Shaha’s Aphorisms

The rule of 20: Only 20% of the people will remember 20% of what you said 20 minutes after your lecture.

Thyroid Literature

Medline

Thyroid disease 136,053
Thyroid tumors 33,554

- New Paper on Thyroid Disease – Every 3 Hours
- New Paper on Thyroid Cancer – Every 8 Hours

Thyroid Google search 36 million
Thyroid Cancer Google search 21 million

Trends in Incidence of Thyroid Cancer and Papillary Tumors by Size in the United States

[Graph showing trends in incidence]
**Incidentaloma of the Thyroid**

**Clinical**
- Routine physical exam
- Obstetrics – Check up
- Pregnancy – Prenatal

**Imaging**
- CT
- MRI – Trauma, cervical spine
- Ultrasound – Carotid, breast

**PET Scan**

---

**PET Incidentaloma**

**PET Associated Incidental Neoplasms (PAIN)**

- Focal vs Diffuse Uptake
- 50% malignancy in patients with focal uptake
- Oncocytic pathology, tall cell or insular tumors

---

**Thyroid Cancer**

**A Unique Human Neoplasm**

- Age is the most important prognostic factor
- No stage III & IV cancers in pts below 45
- Multicentricity of thyroid cancer is frequent – no prognostic impact
- Microscopic tumor – “laboratory cancer”
- Nodal metastasis has no impact on outcome
- Impact of extrathyroidal spread
- Grade of the tumor & histologic poorly differentiated features

*Katz/Shahe, J Am Coll Surg 2008*
**Surgical Principles**

- Evaluate the risk groups
- Evaluate the prognostic factors
- Evaluate the extent of disease
- Evaluate extrathyroidal extension
- Cost effective/Evidence based management
- Avoid overtreatment and treatment related surgical & medical complications

**Minimally Invasive Surgery**

- Nodulectomy
- Lobectomy / isthmusectomy
- Subtotal Thyroidectomy
- Local anesthesia / regional block
- Outpatient Surgery
- 23 hr discharge
- Small incision surgery – 3-5 cm
- Endoscopic - Video assisted
  - Cervical
  - Chest approach
  - Submammary
  - Transaxillary
- Robotic Transaxillary
- Bilateral Axillary Breast Approach (BABA)
- Transoral Thyroidectomy

**Transrectal Thyroidectomy**
Differentiated Thyroid Cancer 1980-1980

**SURVIVAL: Lobectomy vs. Total**

**Low Risk Group**

- Grossly palpable disease in both lobes
- High risk patient with high risk tumor
- Radiated patient
- Young patient with large nodal metastasis to facilitate RAI
- Patient with distant metastasis likely to require RAI
Let the punishment fit the crime.

Management Guidelines for Patients with Thyroid Nodules and Differentiated Thyroid Cancer

Estimating Risk of Recurrence
2009 Update

Low Risk
- Classic PTC
- No local or distant mets
- Complete resection
- No tumor invasion
- No vascular invasion
- If given, no RAI uptake outside TB

Intermediate Risk
- Microscopic ETE
- Cervical LN mets
- Aggressive Histology
- Vascular invasion

High Risk
- Macroscopic gross ETE
- Incomplete tumor resection
- Distant Mets
- Inappropriate Tg elevation

Increasing Incidence of Total Thyroidectomy

- Preop U/S showing bilateral nodules
- Preop consultation with Endocrinologist suggesting total and RAI
- Patients perceive fear of recurrence and paper confirmation of negative scan
- Thyroglobulin follow up
- Follow up with repeated U/S showing tiny nodules (Hashimoto's)
- Dr. Google

Extent of tracheal involvement
Good judgment comes from experience; and experience comes from bad judgment!

**Clinically Negative Intraoperative Management**
- Look for TE groove nodes
- Look for sup mediastinal nodes
- Look for jugular nodes
- If any of these enlarged - do the respective clearance
- Central compartment clearance

**Clinically Positive Intraoperative Management**
- “Berry picking” not recommended, higher incidence of neck recurrence
- Modified neck dissection
- Preserving SCM
  - IJV
  - Accessory nerve
  - Submandibular sal gland (Level I)
- RND - rarely indicated

Management of Neck in Thyroid Cancer

<table>
<thead>
<tr>
<th>Ultrasound</th>
<th>Ultrasound FNA</th>
<th>Thyroglobulin follow-up</th>
<th>Clinical follow-up</th>
<th>Central compartment ND</th>
</tr>
</thead>
<tbody>
<tr>
<td>No clinical finding</td>
<td>Rising TGB</td>
<td>No prognostic implication</td>
<td>Only therapeutic ND</td>
<td>Elective ND</td>
</tr>
</tbody>
</table>
Radical ND |
Patients with multiple positive neck nodes from papillary ca may have additional paratracheal, sup mediastinal, or lateral neck nodes, and may remain with persistent mild hyperthyroglobulinemia. We may not achieve biochemical cure.

**Shaha, 2004**

---

**Thyrogen - Recombinant TSH**

- No need to make patients hypothyroid
- Can be done post-op/follow-up
- Low iodine diet
- Ease of treating with RAI

---

**MSKCC Experience**

**Traditional thyroid hormone withdrawal**

(Prior to 1999)

- Levothyroxine Withdrawal
- rhTSH Stimulation

(1999-2000)
ADJUSTED CLINICAL OUTCOMES FROM
THYROIDECTOMY
BY SURGEON VOLUME GROUP

<table>
<thead>
<tr>
<th></th>
<th>Surgeon Volume Groups</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A 1-9 cases</td>
</tr>
<tr>
<td>Complication rate Unadjusted (%)</td>
<td>10.1</td>
</tr>
<tr>
<td>Length of stay Unadjusted (days)</td>
<td>2.8</td>
</tr>
</tbody>
</table>


Medical malpractice and the thyroid gland

- Jury verdict reviews from 1987-2000 were obtained from a computerized database
- 30 suits from 9 states occurred
- Plaintiffs were women in 80% of the cases, with a mean age of 41
- 50% of pts (15 of 30) had a bad outcome, (9 of 30 dead, 4 of 30 with neurologic deficits, 1 blind & 1 alive wi cancer)
- 30% alleged surgical complications, most RLN injury, and 75% of cancer pts alleged a delay, either through falsely negative biopsies or no biopsy taken
- Respiratory events occurred in 43% and frequently resulted in large awards

Thyroidectomy
RLN Injury

- In the TE groove (nodal dissection)
- At the crossing of the inferior thyroid artery
- Near the ligament of Berry – small vessels
- Traversing: Bipolar cautery

Technique of Thyroidectomy

Dissection of the superior thyroid vessels parallel to the vessels on surface of thyroid & exposure of SLN

Amelita Galli-Curci

Shaha A. J Surg Onc. 1993
Guidelines to Parathyroid Preservation

- Good exposure, light, hemostasis
- Recognition of parathyroids - color, size, location
- Meticulous dissection
- Identify and protect the blood supply to parathyroids
- Ligate inferior thyroid artery close to thyroid
- Autotransplantation

Thyroid Cancer

<table>
<thead>
<tr>
<th>Category</th>
<th>20 yr survival</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good</td>
<td>99%</td>
<td>Lobectomy. Appropriate surgery based on extent of disease.</td>
</tr>
<tr>
<td>Low</td>
<td>85%</td>
<td>Total thyroidectomy. Select extent of thyroidectomy based on extent of disease. RAI in select cases.</td>
</tr>
<tr>
<td>Intermediate</td>
<td>57%</td>
<td>Total thyroidectomy. RAI. Ext RT in selected cases.</td>
</tr>
<tr>
<td>Ugly</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Complications

- Institutional philosophy
- Surgeon
- Endocrinologist
- Nuclear Physician

Thyroid ca patient (Internet)

THE BOSS!
Thyroid Cancer

Call: 1-800-ARSHAHA