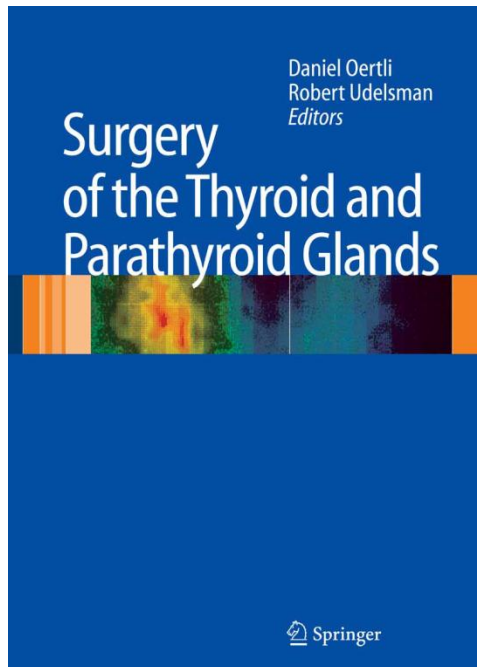
# Thyroglobulin

- This protein is secreted by thyroid tissue or by differentiated thyroid cancer cells
  - If there are no such kind of cells in your body your thyroglobulin level should be ZERO
  - It is not always an achievable target to have a thyroglobulin level of zero.
- Most of the time a decreased level of thyroglobulin levels to some extent is also a good result.
  - Don't forget that we do not treat the mathematics but we treat disease
  - A detectable but low and steady state going thyroglobulin levels does not mean that you have an incurable disease.

# The operation

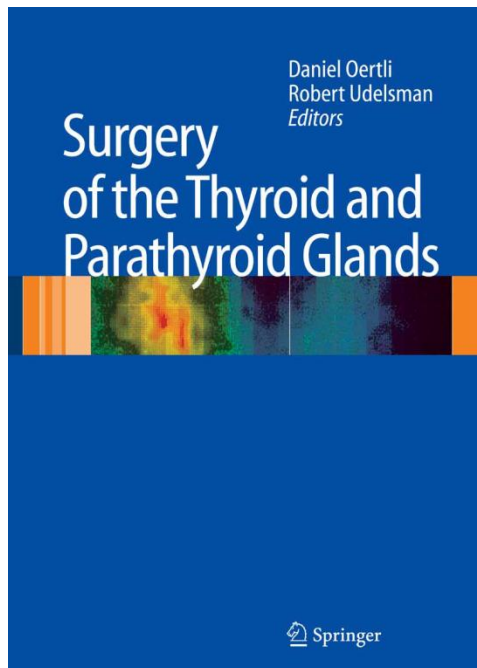
- A skin incision from level of clavicle up to the mastoid bone which is located at the level of your ear is done.
- Skin flaps are prepared
- Lymph nodes bearing areas are dissected and cleared.
- Spinal accessory nerve is preserved if possible. In case of tumor invasion it should be sacrificed
- Greater auricular nerve is preserved if possible
- Jugular vein, sternocleidomastoid muscle, omohyoid muscle and strap muscles may be harvested in case of oncological need
- Carotid artery, Phrenic nerve, vagus nerve should be preserved
- Zone 2,3,4,5,6,7 lymph nodes should be evaluated and dissected.
- Care should be given to not to damage to the spinal accessory nerve, if level 5 (posterior cervical triangle) lymph nodes are dissected.

# Incision



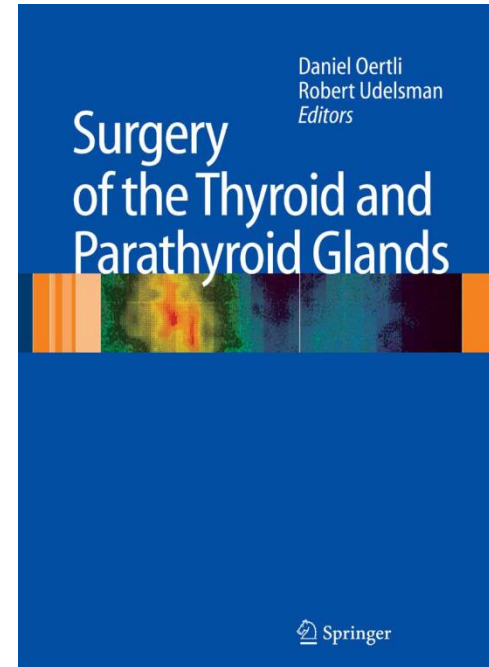
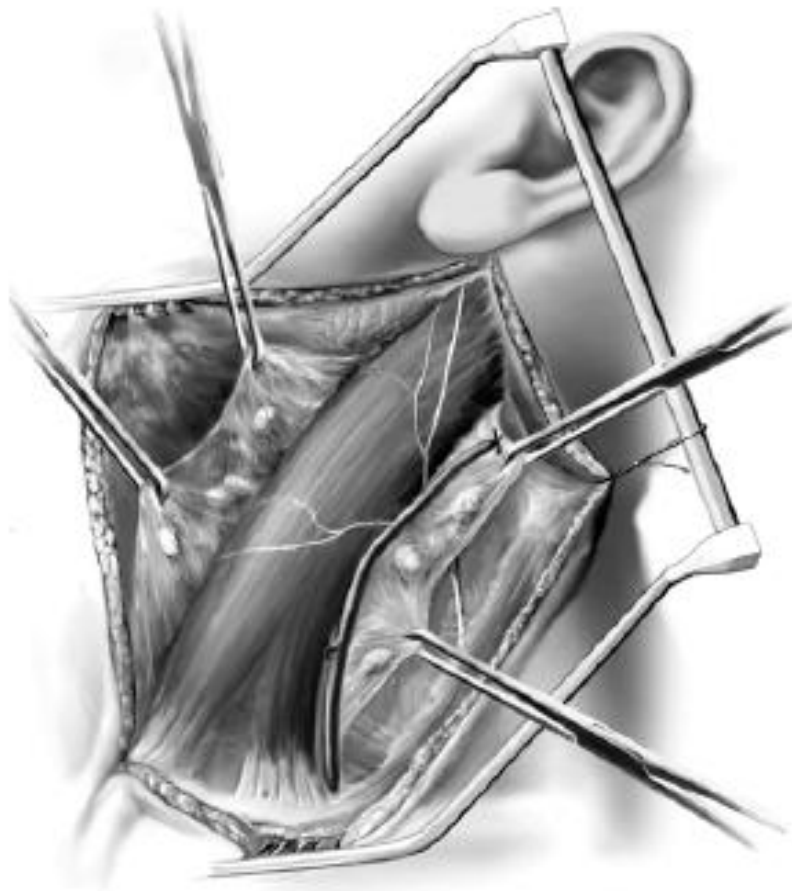
**Fig. 9.1** An inflatable pillow is placed behind the patient's back and the head is extended and supported by a head ring. The course of the spinal accessory nerve is marked on the patient's skin. The most commonly employed incision for thyroid cancer is a continuation of a Kocher incision along the posterior border of the sternocleidomastoid muscle superiorly to approximately 1 inch below the ipsilateral ear lobe

# Preperation of skin flaps



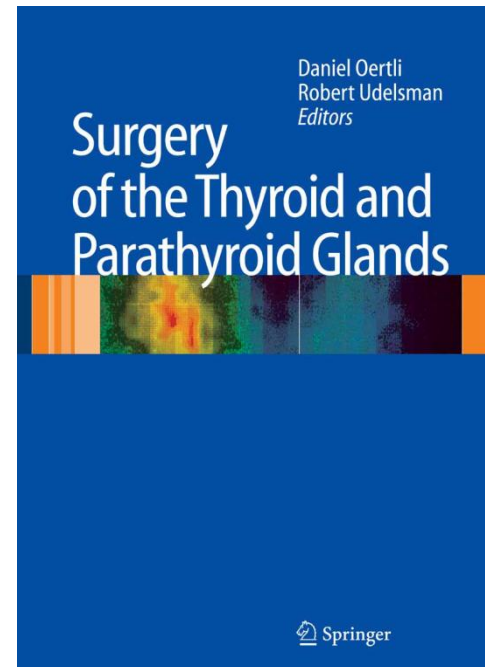
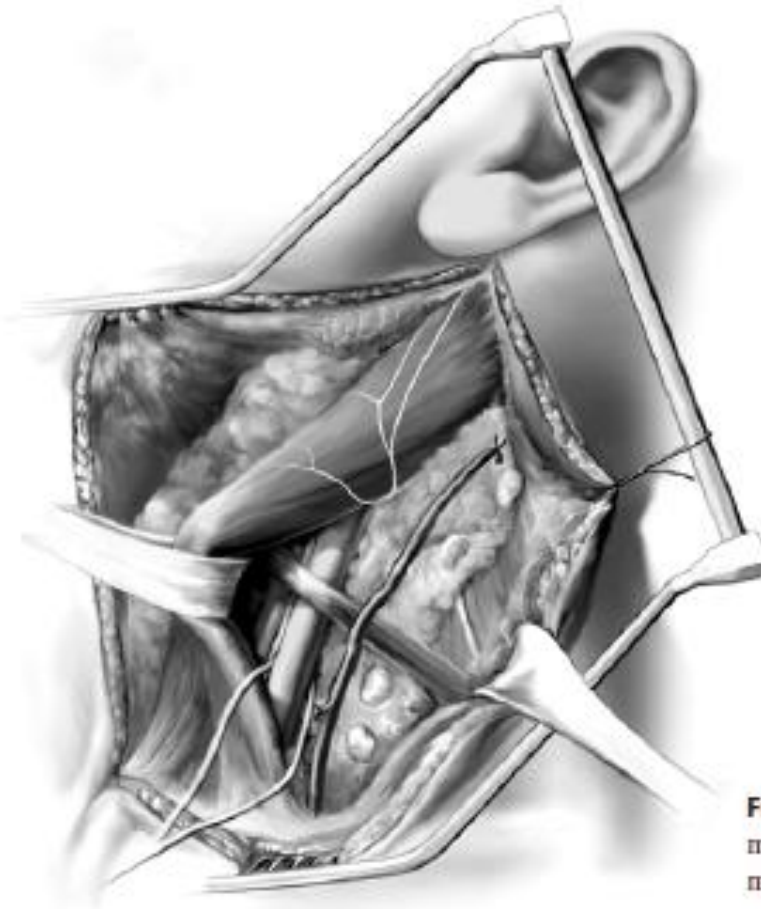
**Fig. 9.2** The subplatysmal flaps have been developed anteriorly and posteriorly. The greater auricular and spinal accessory nerves have been identified and preserved. The sternocleidomastoid muscle and the external jugular vein are visualized

# Identifying nerves and beginning of the dissection of lymph node bearing tissue



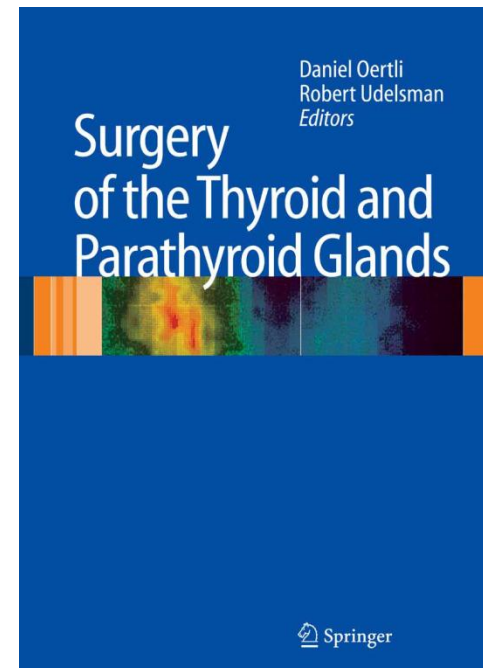
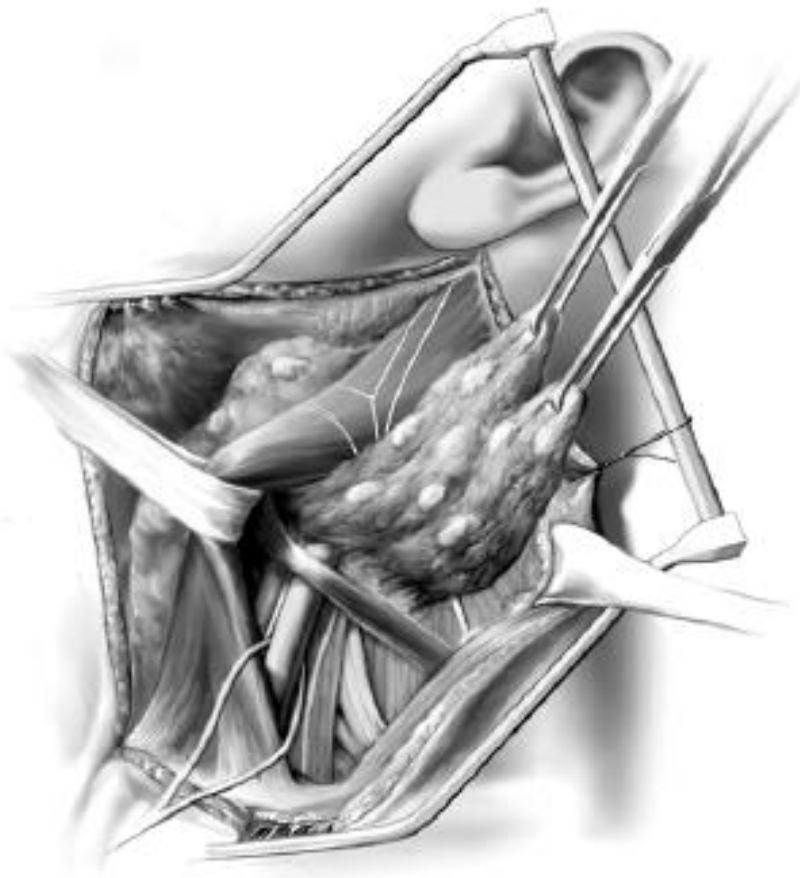
**Fig. 9.3** The external jugular vein is ligated superiorly and the fascial sheath covering the sternocleidomastoid muscle is unwrapped. Lymph nodes along the great vessels of the neck are commonly encountered at this point

# Phases of the procedure



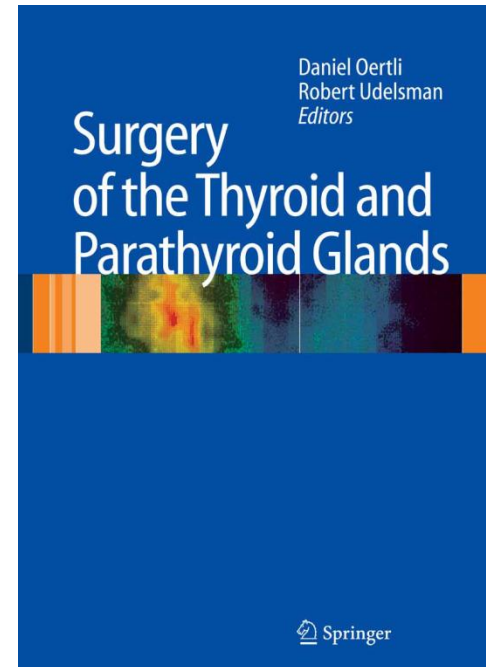
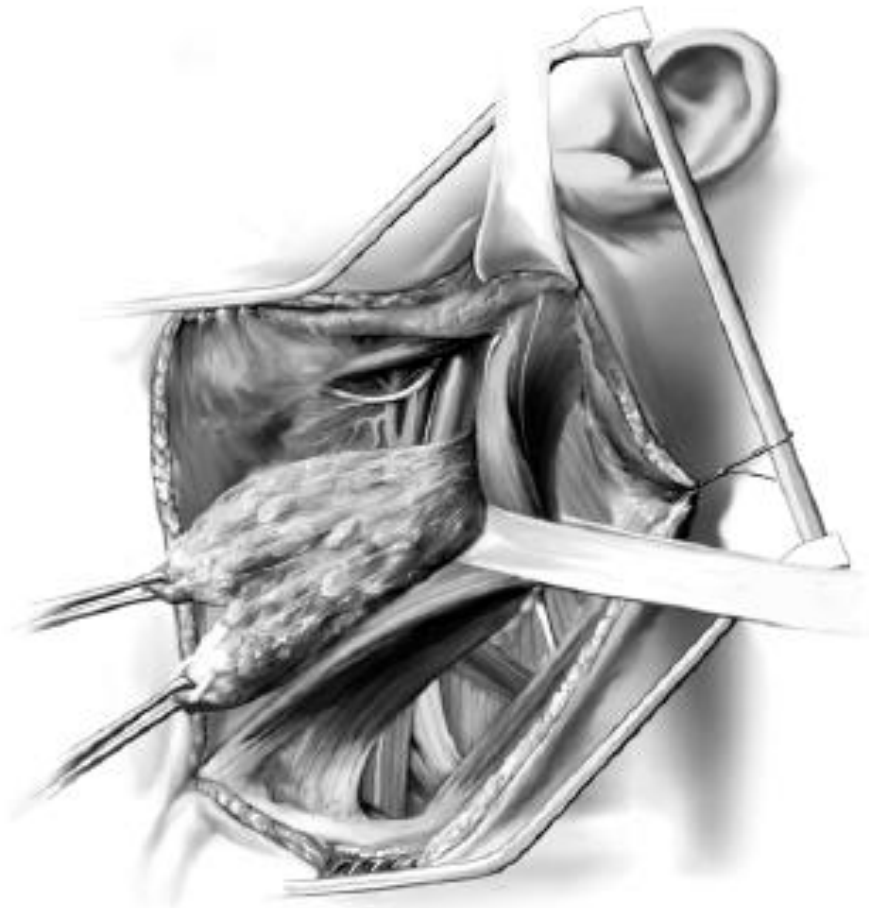
**Fig. 9.4** A Penrose drain is placed around the sternocleidomastoid and the muscle is pulled anteriorly. The omohyoid muscle is preserved and the carotid sheath is identified

# Phases of the procedure



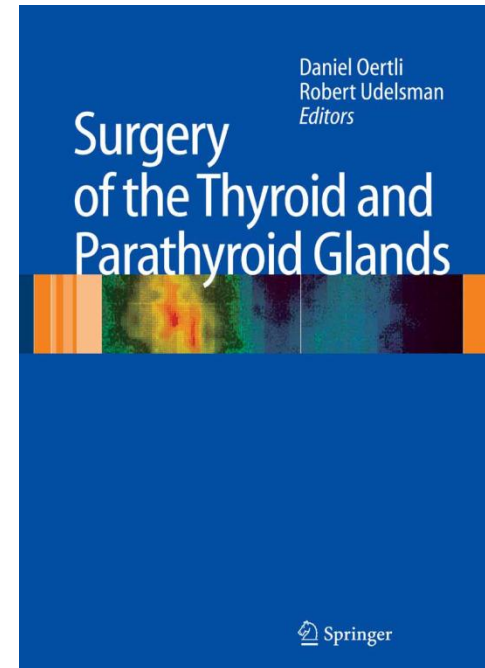
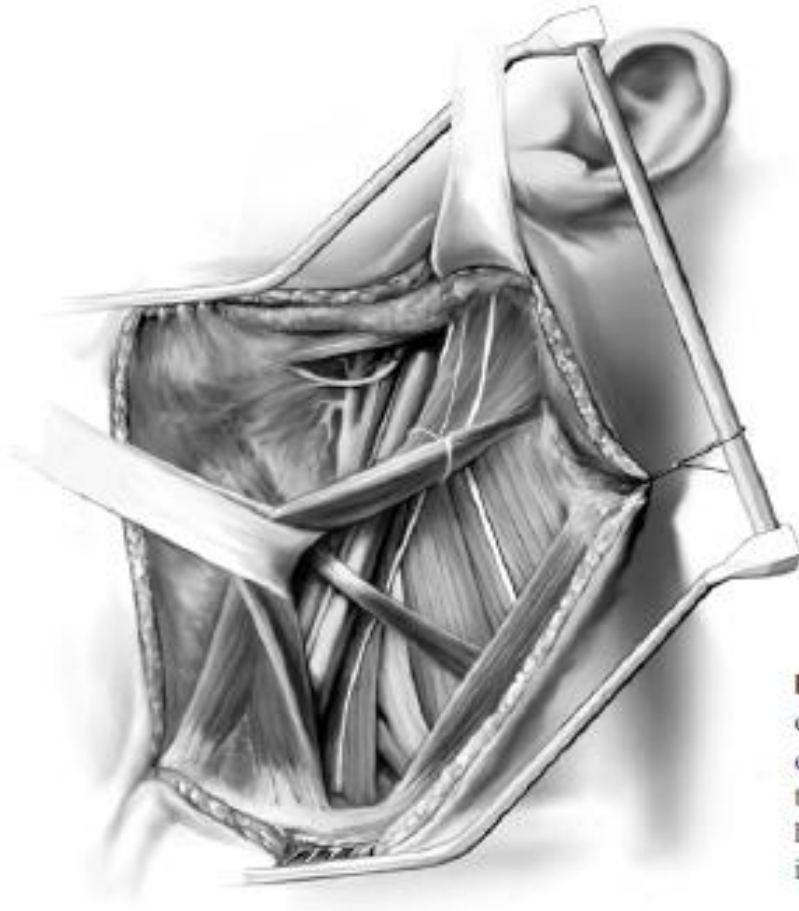
**Fig. 9.5** The cervical fat pad containing lymphatics and nodes is mobilized from below the clavicle and pulled superiorly. The thoracic duct, phrenic nerve, and brachial plexus are protected. As the specimen is mobilized it is passed under the omohyoid muscle and traction is applied to the specimen superiorly

# Phases of the procedure



**Fig. 9.6** The specimen is passed from its lateral position underneath the sternocleidomastoid muscle and is pulled from an inferior-medial direction. A thyroid retractor is used to pull the mandible superiorly and the digastric muscle is identified. The hypoglossal and proximal spinal accessory nerves are identified and preserved. The cervical fat tissues with their contained lymphatics are resected in continuity as the specimen is pulled off the great vessels

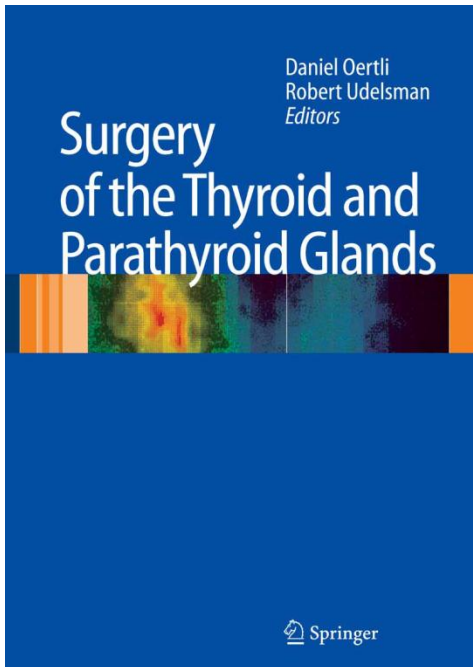
# Final view of the operation area



**Fig. 9.7** The specimen has been removed. The sternocleidomastoid and omohyoid muscles are intact. The common carotid artery, internal jugular vein, as well as the vagus, phrenic, spinal accessory, greater auricular, and hypoglossal nerves are all preserved. The brachial plexus is intact

# Closure

There will be two small negative pressure tubes inserted behind the skin flaps, they will be removed within several days



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It is better to get such kind of  
complex treatment in a  
comprehensive cancer centre

# Post-operative period

- In general most of our patients having similar problems stay in hospital for 6-7 days.
- Sometimes 1 day of Intensive Care Unit stay may be needed.
- Test of cure visits will be held 1. 3. months after surgery.
- Follow up visits will be twice in a year in much of cases.

# Thanks to our dedicated team

- 1. General surgery*
- 2. Anesthesiology*
- 3. Pathology*
- 4. Intensive care*
- 5. Radiology*
- 6. Nuclear Medicine*
- 7. Oncology*
- 8. Endocrine*
- 9. Dept of International*
- 10. Patient Services,*
- 11. Families and real friends of our patients*
- . . . .*



Courtesy of Fatih Agalar, MD

# Remark

*You should always consult your local doctor who is responsible for your treatment,  
This document is only for a brief knowledge about neck dissection in thyroid cancer  
disease,  
This is not a medical second opinion,  
It shouldn't be used as a consultation report,  
This document does not reflect an institution's ideas, attitudes and standards.*