

Central Compartment Lymph Node Dissection

I do it, and I don't know why!

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Patient

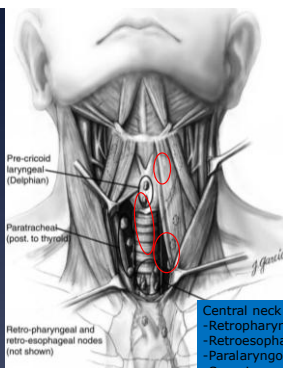
23 year old otherwise healthy female presents referred by endocrinologist after biopsy of an isolated right 3x3 cm thyroid nodule biopsy positive for papillary thyroid carcinoma. Ultrasound shows no suspicious central or lateral lymph nodes

Options:

Total Thyroidectomy +/-
Central Compartment Lymph
Node Dissection

Micro versus Macrometastasis

- | | |
|---|---|
| * Micromets: | * Macromets |
| * Clinically and Radiographically N0, but positive on pathology | * Clinically or Radiographically positive |



Central neck dissection (minimum)
-Pre-laryngeal
-Pre-tracheal
-Para-tracheal

Central neck dissection may be extended to:
-Retropharyngeal
-Retrosophageal
-Paralaryngopharyngeal (superior vascular pedicle)
-Superior mediastinal (inferior to innominate artery)

ATA Guideline. Consensus Statement on the Terminology and Classification of Central Neck Dissection for Thyroid Cancer. *Thyroid*. Volume 19, Number 11, 2009

Central Neck dissection

- * SEER (Surveillance, Epidemiology, and End Results) database
- * 9904 Papillary thyroid cancer
- * Cervical LN met in papillary cancer of Age>45
 - * Independent risk factor for decreased survival
- * The most common site for lymph node metastases and DTC recurrence is within the central compartment
 - * Roh JL et al. Total thyroidectomy plus neck dissection in differentiated papillary thyroid carcinoma patients: pattern of nodal metastasis, morbidity, recurrence, and postoperative levels of serum parathyroid hormone. *Ann Surg* 2007;245:604-610.
- * Central neck dissection may convert some patients from cN0 to pathologic N1a

Central Neck dissection

- * Mayo clinic 60-year observation in 900 patients with <1cm microcarcinoma
- * In 450 patients with any form of LN surgery done,
 - * 30% lymph node involvement at initial surgery
- * 80% recurrence at central LN

Hay ID et al. Papillary thyroid microcarcinoma: a study of 900 cases observed in a 60-year period. Surgery 2009. 144:980-987.

CND may reduce recurrence

- * In 950 Papillary thyroid cancer patients
 - * Stage I 45%, Stage II 25%, Stage III 22%, Stage IV 6%
 - * 75% LN dissection done (mostly CND only)
- * Recurrences
 - * **LN dissection: 6.8%**
 - * **No LN dissection: 16.5% (p<0.001)**
 - * Stage I (1%), Stage II (6%), Stage III (6%), Stage IV (7.7%)
- * **No difference in 10-yr / 15-yr survival**
 - * Tomiata A et al. Papillary thyroid carcinoma: factors influencing recurrence and survival. Ann Surg Oncol 2008;15: 1518-1522.

Central Neck Dissection

- * Seems Improve survival in comparing observational studies

Table 5. Comparison of the present study with two other recent Scandinavian studies.

City of the study	Study period	No. of patients	Stage III (% of patients)	Lymph node dissection	¹³¹ I treatment (% of patients)	Median follow-up (years)	Death due to thyroid cancer*
Helsinki [22]	1956-1979	199	19	No information	?	11.5	11.1
Göteborg	1970-1989	195 ^b	37	Microdissection	6	13	1.6
Bergen [14]	1971-1989	167	28	"Node-Picking"	41	10	8.4

Tisell LE et al. Improved survival of patients with papillary thyroid cancer after surgical microdissection. World J Surg 1996. 20:854-859.

Central Neck Dissection

- * Increases the proportion of patients who appear disease free with unmeasurable Tg levels 6 months after surgery
- * undetectable TG levels
 - * Total thyroidectomy + CND: 72%
 - * Total thyroidectomy only: 43% (p<0.001)
- * Sywak M et al. Routine ipsilateral level VI lymphadenectomy reduces postoperative thyroglobulin levels in papillary thyroid cancer. Surgery 2006. 140:1000-1007

Central neck dissection increases complications?

Complications of thyroidectomy alone Vs thyroidectomy + CND

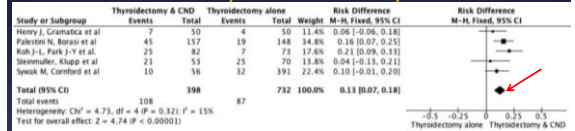


Fig. 1. Temporary hypocalcemia

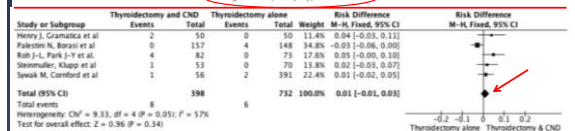
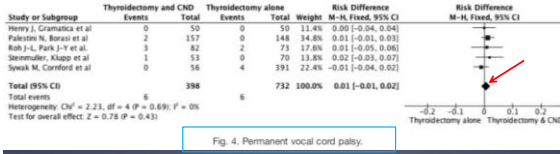
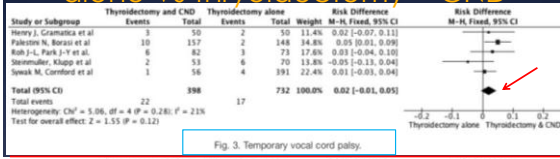


Fig. 2. Permanent hypocalcemia

Chrischlow et al. Systematic review and meta-analysis of the adverse effects of thyroidectomy combined with central neck dissection as compared with thyroidectomy alone. Laryngoscope 2009 Jun;119(6):1135-9

Complications of thyroidectomy alone Vs thyroidectomy + CND



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Central Neck Dissection

- * All existing literatures are cohort studies
- * **No RCT**
- * American thyroid association has commented it is NOT feasible to do an RCT on prophylactic central neck dissection
- * Need to randomize 5840 patients to have enough power to show a difference in recurrence or complications!

American Thyroid Association Design and Feasibility of a Prospective Randomized Controlled Trial of Prophylactic Central Lymph Node Dissection for Papillary Thyroid Carcinoma. *THYROID*, Volume 22, Number 3, 2012

American Thyroid Association (ATA) guideline – Central neck dissection



- * **Prophylactic central-compartment neck dissection (ipsilateral or bilateral)**
PTC with clinically uninvolved central neck LN, especially for advanced primary tumors (T3 or T4).
* Recommendation rating: C
- * **Near-total or total thyroidectomy without prophylactic central neck dissection**
for small (T1 or T2), noninvasive, clinically node-negative PTCs.
* Recommendation rating: C
- * **These recommendations should be interpreted in light of available surgical expertise.**

My Protocol

- First perform an ultrasound (Even if it has already been done)
- If positive central/lateral appropriate neck dissection
- If negative and primary tumor is greater than 2cm (T2 or greater) then perform CCLND
- Why? – Endocrinologist preference – base I-131 dose on positivity