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Management of the Neck in Differentiated Thyroid Cancer

Vanessa C. Stubbs, MD

Assistant Professor

Department of Otolaryngology- Head and Neck Surgery

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Outline

- **Initial Evaluation & Diagnostic Work-up**
  - **How to evaluate the neck**
- **Neck Dissection**
  - **Is it needed?**
  - **Extent**
  - **Medullary Thyroid Cancer**
- **Adjuvant treatment**

Evaluation and Diagnostic Work-Up

How to evaluate the neck

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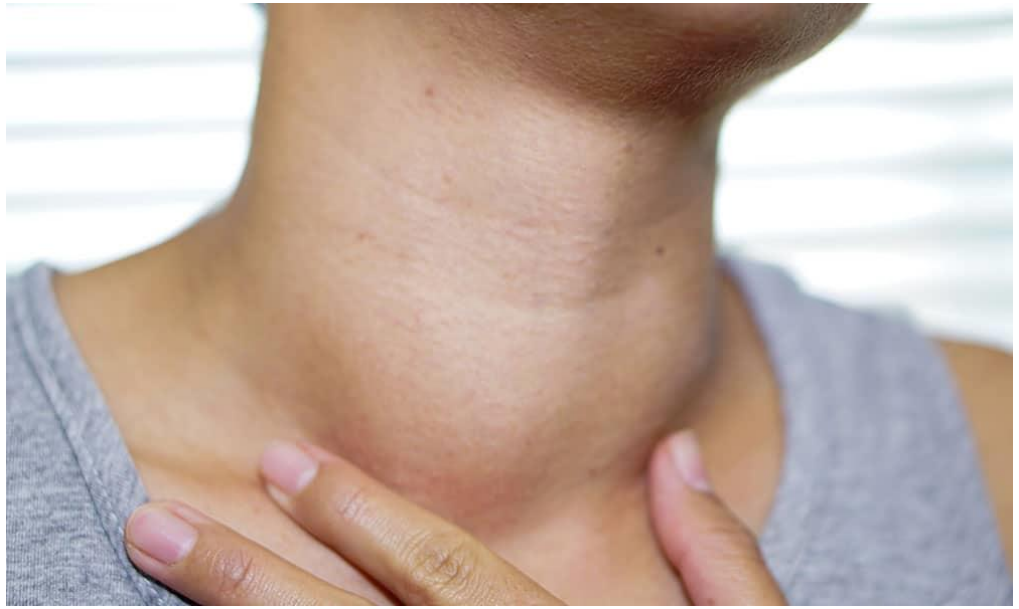
Initial Evaluation = Physical Exam

- Palpable Cervical LAD?
  - Lateral Neck LAD
  - Supraclavicular LAD



Thyroid US + Lymph Node Mapping

- DTC cervical lymph node metastases = 20%–50%[1]
  - May be present even when the primary tumor is small and intrathyroidal
  - Particularly papillary thyroid carcinoma

- Preoperative US identifies suspicious cervical adenopathy in 20%–31% of cases[2]
  - Altering the surgical approach ~ 20% of patients

1. Chow SM, Law SC, Chan JK, Au SK, Yau S, Lau WH 2003 Papillary microcarcinoma of the thyroid—prognostic significance of lymph node metastasis and multifocality. Cancer 98:31–40.
2. Solorzano CC, Carneiro DM, Ramirez M, Lee TM, Irvin GL, III 2004 Surgeon-performed ultrasound in the management of thyroid malignancy. Am Surg 70:576–580.

Thyroid US + Lymph Node Mapping

TABLE 7. ULTRASOUND FEATURES OF LYMPH NODES PREDICTIVE OF MALIGNANT INVOLVEMENT[a]

Sign	*Reported sensitivity, %*	*Reported specificity, %*
Microcalcifications	5–69	93–100
Cystic aspect	10–34	91–100
Peripheral vascularity	40–86	57–93
Hyperechogenicity	30–87	43–95
Round shape	37	70

[a]Adapted with permission from the European Thyroid Association guidelines for cervical ultrasound (20).

Haugen BR, Alexander EK, Bible KC, Doherty GM, Mandel SJ, Nikiforov YE, Pacini F, Randolph GW, Sawka AM, Schlumberger M, Schuff KG, Sherman SI, Sosa JA, Steward DL, Tuttle RM, Wartofsky L. 2015 American Thyroid Association Management Guidelines for Adult Patients with Thyroid Nodules and Differentiated Thyroid Cancer: The American Thyroid Association Guidelines Task Force on Thyroid Nodules and Differentiated Thyroid Cancer. Thyroid. 2016 Jan;26(1):1-133. doi: 10.1089/thy.2015.0020. PMID: 26462967; PMCID: PMC4739132.

DTC Initial Management

- US Neck
  - Assess for cervical LN metastasis
- FNA of concerning LN
  - If areas of concern noted on US Neck AND would change management
- CT or MRI w/ IV contrast
  - IF suspicion for invasive primary tumor, clinically apparent multiple or bulky LN

Haugen BR, Alexander EK, Bible KC, Doherty GM, Mandel SJ, Nikiforov YE, Pacini F, Randolph GW, Sawka AM, Schlumberger M, Schuff KG, Sherman SI, Sosa JA, Steward DL, Tuttle RM, Wartofsky L. 2015 American Thyroid Association Management Guidelines for Adult Patients with Thyroid Nodules and Differentiated Thyroid Cancer: The American Thyroid Association Guidelines Task Force on Thyroid Nodules and Differentiated Thyroid Cancer. Thyroid. 2016 Jan;26(1):1-133. doi: 10.1089/thy.2015.0020. PMID: 26462967; PMCID: PMC4739132.

Surgical Management of the Neck

When is neck dissection needed and to what extent?

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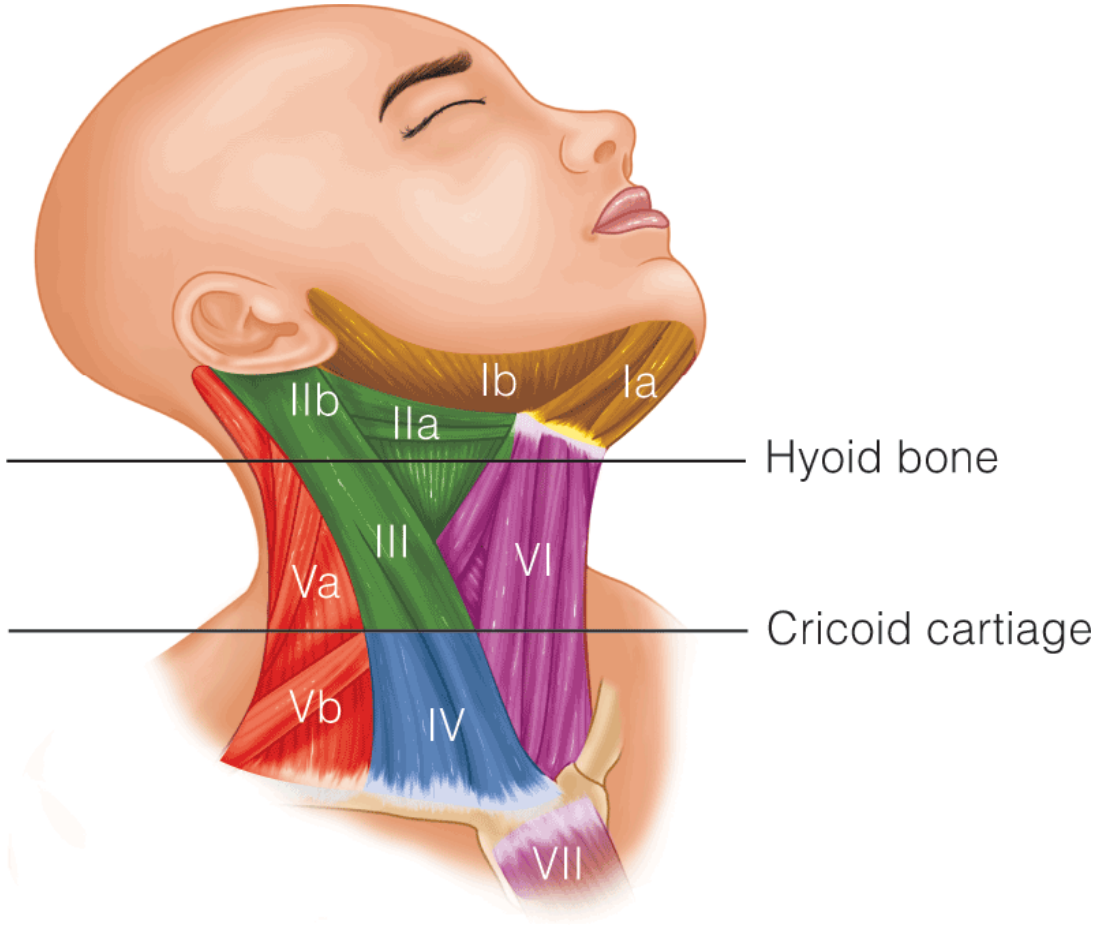
When to do a Neck Dissection:

- Central ND:
  - Clinically involved central nodes
  - Can be performed if clinically uninvolved central neck lymph nodes BUT advanced primary tumor (T3 or T4) or clinically involved lateral neck nodes
- Lateral ND:
  - Biopsy-proven metastatic lateral cervical lymphadenopathy



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Surgical Treatment of Medullary Thyroid Carcinoma

- Total Thyroidectomy and central neck dissection
  - If dx on hemithyroidectomy → completion thyroidectomy + CND
  - Unilateral intrathyroidal tumors showed LN mets in:[1]
    - 81% of central compartment (level VI) dissections,
    - 81% of ipsilateral lateral compartment (levels II to V) dissections
    - 44% of contralateral lateral compartment (levels II to V) dissections

Moley JF, DeBenedetti MK 1999 Patterns of nodal metastases in palpable medullary thyroid carcinoma: recommendations for extent of node dissection. **Ann Surg** 229:880–887; discussion 887–888.

Surgical Treatment of MTC

- When to do a lateral neck dissection?
  - If there are cervical LN noted on preoperative imaging
  - Ipsilateral neck +/- if there is no evidence of cervical LN mets (not a strong recommendation)
  - + ipsilateral lateral neck nodes, - contralateral neck nodes: consider contralateral neck dissection if the basal serum calcitonin level >200 pg/mL

Samuel A. WellsJr., Sylvia L. Asa, Henning Dralle, Rossella Elisei, Douglas B. Evans, Robert F. Gagel, Nancy Lee, Andreas Machens, Jeffrey F. Moley, Furio Pacini, Friedhelm Raue, Karin Frank-Raue, Bruce Robinson, M. Sara Rosenthal, Massimo Santoro, Martin Schlumberger, Manisha Shah, and Steven G. Waguespack.Revised American Thyroid Association Guidelines for the Management of Medullary Thyroid Carcinoma.Thyroid.Jun 2015.567-610.

Adjuvant treatment

After neck dissection, is anything else needed?

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Role of RAI

- Used as adjuvant therapy following total thyroidectomy for:
  - ATA high risk pts
  - Considered for ATA intermediate risk pts
- Not indicated for ATA low risk pts

High Risk

Gross extrathyroidal extension, incomplete tumor resection, distant metastases, or lymph node >3 cm

Intermediate Risk

Aggressive histology , minor extrathyroidal extension, vascular invasion, or > 5 involved lymph nodes (0.2-3 cm)

Low Risk

Intrathyroidal DTC
≤ 5 LN micrometastases (< 0.2 cm)

Cooper DS, Doherty GM, Haugen BR, Kloos RT, Lee SL, Mandel SJ, Mazzaferri EL, McIver B, Pacini F, Schlumberger M, Sherman SI, Steward DL, Tuttle RM. 2009 Revised American Thyroid Association management guidelines for patients with thyroid nodules and differentiated thyroid cancer. Thyroid 19:1167–1214

Key Points

- US Neck is a good preoperative tool to assess for cervical LAD and can change surgical planning
- If there are any clinically involved nodes = do a neck dissection
- Lateral ND for biopsy proven metastasis
- MTC very commonly has LN mets = do the ND

Thank you

Questions?

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References

- Chow SM, Law SC, Chan JK, Au SK, Yau S, Lau WH 2003 Papillary microcarcinoma of the thyroid—prognostic significance of lymph node metastasis and multifocality. Cancer 98:31–40.
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