19th Annual Magnolia Conference
May 31 - June 1, 2019

Greg Randolph MD FACS FACE
Professor Otolaryngology Head and Neck Surgery
Claire and John Bertucci Endowed Chair in Thyroid Surgical Oncology, Harvard Medical School
President American Academy of Otolaryngology
Head Neck Surgery 2016-17
American Head and Neck Society Endocrine Surgery Section Chair

Communication and Complication
• Born 1828
• Ophthalmologist
• Undergrad Harvard University
• Learned German from Henry Wadsworth Longfellow
• Summered in Brooks Farm Utopian – transcendentalism, shared labor
• Harvard Medical School 1854
• Mass General Hospital residency
• Ophthalmology training Paris, Vienna and Berlin
• Age 29 to Chicago
• Spring 1858 founded Chicago Charitable Eye and Ear Infirmary (CL & O), President 1855

Relevant Financial Disclosures- None
Communication

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Communication preop introductory points
...TALK A LOT

to patients,
to endocrinologists/surgeons,
to cytologists
...to patients

Preop time

- Visit #1 Consult and Surgical folder given
- Visit #2 Preop-re-discussion, concents

Include staging with loss of signal
Talk to the patient...a lot
“Patient-MD agenda matching”

...to endocrinologists (or surgeons),
A) For patients with thyroid cancer >4 cm, or with gross extrathyroidal extension (clinical T4), or clinically apparent metastatic disease to nodes (clinical N1) or distant sites (clinical M1), the initial surgical procedure should include a near-total or total thyroidectomy and gross removal of all primary tumor unless there are contraindications to this procedure. (Strong Recommendation, Moderate-quality evidence)

B) For patients with thyroid cancer >1 cm and <4 cm without extrathyroidal extension, and without clinical evidence of any lymph node metastases (cN0), the initial surgical procedure can be either a bilateral procedure (near-total or total thyroidectomy) or a unilateral procedure (lobectomy). Thyroid lobectomy alone may be sufficient initial treatment for low risk papillary and follicular carcinomas; however, the treatment team may choose total thyroidectomy to enable RAI therapy or to enhance follow-up based upon disease features and/or patient preferences. (Strong Recommendation, Moderate-quality evidence)

C) If surgery is chosen for patients with thyroid cancer <1 cm without extrathyroidal extension and cN0, the initial surgical procedure should be a thyroid lobectomy unless there are clear indications to remove the contralateral lobe. Thyroid lobectomy alone is sufficient treatment for small, unifocal, intrathyroidal carcinomas in the absence of prior head and neck irradiation, familial thyroid carcinoma, or clinically detectable cervical nodal metastases. (Strong Recommendation, Moderate-quality evidence)
**2015 RECOMMENDATION 35**

**Contralateral US, No ETE, No nodes**

- **Factors supporting unilateral surgery for low to intermediate risk patients:**
  - Recent data has demonstrated that in properly selected patients, clinical outcomes are very similar following unilateral or bilateral thyroid surgery.
  - With proper patient selection, loco-regional recurrence rates of less than 1-4% and completion thyroidectomy rates of less than 10% can be achieved following thyroid lobectomy.
  - A selective approach towards use of RAI in low to intermediate risk patients has also prompted critical reassessment of the extent of surgery required.

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Talk to your endocrinologist …a lot “MD-MD agenda matching” …and allows the patient the perception of a unified team.
The smear is characterized by a paucity of cells and material that may represent colloid. Cells are in both macro and micro arrays with mild nuclear abnormalities. Clinical correlation is advised.

Beware the Non-Bethesda cytology report “Bethesda 7”

Talk to your cytologist … enough “Surgeon-Dx matching”
Complication

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Theodor Billroth (1829–94)

Theodor Billroth 1860
Chair of Surgery, Zurich

- 20 thyroidectomies
- Mortality rate 40%: hemorrhage, sepsis
...but we still have some problems ...
Objective: To test the hypothesis that rates of thyroid surgery vary across US geographic regions
Background

- Known regional variations in many conditions otherwise similar
- The variation is > when Rx is not standardized
- Regional Variation – inadequate access vs inappropriately high care level
- Variation in regional rates of
  --Thyroid sx compared with
  --Rates of prostatectomy (wide variation)
  --Hospitalization hip fracture (low variation)

METHODS

- **Data source:** Medicare/ Medicaid services (CMS)
- partial or total thyroidectomy in 2014
  15,888 thyroidectomies
- Thy sx (TT and partial) compared with total prostatectomy & hospitalization for hip fracture stratified by hospital referral region (HRR)
RESULTS

Regional diff in rates:

thy Sx :6.2-fold

Hip fracture hospitalization: 2.2-fold

prostatectomy: 5.6-fold

Distribution of adjusted thyroidectomy rates /100,000 Medicare beneficiaries across U.S. hospital referral regions
Conclusions:

• **Variation** in USA Thyroidectomy rates (Medicare) > 6-fold

• Wide variation in thyroidectomy rates
  - unrelated to
    - health care availability,
    - regional socioeconomic status,
    - surgeons/capita
  - ??? divergent local beliefs/practice in Thy cancer Rx

• More work needed to understand variation in thyroidectomy

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*2015 American Thyroid Association Management Guidelines for Adult Patients with Thyroid Nodules and Differentiated Thyroid Cancer*

The American Thyroid Association (ATA) Guidelines Taskforce on Thyroid Nodules and Differentiated Thyroid Cancer*


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**We need!!**

Massachusetts Eye and Ear • Beth Israel Deaconess Medical Center • Boston Children’s Hospital

Dana and Women’s Hospital • Massachusetts General Hospital
American Head and Neck Society Endocrine Section clinical consensus statement: North American quality statements and evidence-based multidisciplinary workflow algorithms for the evaluation and management of thyroid nodules

Charles J. Meltzer MD1  |  Jonathan Irish MD, MSc1  |  Peter Angelos MD, PhD2  |  Naif Al Baalousy MD3  |  Louise Davies MD, MS4,5,6  |  Sunshine Dwojak MD, MPH6  

[Diagram: Multidisciplinary workflow algorithms for the evaluation and management of thyroid nodules]
Problem # 2...

Thyroid Surgical Complications

- No personal knowledge – just from my reading !!
Surgical Anatomy
Normal Singing Voice

Voice and Calcium

*The Scylla and Charybdis of Thyroid Complications*
Calcium

Permanent hypoparathyroidism after total thyroidectomy

The multicentre & registries era

- SWEDISH Reg: 6.4%
- BAETS Audit: 12.1%
- ACS CoC: 10%
- GERMAN MC: 9-25%
Minimum number of 155 thyroidectomies per year per surgeon

Minimum number of thyroidectomies to achieve a Permanent hypopara rate of <1%
Minimum number of thyroidectomies to achieve a RLN-palsy rate of <1%

As we think about thyroidectomy

- Recognize that it's not just the surgeon but the surgery
  Total >>>> Hemi complications

More surgery.....more complications
Increasing trends in overall thyroid surgeries and total thyroidectomies, but decreasing partial thyroidectomy rates between 1990-1999 and 2000-2009 (P < .001).

- 21,270 cases, 51 hospital
- Maryland HSCRC database
A cross-sectional analysis of all patients who underwent total and unilateral thyroidectomy between 2003-2009 = 62,722 procedures

Discharge information from the Health Care Utilization Project- National Inpatient Sample (HCUP-NIS) administrative database

Rate of complication by types of thyroidectomy and by surgeon volume

- Higher risk of complication with total thyroidectomy
- Increased risk persists among High volume surgeons

**Annals of Surgical Oncology, 2014 Hauch A, Al-Qurayshi, Z, Randolph GW, Kandil E**
Autopsy studies demonstrate that normal thyroid gland is often found in the ligament of Berry.

The thyroid gland is encompassed in a discontinuous pseudocapsule derived from midline deep cervical fascia rather than a well defined anatomical fibrous capsule.

*Sasou et al. Head Neck, 1998

141 DTC patients operated on at MSKCC
Total thyroidectomy and RAI ablation

<table>
<thead>
<tr>
<th>Visible uptake on diagnostic scan (123I)</th>
<th>Yes</th>
<th>93%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uptake (%)</td>
<td>Median</td>
<td>0.32</td>
</tr>
<tr>
<td></td>
<td>Range</td>
<td>0.01-8.24</td>
</tr>
<tr>
<td>Visible uptake on Post therapy SPECT/CT</td>
<td>Yes</td>
<td>98.6%</td>
</tr>
<tr>
<td>Suppressed Tg at RRA</td>
<td>&lt; 0.6 ng/ml</td>
<td>53%</td>
</tr>
<tr>
<td></td>
<td>&lt; 1.0 ng/ml</td>
<td>73%</td>
</tr>
</tbody>
</table>

Population-Based Assessment of Complications Following Surgery for Thyroid Cancer

Maria Papaleontiou,1 David T. Hughes,2 Cui Guo,3 Mousumi Banerjee,3 and Megan R. Haymart1

1Division of Metabolism, Endocrinology, and Diabetes, Department of Internal Medicine, University of Michigan, Ann Arbor, Michigan 48106; 2Division of Endocrine Surgery, Department of General Surgery, University of Michigan, Ann Arbor, Michigan 48109; and 3School of Public Health, Department of Biostatistics, University of Michigan, Ann Arbor, Michigan 48109

J Clin Endocrinol Metab, July 2017, 102(7):2543–2551
Aim:
To determine thyroid cancer surgery complication rates with a POPULATION BASED DATA & thereby identify at risk population

Method:
SEER medicare database (1998-2011)

27,912 patients with sx for DTC & MTC
- 1820 patients (6.5%) had general postop complications
- 3427 patients (12.3%) had thyroid Sx specific complications

General postop complications:
Postop. fever, infection, hematoma/hemorrhage, cardiopulmonary & thromboembolic events (in the first 30 postop days)

Thyroid Sx specific complications:
Hypoparathyroidism/hypocalcemia, vocal cord/fold paralysis
(31 days to 1 yr postop- to avoid transient complications)

(a) Thyroid cancer stage & complication rate

![Graph showing thyroid cancer stage and complication rate](image)

- P-values were calculated based on chi-square test for linear trend.

5/31/19
(b) Age & complication rate

- **Patient Age**
  - 65 or less
  - Over 65

- **General complications**
  - 65 or less: 3.2%
  - Over 65: 20%

- **Thyroid surgery specific complications**
  - 65 or less: 6.1%
  - Over 65: 19.1%

*P-values were calculated based on chi-square test for linear trend.*

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(C) Charlson comorbidity score & complication rate

- **Charlson Comorbidity Score**
  - 0
  - 1
  - 2 or more

- **General complications**
  - 0: 0.9%
  - 1: 2.4%
  - 2 or more: 9.0%

- **Thyroid surgery specific complications**
  - 0: 3.7%
  - 1: 6.9%
  - 2 or more: 15.9%
2.1 | Case identification

Records of patients between the ages of 20 and 69 who underwent thyroidectomy in England between 2004 and 2012 were obtained.

3.1 | Patient characteristics

Over the study period, 43,515 low-risk patients with a mean age of 46±12 and with a strong female preponderance (85%) electively underwent thyroidectomy for the first and only time. Overall, 89%

FIGURE 1 | Relationship between occurrence of future vocal palsy and (A) emergency readmission, (B) hospitalisation for acute lower respiratory tract infection, (C) dysphagia and (D) placement of tracheostomy or a tracheotomy tube. The Kaplan-Meier plots were adjusted using Cox regression models provided in Table 2 with the vocal palsy as the endpoint variable.
Problem # 3...

Incidence

We do have a problem...
• Review of OVERDIAGNOSIS of thyroid cancer over the past two decades in selected high-income countries

• Excess “Diagnosis of thyroid tumors that would not, if left alone, result in symptoms or death”

Dramatic rise in Thyroid cancer- mainly small PTC beyond the # predicted by multistage modelling

Armitage & Doll

…but mortality has not been proportionate
Changes in age-specific incidence rates per 100,000 of thyroid cancer in Women: observed vs expected* (from selected countries, 1988-2007)

* under the multistage model of carcinogenesis

Country site: # of overdiagnosed cases
Between 1988-2007

- USA = 228,000
- Italy = 65000
- France = 46000
- Japan = 36000
- Australia = 10000

Between 1993-2007

- South Korea = 77000
...but mortality has not been proportionate

Chen Cancer 2009

And after surgery we do a lot ...
Thyroid Cancer Cost in US in 2013

- $1.6 billion
- Comparable the cost of other solid tumors such as cervical, gastric, and esophageal cancer
Washington State Cancer Patients Found To Be At Greater Risk For Bankruptcy Than People

<table>
<thead>
<tr>
<th>Cancer type</th>
<th>No. of cancer patients and controls</th>
<th>Hazard rate</th>
<th>Cancer</th>
<th>After new bankruptcy law</th>
<th>Nonmedical</th>
<th>Group-law interaction</th>
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</thead>
<tbody>
<tr>
<td>Breast</td>
<td>69,980</td>
<td>2.11</td>
<td>0.55</td>
<td>1.32</td>
<td>0.79</td>
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<tr>
<td>Colorectal</td>
<td>34,486</td>
<td>3.02</td>
<td>0.60</td>
<td>1.22</td>
<td>0.59</td>
<td></td>
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<tr>
<td>Leukemia/Lymphoma</td>
<td>36,246</td>
<td>2.00</td>
<td>0.87</td>
<td>1.11</td>
<td>0.53</td>
<td></td>
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<tr>
<td>Lung</td>
<td>48,454</td>
<td>3.81</td>
<td>0.61</td>
<td>1.16</td>
<td>0.59</td>
<td></td>
</tr>
<tr>
<td>Malaria</td>
<td>21,600</td>
<td>2.61</td>
<td>0.49</td>
<td>1.03</td>
<td>0.74</td>
<td></td>
</tr>
<tr>
<td>Non-Hodgkin</td>
<td>26,720</td>
<td>3.89</td>
<td>0.49</td>
<td>1.50</td>
<td>0.75</td>
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<tr>
<td>Thyroid</td>
<td>9,960</td>
<td>3.40</td>
<td>0.47</td>
<td>1.36</td>
<td>0.55</td>
<td></td>
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<tr>
<td>Uterine</td>
<td>12,892</td>
<td>2.34</td>
<td>0.56</td>
<td>1.29</td>
<td>0.57</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>94,778</td>
<td>2.97</td>
<td>0.58</td>
<td>1.11</td>
<td>0.64</td>
<td></td>
</tr>
<tr>
<td>All</td>
<td>395,080</td>
<td>2.65</td>
<td>0.57</td>
<td>1.24</td>
<td>0.67</td>
<td></td>
</tr>
</tbody>
</table>

Communication and Complication

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Surgery of the Thyroid and Parathyroid Glands
Harvard Medical School, Boston

November 6th and 6th 2020

https://cmeregistration.hms.harvard.edu/thyroidsurgery2018

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Massachusetts Eye and Ear | Division of Thyroid and Parathyroid Surgery

SAVE THE DATE

World Congress on Thyroid Cancer 25
an international meeting on thyroid cancer and nodules

JUNE 20 - 22, 2019
Parco Dei Principi | Rome, Italy
ROME, ITALY

The world's most cutting-edge educational meeting for thyroid cancer professionals.
A comprehensive program with the global leaders in thyroid medicine.

https://q.eqxiu.com/s/AgU9YI4d
Thank you